

Georgia Geological Survey well no. 311h

Thomas County, Georgia, drilling permit no. 87

Thomas Durham Co., I. E. W. Sedgewick no. 1 (and no. 1A)

TD 6670 feet; datum Kelly bushing, 279 feet above sea level

logged by Katherine Lee Avary, Emory University student. Completed
February 17, 1976

* at the depth figure indicates a microfossil slide prepared and included
in the sample envelope.

GG5 3114

Thomas County

lithologic summary

samples 0-200 feet are from well no. 1

samples from 360 to 6672 are from well no. 1A

This well has been somewhat difficult to work with due to the large gaps where samples are missing. If information was available from cores for intervals where there are no samples, this has been included on the lithologic log as obtained from the core analysis results of Core Laboratories, Inc.

0-70	surface residuum
70-80	yellowish gray sand
80-110	pinkish gray sandy, dolomitic limestone
110-200	white limestone
200-320	no samples
320-360	pale yellowish brown dolomite
360-1694	no samples
1694-1710	yellowish gray sand
1710-1760	sand as above with fossil fragments
1760-2050	no samples
2050-2110	lime cemented sandstone
2110-2130	light gray, limy, silty sand
2130-3150	medium light gray claystone
3150-3230	no cuttings- cores
3230-3420	very light gray limy sandstone
3420-3440	gray, limy claystone
3440-3460	limy sandstone
3460-3470	gray, limy claystone
3470-3520	limy sandstone

3520-3670 gray, limy claystone
3670-3680 limy sandstone
3683-3703 core: sandy shale
3703-3740 limy sandstone
3740-3760 core: sandy shale and shaly sand
3760-3790 light gray, ferruginous claystone
3790-3860 very pale orange sand
3860-3870 medium light gray, limy claystone
3870-3990 very pale orange sand
3990-4010 medium light gray, limy claystone
4010-4340 very pale orange sand
4340-4790 alternating grayish red claystone and very pale orange sand
4790-4890 very pale orange sand
4890-4900 grayish red claystone
4900-5070 very pale orange sand
5070-5080 grayish red claystone
5080-5230 very pale orange sand
5230-5240 grayish red claystone
5240-5530 very pale orange sand
5530-5720 grayish red siltstone
5720-5930 very pale orange sand
5930-6000 grayish red claystone (or siltstone)
6000-6010 no sample
6010-6030 very pale orange sand
6030-6110 alternating medium gray and grayish red claystone

6110-6150 very pale orange sand.
6150-6210 grayish red claystone
6210-6360 very pale orange sand
6360-6510 moderate reddish brown siltstone
6510 bottom: indurated pale yellowish brown sandstone

The grayish red claystone and gray claystone (medium and light gray) could both probably be classified as shale. Its hard to differentiate between claystone and siltstone. The moderate reddish brown siltstone is distinctive from the two claystones from farther up the well.

The criteria used for determining the "basement" or pre-Cretaceous material in this well is the first appearance of lithified feldspathic sandstone at 6510. This is a distinctive lithology, well indurated, and quite a contrast from the loose sand and poorly cemented sandstone in the upper portions of the well.

- 0-30 This is how the first sample is 1 30-ft interval, not 10' intervals. Surface residuum. Leached, weathered-the pieces that are aggregated become disaggregated easily in water. 2 different colors of sand- pale yellowish orange 10YR8/6 and light brown 5YR5/6, fine grained (1/8-1/4 mm) quartz sand -100%
Probably iron stained quartz grains, angular, well sorted- also several large aggregated pieces of sandstone in addition to loose sand- These are what become disaggregated easily in water (also in HCl), probably pretty porous
- 30-40 Leached, easily disaggregated in water, poorly indurated sand- cleaner than above- yellowish gray 5Y8/1 and some dark yellowish orange 10YR6/6, and sandstone. Gray is colorless and milky quartz. poorly indurated, iron stained- few small pieces, hematite.
Both sands are fine grained and with some fine grained sized tiny particles of clay mixed with them to form the aggregates
- 40-50 Same as above.
- 50-60 Same as above. with some moderate orange pink 10R7/4 sand in one of the aggregated pieces
- 60-70 Mostly colorless quartz, yellowish gray 5Y8/1 sand and sandstone-easily disaggregated, still well sorted, fine grained (1/8-1/4 mm), colorless and milky quartz.
- 70-80 Same. This is the best indurated so far-probably silica cemented-it is not lime cement and the cement is white. Fine grained (1/8-1/4 mm) well sorted sandstone-a few pieces of wood-off the drilling platform maybe?
-
- 80-90 1 piece of lignite, 1 piece of amphibole.
Fresh, hard pinkish gray 5YR8/1 sandy (10%) dolomitic (15%) limestone. Sand grains are colorless quartz, fine grained (1/8-1/4 mm). limestone is cryptocrystalline.
- 90-100 Same as above, sandy, dolomitic limestone
- 100-110* As above. 1 fossil- a very small gastropod (?) -maybe been glauconitized. A few pieces of the limestone have conchoidal fracture; 2 pieces of hematite.
- 110-120 Same sandy dolomitic limestone as above-85% of sample. First appearance of white N9 limestone, not dolomitic at all- one piece of wood-pretty recent looking-probably caved in.
-
- 120-130 Fresh, hard, white N9. Chalky looking, megascopically, cryptocrystalline limestone. slightly fossiliferous (pelecypod shell fragments- too large for a microfossil slide) a few pieces of microcoquina.
- 130-140* Same as above, white limestone, with more microcoquina and a few pieces of sugary limestone, a few pieces of multicolored chert?
- 140-150* Same as above. 1 piece of chert- some type of fossil-an uncoiled gastropod?, partial horseshoe shaped thing, 1 piece of hematite.

- 150-160* Same as above-white limestone and microcoquina-several microfossils on a big chunk of limestone, 1 microfossil picked out-looks like an ostracode.
some sugary limestone.
- 160-170 Same white limestone as above 1 small piece of pelecypod- more microcoquina.
- 170-180* White limestone as above- pelecypod fragments, 1 piece of light brown 5YR6/4 limy dolomite or dolomitic limestone-different than the white limestone-one piece with some sort of algae or plant material -probably just phosphate.
- 180-190* Same white fossiliferous limestone-microcoquina, pelecypod fragments and other fossil material.
- 190- 200 Same white microcoquinal limestone. One piece of light brown 5YR6/4 limy dolomite or dolomitic limestone?, a few pieces of sugary limestone. gastropod and schizocoral pulled.
- 200-320 No samples, December 22, 1975
- 320-330 Few pieces of cement from the casing of the limestone aquifer above. Fresh, hard, pale yellowish brown 10YR6/2. Vitreous, non porous, microcrystalline dolomite- sugary looking- probably some of the sugary limestone in the above samples is really dolomite.
- 330-340 Same as above
- 340-350 Same as above
- 350-360 Same as above
- 360-1694 No samples December 22, 1975
- 1694-1700 About 50% of the sample is the pale yellowish brown dolomite as above, and the other 50% is colorless, very fine grained (1/16-1/8 mm) sand.
probably a change in lithology with the very fine grained sand being the new lithology.
- 1700-1710 Same as last sample. 50% dolomite, 50% very fine sand with fossil fragments mixed in with the sand.
- 1710-1720 Same as above, but more sand-60%, with fossil fragments mixed in.
- 1720-1730 Fresh, hard, yellowish gray 5Y8/1. slightly phosphatic (very fine grained size pieces), vitreous, well sorted, slightly porous, very fine grained (1/16-1/8 mm) sand. Colorless quartz grains.
- 1730-1740 Same very fine grained sand with a few fossil fragments which are fine grained in size-still tiny pieces of phosphate mixed in also. grains might be a little bigger than the last sample but are still very fine grained.
- 1740-1750 70% very fine grained quartz sand, medium grain size fossil fragments 30% sugary dolomite, pale yellowish brown, as above.

- 1750-1760 Sand and dolomite mixture again- about 25% dolomite. 30% is fossil fragments, small, saw one piece of an echinoid plate-most of the rest unidentifiable chips of CaCO_3 ; 45% of sample fine and medium grained colorless quartz (1/8-1/2 mm) sand. A few pieces of poorly aggregated sand and fossil fragments to make poorly indurated sandstone.
- 1760-2050 No samples, December 22, 1975
There is one sample after the 1750-1760 in the sample box, it is unmarked. It is 100% dolomite.
- 2050-2060* Variety of things.
many pelecypod shell fragments
cement
lime-cemented colorless quartz, loosely aggregated, medium grained
glauconite- 1st in this well- about 5% of the sample
some pieces of metal drill bit
dolomite, a few pieces as above
echinoid spine and one schizocoralla?
- ✓ 2060-2070* First forams. pelecypod shell fragments, echinoids, other fossils, glauconite.
lots of cement and drill bit pieces
dolomite, a few pieces as above
chert, a few pieces, yellowish brown 10YR6/2 could be quartz.
- ✓ 2070-2080* Pretty trashy sample, with two big chunks of rubber, paint chips, a lot of metal pieces from the drill bit, a mystery substance- see slide- dark brown and fibrous-probably wood-doesn't belong.
Fresh, hard, silica cemented colorless quartz, glauconite, fossil fragments, pelecypod shells, some corals and various other pieces, a few forams.
also pieces of very pale orange 10YR 8/2 conchoidally fracture
chert is the dominant lithology; probably silica cemented sand but not sure. silica cemented colorless quartz is medium grained (1/4-1/2 mm) well sorted, slightly porous. some cement
- ✓ 2080-2090* Fossils, mini-pelecypods, forams, corals?
glauconite, and silica cemented colorless quartz.
This sample really trashy also. 2 pieces of rubber (30% of total sample), metal drill pieces, some more of the mystery stuff above- some sort of strange gray flat, thin pieces-don't break easily but are brittle-metallic, reacts violently in HCl and leaves black residue-probably something that doesn't belong in the sample
cement
chert (metal pieces thrown out of sample)
- ✓ 2090-2100 Really trashy samples like the last few. drill bit fragments-about 30% of the whole sample, also cellophane, rubber, and other junk.
glauconite, silica cemented colorless quartz sand and loose colorless quartz- fine grained (1/8-1/4 mm), dirty looking sand
some chert pieces
fossils-pelecypods, forams, and others-mystery substance from above is probably wood or something that doesn't belong.

