

**GEORGIA
STATE DIVISION OF CONSERVATION**

DEPARTMENT OF MINES, MINING AND GEOLOGY
GARLAND PEYTON, Director

THE GEOLOGICAL SURVEY
Bulletin Number 74

**LOGS OF SELECTED WELLS IN THE
COASTAL PLAINS OF GEORGIA**

by

Esther R. and Paul L. Applin



ATLANTA
1964

ATKINSON COUNTY

Operator: Sun Oil Company
 Landowner: Doster-Ladson Well 1

GGs. No. 107
 Elevation: 222 ft. (derrick floor)

Location: Land District 7, Land Lot 71
 1650 ft. north and 660 ft. east of southwest corner of Land Lot 71.

Total depth: 4296 ft.
 Completed: Jan. 30, 1945

Summary of Stratigraphy

	Depth (feet)	Thickness (feet)
Tertiary		
Miocene undifferentiated	90	180
	(1st sample)	
Oligocene		170
upper, Suwannee Limestone	270	120
middle and lower, Vicksburg Group	390	50
Eocene		1340
upper, Ocala Limestone, upper member	440	130
lower member	570	210
middle, upper middle, Tallahassee Limestone (?)	780	90
upper middle (?) or lower middle (?)	870	90
lower middle, Lake City Limestone	960	500
lower, beds of Wilcox age	1460	320
Paleocene		24
Clayton Limestone	1780	24
Cretaceous		
Gulf		2066
Beds of Navarro age	1804	643
Beds of Taylor age	2447	351
Beds of Austin age	2798	337
Atkinson Formation, upper member	3135	588
lower member	3723	147
Comanche undifferentiated	3870	350

Pre-Cretaceous

Igneous rocks	4220	to	76
		total	depth

Lithologic and paleontologic description of cores and cuttings. Samples are cuttings unless otherwise stated.

Depth (feet)	Description
0- 90	No samples
Tertiary	
Miocene Series undifferentiated	
90- 100	Sandstone, quartz; composed of moderately fine to coarse, rounded grains; contains nodules of white sandy clay.
100- 270	Samples of the Miocene rocks were not studied in detail, but consist, mainly, of sandstones and sandy limestones containing phosphatic material.
Oligocene Series	
Upper Oligocene. Suwannee Limestone.	
270- 280	Chalk, white, non-sandy.
280- 290	Limestone, white, moderately hard, porous; composed mainly, of masses of poorly preserved molds of microfossils, including specimens of <i>Coskinolina floridana</i> .
290- 300	Limestone, like sample at 280-290 ft., but more dense; specimens of <i>Coskinolina floridana</i> common.
300- 310	Like sample at 290-300 ft; contains specimens of <i>Quinqueloculina leonensis</i> .
310- 380	Limestone, white, chalky, calcitic, microfossiliferous, irregularly porous; contains many specimens of <i>Coskinolina floridana</i> and other species of Foraminifera common in the Suwannee limestone.
380- 390	Limestone, cream; composed of rolled, usually well-rounded molds of microfossils and fragments of fossiliferous limestone; <i>Coskinolina floridana</i> common.
Middle and Lower Oligocene. Vicksburg Group.	
390- 400	Limestone, cream and white, hard, nodular, irregularly porous; contains abundant traces of poorly preserved microfossils and fragments of molds of macrofossils. Many calcitized fragments of echinoids are present. Sample contains numerous fragments of white chert.
400-410	Like sample at 390-400 feet. Sample contains molds of <i>Operculinoides</i> , sp.
410- 420	Like sample at 400-410 ft., but fossil material is better preserved. Species of Foraminifera identified are: worn specimens <i>Operculinoides</i> sp., <i>Lepidocyclina mantelli</i> , and <i>Gypsina globula</i> . Specimens of <i>Coskinolina floridana</i> are present, but are possibly not indigenous.
420- 430	Like sample at 410-420 ft; contains poorly preserved specimens of other species of <i>Lepidocyclina</i> common to the Vicksburg of this area.
430- 440	No sample

Depth
(feet)

Description

Eocene Series

Upper Eocene. Ocala Limestone. Upper Member.

- 440- 470 Lithology and fauna of three 10-foot samples are, in general, like sample at 420-430 ft. but show the introduction of fragments of a more chalky, highly fossiliferous limestone, and worn specimens of *Operculinoides floridana* and *Asterocyclina georgiana*; at 460-470 ft. specimens of *Pseudophragmina citrensis* are present.
- 470- 570 Coquina, light-cream; composed of worn and fragmentary molds of microfossils, mainly *Operculinoides ocalanus*, several varieties of *Lepidocyclina ocalana*, *Asterocyclina georgiana*, and other Ocala species. Highest occurrence of *Heterostegina ocalana* is in the sample at 510-520 ft.

Upper Eocene. Ocala Limestone. Lower Member.

- 570- 580 Lithology and fauna are, in general, like the samples at 470-570 ft., but this sample contains specimens of *Amphistegina pinarensis cosdeni*, marking the top of the lower member of the Ocala Limestone.
- 580- 600 Limestone, cream, dolomitic, cryptocrystalline. No identifiable indigenous fossils were observed, although traces of fossil molds occur in the limestone; the sample contains fossils that are evidently caving from higher levels.
- 600- 660 Samples in this interval are, in general, about 50 percent cream, porous, pitted, cryptocrystalline to very finely granular limestone, and 50 percent fine to moderately coarse grained quartz sand which may be caving.
- 660- 670 Limestone, white and light-cream, unfossiliferous, in part chalky and in part dolomitic; about 25 percent of the sample is composed of fine to coarse, rounded grains of quartz sand.
- 670- 720 Samples in this interval are like the sample at 660-670 ft., but contain seemingly indigenous specimens of *Lepidocyclina* sp., and chalky specimens of *Amphistegina pinarensis cosdeni*.
- 722- 729 Core 1. Recovery 3 ft.
Limestone, white to cream, porous, irregularly chalky, and finely dolomitic; contains many sections of small miliolids and traces of impressions of other microfossils.
- 720- 780 Samples in this interval are composed of limestone like the core at 722-729 ft. and contain specimens of *Amphistegina pinarensis cosdeni* and poorly preserved specimens of *Lepidocyclina* sp.

Middle Eocene. Upper Middle Eocene.

Tallahassee Limestone (?) equivalent.

- 780- 810 Samples in this interval are composed of limestone like the samples at 720-780 ft. and contain, in addition, fragments of white,

Depth
(feet)

Description

- gray-spotted chalky limestone composed mainly of masses of chalky molds of Foraminifera and fragments of molds of macrofossils. Fragments and poorly preserved molds of at least two species of *Lepidocyclina*, worn molds of specimens of *Operculinoides*, sp., and specimens of *Amphistegina pinarensis cosdeni* are present in the gray-spotted limestone.
- 810- 820 Limestone, white, gray-spotted fossiliferous, like samples at 780-810 ft., but the fossil material consists of worn and rolled molds. Fossils present are sections of small miliolids, specimens of *Lepidocyclina* cf. *L. pustulosa*, *Operculinoides* sp., *Valvulina* sp., and a few specimens of *Amphistegina pinarensis cosdeni*.
- 820- 830 Limestone, white, gray-spotted, porous, in part chalky and in part dolomitic; composed of a mass of worn and fragmental fossil material, in which the fossils are mostly too poorly preserved for identification. However, the fauna seems to be similar to that in the sample at 810-820 ft.
- 830- 840 Limestone, like the sample at 820-830 ft., but more indurated and the fossil material is less well preserved.
- 840- 850 Limestone, gray-spotted, chalky and dolomitic; contains bryozoan fragments and vague traces of other fossils.
- 843- 858 Core 2. Recovery 2 ft.
Limestone, white, gray-spotted, porous; composed of a mass of molds of small miliolids and fragments of other microfossils.
- 850- 870 Two 10-foot samples composed of material like the core at 843-858 ft.

Middle Eocene. Upper Middle(?)
or Lower Middle(?) Eocene.

- 870- 880 Limestone, chalky, 50 percent of sample; similar to samples at 850-870 ft., but only slightly gray-spotted. Fine to coarse rounded grains of clear quartz sand compose 50 percent of sample.
- 880- 890 Limestone, cream, in part dolomitic, highly fossiliferous; contains specimens of *Fabianina cubensis*, *Operculinoides*, sp., and several species of *Lepidocyclina*; about 25 percent of sample is sand like that in sample at 870-880 ft.
- 890- 900 Limestone, white and buff, highly dolomitic, somewhat chalky, 50 percent of sample. The dolomite is finely granular. Sand is 50 percent of the sample.
- 900- 910 Limestone, like sample at 890-900 ft., is about 75 percent of sample; sand is 25 percent of sample.
- 910- 930 Limestone, buff, finely granular, dolomitic; contains scattered chalky areas and selenite. Fossils present are chalky molds and fragments of *Lepidocyclina* sp., *Operculinoides* sp., and algal nodules.

