

Sowega Minerals
West #1

GEORGIA

CALHOUN COUNTY

Operator: Sowega Minerals Exploration Co. Inc.	GGs. No. 192
Landowner: J.W. West Well #1	Elevation: 345 ft.
Location: Land District 4, Land Lot 328	Total depth: 5265 ft.
200 ft. north of south line and	Completed: Jan. 13, 1950
200 ft. east of west line of	
Land Lot 328.	

Summary of Stratigraphy

	Depth to top (feet)	Thickness (feet)
Tertiary		
Samples not studied	0-560	
Cretaceous		
Gulf		
Beds of Navarro age	560 ^{1/2}	410
Beds of Taylor age	970	450
Beds of Austin age	1420	680
Atkinson Formation, upper member	2100	550
do lower member	2650	270
Comanche undifferentiated	2920	930?
Upper Triassic(?)		
Newark(?) clastic rocks	3850?	1340?
diabase	5190 to total depth	75

^{1/2} Herrick, S.M., 1961, Ga. Geol. Survey Bull. 70, p. 57.

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

Depth (feet)	Description
0-770	<p>Samples not studied by E.R. Applin.</p> <p>Cretaceous</p> <p>Gulf Series</p> <p>Beds of Navarro age</p>
560-600	<p>"Sand: fine to coarse-grained, angular grains. May represent basal Clayton Formation." <u>2/</u></p>
600-770	<p>"Marl: gray, silty, micaceous, glauconitic, fossiliferous (macroshells, Ostracodes, and Foraminifera);xxx. <u>Anomalina pseudopapillosa</u> at 680-690." <u>2/</u> This fossil is classified by E.R. Applin as Navarro ago.</p>
<hr/> <p><u>2/</u> Herrick, S.M., 1961, Ga. Geol. Survey, Bull. 70, p. 57.</p> <hr/>	
770-780	<p>Description of samples by E.R. Applin begins at this depth.</p> <p>Sand, fine to coarse-grained, quartz; fragments of white limestone and a little glauconite, probably caving from higher levels; fragments of light-gray, sandy, (fine-grained sand), chalky clay, probably the material being drilled at this depth. Specimens of <u>Anomalina pseudopapillosa</u> present.</p>
780-790	<p>Like sample at 770-780 ft., and a few specimens of <u>Globigerina cretacea</u>.</p>

Depth (feet)	Description
790-800	<p>Sand, fine-grained, angular grains; a little coarse-grained sand; a little glauconite; and fragments of white limestone, probably all caving from higher levels. Many fragments of light-gray, highly sandy (fine-grained sand), calcareous, somewhat micaceous clay, that is probably the material being drilled at this depth. Sample contains a few small fragments of <u>Inoceramus</u> and other fossil bivalves; specimens of several species of Ostracodes; and specimens of species of Foraminifera that are typical of the upper part of the beds of Navarro age: <u>Anomalina pseudopapillosa</u> (fairly common), <u>Globotruncana cretacea</u> (small specimens), <u>Robulus navarroensis</u>, and <u>Gaudryinella pseudoserrata</u>.</p>
800-810	Sample not studied.
820-860	Like sample at 790-800 ft.; a few phosphatic nodules at 820-830 ft.
860-870	<p>Clay, gray, highly sandy (fine-grained sand), micaceous, like sample at 790-800 ft. Sample contains a trace of glauconite, a few phosphatic nodules, and a few nodules of pyrite. Specimens of Foraminifera are like those in sample at 790-800 ft., and in addition, many specimens of <u>Anomalina pinguis</u>, a few specimens of <u>Cibicides harperi</u> and several other Totalid forms; <u>Globotruncana cretacea</u> is slightly more common.</p>

Depth (feet)	Description
870-900	No change.
900-920	Like sample at 860-870 ft., but fine to coarse-grained sand is abundant. No change in fauna.
920-940	Clay, light-gray, highly sandy, calcareous, micaceous, glauconitic, or argillaceous sandstone. Sample contains a few phosphatic nodules, a few fragments of <u>Inoceramus</u> and shells of other fossil bivalves; microfauna is unchanged.
940-970	Like sample at 920-940 ft.; glauconite is about 10 to 20 percent of the samples.
Beds of Taylor age	
970-980	Sand, fine to coarse-grained, quartz; glauconite is about 10 percent of the sample. Sample contains sandy marl and a microfauna similar to that in the beds of Navarro age with the addition of specimens of <u>Anomalina sholtzensis</u> .
980-1010	No change.
1010-1020	Marl, gray, sandy, highly glauconitic. Nodules of dark-green glauconite are about 50 percent of the sample; sand is composed of fine to coarse, angular grains of quartz, with medium grains strongly dominant. Sample contains many specimens of <u>Planulina dumblei</u> , <u>Anomalina sholtzensis</u> , <u>Bolivina incrassata</u> , <u>Gyroldina globosa</u> , and other species of Foraminifera.