- 2100-2110 Still pretty trashy sample. metal drill bit fragments, mystery junk, etc.
glauconite, limestone cemented fine grained (1/8-1/4 mm) sandstone is the dominant lithology- not as much variation in this sample a few fossil fragments- nothing new
limestone cemented sandstone has colorless quartz.
- 2110-2120 Fresh, brittle, light gray N7. Slightly hematitic and limonitic, (2-3 pieces), slightly fossiliferous (few fragments of megafossils- nothing new), limy (15%) silty (20%) sandstone.
still pretty trashy-metal fragments, mystery junk, etc.
- ✓ 2120-2130 * Same limy silty sand as above, few fossils-forams and others- may have caved in from above.
- 2130-2140 Fresh, brittle, medium light gray N6. Dull, non porous, limy (10%) claystone. big pieces of claystone. still lots of drill bit pieces, but less of the other trash than in awhile.
- 2140-2150 Same as last sample, medium light gray limy claystone, still some drill bit fragments.
- 2150-2160 Same as above- still a lot of trash drill bit fragments and paint chips.
- 2160-2170 Fresh, hard, light medium gray N6. Limy (15%) silty (20%) sandstone--a few grains of glauconite in the sandstone. Sand grains are well sorted, fine grained (1/8-1/4 mm) and some medium light gray silstone.
- 2170-2180 Several different things in this sample--can't tell which is the true lithology
medium gray limy claystone-25%
dusky red 10R2/2 iron cemented sandstone, well indurated- 10%
sugary, limy (15%) sandstone-pale yellowish brown
10YR 6/2- 65%, fresh, hard
- since claystone is above and below these three messy samples, I believe that ~~xxxx~~ it is probably the true lithology of the three samples as well still lots of metal drill bit fragments
- 2180-2190 Same hodgepodge as last sample.
ferruginous sandstone -10%; gray claystone -5%; sugary limy sandstone-85 %
- 2190-2200 Same assortment as above
ferruginous sandstone 5%; gray claystone 30%; sugary limy sandstone 65%
- 2200-2210 medium light gray N6 claystone-100%
there is some sugary sandstone (5%) like above- probably cave and 2 pieces of ferruginous sandstone.
- 2210-2220 medium light gray claystone 100%

- 2220-2230 Same medium light gray claystone as above, 100%; with a few pieces of sugary sandstone.
- 2230-2240 Same as above, medium light gray limy claystone-100% purest sample in a long time
- 2240-2250 Same as above, medium light gray N6 limy claystone 90%; 10% sugary limestone-probably cave
- 2250-2260 Same as above; 95% claystone and 5% sugary sandstone and a few fossil fragments-probably cave
- 2260-2270 No change- same light gray limy claystone
- 2270-2280* No change, same medium gray limy claystone; some strange looking filled in fossil?
- 2280-2290 Same as above including same mystery fossil
- 2290-2300 Same as above-same mystery fossil
- 2300-2310 Same as above, including fossil
- 2310-2320 Same as above-100% medium light gray N6 limy claystone
- 2320-2330 No change fewer mystery fossils
- 2330-2340 no change, no more fossils
- 2340-2350 No change
- 2350-2360 No change, fossils again
- 2350-2370 No change- one fossil found in rock matrix and one foram- probably cave. This claystone is rather well indurated, much better indurated than that I've seen in the 2 other wells I have logged.
- 2370-2380 Same as above, with one mystery fossil piece
- 2380-2390 Same as above
- 2390-2400 Same as above- rather large pieces of claystone. largest is 10x18x2 mm
- 2400-2410 Same as above
- 2410-2420 Same as above
- 2420-2430 Same
- 2430-2440 Same
- 2440-2450 Same

- 2450-2460 Same as above- medium light gray N6 limy claystone with the mystery fossil in the matrix and loose
- 2460-2470 Same as above, limy medium light gray N6 claystone, a few pieces of mystery fossil- also some sugary sandstone and some other stuff that's probably cave- one piece of ferruginous sandstone
- 2470-2480 Same as above
- 2480-2490 Same as above with a few mystery fossil fragments loose and in matrix, also 1 piece of hematite and a few pieces of sugary sandstone-probably cave.
- 2490-2500 Same as above
- 2500-2510 very small sample
same claystone as above; 1 piece of ferruginous sandstone probably cave; 2 pieces of sugary sandstone
- 2510-2520 Same
- 2520-2530 Same- 1 foram, probably cave; 1 piece of ferruginous sandstone
- 2530-2540 Same as above; same mystery fossil, 2 pieces have pyrite on them
- 2540-2550 Same claystone
- S
UK 2550-2560 Same claystone
- 2560-2570 same claystone as above, with 25% sugary limy (30%) sandstone--either cave or a new lithology
- 2570-2580 Like last sample. 75% same old claystone and 25% limy sandstone; same fossils
- 2580-2590* Same as above also two forams and a few fossils; cave or in place?
- 2590-2600 Same claystone-sugary limy sandstone mixture as last sample. could be a new lithology, viz claystone looks like it would cave easily. E log would sure be useful.
- 2600-2610 Same mixture as last three samples 75% claystone and 25% sugary limy sandstone; some pieces of the same old mystery fossil. still not sure if this is a new lithology or cave or what?

- 2610-2620 Same mixture as last four samples-75% claystone and 25% limy sandstone ; 1 piece of lignite few pieces of the same old fossil
- 2620-2630 same claystone and limy sandstone as above but only 15% sandstone.
- 2630-2640 As above
- 2640-2650 As above, 10% sandstone, 90% claystone
- 2650-2660 As above, 5% sandstone, 95% claystone
- ✓2660-2670* Same as above- a few new forams and some other fossils-aragonite crystals from oyster shells and oyster shell fragments.
- 2670-2680 very little limy sandstone, rest is claystone. few aragonite crystals from the oyster shells
- 2680-2690 As above
- 2690-2700 As above
- ~~2700-2710~~ 5% limy sandstone, rest claystone. few aragonite crystals from oyster shells and a few forams, and same mystery fossil
- ~~2710-2720~~ Same as above
- ~~2720-2730~~ As above
- ~~2730-2740~~ As above
- 2740-2750 Same claystone with a few pieces of limy sandstone with some aragonite crystals and some other fossil fragments
- 2750-2760 As above
- 2760-2770 As above
- 2770-2780 As above
- 2780-2790 As above
- 2790-2800 Same claystone with 10% other stuff- mostly limy sandstone pieces with some calcium carbonate chips, some aragonite crystals and some other fossil fragments.
- ✓2800-2810 Same claystone as above with 15% other stuff- 2 pieces of limonite and hematite, some miscellaneous fossil fragments and some oyster shell aragonite crystals 2 forams, not new-probably cave, few pieces of mystery fossil, few pieces of light brown dolomite-probably cave. very small sample.

- ✓2810-2820* Same as last sample, claystone, with a few pieces of light brown dolomite-probably cave, forams, same old mystery fossil, a few pieces of pyrite, hematite and limonite, and a few aragonite crystals from oyster shells.
- ✓2820-2830* very small sample
same old gray claystone with a few pieces of dolomite and some quartz pieces-probably cave. few forams and same old mystery fossil a few pieces of hematite, some pyrite coated pieces, and aragonite crystals from oyster shells.
- ✓2830-2840* Same old gray claystone with a few pieces of light brown dolomite and some pyrite coated pieces, few pieces of hematite, aragonite crystals from oyster shells, some forams and some old mystery fossil.
- 2840-2850 small sample
same old gray claystone, lots of aragonite crystals-about 50% of sample, a few pieces of hematite, several pyrite coated pieces
light brown dolomite is really moderate yellow brown 10YR 5/4
- 2850-2860 extremely small sample
Same old claystone, aragonite crystals, same old mystery fossil, 1 piece of hematite, a few pieces of pyrite, about 50% aragonite crystals but with this size sample it is hard to say if this is accurate representation
- 2860-2870* Same old gray claystone, about 35% aragonite crystals- 2 forams, one may be old, other long one-a few pieces of pyrite, limonite and hematite
- 2870-2880 Same old gray claystone, large pieces in this sample-largest is 8x30 mm, a few pieces of light brown dolomite, lots of aragonite crystals-20% of sample, a few pieces of pyrite, limonite, and hematite.
- 2880-2890* Same old claystone, big pieces, lots of aragonite crystals-20% of sample, a few pieces of pyrite, one ostracode?
- 2890-2900 Same old claystone, big pieces, just a few aragonite crystals, few pieces of pyrite, limonite, hematite, few pieces of same old mystery fossil in the rock.
- 2900-2910 Same old claystone, big pieces, no aragonite crystals- compared to some of the above samples, like 2850-2860; a few pieces of moderate yellowish brown 10YR5/4 dolomite; a few miscellaneous fossil fragments and pieces of CaCO₃
- 2910-2920* Same old claystone, large pieces, almost 100% in this sample-a few pieces of dolomite and CaCO₃-probably cave.
- 2920-2930 Same claystone, very large pieces, almost 100%, a few pieces of dolomite and calcite.
- 2930-2940 As above
- ✓2940-2950 As above, 1 piece of hematite, 1 foram-old-probably cave.