Depth (feet)	Description
930-960	Dolomite, light-buff, finely granular; contains small chalky areas, specimens of two species of <i>Lepidocyclus</i> , and irregular-shaped chalky nodules that are probably of algal origin.
	Middle Eocene. Lower Middle Eocene. Lake City Limestone.
960-1000	Samples in this interval are similar to those at 930-960 ft., but are somewhat glauconitic and contain large inclusions of selenite. Sample at 970-980 ft. contains specimens of <i>Discocyclus</i> (<i>Asterocyclus</i>) <i>monticellensis</i> and numerous fragments of several species of bryozoa.
1000-1060	Limestone, chalky, somewhat dolomitic; gypsum is common; glauconite is rare. Samples contain specimens of <i>Discocyclus</i> (<i>Asterocyclus</i>) <i>monticellensis</i> , <i>Lepidocyclus</i> sp., and numerous fragments of bryozoa. Sample at 1020-1030 ft. contains specimens of <i>Amphistegina lopeztrigoi</i> var.
1060-1100	Limestone, buff, irregularly chalky, finely dolomitic, somewhat glauconitic; contains abundant fragments of bryozoa, two species of echinoids, numerous specimens of several species of <i>Lepidocyclus</i> including numerous specimens of <i>L. (Polylepidina) antillea</i> , and a few fragments of <i>Discocyclus</i> sp.
1100-1140	Limestone, white, finely fragmental, slightly glauconitic, fossiliferous; contains abundant fragments of bryozoa, many specimens of <i>Discocyclus</i> (<i>Asterocyclus</i>) <i>monticellensis</i> and <i>Operculinoides</i> sp., and poorly preserved molds of smaller Foraminifera. Samples also contains fragments of buff, granular crystalline dolomite (which may be caving), and fragments of light-gray chert.
1140-1160	Like the samples at 1100-1140 ft., but <i>Operculinoides</i> sp. is the dominant foraminiferal species, and most of the remaining fossil material is very finely fragmental; specimens of <i>Discocyclus</i> sp. are also present.
1160-1180	Limestone, white, chalky, slightly glauconitic, containing very finely fragmented fossil material. Specimens of <i>Operculinoides</i> sp., <i>Cibicides</i> sp., and a few other species of smaller Foraminifera are present.
1180-1240	Samples in this interval are lithologically and faunally similar to the samples at 1160-1180 ft. The samples contain cavings from higher levels and about 25 percent fine to coarse-grained clear quartz sand that may also be caving.
1240-1250	Limestone, light-cream, chalky, slightly dolomitic, finely fragmental. Fossil material consists of a few specimens of small Foraminifera, <i>Discocyclus</i> sp., <i>Operculinoides</i> (?) sp., and other fossils obviously caving from higher levels. Sample contains about 25 percent fine to coarse-grained quartz sand.

Depth (feet)	Description
1250-1290	Samples in this interval are similar to the sample at 1240-1250 ft., and samples from 1270-1290 ft. contain numerous fragments of light-gray chert.
1290-1300	Dolomite, buff, slightly chalky, finely granular, porous; many fragments of brownish-gray chert; a few fossils that probably are not indigenous.
1300-1350	Dolomite, like sample at 1290-1300 ft., but somewhat gray-spotted and slightly porous.
1350-1360	Limestone, soft, chalky; contains a little fine-grained sand, many fragments of <i>Lepidocyclina</i> (?) sp., some fragments of <i>Camerina</i> sp., and many specimens of <i>Lepidocyclina</i> (<i>Polylepidina</i>) <i>antillea</i> .
1360-1390	Limestone, chalky and dolomitic, somewhat glauconitic, slightly sandy (fine-grained sand). Brownish-gray chert is present but may be caving. Fauna is like sample at 1350-1360 ft.
1390-1430	Limestone, chalky, fossiliferous, and many fragments of grayish-brown finely granular, crystalline dolomite. The samples contain fragments of brownish-gray chert-like the samples at 1360-1390 ft.
1430-1460	Limestone, soft, chalky, finely fragmental, and fragments of dolomitic limestone like the samples at 1360-1390 ft; abundant specimens of <i>Lepidocyclina</i> (<i>Polylepidina</i>) <i>antillea</i> .

Lower Eocene. Beds of Wilcox age.

1460-1500	Samples in this interval are not satisfactory for precise description; they are seemingly like the samples at 1430-1460 ft., but are highly glauconitic.
1500-1510	Core 3. Recovery $\frac{1}{2}$ ft. Clay, light brownish to greenish-gray, chalky, glauconitic; contains numerous specimens of <i>Asterigerina</i> sp. that seem to be indigenous.
1510-1520	Limestone, white, chalky, microfossiliferous. Sample is lithologically and faunally like samples from higher levels, and may not be representative of the rocks penetrated at this depth.
1520-1530	Limestone, moderately, hard, chalky, fossiliferous, glauconitic; contains many bryozoan fragments, and fragments of a number of species of <i>Lepidocyclina</i> that are probably caving, because they are similar to some observed at higher levels. Many fragments of pink-stained, glauconitic limestone. The sample is probably from the Salt Mountain Limestone, the top of which is at 1483 ft. on the electric log of the well.
1530-1540	Limestone, pink-stained, hard, somewhat glauconitic; contains many fragments of bryozoa.
1540-1550	Limestone, white, slightly pink-stained, hard, somewhat glauconitic; lithologically and faunally like the sample at 1530-1540 ft.

Depth (feet)	Description
1550-1560	Limestone, like the sample at 1540-1550 ft., but this sample contains fragments of a coarsely sandy limestone and a few fragments of <i>Pseudophragmina</i> (?).
1560-1610	Limestone, white, dense, somewhat glauconitic; contains scattered coarse grains of sand and a few poorly preserved specimens of <i>Discocyclina?</i> sp. The samples at 1590-1610 ft. contain worn and broken fragments of <i>Ostrea</i> sp., and unconsolidated coarse-grained quartz sand.
1610-1620	Limestone, soft, chalky, and a little coarse-grained sand.
1620-?	Limestone, cream, dense, showing many sections of fragmental fossil material.
1640-1650	Limestone, cream, gray-spotted, hard, dense, showing abundant sections of fragmental fossil material.
1650-1680	Sandstone, white, very fine and even-grained, somewhat glauconitic, micaceous, irregularly chalky; contains traces of fossil fragments.
1680-1750	Sandstone, very fine grained, glauconitic, micaceous, calcareous; contains many fragments of fossil bivalves and some bryozoan fragments.
1750-1770	Sand, unconsolidated, very fine and even-grained, that seemingly, was deposited in a matrix of soft gray calcareous clay.
1770-1780	Sample unwashed but seems to be like the samples at 1750-1770; contains cavings from higher levels.

Paleocene(?) Series

Clayton Limestone(?)

1780-1790	Limestone, white, hard, dense, glauconitic; contains poorly preserved fragments of fossils, including bryozoa. Paleontologic data are lacking on which to base the Paleocene age of the limestone. On the basis of electric log characteristics, the top of the limestone is at 1777 ft.
1790-1800	Sandstone, very fine and even-grained, somewhat micaceous, slightly glauconitic, calcareous; contains fragments of macrofossils. Sample also contains fragments of limestone like that in sample at 1780-1790 ft.
1800-1810	Limestone, cream, hard, irregularly sandy; contains many fragments of poorly preserved macrofossils and traces of specimens of Foraminifera.