Depth (feet)	Description
1020-1070	Marl, gray, sandy, like sample at 1010-1020 ft., and much fine to coarse-grained sand washing from the marl; phosphatic nodules, and nodules of pyrite are also present; about 50 percent of the sample is composed of dark-green, irregularly rounded nodules of glauconite. The sample contains fragments of <u>Inoceramus</u> and shells of other fossil bivalves. The foraminiferal fauna is like that in the sample at 1010-1020 ft., and several species of <u>Globotruncana</u> are common.
1070-1080	Like the samples at 1020-1070 ft., but glauconite is about 25 percent of the sample.
1080-1100	Sand, gray, argillaceous, glauconitic. Glauconite is about 50 percent of the sample, and the sand is mainly clear, angular, medium grains of quartz. Phosphatic nodules, nodules of pyrite, and fragments of <u>Inoceramus</u> and other macrofossil shells are present. The foraminiferal fauna is like the sample at 1020-1070 feet.

Depth (feet)	Description
1100-1200	Sand, fine to very coarse, quartz; coarse grains common; glauconite is about 10 to 25 percent of the samples. Samples contain fragments of sandy clay, pyrite nodules, shell fragments, and specimens of Foraminifera like those in the samples of the beds of Taylor age already described.
1200-1210	Sand, mainly medium to coarse-grained, that seems to wash from a gray, soft marly clay matrix. The sample contains about 25 percent glauconite, a few phosphatic nodules, nodules of pyrite, fragments of <u>Inoceramus</u> and other shells. Specimens of Foraminifera include species that are characteristic of the lower part of the beds of the Taylor age: <u>Pseudogaudryinella capitosa</u> , <u>Kyphopyxa christneri</u> , <u>Planulina dumblei</u> , <u>Globorotalites conicus</u> , and many specimens of several species of <u>Globotruncana</u> and <u>Globigerina</u> .
1210-1330	No change.
1330-1340	Like the sample at 1200-1210 ft., but the marly clay is darker brownish-gray.
1340-1420	No change. Beds of Austin age.
1420-1480	Shale, brownish-gray, calcareous.
1480-1510	Like the samples at 1420-1480 ft., and in addition, lenses of very fine-grained sandstone. The microfauna contains a few specimens of <u>Pseudoclavulina moorevillensis</u> , and many specimens of <u>Pseudogaudryinella capitosa</u> var. <u>serrulata</u> .

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Depth (feet)	Description
1510-1570	Like the samples at 1480-1510 ft. The material being drilled seems to be brownish-gray, soft clay shale and interbedded lenses of very fine grained sandstone. This fine-grained sandstone is about 75 percent of the samples. Medium-grained sand and glauconite in the samples is possibly caving. Shale is progressively more dominant with depth. The microfauna is like that in the sample 1480-1510 ft.
1570-1600	Like the samples at 1510-1570 ft., and in addition, a few fragments of <u>Citharina texana</u> .
1600-1630	Shale, gray, soft, flaky, micaceous; a little fine-grained, argillaceous, calcareous sandstone, and a few phosphatic nodules. Medium-grained sand and glauconite is possibly caving. No marked change in fauna; a few fragments of <u>Ostrea sp.</u> , <u>Inoceramus</u> , and <u>Citharina Texana</u> .
1630-1840	Like the sample at 1600-1630 ft., and many specimens of <u>Valvulineria infrequens</u> , many small <u>Gumbelinas</u> , a few specimens of <u>Planulina austiniana</u> and <u>Citharina texana</u> . The samples contain a few specimens of arenaceous Foraminifera that may be caving from higher levels.

Depth (feet)	Description
1840-1870	Shale, gray, micaceous; about 10 percent fine-grained sand, and 5 percent glauconite; a few nodules of pyrite and phosphatic nodules. The sample seems to contain less sand than those immediately above. The fauna is composed of specimens of Foraminifera like those at 1630-1840 ft., and fragments of <u>Ostrea</u> sp. and <u>Inoceramus</u> .
1870-1900	Shale, gray, a little fine-grained sand, and a few fragments of fine-grained, chalky, micaceous sandstone. No marked change in fauna.
1900-1930	No samples.
1930-1960	Like the samples at 1870-1900 ft.; fragments of <u>Ostrea</u> sp. and <u>Inoceramus</u> are somewhat more abundant.
1960-1990	Like the samples at 1870-1900 ft., but the soft gray shale and fine-grained sand are each about 50 percent of the sample; a little glauconite present. No change in shell fragments and microfauna.
1990-2100	Like the samples at 1960-1990 ft., with the addition of a few fragments of light-gray, very finely granular limestone. Specimens of <u>Valvulineria infrequens</u> are fairly common in the microfauna.