- 2950-2960 Same claystone, very large pieces, 100% except for very few pieces of CaCO_3 and 1 piece of hematite
- 2960-2970 Same claystone, large pieces, not as large as above, almost 100% claystone-a few pieces of aragonite crystals, 1 piece of hematite, few miscellaneous fossil fragments, 1 piece of maybe a nubbin for an echinoid spine attachment?
- 2970-2980 As above, few aragonite crystals
- 2980-2990 As above, a few aragonite crystals, some coated with pyrite
- 2990-3000 As above, some hematite
- 3000-3010 Same claystone as above, large pieces-with a few grains of quartz, 1 piece oyster shell, 1 piece pyrite, 1 piece glauconite-cave?
- 3010-3020 Same claystone as above, pyrite, 1 piece extremely well rounded quartz, colorless
- 3020-3030 Same claystone, large pieces, few aragonite crystals, few fossil fragments and pieces of CaCO_3 .
- 3030-3040 Same claystone, pyritic
- 3040-3050 Same claystone, pyritic, aragonite, limonite and hematite
- 3050-3060 As above
- 3060-3070 As above, a few pieces of light brown dolomite
- 3070-3080* Same claystone, big pieces, few pieces with pyrite, some aragonite crystals, few pieces limonite and hematite, forams
- 3080-3090 As above, *Кыфопыка*
- 3090-3100 As above, 1 ostracod, 1 foram
- ~~3100-3110*~~ Same claystone, big pieces, few pieces with pyrite, few aragonite crystals, 1 peanut shaped foram, 1 piece of a bryozoan? ; few grains of well rounded, colorless, fine grained quartz; 1 phosphate pellet.
- ~~3110-3120*~~ As above, ostracodes
- 3120-3130 As above, ostracodes
- 3130-3140 As above, no fossils
- 3140-3150 Same old gray claystone, a few pieces with pyrite coating, a few pieces of limonite and hematite, few aragonite crystals
- 3150-3230 Samples missing December 29, 1975
cores taken

CORE ANALYSIS RESULTS

T. A. DUBIAM - TEXACO INC. Formation
 NO. 1-A I. E. W. SEDGWICK Core Type DIAMOND
 WILDCAT Drilling Fluid
 THOMAS State GEORGIA Elevation Location LAND LOT 89 - LAND DISTRICT 13
 File 2186-0391C
 Date Report 8/15/73
 Analysts JWB

Lithological Abbreviations

DOLONITE-DOL	SANDSTONE SAND	CONGLOMERATE-CONG	SANDY-SDC	FINE-FM	CRYSTALLINE-ALK	BROWN-SBY	FRACTURED SPAC	SLIGHTLY
CHERT-CH	CONGLOMERATE-CONG	POSSIBLE PEASUS-POSS	SHALY-SHY	MEDIUM-MED	GRAIN-GRN	GRAY-GY	LAMINATION-LAM	VERY-V
SPHUM-SYP			LIMY-LMY	COARSE-CSP	GRANULAR-GRNL	WET-WGT	SPY-SPT	WITHIN

Sample No.	DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		INTRP	SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER		

CORE NUMBER 1, 47-72; CUT 25 FEET - RECOVERED 4 FEET.

3147-3172'
47-53
69-72

NO RECOVERY
SH SLY

CORE NUMBER 2, 72-10; CUT 38 FEET - RECOVERED 38 FEET.

3172-3210'

	72-99					*	SH SDY	
1	99-00	3.7	17.9	.5	51.9 (6)		SD SHY NO ODR NO FLU	
2	00-01	35	12.3	.7	75.7 WATER		SD SHY NO ODR NO FLU	
3	01-02	80	20.9	.4	30.7 WATER		SD SHY NO ODR NO FLU	
4	02-03	**	25.3	0.	90.0		SD SHY NO ODR NO FLU	
	03-05					*	SH SDY	
5	05-06	5.2	19.1	0.	84.1 (6)		SD SHY NO ODR NO FLU	
	06-07					*	SH SDY	
6	07-08	1.9	18.3	.5	81.0 (6)		SD SHY NO ODR NO FLU	
7	08-09	55	22.3	.4	33.7 WATER		SD SHY NO ODR NO FLU	
8	09-10	43	24.0	.4	76.7 WATER		SD SHY NO ODR NO FLU	

* NO ANALYSIS BY REQUEST OF CLIENT
 (6) LOW PERMEABILITY
 ** SAMPLE TOO UNCONSOLIDATED TO FORM PERM PLUG.

CORE ANALYSIS RESULTS

T.A. DURHAM - TEXACO INC. Formation _____ File 2125-0391C
 NO. 1-A I.E.W. SEDGWICK Core Type RUBBER SLEEVE Date Report 3/16/73
 WILDCAT Drilling Fluid _____ Analysts JWH
 THOMAS State GEORGIA Elev. _____ Location LAND LOT 89 - LAND DISTRICT 13

Lithological Abbreviations

SD	COLOMITE-DOL CHESTNCH STYRUP-GYP	ANHYDRITE-ANHY CONGLOMERATE CONG FOSSILIFEROUS-FOSS	SANDY-SDY SHALY-SHW LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-SHN GRANULAR-GRNL	BROWN-BRN CLAY-CY UGGY-VGY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHTLY-SL VERY-VY WITH-W/
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Sample No. DEPTH FEET	PERMEABILITY MILLIDARCY	POROSITY PERCENT	REGIONAL SATURATION PER CENT PORE		INTRP	SAMPLE DESCRIPTION AND REMARKS
			OIL	TOTAL WATER		

CORE NUMBER 3, 10-30; CUT 20 FEET - RECOVERED 20 FEET.
3210-3230

9	10-11	1.3	23.4	0.	82.7 (6)	SD	LMY NO ODR NO FLU
10	11-12	71	17.8	.5	86.6 WATER	SD	LMY NO ODR NO FLU
11	12-13	113	19.1	1.3	75.3 WATER	SD	LMY NO ODR NO FLU
12	13-14	69	19.5	.9	79.4 WATER	SD	LMY NO ODR NO FLU
	14-16				*	SH	
13	16-17	27	18.2	.5	88.0 WATER	SD	LMY NO ODR NO FLU
14	17-18	60	19.7	.5	90.2 WATER	SD	LMY NO ODR NO FLU
15	18-19	304	20.5	.4	85.1 WATER	SD	LMY NO ODR NO FLU
16	19-20	571	18.1	0.	85.5 WATER	SD	LMY NO ODR NO FLU
17	20-21	205	11.8	0.	84.5 WATER	SD	LMY NO ODR NO FLU
18	21-22	11	17.1	0.	87.1 WATER	SD	LMY NO ODR NO FLU
19	22-23	120	23.4	0.	87.6 WATER	SD	LMY NO ODR NO FLU
20	23-24	9.0	16.9	.5	87.4 (6)	SD	LMY NO ODR NO FLU
21	24-25	142	17.3	0.	88.9 WATER	SD	LMY NO ODR NO FLU
22	25-26	214	18.1	.5	84.3 WATER	SD	LMY NO ODR NO FLU
23	26-27	937	17.8	.5	83.0 WATER	SD	LMY NO ODR NO FLU
24	27-28	1077	18.9	0.	82.4 WATER	SD	LMY NO ODR NO FLU
25	28-29	877	20.6	0.	87.0 WATER	SD	LMY NO ODR NO FLU
26	29-30	1378	21.1	0.	83.2 WATER	SD	LMY NO ODR NO FLU

* NO ANALYSIS BY REQUEST OF CLIENT
 (6) LOW PERMEABILITY

- 3230-3240 Same old gray claystone, big pieces, lots of oyster shell fragments, few pieces of phosphate, few pieces of limestone cemented colorless quartz new lithology
- 3238 sidewall core: sd, vfg, shy, slty, v calc no odor no flu
- 3240-3250 Lots of oyster shell fragments, limestone cemented colorless quartz grains, fine grained (1/8-1/4 mm) colorless quartz sand grains- few pieces of phosphate ?maybe new lithology? still lots of claystone, gray, big pieces, probably cave-hard to tell because of missing samples.
- 3250-3260 Limestone cemented, fine grained (1/8-1/4 mm) colorless quartz sand with a few pieces of glauconite - few pieces of lignite.
- 3251 sidewall core: sd, vfg, v shy, slty, calc, no odor, no flu
- 3256 sidewall core: sd, fg, sli slty, calc, no odor, no flu
- 3260-3270 Same as last 2 samples, limestone cemented colorless quartz sandstone, with a little glauconite and a few pieces of lignite- still big pieces of gray claystone, probably cave.
- 3270-3280 Fresh, hard, very light gray N8. Slightly glauconitic, vitreous, porous, well sorted, fine grained (1/8-1/4 mm) limestone cemented sand. Slightly lignitic, slightly phosphatic, also large pieces of gray claystone-probably cave
- 3280-3290 As above
- 3290-3300 As above
- 3300-3310 As above, oyster shell fragments
- 3310-3320 As above, lots of lignite- 20% all of a sudden
- 3320-3330 Same as above
- 3330-3340 As above, lignite is 50%, oyster shell fragments with colorless quartz and glauconite cemented onto them.
- 3340-3350* Same as above. limestone cemented sandstone with glauconite; lots of lignite as above-50%; oyster shell fragments, some with quartz on them, few pieces of phosphate, gray claystone-cave.
- 3350-3360 Same mixture as above, 5% glauconite, 40% lignite
- 3360-3370 Same mixture as above. lignite 30%
- 3370-3380 no more lignite--loose sand.
limestone cemented colorless quartz sand with glauconite, oyster shell fragments, 1 shark tooth, little phosphate and lignite.