Cretaceous

Gulf Series

Beds of Navarro age

1810-1820	Sample seems to be mainly cavings but contains specimens of species of Foraminifera that are characteristic of the beds of
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Depth (feet)	Description
	Navarro age. The top of the beds of Navarro age is placed at 1804 ft. on the basis of electric log characteristics.
1820-1830	Limestone and calcareous sandstone like samples at 1780-1810 ft.
1830-1850	Clay, brownish-gray, finely sandy, somewhat carbonaceous and micaceous.
1850-1870	Sandstone, grayish-brown, very fine grained, argillaceous, micaceous, somewhat carbonaceous, and fragments of dark brownish-gray soft flaky clay. Sample at 1860-1870 ft. contains specimens of <i>Robulus navarroensis</i> .
1870-1890	Clay, gray, soft, flaky, micaceous, and argillaceous sandstone. Chalky fragments of fossils at 1880-1890 ft.
1890-2010	Clay, gray, soft, micaceous, somewhat carbonaceous, and dark brownish-gray, very fine grained, argillaceous, micaceous, carbonaceous sandstone. A few chalky fragments in the clay seem to be remnants of fossil shells. Sample contains small nodular fragments of gray limestone.
2010-2020	Core 4. Recovery 10 ft. Top 5 ft. sandstone, gray, very fine and even-grained, argillaceous, micaceous; contains specimens of <i>Robulus navarroensis</i> , <i>Globotruncana cretacea</i> , and a few other specimens of species characteristic of the Navarro. Bottom 5 ft. clay, gray, micaceous; contains much fine-grained sand.
2020-2030	Sandstone, gray, very fine grained, argillaceous, micaceous, and fragments of light-gray, moderately hard, very fine grained, calcareous, micaceous sandstone. Specimens of <i>Robulus navarroensis</i> are fairly common in the sample.
2030-2040	Sandstone, light-gray, soft, very fine and even grained, chalky.
2040-2050	Sandstone, dark-gray, soft, fine-grained, argillaceous, micaceous.
2045-2055	Core 5. Recovery 10 ft. Top 5 ft. Sandstone, light-gray, soft, very fine grained, micaceous, calcareous. Bottom 5 ft. No change.
2050-2060	Sandstone, gray, soft, very fine grained, argillaceous, micaceous; contains a few specimens of foraminiferal species indicative of the Navarro age of the beds.
2060-2100	Sandstone, like the sample at 2050-2060 ft. Some of the samples in this interval show fragments of white, moderately hard, very fine grained, calcareous sandstone that seems to occur as lenses in the gray, soft argillaceous sandstone.
2100-2110	Core 6. Recovery 10 ft. Top 5 ft. clay, gray, soft, sandy (fine-grained sand), micaceous. Bottom 5 ft. sandstone, gray, moderately soft, very fine grained, micaceous, calcareous, finely carbonaceous.
2100-2150	Clay and sandstone as described in core at 2100-2110 ft. The samples contain specimens of <i>Robulus navarroensis</i> , and a

Depth (feet)	Description
	few other foraminiferal species characteristic of the beds of Navarro age.
2150-2160	Core 7. Recovery 10 ft. Top and bottom. Clay, gray, moderately hard, highly sandy (very fine grained sand), micaceous; contains small fragments of carbonaceous material.
2150-2200	Sandstone, gray, soft, very fine grained, argillaceous, micaceous, somewhat finely carbonaceous; contains specimens of <i>Globigerina cretacea</i> and a few other species of Foraminifera characteristic of beds of Late Cretaceous age.
2200-2210	Core 8. Recovery 5 ft. No sample.
2200-2300	Samples in this interval were unwashed but seem to consist of gray, highly sandy, micaceous clay; fossils, if present, were not visible.
2310-2317	Core 9. Recovery 7 ft. Clay, gray, sandy (fine-grained sand), micaceous; contains small fragments of carbonaceous material.
2317-2327	Core 10. Recovery 0.
2327-2337	Core 11. Recovery 10 ft. Top, sandstone, gray, moderately soft, very fine grained, argillaceous, micaceous. Middle and bottom. Like the top part of the core.
2337-2347	Core 12. Recovery 10 ft. Like core 11, at 2327-2337 ft.
2347-2357	Core 13. Recovery 10 ft. Top 3 ft. like core 12 at 2337-2347 ft. A few fragments of <i>Robulus</i> sp. in the core. Middle 4 ft. and bottom 3 ft. No change.
2357-2367	Core 14. Recovery 6 ft. Top 2 ft. and bottom 4 ft. Like core 13 at 2347-2357 ft.
2367-2377	Core 15. Recovery 10 ft. Top. Clay, gray, moderately hard, sandy (fine-grained sand), micaceous, somewhat carbonaceous. Bottom. Clay, like top part of core, containing inclusions of light-gray, calcareous, somewhat glauconitic sandstone.
2377-2387	Core 16. Recovery 0.
2387-2397	Core 17. Recovery 0.
2397-2407	Core 18. Recovery 3 ft. Clay, gray, sandy (fine-grained sand), micaceous. Specimens of Ostracodes and Foraminifera are fairly common in the sample, but no diagnostic species were seen.
2400-2410	Clay, gray, highly sandy, micaceous. Specimens of Foraminifera identified are: <i>Globotruncana arca</i> , <i>Globotruncana fornicata</i> , <i>Dorothyia bulletta</i> , <i>Robulus</i> spp. <i>Anomalina pinguis</i> , <i>Clavulinoides trilaterus</i> , <i>Bulimina aspera</i> , <i>Pseudotextularia elegans</i> . The sample contains many ostracodes. The fauna is Navarro in character.

Depth (feet)	Description
2407-2417	Core 19. Recovery 4 ft. Clay, gray, very highly sandy (very fine grained sand), micaceous, calcareous, somewhat finely carbonaceous.
2410-2420	Clay, gray, sandy, micaceous; contains numerous specimens of Foraminifera and ostracodes. The fauna is Navarro in character.
2417-2427	Core 20. Recovery 3 ft. Like core 19, at 2407-2417 ft.
2420-2430	Like sample at 2410-2420 ft.
2427-2437	Core 21. Recovery 0.
2430-2440	Like sample at 2410-2420 ft.
2437-2447	Core 22. Recovery ½ ft. No sample.
2440-2450	Like sample at 2410-2420 ft.
Beds of Taylor age.	
2447-2457	Core 23. Recovery 10 ft. Marl, light-gray, finely micaceous. Foraminiferal fauna includes specimens of <i>Planulina dumblei</i> , <i>Bolivina cretosa</i> , <i>Planulina spissocostata</i> , <i>Bolivinoidea decorata</i> , <i>Dorothia grabella</i> .
2450-2460	Clay, light-gray, soft, sandy, micaceous, calcareous. Foraminiferal fauna is like core 23 at 2447-2457 ft. and contains, in addition, many specimens of <i>Clavulinoides</i> n. sp.
2457-2467	Core 24. Recovery 0.
2460-2470	Like sample at 2450-2460 ft. Specimens of <i>Dorothia</i> cf. <i>D. stephensoni</i> are added to the fauna.
2467-2477	Core 25. Recovery 4 ft. Clay, light-gray, highly sandy (very fine grained sand), micaceous, glauconitic (fine grains), calcareous.
2470-2480	Clay, gray, soft, highly sandy (very fine grained sand), micaceous, calcareous. Fauna like that described in preceding samples from beds of Taylor age.
2477-2487	Core 26. Recovery 0.
2480-2490	Like sample at 2470-2480 ft. Fragments of <i>Inoceramus</i> present.
2487-2497	Core 27. Recovery 1 ft. Clay, moderately hard, highly sandy (extremely fine grained sand), micaceous, calcareous.
2490-2500	Lithology and fauna like that described in preceding samples from beds of Taylor age, with the addition to the fauna of many specimens of <i>Stensioina americana</i> and <i>Planulina dumblei</i> .
2497-2507	Core 28. Recovery 10 ft. Top. Like core 27 at 2787-2797 ft; <i>Inoceramus</i> fragments abundant. Bottom. No change.

Depth (feet)	Description
2500-2510	Like sample at 2490-2500 ft; contains a few <i>Inoceramus</i> fragments.
2507-2517	Core 29. Recovery 10 ft. Top. Clay, gray, highly sandy (extremely fine grained sand), micaceous, calcareous, contains small shreds of carbonaceous material. Bottom. No change.
2510-2520	Like sample at 2500-2510 ft.
2517-2527	Core 30. Recovery 10 ft. Sandstone, gray, very fine grained, argillaceous, micaceous, calcareous.
2520-2530	Lithology and fauna like that described in preceding cutting samples from beds of Taylor age; some fragments of <i>Inoceramus</i> present.
2527-2537	Core 31. Recovery 10 ft. Clay, gray, highly sandy (extremely fine grained sand), micaceous, calcareous.
2530-2540	Sandstone, gray, argillaceous, micaceous, calcareous. Microfauna is the same as in the preceding 100 feet of samples.
2537-2547	Core 32. Recovery 5 ft. Top. Clay, gray, highly sandy (very fine grained sand), micaceous, calcareous. Bottom, no change.
2540-2550	Clay, gray, highly sandy (fine-grained sand) micaceous. Specimens of Foraminifera are much less common than in preceding samples of beds of Taylor age.
2547-2557	Core 33. Recovery 10 ft. Like core 32 at 2537-2547 ft.
2550-2560	Like cutting sample at 2540-2550 ft.
2557-2567	Core 34. Recovery ½ ft. Clay, light-gray, sandy (fine-grained sand), micaceous, calcareous.
2560-2570	Clay, light-gray, sandy (very fine grained sand), micaceous, calcareous. Sample contains a few nondiagnostic species of Foraminifera.
2567-2577	Core 35. Recovery 0.
2570-2580	Like cutting sample at 2560-2570 ft.
2577-2582	Core 36. Recovery 4 ft. Clay, gray, highly sandy (fine-grained sand), micaceous, calcareous, and soft, argillaceous, very fine grained, micaceous sandstone.
2580-2590	Clay, gray, sandy, micaceous, somewhat fossiliferous.
2582-2588	Core 37. Recovery 6 ft. Like core 36 at 2577-2582 ft.
2588-2598	Core 38. Recovery 5 ft.