Depth
(feet)

Description

Atkinson Formation, upper member

- 2100-2140 Lithology and fauna like the samples at 1990-2100 ft., with the addition of many fragments of white, fine to medium-grained, glauconitic, micaceous, somewhat phosphatic sandstone.
- 2140-2170 Like the sample at 2100-2140 ft., and also fragments of light greenish-gray flaky shale, a little carbonaceous material, a few coarse-grains of sand, and a few large phosphatic nodules. The samples contain fragments of heavy-shelled Ostrea-like bivalves, specimens of Planulina eaglefordensis, an Eagle Ford type of Valvulineria, a small arenaceous form, and other specimens of Foraminifera that are caving from higher levels.
- 2170-2200 This sample seems to mark a change from the deeper-water marine facies of the upper Atkinson above, to the shallow-water marine facies, below.
- Sand, fine to coarse-grained, quartz, in which coarse grains are common, and a few pink grains are present. The sample contains a few fragments of lignite, phosphatic nodules, nodules of pyrite, shell fragments, and a few siderite spherules.
- 2200-2300 Sand, coarse-grained, quartz, containing a few pink grains, a few large phosphatic nodules, and a few pyritized fragments of carbonaceous material.

Depth (feet)	Description
2300-2330	Like the samples at 2200-2300 ft.; also a fragment of yellow, unctuous, sandy clay and a few siderite spherules.
2330-2360	Sand, moderately coarse-grained, clear, quartz; no colored shale or siderite.
2360-2390	Sand like the sample at 2330-2360 ft., and a few fragments of red and grayish-green mottled micaceous shale.
2390-2420	Sand like the sample at 2330-2360 ft.; no shale.
2420-2450	Sand and a few fragments of red and grayish-green mottled shale.
2450-2635	No change.
2635-2650	Sand, medium to coarse-grained, and a few siderite spherules.

Atkinson Formation, lower member

2650-2690	Sand, like sample at 2635-2650 ft., a few fragments of <u>Ostrea</u> sp., a little dark-gray, flaky shale, and a little grayish-green shale.
2690-2720	Like the sample at 2650-2690 ft., but showing an increase in the fragments of dark-gray flaky shale. A few small specimens of arenaceous species of Foraminifera are questionably indigenous.

Depth (feet)	Description
2720-2750	Lithology and microfauna like the sample at 2690-2720 ft., although fragments of soft, gray, marly shale and specimens of Foraminifera from the beds of Austin age occur as cavings in this sample.
2750-2780	Sand, fine to coarse-grained, fragments of dark-gray and greenish-gray shale, and cavings from higher levels.
2791	Core? Sand fine to very coarse-grained, fragments of carbonaceous material, a few nodules of pyrite and many fragments of dark-gray flaky shale. The microfauna contains specimens of <u>Amnobaeculites bergquisti</u> and <u>A. agrestis</u> , that are typical of the lower member of the Atkinson Formation.
2780-2810	Sand, fine to coarse-grained, many nodules of pyrite, fragments of pyritized carbonaceous material, a few phosphatic nodules, and fragments of heavy-shelled <u>Ostrea</u> -like bivalves.

Depth (feet)	Description
2810-2840	Sand, fine to very coarse-grained, with coarse grains common; many nodules of pyrite; a little pyritized lignite; a few shell fragments; fragments of several types of clay and shale similar to those observed in samples at higher levels, including fragments of red and green mottled shale. The shale fragments are probably caving.
2840-2920	No change.
Comanche Series, undifferentiated	
2920-2960	Sand, like sample at 2810-2840 ft., but containing many yellow-tinted grains, a little feldspar, and a few fragments of mustard-colored waxy clay, or ochre mudstone, that is slightly gray and red mottled.
2960-2990	Mainly coarse-grained quartz sand and a little feldspar.
2990-3020	Like the sample at 2960-2990 ft., and many yellow and red coated and tinted grains, and a little amber and white feldspar.
3020-3200	No change.
3200-3260	Sand, like sample at 2960-2990 ft., but medium to moderately coarse grains dominant.