- 3380-3390 Limestone cemented colorless quartz sand with glauconite, lignite 35%, oyster shell fragments, little phosphate, little pyrite
- 3390-3400 As above, lignite 10%,
- 3400-3410 As above, no lignite, 50% oyster shell fragments
- 3410-3420 As above, shell fragments 40%
- 3420-3430 Fresh, brittle, medium light gray N6. Dull, limy (20%) claystone. This claystone limier than the last and completely disaggregates in HCl, the other only reacts slightly with the majority remaining aggregated.
- 3430-3440 As above, and some of that from above, aragonite crystals and loose quartz grains-all probably cave-this is probably just a thin bed of claystone.
- 3440-3450 change in lithology
limestone cemented colorless quartz sandstone with glauconite; oyster shell fragments-50% of sample. A few pieces of hematite and limonite, slightly pyritic, slightly phosphatic
- 3450-3460 As above, shell fragments 50%; some loose quartz grains, fine grained
- 3460-3470 Big mixture. loose colorless quartz grains (fine grained), phosphate, pyrite, oyster shell fragments (40%) and gray claystone chips-50%. Not sure if claystone is cave, another thin bed, or if sand is cave. Sand could cave easily since its not very firmly cemented, but claystone seems like it could cave easily because its so brittle.
- 3470-3480 A mixture of sandstone with glauconite and claystone like above, but more sandstone and less claystone; lots of oyster shell fragments-30%; probable lithology is sandstone
- 3480-3490 limestone cemented colorless quartz sandstone with glauconite; one piece of mica loose in the sample, first seen in a long time; oyster shell fragments; slightly phosphatic- still gray claystone chips-probably cave, but hard to tell.
- 3490-3500 As above, one shark tooth
- 3500-3510 As above
- 3510-3520 As above
- 3520-3530 change in lithology
medium light gray N6 claystone-100% of this sample; a few pieces of hematite loose in sample, could be cave-can't tell.
- 3530-3540 Same as last sample, some loose quartz in sample.
- 3540-3550 As above. Some limestone cemented sandstone-cave?

- 3380-3390 Limestone cemented colorless quartz sand with glauconite, lignite 35%, oyster shell fragments, little phosphate, little pyrite
- 3390-3400 As above, lignite 10%,
- 3400-3410 As above, no lignite, 50% oyster shell fragments
- 3410-3420 As above, shell fragments 40%
- 3420-3430 Fresh, brittle, medium light gray N6. Dull, limy (20%) claystone. This claystone limier than the last and completely disaggregates in HCl, the other only reacts slightly with the majority remaining aggregated.
- 3430-3440 As above, and some of that from above, aragonite crystals and loose quartz grains-all probably cave-this is probably just a thin bed of claystone.
- 3440-3450 change in lithology
limestone cemented colorless quartz sandstone with glauconite; oyster shell fragments-50% of sample. A few pieces of hematite and limonite, slightly pyritic, slightly phosphatic
- 3450-3460 As above, shell fragments 50%; some loose quartz grains, fine grained
- 3460-3470 Big mixture. loose colorless quartz grains (fine grained), phosphate, pyrite, oyster shell fragments (40%) and gray claystone chips-50%. Not sure if claystone is cave, another thin bed, or if sand is cave. Sand could cave easily since its not very firmly cemented, but claystone seems like it could cave easily because its so brittle.
- 3470-3480 A mixture of sandstone with glauconite and claystone like above, but more sandstone and less claystone; lots of oyster shell fragments-30%; probable lithology is sandstone
- 3480-3490 limestone cemented colorless quartz sandstone with glauconite; one piece of mica loose in the sample, first seen in a long time; oyster shell fragments; slightly phosphatic- still gray claystone chips-probably cave, but hard to tell.
- 3490-3500 As above, one shark tooth
- 3500-3510 As above
- 3510-3520 As above
- 3520-3530 change in lithology
medium light gray N6 claystone-100% of this sample; a few pieces of hematite loose in sample, could be cave-can't tell.
- 3530-3540 Same as last sample, some loose quartz in sample.
- 3540-3550 As above. Some limestone cemented sandstone-cave?

- 3630-3640 Same; 1 piece of hematite or limonite
- 3640-3650 Same; some of the pieces are very large
- 3650-3660 Same claystone as above; few pieces of mica in the claystone and in above also
- 3659 sidewall core: sd, fg, sli slty, v shy, lig, calc, no odor, no flu
- 3660-3670 No change- same claystone 100%; mica flakes in claystone
- 3670-3680* Still gray claystone chips, same as above; limestone cemented colorless quartz (fine grained) sandstone; one possible fossil- not sure what it is; maybe the sandstone is a new lithology but could be cave from above; 20% limestone cemented sandstone
- 3680-3683 Still gray claystone chips, same as above, with some limestone cemented sandstone-less than last sample (about 10%)
- 3683-3703 core samples

- 3550-3560 Same old gray claystone as above; there is some limestone cemented sandstone in the sample but it is probably cave.
- 3560-3570 Same as above
- 3570-3580 Same as above
- 3580-3590 Same as above
- 3590-3600 Same .
- 3600-3610 Same
- 3610-3620 Same; a few oyster shell fragments; 1 piece of lignite .
- 3620-3630 Same; 1 piece of hematite; 1 piece of pyrite; few oyster shell fragments

- 3703-3710 Gray claystone as above, 60% of sample; limestone cemented colorless quartz sand with galuconite-40% of sample; 1 piece of lignite; 1 piece of phosphate.
- 3704 sidewall core: sd, fg, v sli slty, v shy, lig, calc, no odor, no flu
- 3710-3720 Gray claystone as above, 50%; 50% limestone cemented glauconitic quartz sand (glauconite 5%); few pieces of pyrite
- 3720-3730 Claystone chips as above-60%
glauconitic, limy sand, fine grained-40%
oyster shell fragments, some with pyrite
lignite
- 3730-3740 claystone-60%; sandstone-40% ; some oyster shell fragments; some coarse grained, rounded, colorless quartz grains; slightly phosphatic- few pieces loose in the sample.
- 3740-3750 Core

CORE NUMBER 5, 43-53; CUT 18 FEET - RECOVERED 15 FEET.

3740-3760'						
	43-46				*	[SH SDY
	46-52				*	[SD SHY
34	52-53	63	23.1	0.	75.0 WATER	[SD SHY NO ODR NO FL
35	53-54	125	23.3	0.	92.0 WATER	[SD SHY NO ODR NO FL
36	54-55	1.2	18.4	0.	73.7 (6)	[SH SDY NO ODR NO FL
	55-58					NO RECOVERY

* NO ANALYSIS BY REQUEST OF CLIENT
(6) LOW PERMEABILITY

CORE LABORATORIES, INC.
 Petroleum Reservoir Engineering
 DALLAS, TEXAS

CORE ANALYSIS RESULTS

by T.A. DUPHAM - TEXACO INC. Formation _____ File 2106-0391C
 NO. 1-A I.E.W. SEDGWICK Core Type RUBBER SLEEVE Date Report 8/19/73
 WILDCAT Drilling Fluid _____ Analysts APW
 THOMAS State GEORGIA Elev. _____ Location LAND LOT 89 - LAND DISTRICT 13

Lithological Abbreviations

ANHYDRITE ANHY	CONGLOMERATE COND	POSSIBLE/PEROUS POSS	SANDY SDY	SHALY SHY	LIMY LMY	FINE-MED	MEDIUM-MED	COARSE-CSE	CRYSTALLINE-ELN	GRAIN-GRN	GRANULAR-GRNL	BROWN-BRN	GRAY-GRY	VUGGY-VGY	FRACTURED-FRAC	LAMINATED-LAM	STYLOLITIC-STY	SLIGHTLY-LEPTO	VERTICAL-VER	WITH-W
Sample No.	DEPTH	PERMEABILITY	POROSITY	RESIDUAL SATURATION		PER CENT PORE		INTRP	SAMPLE DESCRIPTION AND REMARKS											
	FEET	MILLIDARCY	PERCENT	OIL	TOTAL															

CORE NUMBER 4, 83-03; CUT 20 FEET - RECOVERED 15.5 FEET.

3683 - 3703'

	93-93.5				*	SH	SDY	NO RECOVERY												
	93.5-94				*	SH	SDY	NO RECOVERY												
	94-97.5				*	SH	SDY	NO RECOVERY												
	97.5-99.5				*	SH	SDY	NO RECOVERY												
27	96-97	23	21.4	0.	87.8	WATER	SD	SHY	NO	ODR	NO	FLU								
28	97-98	21	22.1	0.	86.2	WATER	SD	SHY	NO	ODR	NO	FLU								
29	98-99	.43	11.9	0.	91.4	(6)	SD	SHY	NO	ODR	NO	FLU								
30	99-00	39	22.2	0.	73.7	WATER	SD	SHY	NO	ODR	NO	FLU								
31	100-01	34	21.5	0.	86.5	WATER	SD	SHY	NO	ODR	NO	FLU								
32	01-02	.19	12.1	0.	81.7	(6)	SD	SHY	NO	ODR	NO	FLU								
33	102-03	19	19.3	0.	86.4	WATER	SD	SHY	NO	ODR	NO	FLU								