Depth (feet)	Description
	Top, clay, gray, highly sandy (very fine grained sand), micaceous, calcareous. Bottom. No change.
2590-2600	Clay, gray, sandy (very fine-grained sand), micaceous, calcareous. Sample contains a few specimens of Foraminifera like those at higher levels in the beds of Taylor age.
2598-2608	Core 29. Recovery 3 ft. Top. Clay, gray, sandy (very fine-grained sand), micaceous, calcareous. Bottom. No change.
2600-2610	Shale, gray, soft, flaky, micaceous; some fragments of gray sandy, micaceous clay, and light-gray, very fine grained calcareous sandstone.
2608-2618	Core 40. Recovery 4½ ft. Like core 39 at 2598-2608 ft. and somewhat carbonaceous.
2610-2620	Like cutting sample at 2600-2610 ft; contains few specimens of Foraminifera.
2618-2628	Core 41. Recovery 6 ft. Top. Clay, gray, highly sandy (fine-grained sand), micaceous. Bottom, Shale, gray, thinly-laminated, calcareous.
2620-2630	Clay, gray, sandy, micaceous, and some fragments of gray, soft, flaky, micaceous shale.
2628-2638	Core 42. Recovery 10 ft. Top 8 ft. clay, gray, sandy (extremely fine-grained sand), calcareous; gray micaceous clay; and thin lenses of gray micaceous shale. The core fragment studied contains traces of macro-fossils. Bottom 2 ft. Shale, brownish-gray, micaceous, containing irregular inclusions of white, chalky, glauconitic, micaceous sandstone.
2630-2640	Cuttings of materials like the bottom of core 42 at 2628-2638 ft.
2638-2648	Core 43. Recovery 7 ft. Shale, dark brownish-gray, micaceous, somewhat carbonaceous, containing irregular streaks of light-gray, argillaceous, micaceous, slightly glauconitic, calcareous sandstone.
2640-2650	Clay, gray, soft, sandy (fine-grained sand), micaceous; contains very few specimens of Foraminifera, and no diagnostic species.
2648-2658	Core 44. Recovery 7 ft. Clay, dark, brownish-gray, sandy (very fine grained sand), micaceous, somewhat carbonaceous.
2650-2660	Like core 44 at 2648-2658 ft; contains a few nondiagnostic specimens of Foraminifera.
2658-2668	Core 45. Recovery 9 ft. Clay, gray, highly sandy (fine-grained sand), highly micaceous, containing small shreds of carbonaceous material.
2660-2670	Like core 45 at 2658-2668 ft.; contains few specimens of Foraminifera.

Depth (feet)	Description
2668-2678	Core 46. Recovery 6 ft. Top. Like core 45 at 2658-2668 ft. Bottom. Clay, gray, irregularly sandy (fine-grained sand), micaceous.
2670-2680	Like core 46 at 2668-2678 ft.
2678-2688	Core 47. Recovery 2 ft. Clay, dark-gray, shaly, irregularly sandy (fine-grained sand), micaceous.
2680-2690	Like core 47 at 2678-2688 ft.
2688-2698	Core 48. Recovery 5 ft. Like core 47 at 2678-2688 ft.
2690-2700	Like Core 48 at 2688-2698 ft.
2698-2708	Core 49. Recovery 6 ft. Clay, gray, irregularly sandy (very fine grained sand), micaceous.
2700-2710	Like core 49 at 2698-2708 ft.
2708-2716	Core 50. Recovery 3 ft. Like core 49 at 2698-2708 ft.
2710-2720	Like core 50 at 2708-2716 ft.
2716-2728	Core 51. Recovery 7 ft. Clay, dark brownish-gray, shaly, irregularly sandy (very fine grained sand), micaceous.
2720-2730	Like core 51 at 2716-2728 ft.
2728-2738	Core 52. Recovery 3 ft. Clay, dark brownish-gray, micaceous.
2730-2740	No cutting sample.
2738-2748	Core 53. Recovery 6 ft. Top. Like core 52 at 2728-2738 ft. but irregularly sandy (fine-grained sand). Bottom. Clay, like top part, but containing irregular inclusions of light-gray, argillaceous, micaceous, calcareous, very fine grained sandstone.
2740-2750	Like core 53 at 2738-2748 ft.
2748-2758	Core 54. Recovery 5 ft. Like core 53 at 2738-2748 ft.
2750-2760	Like core 54 at 2748-2758 ft.
2758-2768	Core 55. Recovery 5 ft. Clay, dark brownish-gray, irregularly sandy (fine-grained sand), micaceous.
2760-2770	No cutting sample.
2768-2778	Core 56. Recovery $\frac{1}{2}$ ft. Clay, like core 55 at 2758-2768 ft., containing irregular areas of light-gray, micaceous, highly sandy (fine-grained sand) clay.
2770-2780	Like core 56 at 2768-2778 ft.

Depth (feet)	Description
2778-2788	Core 57. Recovery 5 ft. Shale, dark brownish-gray, occurring in thin lenses; and dark-gray, micaceous, sandy (fine-grained sand) clay.
2780-2790	Like core 57 at 2778-2788 ft.
2788-2798	Core 58. Recovery 7 ft. No sample.
2790-2800	Clay, brownish-gray, containing small flakes of mica; very fine and even-grained, micaceous, calcareous, somewhat glauconitic sandstone. The sample contains a few moderately large nodules of dark-green glauconite. Specimens of Foraminifera are present, but not abundant, and species are not diagnostic; <i>Globotruncana fornicata</i> common; <i>Globorotalites conicus</i> present.
2798-2803	Core 59. Recovery 2 ft. Top foot. Shale, brownish-gray, flaky, containing small flakes of mica and a few nodules of dark-green glauconite. Specimens of non-diagnostic species of Foraminifera are present.
Beds of Austin ? age.	
Bottom foot. Shale, brownish-gray, flaky, micaceous, containing irregular streaks and inclusions of fine-grained, chalky, highly glauconitic sand. Chalky character of sand due to small fragments of microfossiliferous material and <i>Inoceramus</i> prisms.	
2800-2810	Shale, brownish-gray, flaky, micaceous, and very fine grained, micaceous sandstone containing some small grains of glauconite.
2803-2813	Core 60. Recovery 10 ft. 3d and 4th feet, Marl, light-gray, chalky; micaceous, containing many small black phosphatic nodules, some fragments of fish scales, and abundant <i>Inoceramus</i> prisms. The chalky character of the material is due to abundance of comminuted microfossil shells. Specimens of Foraminifera present are: <i>Eouwigerina aculeata</i> , <i>Globorotalites conicus</i> , <i>Planulina texana</i> , <i>Globotruncana</i> spp. (common), <i>Clavulinoides</i> n. sp. 9th and 10th feet. Clay, light-gray, chalky, sandy, micaceous, highly glauconitic.
2813-2823	Core 61. Recovery 2 ft. 2nd foot. Clay shale, brownish-gray, soft, flaky, micaceous, highly glauconitic; light-speckled appearance is due to abundance of small chalky microfossils, <i>Inoceramus</i> prisms, and broken and crushed small fragments of chalky fossil debris. Fauna is like that in core 60 at 2803-2813 feet, and the specimens are usually poorly preserved.
2823-2833	Core 62. Recovery 2 ft. Marl, light-gray, sandy (very fine-grained sand), chalky, micaceous, highly glauconitic, highly microfossiliferous. The fossil material is usually composed of finely comminuted debris; <i>Inoceramus</i> prisms abundant; <i>Robulus rotulata</i> common; <i>Cibicides harperi</i> present.