Depth (feet)	Description
3260-3290	Sand, like the sample at 3200-3260 ft., and a few fragments of purplish-red and gray mottled finely micaceous shale.
3290-3320	Sand like the sample at 3200-3260 ft. This sample contains no shale.
3320-3380	Sand, fine to coarse-grained, containing a few yellow and a few pink-tinted grains, and many grains of feldspar.
3380-3410	Sand, like the sample at 3320-3380 ft.; also fragments of bright red shale, and dull-red and greenish-gray mottled, highly micaceous shale.
3410-3440	Sand, like the sample at 3320-3380 ft., and a little red shale.
3440-3500	Like the sample at 3320-3380 ft., and a few fragments of dark purplish-red, micaceous shale.
3500-3530	Sand like the sample at 3320-3380 ft; and a few fragments of red and dull green mottled shale.
3530-3560	Sand and a few fragments of dull red and yellowish-green mottled micaceous shale. The ratio of sand to shale is less than in the immediately preceding samples, and some red shale is probably being drilled.

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Depth (feet)	Description
3560-3620	Sand, but no red shale.
3620-3800	Sand and a little dull red and yellowish-green shale.
3800-3830	Sand, a little red and mottled shale, and many cavings of clay from the beds of the Gulf Series.
3830-3850	Like the sample at 3800-3830 ft., and a few large pebble-sized nodules of quartz and of feldspar.
Upper Triassic(?)	
Newark Group(?)	
3850-3890	Sand, fine to very coarse-grained, many small pebbles of quartz and feldspar, and a few pebbles of basalt; a few fragments of red shale.
3890-3920	Like the sample at 3850-3890 ft., pebbles are less abundant.
3920-3950	Sand, fine to very coarse-grained, a few pebbles, and a few fragments of dull red and green mottled shale.
3950-4010	No change.
4010-4040	Sand, fine to coarse-grained, and cavings.
4040-4070	Mainly cavings, and a little fine to very coarse-grained sand.
4070-4100	Sand, fine to coarse-grained, quartz; a little feldspar and a few pebbles.
4100-4130	Mainly cavings, and some fine to coarse-grained sand.

Depth (feet)	Description
4130-4160	Like the sample at 4100-4130 ft., and a few fragments of red and mottled shale.
4160-4220	Sand, fine to coarse-grained, a few fragments of dull red and greenish-yellow mottled shale, and abundant cavings from the beds of the Gulf Series.
4220-4310	Sand, white, fine to coarse-grained, quartz; coarse grains common; a very few yellow and pink grains; a little feldspar.
4310-4370	Sand, fine to coarse-grained, quartz, but coarse grains are less common than in the samples at 4220-4310 ft. Sample contains a few pebbles, a few fragments of sandy limonite, and many cavings.
4370-4400	Sand, fine to coarse-grained, quartz, and a few pebbles.
4400-4430	Sand, like the sample at 4370-4400 ft., and cavings; each about 50 percent of sample.
4430-4460	Sand, fine to very coarse-grained; a few pebbles and a few fragments of sandy limonite. The sample is small, and before washing, was probably mainly cavings of sandy clay from the beds of the Gulf Series.
4460-4490	No sample.
4490-4580	Sand, fine to very coarse-grained; a few quartz pebbles and a few of sandy limonite; many cavings.
4580-4610	Like the samples at 4490-4580, and a little red mottled shale.

Depth (feet)	Description
4610-4640	Sand, white, fine to coarse-grained, quartz; a few pebbles.
4640-4850	Like the sample at 4610-4640 ft.; a few fragments of red shale.
4850-4880	Sand, moderately coarse grained, quartz.
4880-5040	Sand, fine to moderately coarse grained, quartz; medium grains common.
5040-5050	Sand, fine to very coarse grained; about 75 percent of sample is cavings from higher levels.
5050-5060	Sand, medium-grained, quartz.
5060-5090	Sand, fine to coarse-grained quartz; abundant cavings.
5090-5100	Sand, fine to coarse-grained; a little feldspar.
5100-5170	Mainly cavings from beds of the Gulf Series; a little fine to very coarse grained sand.
5170-5180	Sand, fine to very coarse grained; a little feldspar; a few pink-stained nodules of sandy limestone.
5180-5190	Cavings from the beds of the Gulf Series and a little fine to coarse-grained sand.
5190-5200	Sand, fine to coarse-grained, abundant cavings from beds of the Gulf Series; many fragments of diabase, in part altered or weathered(?).
5200-5260	Diabase. The ratio of diabase to other materials in the cuttings increases progressively in the depth.
5263-5265	T.D. Core. Diabase.