- 3760-3770 Limestone cemented quartz sand-20% of sample; gray claystone some limy as above and some not so limy with a slight pinkish hue to it-70% of sample; the other 10% is a few flakes of mica, a few pieces of pyrite on it, and many pieces of limonite-more than in any sample in a long time; hard to be sure of true lithology
- 3770-3780 Pinkish hued stuff above seems to be a new lithology as this sample is about 60% of same; seems to be limonite mixed with in with this stuff; it doesn't react with HCl but does break apart in it- it also falls apart in water- not very well indurated- fresh, brittle and crumbles readily in liquid. Light gray N7 is the closest color, but not exact match; slightly limonitic (probably what causes the pinkish hue in the rock), dull, claystone -100%; also a few pieces of phosphate and mica loose in the sample.
- 3780-3790 Same ferruginous claystone, brittle, as above, poorly indurated; still lots of limonite gives it the pinkish tint.
- 3790-3800 change in lithology
Fresh, hard, colorless and iron stained and frosted white quartz grains; slightly micaceous-loose in sample. Vitreous, well sorted, porous, very coarse grained (1-2 mm- largest about 1.5 mm) sand; slightly feldspathic; quartz is angular to subangular, equant, anhedral, very coarse grained sand.
- 3800-3810 Same as above, slightly feldspathic sand
- 3810-3820 Still same coarse grained feldspathic sand and also lots of ferruginous claystone with limonite as above; could be interbedded or claystone could be caving
- 3820-3830 This sample is very definitely very coarse grained quartz sand. Fresh, hard, very pale orange 10YR8/2. Slightly feldspathic, vitreous, well sorted, porous, very coarse grained (1-2 mm) sand. Sand is colorless iron stained, polished, frosted, subangular, equant, anhedral quartz
- 3830-3840 Same as above. Still limy claystone, gray and ferruginous- probably cave; 1 piece of phosphate loose in sample
- 3840-3850 As above, a few pieces of mica also
- 3850-3860 As above; more claystone-both kinds, than in last sample-cave?
- 3860-3870 Claystone predominates in this sample, may be thin bedded in the sandstone unit- less limy type of claystone; still ferruginous though; some very coarse grained sand in this sample-but the dominant lithology is the claystone.
- 3870-3880 Most very coarse grained quartz sand, feldspathic, 1 piece of mica; still some large pieces of claystone-cave? few pieces of rose quartz; 1 piece of phosphate.

- 3880-3890 Same very coarse grained feldspathic sand; 1 piece of phosphate loose in sample; still some claystone chips-probably cave.
- 3890-3900 Same; rose quartz in sand
- 3900-3910 Same; claystone has got to be cave
- 3910-3920 Same as above
- 3920-3930 Same as above.
- 3930-3940 Same as above; a few chips of gray claystone
- 3940-3950 Same as above; 15% of sample is claystone
- 3950-3960 Same as above; about 20% gray claystone
- 3960-3970 change in grain size
100% sand; just a few, very tiny claystone chips; not as well sorted as above which was almost all very coarse grained (about 1.5 mm this sand is medium to coarse grained (1/2-1 mm); same colorless, frosted and iron stained quartz, slightly feldspathic
- 3970-3980 Same as above; 2 pieces of phosphate, some of the quartz grains in this sample and the last one have inclusions in them.
- 3980-3990 Same as above; 1 piece of mica; quartz grains with inclusions again. Most of the quartz grains are frosted white, some iron stained, and very few just colorless- subangular to subrounded, equant, elongated; 1 piece of phosphate; 1 piece of pyrite
- 3990-4000 Mixture of claystone and feldspathic sand, about 50/50; some of the claystone pieces are big, but others are almost as small as the quartz grains
- 4000-4010 This sample a mixture like the last one; claystone is large and small chips; slightly feldspathic quartz sand; some aragonite crystals, very probably cave; also some pieces of claystone with fossils in them like I haven't seen in a long time-probably cave
- 4010-4020 60% claystone; 40% sandstone as above
- 4020-4030 As above
- 4030-4040 Good clean sand like 3880-3890; fresh, hard, very pale orange, 10YR8/2. Vitreous, medium sorted, porous, medium to coarse grained (1/4-1 mm) (mostly 1/2-1 mm) sand-100%. Subangular to subround, equant and elongate, frosted, iron stained and colorless quartz.
- 4040-4050 Sand as above except much more angular grains; a few pieces of mica and garnet; quartz has inclusions.

4050-4060 Same as above

4060-4070 Same as above

4070-4080 Same as above; a few pieces of garnet

4080-4090 Same as above

4090-4100 Same as above; a few pieces of garnet

4100-4110 Same as above

4110-4120 Same as above

4120-4130 Same as above

4130-4140 Same as above

4140-4150 Same sand as above

4150-4160 Same sand as above, frosted, colorless or iron stained

4160-4170 Same as above

4170-4180 Same as above

4180-4190 change in predominant grain size
Same colorless quartz, feldspathic sand, but predominant grain size
is smaller-most grains are about 1/2 mm (medium grained)

4190-4200 Same as above, few pieces of garnet and rose quartz

4200-4210 Same as above

4210-4220 Same as above

4220-4230 change in grain size
same sand, but fine to coarse grained, medium sorted, few pieces
of garnet and rose quartz

4230-4240 Same as above

4240-4250 Same nice clean sand as above-fine to coarse grained, few pieces
of garnet and feldspar; a few pieces of claystone (less than 10%)

4250-4260 Mixture of sand above and claystone; a few pieces of loose mica;
a few pieces of hematite and limonite

4260-4270 Mixture of sand as above and claystone; a few pieces of mica,
limonite and hematite; mixed up lithology; some large pieces of
claystone.

- 4270-4280 Same as above
- 4280-4290 Sand as above; little claystone- not as much as last three samples; probably claystone is cave and sand is the true lithology; a few pieces of mica; still inclusions in the quartz grains
- 4290-4300 Same sand as above and some pieces of claystone; sand is probably the dominant lithology; a few pieces of mica loose in the sample; inclusions in the quartz grains; a few pieces of feldspar
- 4300-4310 Mixture of loose sand grains, claystone chips and grayish red 10R4/2 micaceous, ferruginous sandstone. This sandstone is really ferruginous claystone. The red stuff is not too well indurated and dissolves easily in water and HCl; only about 15% of the sample is the red stuff, mostly hematite, about 35% claystone and 50% loose sand; mica flakes are loose also; a few pieces of garnet, obsidian.
- 4310-4320 Same mixture as last sample, red sandstone, loose sand grains, and claystone chips; not sure which is true lithology; same percentage as above
- 4320-4330 Same mixture as last two samples; still lots of claystone, loose quartz sand grains, mostly coarse grain size, subangular to sub-round; and some red sandstone but not as much as in the last two samples, about 5%; 45% sand; 50% claystone.
- dominant lithology of these samples appears to be interbedded claystone or shale, from the electric log; the sand might be a conglomerate
- 4330-4340 More red ^{clay} sandstone than in any of the samples so far-20% of sample. Red sandstone is micaceous, very fine grained (1/16-1/8 mm); about 65% loose quartz grains; about 15% claystone chips, some pretty big. This might be a true red sandstone lithology, but not sure.
- 4340-4350 Mixture as above, but red sandstone seems to be becoming more and more dominant-about 30% of this sample; 15% claystone; 55% loose quartz sand.
- 4350-4360 Mixture as above; 5% red sandstone; 5% claystone; 90% loose sand, rather angular-perhaps this indicates a conglomerate as seen in the last well logged (GGS 3127)- would never have identified that conglomerate without the core sample which would be useful here. Red sandstone was part of conglomerate pebbles and hence its presence and that of angular quartz grains could be explained here.
- 4360-4370 Mostly angular quartz grains- few pieces, less than 5% red sandstone.

- 4370-4380 dominant lithology change
Lots of claystone in this sample-probably thin bed mixed in with the sand; also still some red sandstone and loose quartz grains; quartz grains still angular- could be ground up conglomerate pieces; claystone is dominant-could be a thin bed.
- 4380-4390 Claystone most dominant lithology; also loose quartz grains, mica, and some pieces of red sandstone-ground up conglomerate; 60% claystone; 40% sand and sandstone.
- 4390-4400 Less claystone than last sample- mostly sand and sandstone-70%. claystone is 30%. looks like ground up conglomerate still; a few pieces of garnet
- 4400-4410 Mostly claystone this sample-60%; sand and red sandstone 40%; quartz grains still angular- ground up conglomerate?
- 4410-4420 This sample mostly sand and sandstone (probably ground up conglomerate) 60% ; 40% claystone; a few old fossils and cave; claystone could be cave or a thin bed
- 4420-4430 Claystone 55%; sand and sandstone 45%; a few oyster shell fragments
- 4430-4440 55% claystone; 45% sand and sandstone; one piece of phosphate
- 4440-4450 60% claystone; 40% sand and sandstone; one piece of pyrite; 1 piece of phosphate; a few oyster shell fragments- cave; some limestone cemented colorless quartz and glauconite-cave?
- 4450-4460 More red sandstone than any samples in quite a while, about 50% red sandstone (claystone); 10% loose quartz-not as much as has been in recent samples and the remaining 40% is gray claystone-cave?. Could be--these last 200 feet are very confusing samples--I'm really uncertain about any of the true lithologies without an electric log.
- 4460-4470 Good clean sand- 1st unconfusing sample in a while- nice, obvious lithology. Angular, muddy sand like above at 4240- could be ground up conglomerate:. Well sorted, coarse grained (1/2-1 mm) quartz, iron stained, frosted or colorless, slightly feldspathic; some pieces loose in sample
- 4470-4480 Same mess as above (except in the last sample); a lot of red sandstone - about 45%; gray claystone about 45% and about 10% loose grains.
- 4480-4490 This sample obviously red claystone dominate in sample-55%; 30% is quartz sand grains- mostly colorless and some iron stained; a few pieces of mica.
- 4490-4500 Same mixture, red shale or claystone predominates-40%; gray claystone 35% ; quartz sand-25%