Depth (feet)	Description
2833-2843	Core 63. Recovery 1 ft. Like core 62 at 2823-2833 ft.
2843-2853	Core 64. Recovery 10 ft. No change.
2853-2863	Core 65. Recovery 10 ft. 1st to 7th foot like cores 62 (2823-2833 ft.), 63 (2833-2843 ft.), 64 (2843-2853 ft.). Beds of Austin age (definite) Gober Tongue(?) equivalent 8th, 9th and 10th feet. Marl, buff, sandy (very fine grained sand), somewhat micaceous, chalky. Contains a large amount of finely comminuted, poorly preserved, microfossil debris, and abundant <i>Inoceramus</i> prisms and fragments. Many specimens of Foraminifera present, including <i>Heterostomella austiniana</i> , <i>Planulina austiniana</i> , and <i>Loxostoma clavatum</i> .
2863-2873	Core 66. Recovery 5 ft. 1st foot. Marl, gray, light-spotted, dense, slightly micaceous. Speckled appearance is due to abundant microfossiliferous material and finely fragmented chalky fossil debris. Specimens of Foraminifera are usually very small. <i>Globigerina</i> , <i>Gümbelina</i> , several species of <i>Globotruncana</i> , and a small <i>Anomalina</i> sp. strongly predominate; numerous specimens of <i>Globorotalites umbilicatus</i> are present. 2nd and 3rd feet. Similar to 1st foot, but slightly glauconitic. 4th and 5th feet. Marl, buff, light-spotted, slightly micaceous, highly microfossiliferous.
2873-2883	Core 67. Recovery 5 ft. Like core 66 at 2863-2873 ft.
2883-2893	Core 68. Recovery 6 ft. No change in lithology. <i>Inoceramus</i> prisms very abundant. Some specimens of <i>Ventilabrella austiniana</i> and <i>Nonionella austiniana</i> present, but fauna otherwise unchanged.
2893-2903	Core 69. Recovery 4 ft. Marl, buff, slightly micaceous, containing abundant specimens of Foraminifera; fauna unchanged.
2903-2913	Core 70. Recovery 10 ft. 1st, 2nd and 3rd feet. Marl, buff, moderately hard, chalky, highly microfossiliferous. Fauna like core 69 at 2893-2903 ft. 6th, 7th and 8th feet. Marl, light-buff, chalky, glauconitic, highly microfossiliferous. 9th and 10th feet. Chalk, cream, slightly micaceous, highly glauconitic, highly microfossiliferous; pyrite inclusions common; fauna unchanged.
2910-2920	Cuttings contain specimens of <i>Kyphopyza</i> , which may have come from higher levels.
2913-2923	Core 71. Recovery 5 ft. Marl, buff, light-speckled, micaceous, highly microfossiliferous. Dominant species of Foraminifera are: <i>Globigerina cretacea</i> ,

Depth (feet)	Description
	<i>Gümbelina</i> spp., and a small <i>Anomalina</i> sp. characteristic of the beds of Austin age. Also present are specimens of <i>Globotruncana austiniana</i> , <i>Globorotalites umbilicatus</i> , and <i>Planulina texana</i> ; <i>Globigerina</i> and <i>Planulina</i> are the dominant forms.
2923-2933	Core 72. Recovery 8 ft. Marl, grayish-tan, somewhat micaceous, highly microfossiliferous. Fauna like core 71 at 2913-2923 ft.
2933-2943	Core 73. Recovery 2 ft. Like core 72 at 2923-2933 ft.
2943-2953	Core 74. Recovery 8 ft. Marl, tan-gray, micaceous, slightly carbonaceous, highly microfossiliferous. Fauna unchanged.
2953-2963	Core 75. Recovery 0.
2963-2968	Core 75. Recovery 5 ft. Shale, brownish-gray, flaky, highly micaceous, somewhat glauconitic. Contains fragments of fish scales, green and brown mica, and a few small arenaceous species of Foraminifera. Other species of Foraminifera are like those in core 71 at 2913-2923 ft.
2968-2976	Core 77. Recovery 5 ft. Marl, brownish-gray, micaceous, highly fossiliferous; contains abundant fragments and prisms of <i>Inoceramus</i> . The foraminiferal fauna is more representative than in core 76, and is Austin in character.
2976-2986	Core 78. Recovery 4 ft. Shale, brownish-gray, micaceous, microfossiliferous.
2980-2990	Cuttings contains specimens of <i>Frondicularia undulosa</i> .
2986-2996	Core 79. Recovery 3 ft. Like core 78 at 2976-2986 ft.
2996-3005	Core 80. Recovery 8 ft. Top 4 feet. Shale, brownish-gray, highly glauconite, calcareous, microfossiliferous. <i>Inoceramus</i> fragments are abundant. Foraminiferal fauna is composed, largely, of specimens of <i>Gümbelina reussi</i> , <i>Globigerina cretacea</i> , <i>Globotruncana canaliculata</i> , and many specimens of <i>Globorotalites umbilicatus</i> and <i>Planulina</i> sp. (small forms). Bottom 4 ft. shale, brownish-gray, micaceous, calcareous, highly microfossiliferous.
3005-3015	Core 81. Recovery 5 ft. Like core 80 at 2996-3005 ft.
3015-3025	Core 82. Recovery 6 ft. No change.
3025-3035	Core 83. Recovery 5 ft. Top 3 ft. Shale, brownish-gray, somewhat micaceous, calcareous, very highly microfossiliferous, containing comminuted fossil debris, specimens of small Foraminifera and very abundant <i>Inoceramus</i> prisms and fragments. Microfauna consists, mainly,

Depth (feet)	Description
	of <i>Globigerina cretacea</i> , <i>Gümbelina reussi</i> , <i>Gümbelina moremani</i> (specimens rare in preceding samples, common in this sample), a small <i>Anomalina</i> sp., a few specimens of <i>Globotruncana</i> , a large, flat form of <i>Globigerina</i> (?) <i>cretacea</i> (common), and a few specimens of <i>Globorotalites umbilicatus</i> . Bottom 2 feet. No samples.
3035-3045	Core 84. Recovery 10 ft. Top 9 feet. Like core 83 at 3025-3035 ft; contains abundant fragments of <i>Inoceramus</i> and other bivalves. Specimens of <i>Globotruncana</i> are more common than in core 83. Bottom 1 foot. Shale, light-gray, hard, dense, calcareous. <i>Inoceramus</i> fragments are relatively scarce, but material is too well-indurated for fauna to wash from sample. Specimens identified are same as in core 83.
3045-3055	Core 85. Recovery 10 ft. Top 5(?) feet. Shale, brownish-gray, calcareous, very highly fossiliferous, giving shale a somewhat speckled appearance. No marked change in microfauna. 2nd 4 feet. Marl, gray, somewhat micaceous, light-speckled owing to abundance of <i>Inoceramus</i> fragments and comminuted fossil debris. No marked change in microfauna. Bottom (?) 1 foot. Shale, light-gray, hard, dense, calcareous, microfossiliferous.
3055-3065	Core 86. Recovery 8 ft. Top 2 feet. Material like bottom of core 85 at 3045-3055 ft. and lenses of smooth, dark-gray, flaky shale containing many irregular-shaped, gray, phosphatic nodules. Bottom 6 feet. Shale, greenish-gray, flaky, micaceous, containing crushed fragments of fossil (?) material and some fragments of fish scales. Microfauna consists of several species of <i>Gümbelina</i> , <i>Globigerina cretacea</i> (small variety), specimens of <i>Globorotalites umbilicatus</i> , a few specimens of <i>Globotruncana cretacea</i> , and specimens of <i>Planulina eaglefordensis</i> .
3065-3075	Core 87. Recovery 10 ft. Shale, gray, flaky, calcareous, similar to core 86; contains small fragments of fish scales and an irregular-shaped area in which large amounts of crushed chalky material seem to be composed of small, broken fragments of fossils. Third 2 feet. Shale, dark-gray, flaky, slightly micaceous, calcareous. The speckled appearance of the shale is due to many rather evenly distributed small chalky specimens of Foraminifera and fragments of <i>Inoceramus</i> . An <i>Anomalina</i> sp. and two species of <i>Gümbelina</i> are the dominant specimens of Foraminifera, and specimens of <i>Eouwigierina</i> cf. <i>E. austiniana</i> are also present.

Depth (feet)	Description
3075-3085	Core 88. Recovery 5 ft. Like core 87 at 3065-3075 ft.
3085-3095	Core 89. Recovery 7 ft. No change.
3090-3100	Fragments of <i>Citharina texana</i> var. were first observed in this sample of cuttings, but the highest occurrence in the well may have been above this depth.
3095-3105	Core 90. Recovery 10 ft. Top 5 feet. Shale, gray, flaky, microfossiliferous, like that described for the third 2 feet of core 87 at 3065-3075 ft. Core 90 contains fragments of <i>Inoceramus</i> and other macrofossils. Foraminiferal fauna is like core 87, but specimens of <i>Globigerina cretacea</i> var. are much more common, and some specimens of <i>Globotruncana</i> are present. Bottom 5 ft. Like the top 5 ft. but specimens of Foraminifera are less abundant and some specimens of <i>Citharina texana</i> var. are present.
3105-3115	Core 91. Recovery 10 ft. Like core 90 at 3095-3105 ft. Fragments of <i>Inoceramus</i> and other macrofossils are present; microfauna is like core 90.
3115-3125	Core 92. Recovery 10 ft. Like core 91 at 3105-3115 ft. with the addition of tubular inclusions of pyrite. <i>Inoceramus</i> fragments are common. Microfauna is like core 91 but specimens are somewhat less abundant; specimens of <i>Citharina texana</i> var. are common.
3125-3135	Core 93. Recovery 7 ft. Like core 92 at 3115-3125 ft. Specimens of <i>Dorothia alexanderi</i> are present.