- 4500-4510 This sample obvious lithology-red claystone, slightly micaceous, poorly indurated (disaggregates in water and HCl easily); fresh, soft, grayish red 10YR4/2. Slightly micaceous, dull, ferruginous, claystone 100%
- 4510-4520 Same as above
- 4520-4530 Same as above
- 4530-4540 Same as above; a few pieces of gray claystone-probably cave
- 4540-4550 Same as above; there are some pieces of gray claystone and some colorless quartz, frosted and iron stained sand grains-probably cave.
- 4550-4560 Dominant lithology in this sample looks nice. Quartz sand grains, angular, mostly iron stained; is some of both kinds of claystone (red and gray)-probably cave
- 4560-4570 Quartz sand grains seem to be the dominant lithology in this sample. A few pieces of loosely cemented quartz grains (like those ones loose in sample), ferruginous cement, not well indurated-disaggregates in water very easily; some pieces of red and gray claystone also-both probably cave
- 4570-4580 Loose quartz sand grains is the dominant lithology here-angular, coarse grained, iron stained, colorless or frosted; some claystone, red and gray-probably cave (log looks like claystone)
- 4580-4590 Angular quartz grains, frosted, iron stained; and pieces of red claystone- could be ground up conglomerate; mica in the claystone and loose in the sample (log says claystone)
- 4590-4600 Angular quartz grains and red claystone; micaceous; some of the quartz grains have inclusions- ground up conglomerate? (log says claystone)
- 4600-4610 Same as above
- 4610-4620 Same as above; one piece of phosphate
- all three of the above samples look like quartz sand megascopically
- 4620-4630 Same as above. Dominant lithology probably quartz sand, but there are some big pieces of claystone; mica loose in the sample and in the claystone
- 4630-4640 As above
- 4640-4650 Same as above
- 4650-4660 Same as above
- 4660-4670 Same as above; this and the above samples have pieces of green mica; less than 5% is claystone pieces.

- 4670-4680 Same mixture as last sample-angular quartz sand grains and red micaceous claystone- could be ground up conglomerate; dominant lithology looks like quartz sand grains; most of the quartz sand grains (if they are grains) are coarse grained (1/2-1 mm) and most are 1 mm)
- 4680-4690 Same as above; pieces of red quartzite, grayish red 10R4/2 is further evidence of ground up conglomerate; dominant lithology is angular quartz grains
- 4690-4700 Same mixture as above; most of the pieces are ground up quartzite like the last sample; dominant lithology seems to be quartz sand grain
- 4700-4710 Same as last two samples. Angular quartz sand; red micaceous claystone, and grayish red quartzite; dominant lithology quartz sand grains.
- 4710-4720 Same as above.
- 4720-4730 Same as above. Angular, coarse grained sand, frosted and iron stained and micaceous, red, brittle claystone and a few pieces of ground up quartzite
- 4730-4740 Same as above except no quartzite chips and much cleaner (whiter) looking sand; not as much iron staining as in last sample.
- 4740-4750 Like last sample- cleaner sand grains, not as much iron staining; few pieces of micaceous red claystone; 1 piece of garnet (or maybe obsidian?)
- 4750-4760 Small sample
Same mixture as above
- 4760-4770 Same as above. Not as clean a sample as the last; lots of micaceous red claystone chips and some gray claystone chips-cave?
- 4770-4780 Same mixture; angular quartz grains and micaceous red claystone. Looks like the last sample of this claystone-quartz grains mixture- next sample is nice claensand- so may be the end of ground up conglomerate or whatever.
- 4780-4790 Fresh, hard, very pale orange 10YR8/2. Slightly feldspathic, slightly micaceous, a few pieces of garnet, polished, well sorted, subangular, colorless, frosted or iron stained porous, coarse grained (1/2-1 mm) quartz sand (100%) These quartz grains are less angular, cleaner (more colorless, less iron stained) and have less grains with inclusions in them- these could be cave
- 4790-4800 Like last sample, nice clean quartz sand; slightly feldspathic, a few pieces of garnet

- 4800-4810 Like above, some rose quartz
- 4810-4820 As above
- 4820-4830 Same as last three samples. Sand, slightly feldspathic, few pieces of garnet, rose quartz; medium sorted, fine to coarse grained, frosted, colorless and iron stained quartz sand. A few large pieces of gray and red claystone-probably cave.
- 4830-4840 Sand, as above
- 4840-4850 Same as above
- 4850-4860 Same as above; one piece of chert, two toned- yellow and orange
- 4860-4870 not recorded
- 4870-4880 Same as above
- 4880-4890 Same as above; a few more chert pieces
- 4890-4900 1 piece of obsidian; a messy mixture; feldspar, micaceous red claystone (or shale), limy gray claystone (10% limy), and loose angular quartz sand grains, coarse grained; few pieces of mica loose in sample; sudden change in lithology could be explained by a change of the drill bit causing much cave of the gray and red claystone. log says claystone; grayish red claystone probably dominant; only a few quartz grains with inclusions
- 4900-4910 1 piece of rose quartz; mixture like last sample ; micaceous red claystone, gray claystone, and angular, coarse grained quartz; few of the quartz grains have inclusions; few oyster shell fragments.
- 4910-4920 1 piece of rose quartz; mixture of limy gray claystone and micaceous red claystone, and angular, coarse grained quartz sand, slightly feldspathic.
- 4920-4930 Same as above.
- 4930-4940 Angular quartz, more than in last sample, less of both the red and gray claystone, slightly feldspathic; large pieces of claystone
- 4940-4950 As above; quartz sand is dominant.
- 4950-4960 change in grain size
Fresh, hard, very pale orange 10YR8/2. polished smooth, well sorted, slightly porous, medium grained (1/4-1/2 mm) quartz sand-100%
- 4960-4970 Same as above, some garnet or obsidian
- 4970-4980 Same as above
- 4980-4990 Same as above
- 4990-5000 Same as above

- 5000-5010 Fresh, hard, very pale orange 10YR8/2. Polished smooth, slightly feldspathic, few pieces of garnet and rose quartz, few pieces of obsidian, medium sorted, slightly porous, fine to coarse grained (1/8-1 mm) sand. Subangular to subrounded, colorless or frosted, very little iron stained.
- 5010-5020 Same as above, obsidian
- 5020-5030 Same as above, obsidian
- 5030-5040 Same as above, obsidian
- 5040-5050 Same as above, obsidian
- 5050-5060 Same as above, obsidian
- 5060-5070 One piece of orange chert like a while back, otherwise same as above
- 5070-5080 Sand as above; also gray, slightly limy claystone and red micaceous claystone as seen earlier. Not sure if this is a new lithology; clay about 75% of sample; sand about 25%; red claystone dominant.
- 5080-5090 Same mixture of claystone as above, with more sand-35%
- 5090-5100 Back to sand as the dominant lithology; sand same as above; a few chips of claystone
- 5100-5110 Sand as above; 1 piece of orange chert, few pieces of feldspar; micaceous; still some claystone-cave
- 5110-5120 Sand, as above; fresh, hard, very pale orange 10YR 8/2. Slightly feldspathic, a few pieces of rose quartz, medium sorted, fine to coarse grained sand. Subangular to subrounded, frosted and colorless, only a little with iron staining, quartz.
- 5120-5130 Sand seems like the dominant lithology. as above
- 5130-5140 Sand as above, some claystone chips-cave?; a few pieces of lime cemented colorless quartz
- 5140-5150 small sample.
sand as above, with about 5% limy colorless sandstone
- 5150-5160 Sand as above, with about 10% limy sandstone
- 5160-5170 Same colorless quartz sand with some limy sandstone-about 10%; slightly feldspathic; feldspar is weathered- clayey- calcareous but leaves a residue of clay after acid treatment; looks like bauxite.

- 5170-5180 Same as above
- 5180-5190 Same as above, some of the feldspar unweathered
- 5190-5200 Same as above; 1 piece of reddish orange chert; few pieces of mica; weathered and unweathered feldspar; some limy sandstone
- 5200-5210 Same sand as above; 1 piece of rose quartz; more fine grained than last samples; weathered and unweathered feldspar; some limy sandstone
- 5210-5220 Same sand as above; 20% limy sandstone--could be a new lithology; 1 piece of rose quartz; weathered and unweathered feldspar, or what could be weathered, or clayey limestone or limy claystone not sure which.
- 5220-5230 Good clean sand, no limy sandstone at all; fresh, hard, very pale orange 10YR 8/2, well sorted, slightly porous, coarse grained (1/2-1 mm), slightly feldspathic-weathered and unweathered; 1 piece of rounded brown chert; few flakes of mica loose in the sample
- 5230-5240 Micaceous, grayish red claystone seems to be the dominant lithology here; still some quartz sand and gray claystone
- 5240-5250 Sand, as 5220-30, unweathered feldspar
- 5250-5260 Same as last sample except sand is medium sorted, fine to coarse grained (1/8-1 mm), slightly feldspathic, a few pieces of rose quartz; colorless and frosted, subrounded quartz grains.
- 5260-5270 Same sand as above
- 5270-5280 Same as above; few pieces of mica loose in the sample; few pieces of clayey limestone or (weathered feldspar or whatever) like above.
- 5280-5290 Same sand as above.
- 5290-5300 Same as above; few pieces of garnet or some dark shiny heavy mineral; a few of the quartz grains with inclusions
- 5300-5310 Same as sand above; still a few pieces of silty limestone, less than 5%, probably cave.
- 5310-5320 change in the lithology-something's going on here! not sure what. big change in E log. few mica flakes, quartz grains. Quartz grains are very angular and frosted, some pieces of red claystone and gray claystone- 40%; sand 60%; red claystone micaceous
- 5320-5330 Same mixture as last sample; quartz grains are dominant lithology with a few mica flakes, medium sorted; one piece of obsidian; few pieces of feldspar

- 5330-5340 Clearly quartz sand lithology; some chips of red claystone and gray claystone-awfully large, probably cave. Nice clean quartz sand, subangular, some is iron stained or colorless, well sorted, coarse grained.
- 5340-5350 Sand as above; one piece of obsidian; few pieces of rose quartz
- 5350-5360 100% clean sand; obsidian and garnet; few pieces of rose quartz.
- 5360-5370 Same sand as above; well sorted, fine to medium grained
- 5370-5380 Sand as above
- 5380-5390 Same sand as above
- 5390-5400 Same sand as above; little more iron stained quartz
- 5400-5410 Same sand as above
- 5410-5420 small sample
Same as above; a few pieces of gray claystone and red claystone-micaceous- probably cave
- 5420-5430 small sample
Same sand as above
- 5430-5440 Still quartz sand, but medium sorted, fine to very coarse grained (1/8-2 mm); more iron stained than above
change in sorting
- 5440-5450 Same as above, much iron stained; some gray claystone and red micaceous claystone-probably cave
- 5450-5460 Same sand as above; lots of iron stained quartz; few pieces of rose quartz, garnet and obsidian; few pieces of mica loose in sample
- 5460-5470 Sand as above, colorless and iron stained quartz, rather angular quartz grains; a few pieces of rose quartz, obsidian and garnet
- 5470-5480 Quartz sand again, but better sorted, medium to coarse grained; few pieces of rose quartz, garnet and obsidian; subangular, colorless and iron stained quartz.
- 5480-5490 Quartz sand, well sorted, medium to coarse grained, less iron stain, more colorless than recently; few pieces of mica loose in sample; several pieces of red micaceous claystone and gray claystone; one piece of obsidian; few pieces of hematite?
- 5490-5500 change in grain size
quartz sand, fine to medium grained, well sorted, colorless and iron stained, subangular; few pieces of rose quartz, obsidian
- 5500-5510 Same as above

- 5510-5520 Sand again, but some coarse grained pieces, medium sorted, fine to coarse grained, some dark heavy minerals-garnet; few pieces of rose quartz; subangular, colorless and iron stained quartz sand
- 5520-5530 Same as above; a few pieces of gray and red claystone
- 5530-5540 light pink clayey carbonate and also white sandy carbonate, not very much-about 5% in sample. Must be a lot of cave of claystone, micac. red and the gray, and quartz sand grains also dark red siltstone (claystone-from above, associated with the possible ground up conglomerate from several hundred feet up. No one lithol. really seems to be dominant, but I'll pick the quartz sand since that's what the last sample was and there doesn't seem to be much change in the E log. This sample a real trash can; 1 piece of pyrite; 1 oyster shell fragment
- 5540-5550 Almost as much of a trash can as the last sample; few aragonite crystals from oyster shells, from way up near the top of the well; 1 piece of tar or something gunky looking; pieces of white and light pink clayey and sandy limestone, and 2 pieces of the usual claystone with large quartz grains (1/2-2 mm) (2 grains per each piece); luster bright (almost phosphorescent) orange clayey residue when dissolved in HCl; also both the gray claystone and the micaceous red claystone-probably cave and a few pieces of the dark red claystone and 1 piece of an oyster shell. Quartz sand grains are angular, coarse to very coarse grained, and is probably dominant; 1 piece of very angular garnet.
- 5550-5560 small sample
still messy, but not as much cave as above. Quartz grains are coarse to very coarse grained, angular to subangular; claystone still present-probably cave.
- 5560-5570 Maybe, maybe not this is basement. Couple of pieces of dark red grayish red 5R 4/2 quartzite- crystalline. Amazing amount of cave- oyster shell fragments, claystones, quartz sand grains; also some pieces of peculiar clayey rock with large (1-1.5 mm) quartz and feldspar grains included- makes a bright orange residue in HCl. I'm more convinced this is basement than anything I've seen so far, but there's not too much to go on; few mica flakes in sample.
- 5570-5580 not recorded.
- 5580-5590 Could be basement here, maybe not- real trash can sample. Quartz grains mostly coarse to very coarse grained; claystone, micaceous red, and gray; dark red (grayish red) siltstone from above; a few pieces of pyrite; few oyster shell fragments; about 50% caved in claystone fragments; some pieces very large-got to be cave; few pieces of limestone cemented, glauconitic colorless quartz sandstone-cave; not at all sure what the true lithology is- could be basement or coarse grained quartz sand.

- 5590-5600 Like last sample, big mixture--claystones, gray and micaceous red; quartz is colorless and iron stained, coarse to very coarse grained; and one or two pieces possibly of basement-reddish quartzite? hard to say what the true lithology is--could be coarse to very coarse sand or quartzite basement.
- 5600-5610 Lots of quartz in this sample, coarse to very coarse grained, colorless and iron stained; also claystone, micaceous red and gray; not as trashy as last samples; 2 or three pieces of quartzite--maybe basement?? hard to say. Sand is dominant lithology here but is it cave or what?
- 5610-5620 Messy sample again. Lots of claystone- micaceous red and gray; colorless and iron stained quartz, coarse to very coarse grained; a few pieces of mica, feldspar, aragonite crystals, lots of junk; sand could be the true lithology- lots of cave.
- 5620-5630 Still real messy sample; not sure of true lithology; a mixture of gray and micaceous red claystone and loose and colorless and iron stained quartz, coarse to very coarse grained; a few aragonite crystals and oyster shell fragments- cave obviously.
- 5630-5640 Still a trashy sample; lots of gray and micaceous red claystone and loose colorless and iron stained quartz, coarse to very coarse grained, subangular. A few pieces of limestone and dolomite; aragonite crystals from oyster shells.
- 5640-5650 Trashy as above; 1 piece of reddish orange quartzite- could be crystalline basement?, still lots of gray and micaceous red claystone and loose quartz grains; coarse to very coarse grained, iron stained and colorless, subangular to angular; few aragonite crystals from oysters- cave very likely
- 5650-5660 small sample
same mixture as above; claystone-gray and micaceous red and dark red siltstone- in this sample and many recent ones; also lots of loose quartz grains, coarse to very coarse grained, colorless and iron stained sand, angular to subangular; few pieces of sucrosic limestone-cave .so much likely to be cave at this depth that its hard to know what's in place and the true lithology
- 5660-5670 Same mixture of junk as above; gray and micaceous red claystone and dark red siltstone; also loose quartz grains as above; also limy cemented colorless quartz
- 5670-5680 Same junky mixture as above; gray and micaceous red claystone and dark red siltstone; loose quartz grains as above; a few pieces of mica; oyster shell fragments.
- 5680-5690 Same junk; gray and micaceous red claystone, loose quartz grains; oyster shell fragments and a few pieces of lime cemented quartz.

- 5690-5700 Same mixture as above, includes lime cemented glauconitic quartz sand, a few pieces of limestone; most of all this sample probably cave; a few pieces of mica loose in the sample.
- 5700-5710 Same mixture as above; small sample. More of the dark red siltstone (claystone) than have seen before- could be true lithology of this sample and in recent ones, all the way back to 5530-5540. Siltstone, brittle, fresh, grayish red 5R4/2. Dull, well sorted, porous siltstone-100%; also loose quartz grains, probably cave.
- 5710-5720 small sample
same grayish red siltstone as above; also a lot of junk, claystone and quartz grains, loose. Siltstone the dominant lithology. -
- 5720-5730 Good clean sand, colorless, fresh, hard, very pale orange 10YR 8/2. poorly sorted, slightly porous, fine to coarse grained, most in either coarse or fine, not much in between. Sand 100%
- 5730-5740 Sand, like last sample, poorly sorted, fine and coarse grained, no interveining; one size could be cave, maybe the large size grains because have been seeing them above. Subangular, colorless quartz; some rose quartz and a few pieces of obsidian?
- 5740-5750 Sand like last two samples. poorly sorted, fine and coarse grained, coarse grains could be cave; a few pieces of obsidian and rose quartz
- 5750-5760 Sand as above, except fine and medium grained mostly (1/8-1/2 mm), not much coarse grained-probably was caving; 1 piece of garnet; a few pieces of rose quartz and obsidian or some dark shiny mineral.
- 5760-5770 Same sand as above, poorly sorted, fine to coarse grained, all grainsizes including the intermediates-some could be cave, hard to tell; some rose quartz and a few pieces of obsidian or some dark shiny mineral.
- 5770-5780 Same as above; no rose quartz or obsidian or dark mineral
- 5780-5790 Sand, as above; some rose quartz and a few pieces of dark heavy minerals, subangular, to subrounded, colorless quartz grains-equant.
- 5790-5800 Same sand as above, except more frosted and lots of colorless quartz, fine to very coarse grained; some heavy minerals; no rose quartz.
- 5800-5810 Same sand as above; few pieces of feldspar; 1 piece of rose quartz; very few mica flakes