Atkinson Formation. Upper Member.

3135-3145	Core 94. Recovery 10 ft. Top of deeper-water marine facies of upper member of Atkinson Formation. Top 9½ feet. Clay, dark brownish-gray, flaky, highly sandy and micaceous, somewhat carbonaceous and pyritic; contains many fragments of <i>Ostrea</i> sp. The sand grains are fine, even, and angular. Bottom ½ foot. Sandstone, soft, somewhat argillaceous, glauconitic, micaceous; the grains are fine, even angular, clear quartz.
3145-3155	Core 95. Recovery 10 ft. Top 5 feet. Sandstone like bottom of core 94 at 3135-3145 ft., containing some thin lenses of brownish-gray, flaky, micaceous, carbonaceous, somewhat glauconitic clay. Fragments of <i>Ostrea</i> sp. are common. Bottom 5 feet. Like top 5 feet, but only slightly glauconitic.

Depth (feet)	Description
3155-3165	Core 96. Recovery 9 ft. Top 7 feet. Clay, light-gray, highly sandy (fine-grained sand), highly-micaceous, glauconitic, calcareous. Bottom 2 feet. Clay, greenish-gray, irregularly sandy (very fine grained sand), micaceous, glauconitic, carbonaceous, calcareous. The clay contains numerous reddish-brown, small, irregular-shaped nodules of siderite, and some fragments of fish scales. A few specimens of <i>Globigerina cretacea</i> in the washed sample may not be indigenous.
3165-3175	Core 97. Recovery 9 ft. Clay, greenish-gray, soft, somewhat sandy (fine-grained sand), highly micaceous, (biotite and muscovite), calcareous, slightly carbonaceous. The clay contains some small, grayish-brown, irregular-shaped nodules of siderite.
3175-3185	Core 98. Recovery 10 ft. Clay, greenish-gray, flaky, micaceous, calcareous, containing irregular, highly sandy (fine-grained sand), glauconitic areas. The clay contains small gray and light-brown, irregular-shaped nodules of siderite.
3185-3195	Core 99. Recovery 1 ft. Shale, olive-gray, flaky, somewhat micaceous, slightly carbonaceous, calcareous.
3195-3205	Core 100. Recovery 10 ft. Shale, like core 99 at 3185-3195 ft. but irregularly sandy (fine-grained sand), and more highly micaceous. The shale contains some fragments of fish bones, fish scales, and nodules of siderite. The fauna is composed of a few <i>Inoceramus</i> prisms and specimens of <i>Planulina caglefordensis</i> , <i>Gumbelina</i> sp., <i>Valvulineria infrequens</i> var., <i>Globigerina cretacea</i> , and <i>Hastigerinella moremani</i> Cushman.
3205-3215	Core 101. Recovery 7 ft. Like core 100 at 3195-3205 ft.
3215-3225	Core 102. Recovery 10 ft. Clay, olive-gray, sandy (very fine grained sand), micaceous; contains fragments of fossil bivalves, fish bones and teeth, phosphatic nodules, a little glauconite and a few specimens of Foraminifera like core 100 at 3195-3205 ft.
3225-3235	Core 103. Recovery 7 ft. Shale, greenish-gray, flaky, somewhat micaceous, containing irregular areas and thin lenses which are highly sandy (fine-grained sand) and somewhat glauconitic. The fauna is composed of small scattered fragments of fish bones and scales, and a few specimens of Foraminifera like core 100 at 3195-3205 ft.
3235-3245	Core 104. Recovery 10 ft. Top 7 feet. Marl, gray, thinly laminated, slightly micaceous, containing irregular areas of very fine grained sand. Middle 5 feet. Like the top 7 feet. Contains abundant specimens

Depth (feet)	Description
	of Foraminifera; <i>Planulina eaglefordensis</i> , <i>Gümbelina moremani</i> , <i>Globigerina cretacea</i> var., and a very few specimens of <i>Globotruncana</i> cf. <i>G. arca</i> , <i>Ammobaculites</i> sp. and <i>Gaudryina</i> cf. <i>G. foeda</i> .
	Bottom 3 feet. Marl, greenish-gray; contains a species of <i>Masilina</i> characteristic of the Eagle Ford shale in Texas.
3245-3255	<p>Core 105. Recovery 10 ft.</p> <p>Top 5 feet. Marl, gray, thinly laminated, micaceous; contains fish scales and specimens of Foraminifera.</p> <p>Bottom 5 feet. Marl, gray, flaky, slightly micaceous; contains fish scales and many specimens of Foraminifera.</p>
3255-3261	<p>Core 106. Recovery 5 ft.</p> <p>Top 3 feet. Shale, greenish-gray, irregularly sandy (moderately coarse grained sand), somewhat glauconitic.</p> <p>Bottom 2 feet. Shale, gray, smooth, thinly laminated, containing fragments of macrofossils, and irregular light-gray silty and micaceous areas.</p>
3261-3266	<p>Core 107. Recovery 2 ft.</p> <p>Top of shallow-water marine facies of upper member of Atkinson Formation. The electric log shows the top of 3253 ft.</p> <p>Top 1 foot. Sandstone, light-gray, hard, moderately coarse grained, clear quartz and a few peach-colored grains. Contains fragments of <i>Ostrea</i> sp., and some scattered nodules of glauconite.</p> <p>Bottom 1 foot. Shale, gray, smooth, moderately soft, argillaceous, moderately fine grained sandstone, containing fragments of carbonaceous material.</p>
3266-3271	<p>Core 108. Recovery 5 feet.</p> <p>Top 1 foot. Sandstone, greenish-gray, moderately hard, argillaceous, micaceous, slightly glauconitic and sandy clay. Sand is very fine to moderately fine grained. Core contains fragments of macrofossils.</p> <p>Second 1 foot. Clay, gray, highly micaceous, sandy (very fine grained sand), containing areas of smooth, blue-gray, marly shale. A few shell fragments present in the core.</p> <p>Bottom 3 feet. Clay, shaly, greenish-gray, highly micaceous, sandy (fine-grained sand), carbonaceous.</p> <p>Core contains many fragments of fossil bivalves.</p>
3271-3276	<p>Core 109. Recovery 4 ft.</p> <p>Top. Like bottom 3 feet of core 108 at 3266-3271 ft. but more coarsely sandy. The sand is gray, argillaceous, highly micaceous.</p> <p>Bottom. Sandstone, light-gray, moderately soft, argillaceous, moderately fine grained, micaceous; contains a few fragments of fossil bivalves and numerous fragments of carbonaceous material.</p>

Depth (feet)	Description
3276-3286	<p>Core 110. Recovery 5 ft.</p> <p>Top. Shale, greenish-gray, thinly flaky, highly micaceous, slightly carbonaceous.</p> <p>Bottom. Like the top part but more highly carbonaceous, and containing shell fragments.</p>
3286-3298	<p>Core 111. Recovery 2 feet.</p> <p>Top 1 foot. Sandstone, light-gray, hard, dense, moderately fine grained; contains numerous fragments of <i>Gryphea</i> sp., and small nodules of black (phosphatic?) material.</p> <p>Bottom 1 foot. Alternating thin lenses of gray shale and very fine to moderately fine grained, glauconitic, micaceous, argillaceous sandstone. Core contains fragments of fossil bivalves.</p>
3293-3298	<p>Code 112. Recovery 2 ft.</p> <p>Sandstone, white, soft, micaceous, argillaceous, very fine to moderately fine grained.</p>
3298-3308	<p>Core 113. Recovery ½ ft.</p> <p>Sandstone, light-gray, hard, dense, fine to moderately fine grained; contains many fragments of fossil bivalves, fragments of carbonaceous material, and phosphatic nodules.</p>
3308-3318	<p>Core 114. Recovery 6 ft.</p> <p>Top 4 feet. Sandstone, light-gray, soft, argillaceous, fine grained, highly micaceous, somewhat carbonaceous, slightly glauconitic.</p> <p>Bottom 2 feet. Shale, greenish-gray, thinly flaky, somewhat micaceous, irregularly interbedded with moderately fine grained argillaceous sandstone. The shale contains lenses of light-gray, slightly carbonaceous siltstone in which siderite pellets are present.</p>
3318-3328	<p>Core 115. Recovery 8 ft.</p> <p>Top 4 feet. Shale, greenish-gray, micaceous, intergrading with light-gray, highly micaceous siltstone. The core contains fragments of carbonaceous material, phosphatic material, and a few traces of macrofossils.</p> <p>2nd 2 feet. Sandstone, light-gray, moderately hard, moderately fine grained, argillaceous, highly glauconitic and micaceous.</p> <p>Bottom 2 feet. Like the 2nd 2 feet but sandstone is somewhat coarser grained.</p>
3328-3338	<p>Core 116. Recovery 5 ft.</p> <p>Top 4 ft. Sandstone, light-gray, moderately soft, moderately fine grained, highly glauconitic and micaceous.</p> <p>Bottom 1 foot. Sandstone, light-gray, moderately soft, silty to moderately coarse grained, cross-bedded, micaceous, somewhat carbonaceous.</p>
3338-3347	<p>Core 117. Recovery 5 ft.</p> <p>Top 1 foot. Sandstone, light-gray, moderately hard, fine to moderately fine grained, argillaceous, glauconitic, somewhat</p>