- 5810-5820 Same sand as above but kind of a messy sample; some claystone chips; 1 oyster shell fragment; 1 piece of pyrite- all cave? Sand is clearly dominant, however; fine to very coarse grained; 1 piece of obsidian or some dark heavy mineral; frosted or colorless subangular to subrounded quartz grains, equant and elongate.
- 5820-5830* Same as above; one almost perfect sphere pulled and mounted; sand is fine to very coarse grained; a few pieces of pyrite; a few pieces of mica; a few pieces of a dark heavy mineral; few pieces of feldspar; few aragonite crystals from oyster shells; one piece of two toned chert-yellowish gray 5Y7/2 and yellowish gray 5Y8/1--overall the chert is 10YR8/2 pale yellowish orange; a few pieces of rose quartz and a few pieces of moderate reddish orange 10R6/2 chert.
- 5830-5840 Same sand as above, a few forams, probably cave
- 5840-5850 Same sand as above, no forams
- 5850-5860* Same sand as above, a few pieces of rose quartz, obsidian; a few pieces of garnet; strange looking object, opaque, light orange-phosphate!; a few pieces of mica.
small sample
- 5860-5870 change in grain size!
Same sand as above; some obsidian and rose quartz, pyrite, feldspar; poorly sorted, fine to coarse grained; 1 piece of orange chert
- 5870-5880 Same sand; a few pieces of lime cemented quartz, could be cave or a new lithology; slightly feldspathic.
- 5880-5890 Same sand as above with more lime cemented colorless quartz, grayish pink 5R8/2. could be a new lithology here, not very well indurated, crumbles easily and disaggregates instantly in water- could be new. Fine to coarse grained, predominantly medium; a few very tiny mica flakes
- 5890-5900 Same sand as above with some lime cemented chips-poorly indurated, crumbly, fine to coarse grained, dominantly fine grained; most of the sample could be crumbled up limy sandstone- very similar in color.
- 5900-5910 very small sample
same sand as above; no more limy sandstone; a few pieces of rose quartz, obsidian, heavy mineral, fine to coarse grained, predominantly medium grained; mica flakes
- 5910-5920 Same sand as above.
- 5920-5930 Same sand as above
- 5930-5940 new lithology!
Slightly micaceous, grayish red 5R4/2 claystone-40%. Sand as above is 60%
- 5940-5950 Same micaceous grayish red claystone-40%; same sand as above 60%
- 5943 sidewall core: LM, NO ODOR, MIN FLU

- 5950-5960 Same micaceous grayish red claystone as above-40%. In this sample and in the last one is what looks like wind worn sand grains- striated.
- 5960-5970 Same micaceous red claystone; 5 mm aggregates of quartz crystals- pretty impressive size- good cubic leavage???????????????? probably not in place
- 5970-5980 Same as above- 40% claystone; 60% sand
- 5980-5990 Same as above
- 5990-6000 Same micaceous, grayish red claystone and some gray claystone; some quartz sand.
- 6000-6010 no sample, empty envelope- January 26, 1976
- 6010-6020 change in lithology
Fresh, hard, very pale orange 10YR8/2. Well sorted, medium to coarse grained (1/4-1 mm) predominantly .75 mm sand; a few pieces of obsidian. Colorless quartz, smooth or frosted, angular to sub-angular, equant and elongate grains. 100%
- 6020-6030 Same as above.
- 6030-6040 change in lithology
several pieces of quartzite- could be basement; also pieces of micaceous, grayish red claystone; a few loose quartz grains; 1 oyster shell fragment- could be basement, lots of quartzite but only 5% of sample.
- 6040-6050 few pieces of quartzite- not as many as last sample, could be basement; also lots of claystone-red and gray and a few loose quartz grains.
- 6050-6060 few pieces of quartzite, not too many, could be basement; one piece of orange, 2 toned chert bright orange and brown; lots of gray claystone in this sample, and micaceous grayish red claystone also; some loose quartz grains.
- 6060-6070 Like last sample; loose quartz grains are coarse grained and sub angular, about 1 mm
- 6070-6080 As above, a few pieces of quartzite and lots of claystone
- 6080-6090 As above, a few pieces of quartzite; mostly claystone
- 6090-6100 As above; claystone, quartzite and more loose quartz than in awhile; very coarse grained, subangular
- 6100-6110 Same as last samples
- 6110-6120 small sample, change in lithology
much more sand than in quite a while, poorly sorted, fine to coarse grained, angular to subangular colorless quartz- dominant lithology here; some claystones and a few pieces of quartzite

- 6120-6130 very small sample
sand as above, and a lot more micaceous, grayish red claystone and a few pieces of gray claystone; sand is dominant.
- 6130-6140 Sand like above. Fresh, hard, very pale orange 10YR 8/2. Poorly sorted, fine to coarse grained (1/8-1 mm, predominantly 1/2 mm), subangular to subrounded quartz; a little micaceous grayish red claystone and gray claystone
- 6140-6150 Sand, as above; a few pieces of rose quartz, obsidian or some dark heavy mineral
- 6150-6160 change in lithology
grayish red claystone dominant with a few pieces of gray claystone and some quartz sand grains
- 6160-6170 Same as above
- 6170-6180 Same as above, also feldspar
- 6180-6190 As above, no feldspar
- 6190-6200 As above; a few pieces of quartzite
- 6200-6210 As above; a few pieces of quartzite
- 6210-6220 change in lithology
grayish red claystone as above and an awful lot of sand; sand is dominant
- 6215 sidewall core: LM, SDY, MICA, NO ODOR, MIN FLU
- 6220-6230 Sand, as last sample, fine to coarse grained (1/8-1 mm), poorly sorted, fresh, hard, very pale orange 10YR 8/2, subangular, smooth polished, colorless and iron stained quartz.
- 6230-6240 Few pieces of quartzite (basement?), some grayish red claystone and a little bit of gray claystone; quartz sand the dominant lithology
- 6240-6250 Same as above
- 6250-6260 small sample.
very iron stained quartz sand, moderate orange pink 10R 7/4, fine to coarse grained, poorly sorted; also a few pieces of grayish red and gray claystone
- 6260-6270 As above, could be a paleoerosion surface?; also still a few pieces of quartzite. The iron stained sand is lime cemented but very loosely aggregated- disaggregates very easily in both HCl and water; most of the sample is probably this disaggregated sand.
- 6270-6280 Really messy sample. Some pieces of quartzite, also grayish red claystone and medium gray claystone; few fossils-obviously cave; few pieces of chert, various colors; a few pieces of moderate reddish brown 10R 4/6 micaceous claystone, different than the grayish red claystone; also coarse, loose quartz grains; sand dominant.

- 6280-6290 Dominant lithology looks like very iron stained quartz sand, as 6250-60; fine to medium grained, medium sorted, subangular, polished smooth
- 6290-6300 Same as above; a few pieces of quartzite
- 6300-6310 Same as above
- 6310-6320 A trashy sample, but probably true lithology is limestone cemented, very iron stained quartz sand; a few pieces of claystone and loose quartz.
- 6320-6330 Good clean sand, colorless quartz, fine to coarse grained, poorly sorted; some quartzite pieces and some moderate reddish brown claystone.
- 6330-6340 Could be basement- quartzite chips grayish red, probably just ground up pebbles; iron stained sand again as above.; medium sorted, medium to coarse grained, subangular quartz sand. Not quite as iron stained as has been; some may be due to an optical illusion from being mixed with the brick red shale (claystone)
- 6340-6350 Lots of quartzite chips, probably ground up pebbles; dominant lithology seems to be quartz sand, medium to very coarse grained, angular to subangular; also some chips of red claystone.
- 6350-6360 Quartzite chips, probably ground up pebbles; dominant lithology is sand, fine to very coarse grained, angular to subangular, colorless and frosted, predominant size about 1.5 mm; a few pieces of red claystone
- 6360-6370 Few quartzite chips, probably ground up pebbles; dominant lithology is moderate reddish brown LOR 5/4 siltstone or shale; lots of sand grains
is it LOR 4/6 ?
- 6370-6380 Few pieces of quartzite. dominant lithology is red siltstone or shale as above; also some quartz sand grains
- 6380-6390 As above, no quartzite.
- 6390-6400 As above
- 6400-6410 As above, but with much more sand grains
- 6410-6420 As above
- 6420-6430 As above
- 6430-6440 As above, a few chips of quartzite
- 6440-6450 As above , a few chips of quartzite
- 6450-6460 Same moderate reddish brown siltstone (shale) as above; also some (5%) darker grayish red LOR 4/2 slightly micaceous siltstone- may be new or cave; also some quartz grains and some quartzite chips.

- 6460-6470 small sample.
same moderate reddish brown siltstone and a few pieces (5%) grayish red micaceous siltstone (claystone)- could be cave because I have seen this lithology before; also a few quartz grains and quartzite chips.
- 6470-6480 As above; a few mica flakes
- 6480-6490 As above, no mica flakes
- 6490-6500 As above
- 6500-6510* Same fresh, brittle, moderate reddish brown 10R_{4/6} siltstone (claystone) and a few chips of fresh, brittle, micaceous, grayish red 10R_{4/2} siltstone (claystone)- not as much as recently; also quartz grains and quartzite chips; some large foram or something, chalky white- not sure what; lots of chips of some kind of calcareous material- pulled and mounted a few pieces
- 6510-6520 basement! ?
same siltstone, moderate reddish brown also various kinds of cave, a few chips of quartzite, also some more limy bits like last sample; also some indurated sandstone.
- 6520-6530 Could be basement. Some pieces of indurated sandstone, dark reddish, medium sized quartz grains
- 6530-6540 more basement-indurated sandstone, lime cemented; slightly angular, well sorted, medium grained, slightly porous sandstone; quartz grains are iron stained or colorless
- 6530 sidewall core: SD, VFG, SHY, SLTY, NO ODOR, NO FLU
- 6531 sidewall core: SD, VFG, SHY, SLTY, NO ODR, NO FLU
- 6540-6550 more basement material, lime cemented sandstone, iron stained and colorless, medium grained, well sorted
- 6543 sidewall core: SD, VFG, SHY, SLTY, NO ODR, NO FLU
- 6550-6560 more basement, same as above; none of these samples have been dominantly basement- just a few pieces, less than 5% in any sample- sure is an awful lot of cave.
- 6560-6570 unquestioned basement. 1st sample where basement material (indurated sand) is dominant. Fresh, hard, pale yellowish brown 10R 5/4, slightly feldspathic, medium grained (1/4-1/2 mm), slightly porous, well sorted sandstone-100% Quartz grains are subangular, colorless and iron stained; this is not lime cemented-probably silica cement.
- 6570-6580 Same