Depth (feet)	Description
	micaceous; contains fragments of fossil bivalves and many fragments of phosphatic material.
	Bottom 4 feet. Sandstone, moderately soft, fine to moderately fine grained, glauconitic, argillaceous, somewhat micaceous; contains many inclusions of carbonaceous material.
3347-3357	Core 118. Recovery 5 ft. Sandstone, light-gray, soft, silty to moderately fine grained, glauconitic.
3357-3367	Core 119. Recovery 10 ft. Top 1 foot. Sandstone, light greenish-gray, like core 118 at 3347-3357 feet; contains many fragments of phosphatic material. 2nd 1 foot. Sandstone, light-gray, loosely consolidated, very fine to moderately coarse grained, glauconitic, micaceous. Bottom 8 feet. Sandstone, loosely consolidated, silty to fine to coarse grained, glauconitic, micaceous.
3367-3377	Core 120. Recovery 5 ft. Top 1 foot. Sandstone, loosely consolidated, fine to coarse-grained, micaceous. Bottom 4 feet. Sandstone, light-gray, silty to fine to moderately fine grained, highly micaceous, slightly glauconitic.
3377-3387	Core 121. Recovery 6 ft. Top 1 foot. Sandstone, light-gray, moderately soft, fine to moderately coarse grained, somewhat carbonaceous. 2nd 1 foot. Sandstone, soft, silty to fine to coarse-grained, somewhat micaceous, carbonaceous; contains nodules of light-brown to yellowish, soft limonite. Bottom 4 feet. Siltstone, light-gray, moderately soft, micaceous.
3387-3397	Core 122. Recovery 8 ft. Like bottom 4 feet of core 121 at 3377-3387 ft.
3397-3407	Core 123. Recovery 4 ft. Sandstone, light-gray, moderately soft, coarse-grained, argillaceous, micaceous.
3407-3413	Core 124. Recovery ½ ft. Sandstone, light-gray, fine-grained, micaceous.
3413-3423	Core 125. Recovery 4 ft. Top 1 foot. Sandstone, light-gray, hard, dense, conglomeratic (fine to coarse-grained sand). Contains irregular-shaped inclusions of light greenish-gray and dark-gray clay; black, carbonaceous, highly pyritic clay; a few nodules of limonite; and a trace of glauconite. Bottom 3 feet. Sandstone, light-gray, moderately soft, moderately fine grained, argillaceous.
3423-3433	Core 126. Recovery 4 ft. Sandstone, light-gray, soft, poorly sorted, moderately fine to moderately coarse grained, argillaceous, containing highly micaceous, glauconitic, and lignitic lenses.

Depth (feet)	Description
3433-3440	Core 127. Recovery 7 ft. Sandstone, light-gray, silty to fine-grained, highly micaceous.
3440-3450	Core 128. Recovery 7 ft. Top 5 feet. Like core 127 at 3433-3440 ft. and contains glauconitic streaks and fragments of carbonaceous material. Bottom 2 feet. Clay, greenish-gray, silty, somewhat micaceous.
3450-3460	Core 129. Recovery 3 ft. Top 2 feet. Sandstone, light-gray, soft, fine-grained, silty micaceous. Bottom 1 foot. Sandstone, white, moderately hard, moderately fine grained, micaceous.
3460-3470	Core 130. Recovery 2 ft. Clay, gray and greenish-gray, moderately hard, containing irregular streaks of highly sandy (coarse-grained sand), somewhat micaceous carbonaceous clay.
3470-3480	Core 131. Recovery 9 ft. Sandstone, light-gray, soft, silty, micaceous, slightly glauconitic. The sand is, mainly, very fine grained, but a few coarse grains are present.
3480-3490	Core 132. Recovery 10 ft. Sandstone, light-gray, soft, silty, high micaceous, glauconitic, slightly carbonaceous.
3490-3498	Core 133. Recovery 2 ft. Siltstone, light-gray, soft, highly micaceous, somewhat glauconitic, somewhat carbonaceous.
3498-3508	Core 134. Recovery 3 ft. Top 1 foot. Sandstone, light-gray, hard dense, moderately coarse grained, very highly micaceous, glauconitic, and pyritic. Middle 1 foot. Sandstone, greenish-gray, soft, silty, fine-grained, very highly micaceous and glauconitic, containing inclusions of carbonaceous material. Bottom 1 foot. Sandstone, white, soft, fine-grained, silty micaceous.
3508-3518	Core 135. Recovery 4 ft. Top 2 feet. Shale, greenish-gray, unctuous, flaky. Bottom 2 feet. Sandstone, white, moderately hard, fine-grained, silty, micaceous.
3518-3538	Core 136. Recovery 9 ft. Top 5 feet. Sandstone, moderately hard, dense, fine to moderately, fine grained, argillaceous, micaceous, containing many small scattered fragments of soft yellowish-brown limonite(?). Middle 1 foot. Clay, light greenish-gray, moderately hard, silty, micaceous. Bottom 3 feet. Sandstone, greenish-gray, moderately hard, poorly sorted, fine to moderately coarse grained, argillaceous, micaceous, containing inclusions of limonite(?).

Depth (feet)	Description
3538-3558	<p>Core 138. Recovery 5 ft.</p> <p>Top 1 foot. Siltstone, greenish-gray, dense, finely micaceous, containing many fragments of carbonized plant remains.</p> <p>Bottom 4 feet. Sandstone, light greenish-gray, soft, moderately fine to coarse grained, silty, argillaceous.</p>
3558-3578	Core 138. Recovery 0.
3578-3598	<p>Core 139. Recovery 5 ft.</p> <p>Top 2 feet. Sandstone, light-gray, moderately hard, dense, moderately coarse-grained, slightly pyritic. The sand grains are clear quartz.</p> <p>Middle, 1 foot. Siltstone, white, soft, micaceous.</p> <p>Bottom 2 feet. Sandstone, light-gray, moderately hard, moderately coarse to coarse-grained, somewhat pyritic, containing worn fragments of a bivalve <i>Ostrea</i> (?) sp.</p>
3598-3618	<p>Core 140. Recovery 3 ft.</p> <p>Top 1 foot. Sandstone, gray, hard, dense, coarse-grained, quartzitic, containing many irregular-shaped inclusions of greenish-gray clay, glauconite and carbonaceous plant fragments.</p> <p>2nd 1 foot. Clay, light greenish-gray, micaceous, highly sandy (fine-grained sand).</p> <p>3d 4 inches. Sandstone, white, moderately hard, dense, moderately fine-grained, glauconitic.</p> <p>4th, 5 inches. Sandstone, greenish-gray, moderately coarse grained, argillaceous, micaceous, containing inclusions of thinly laminated green shale that seem to have been secondarily deposited in the sandstone.</p> <p>5th 3 inches. Sandstone, light-gray, moderately hard, moderately fine to coarse-grained, mainly clear quartz but containing peach-colored grains.</p>
3618-3638	<p>Core 141. Recovery 4 ft.</p> <p>Top 1 foot. Sandstone, light-gray, hard, dense, moderately fine grained, micaceous, clear quartz, containing a few pinkish grains, dark-green nodules of glauconite, and highly pyritic areas.</p> <p>2nd 1 foot. Like top 1 foot.</p> <p>3d 1 foot. Sandstone, light-gray, hard, fine-grained, micaceous, glauconitic.</p> <p>4th 1 foot. Clay, greenish-gray, slightly sandy, micaceous and somewhat carbonaceous.</p>
3638-3658	<p>Core 142. Recovery 3 ft.</p> <p>Top 1 foot. Sandstone, moderately hard, moderately coarse grained, micaceous, glauconitic, containing fragments of carbonaceous material, a few phosphatic nodules and greenish-gray inclusions (probably secondary).</p>

Depth
(feet)

Description

Middle 1 foot. Silt, gray, somewhat carbonaceous, containing irregular areas that are sandy, micaceous and slightly glauconitic.

Bottom 1 foot. Sandstone, light-gray, hard, dense, moderately coarse-grained, micaceous, glauconitic.

3658-3678

Core 143. Recovery 8 ft.

Top 1 foot. Sandstone, hard, moderately coarse-grained, calcareous, glauconitic, composed mainly of clear quartz grains and few pink or peach-colored grains.

2nd 1 foot. Shale, greenish-gray, thinly flaky, silty to sandy, containing a few small carbonaceous fragments.

3d 2 feet. Sandstone, light-gray, hard, moderately coarse grained, micaceous, glauconitic, containing numerous inclusions of carbonized plant fragments.

4th 2 feet. Clay, greenish-gray, silty, micaceous, containing lenses of dark-greenish-gray thinly laminated shale.

5th 2 feet. Sandstone, light-gray, hard, dense, moderately fine grained, micaceous, glauconitic.

3678-3698

Core 144. Recovery 8 ft.

Top 3 feet. Shale, greenish-gray, flaky, micaceous, containing comminuted carbonaceous fragments.

2nd 1 foot. Conglomerate, composed of dense, moderately fine grained, glauconitic sandstone containing secondary nodular inclusions of green and dark brownish-gray clay, limonite nodules, many worn and broken shell fragments, and fragments of carbonaceous material. Another part of the core is soft, coarse-grained, micaceous sandstone.

3d 3 feet. Siltstone, light-gray, glauconitic, micaceous, and lenses of dark greenish-gray, unctuous shale.

4th 1 foot. Sandstone, light-gray, hard, dense, conglomeratic, glauconitic; contains worn shell-fragments, fragments of pyritized lignite, and nodular fragments of greenish-gray clay and of limonite. Another part of the core is dense, glauconitic, micaceous sandstone containing abundant small scattered fragments of limonite.

3698-3718

Core 145. Recovery 7 ft.

Top 3 feet. Sandstone, light-gray, dense, very highly micaceous (muscovite and biotite), glauconitic.

Bottom 4 feet. Shale, greenish-gray to dark green, smooth-textured, slightly micaceous and carbonaceous, non-calcareous. The bottom foot is irregularly highly sandy (fine-grained sand) and micaceous.

3700-3720

Clay, brownish-gray, micaceous and fragments of light-gray and brownish-gray sandstone; shell fragments present.

Depth (feet)	Description
Atkinson Formation. Lower Member.	
3720-3730	Shale, greenish-gray, and many fragments of white, moderately fine grained glauconitic, micaceous sandstone; numerous shell fragments and a few carbonaceous fragments. Top of the lower member of the Atkinson Formation (marine facies) is at 3723 ft. on the electric log of the well.
3730-3750	Like sample at 3720-3730 ft.
3750-3760	Like sample at 3730-3750 ft; fragments of lignite are common, and a few, probably indigenous specimens of ostracodes are present.
3760-3770	Shale, gray and greenish-gray, and many fragments of irregularly sandy, somewhat glauconitic, highly macrofossiliferous limestone, which also contain specimens of ostracodes like those in sample at 3750-3760 ft. The sample contains fragments of sandstone and fragments of lignite.
3770-3790	No change.
3790-3800	Shale, olive-gray, flaky, and fragments of fossiliferous limestone.
3800-3810	Like sample at 3790-3800 ft; fragments of fossil bivalves; limestone fragments more abundant.
3810-3820	Shale, olive-gray, fragments of <i>Ostrea(?)</i> sp., and several types of sandstone. Sample contains specimens of <i>Ammobaculites agrestis</i> and <i>Ammotium braunsteini</i> .
3820-3830	Shale, greenish-gray, flaky, somewhat micaceous.
3830-3840	Shale, gray, containing shell fragments.
3840-3850	Shale, greenish-gray, flaky, 50 percent; and 50 percent moderately coarse grained quartz sandstone containing grains of pink feldspar.
3850-3860	Like sample at 3840-3850 ft., but sandstone is less than 50 percent.
3860-3870	Shale, greenish-gray, flaky, a little sandstone, and numerous fragments of white bentonite.

Comanche Series. Undifferentiated

3870-3880	Shale, flaky, and coarse-grained sandstone like sample at 3860-3870 ft. Sample also contains fragments of sandy (fine-grained sand) bentonite, first observed in sample at 3860-3870 ft., numerous fragments of brownish and purplish-red micaceous clay; siderite pellets (possibly caving from higher levels); fragments of pink-stained, nodular limestone.
3880-3890	Shale, gray and greenish-gray, flaky, and many fragments of brick-red, purplish-red, red and gray mottled, and mustard and gray mottled, micaceous, sandy shale; light greenish-brown siderite nodules; pink-stained limestone nodules; a little coarse-grained, unconsolidated sand.
3890-3900	Like sample at 3880-3890 ft., but no limestone nodules.

Depth (feet)	Description
3900-3910	Sand, unconsolidated, coarse-grained, quartz, and scattered grains of feldspar, about 75 percent; gray, thinly flaky shale, and red and multicolored shale about 25 percent of sample.
3910-3920	Sand, coarse-grained, and shale like sample at 3900-3910 ft., sample contains many grains of pink and yellow feldspar, and a few grains of greenish-yellow quartz(?).
3920-3930	Like sample at 3910-3920 ft., but shale fragments are more abundant.
3930-3940	No change.
3940-3950	Like sample at 3930-3940 ft., but fragments of red shale, red and mustard mottled shale, and purple shale are very abundant.
3950-3960	Sand, unconsolidated, pinkish-gray, coarse-grained, quartz, and many red-stained grains. Sample contains fragments of red, purple and mottled shale.
3960-4060	No change.
4060-4070	Mudstone, gray, red, purple, and mottled; unconsolidated sand like that described in sample at 3950-3960 ft. Grains of feldspar are common, and fragments of shale are abundant.
4070-4080	Clay, red, and fine to very coarse grained quartz sand; a little feldspar.
4080-4090	Sand, fine to very coarse grained; a little red feldspar.
4090-4095	Sand, like sample at 4080-4090 ft; a little red shale; abundant cavings of gray shale.
4095-4100	Clay shale, bright red, 50 percent of sample; cavings of gray shale 50 percent.
4097-4102	Core 146. Recovery 0.
4100-4110	Clay, gray, one-third of sample; clay shale, one-third of sample; sand, one-third of sample.
4110-4120	Clay shale, red 75 percent; sand 25 percent.
4120-4130	Sand, fine to very coarse grained, subangular, red-stained quartz; staining probably from red clay matrix. Yellow grains of quartz, and grains of feldspar are present.
4130-4140	Sand, like sample at 4120-4130 ft.
4140-4150	Sand, yellow-tinted grains, and bright yellow clay that is probably the matrix in which the sand occurs; a few varicolored pebbles of igneous (?) rocks; rounded pebbles of red and yellow feldspar; rounded pebbles of yellow quartz.
4150-4160	Sand, moderately coarse grained, quartz; grains of feldspar and a little red clay.
4160-4170	Sand, fine to very coarse grained, quartz; a little feldspar; a few pebbles of igneous (?) rocks; a few small fragments of red clay.
4164-4167	Core 147. Recovery 3 ft. Top. Clay, brownish-red, silty, micaceous.

Depth (feet)	Description
	Bottom. Like top sample, and irregularly streaked with light bluish-gray, silty to sandy (fine-grained sand), argillaceous clay.
4170-4180	Clay, red, 75 percent; sand, like sample at 4160-4170 25 percent.
4180-4190	No change.
4190-4200	Sand, 50 percent; clay 50 percent. Sand is in part, like sample at 4160-4170 ft., and in part, fragments of fine-grained, even-grained, soft sandstone containing grains of red feldspar, and hard yellow clay.
4200-4210	Sandstone, fine to very coarse grained, composed of yellow and red-stained grains, and a few grains of feldspar; also medium-grained sandstone having small amount of matrix.
4210-4220	Sand, yellow and white, mostly coarse-grained, quartz and a little feldspar.

Pre-Cretaceous

4220-4280	Igneous rock.
4279-4282½	Core 148. Recovery 3 ft. Igneous rock.
4280-4296 T.D.	No samples.

BACON COUNTY

Operator: City of Alma Well 1	GGs. No. 58
Location: City of Alma, Ga.	Elevation: 195 ft. (approx.)
	Total depth: 626 ft.
	Completed: May 20, 1938

Summary of Stratigraphy

		Depth (feet)	Thickness (feet)
Tertiary			
Pliocene to Recent	Surface		50
No samples	50		14
Miocene undifferentiated	64		386
Oligocene			
upper, Suwannee Limestone	450		50
Eocene			
upper, Ocala Limestone	upper member	500	total 126 depth

Lithologic and paleontologic description of cuttings and cores. Samples are cuttings unless otherwise stated.