LITHOLOGIC DESCRIPTIONS AND GEOLOGIC ASSIGNMENT OF SEDIMENTS ENCOUNTERED IN THE OZARK NORTH TEST WELL, DALE COUNTY, ALABAMA

GEOLOGICAL SURVEY
OF ALABAMA

GEOLOGICAL SURVEY OF ALABAMA

Berry H. (Nick) Tew, Jr.
State Geologist

WATER INVESTIGATIONS PROGRAM

LITHOLOGIC DESCRIPTIONS AND GEOLOGIC ASSIGNMENT OF SEDIMENTS ENCOUNTERED IN THE OZARK NORTH TEST WELL, DALE COUNTY, ALABAMA

OPEN-FILE REPORT 0511

by

Charles C. Smith

Prepared by the Geological Survey of Alabama in cooperation with Ozark Utilities.

Tuscaloosa, Alabama
June 2005

CONTENTS

	Page
Introduction	1
Detailed lithologic descriptions and geological interpretations of samples	2
Eocene	2
Claiborne Group	2
in Tallahatta Formation	2
Wilcox Group	3
Hatchetigbee Formation	3
Bashi Marl Member	3
Paleocene	3
Wilcox Group	3
Tuscahoma Sand	3
Nanafalia Formation	4
Midway Group	6
Clayton Formation	6
Cretaceous	7
Selma Group	7
Providence Sand	7
Ripley Formation	7
Cusseta Sand Member	8
Blufftown Formation	9
Arcola limestone	12
Blufftown Formation	13
Eutaw Formation	15
Tuscaloosa Group	16
Gordo Formation	16
Middle marine shale	20
Coker Formation	21

ILLUSTRATIONS

Plate Lithologic log ..... in pocket

Figure Explanation of symbols used on lithologic log 24

TABLE

Summary of geology and lithologies 23

INTRODUCTION

This report is submitted in fulfillment of Geological Survey of Alabama Project No. 04-7017, a contract between the Geological Survey of Alabama and Ozark Utilities, Ozark, Alabama.

This report consists of lithological descriptions of 301 samples collected onsite during the drilling of the Ozark Utilities deep test well near Dill, Dale County, Alabama. The geological assignment and ages of the sediments as well as the associated electric-log "tops" of each geologic unit are included within the descriptions. A synthesis of these data is included on a summary page following the detailed sample descriptions (summary table). This report also includes a lithological strip log (plate) consisting of standard lithological symbols representing sample lithologies drawn at a scale of 2 inches equals 100 feet and plotted against the gamma and resistivity curves. The depths at which each geological formation was encountered and the corresponding electric-log "tops" are shown on this diagrammatic strip log. An explanation of the symbols used on the strip log is shown on the figure.

DETAILED LITHOLOGIC DESCRIPTIONS AND GEOLOGICAL INTERPRETATIONS OF SAMPLES

Layne Central Drilling Company
Town of Ozark–Test Well
NE¼NW¼NE¼ sec. 8, T. 6 N., R. 24 E.
Dale County, Alabama

Well No. F-07
GSA No. 6700
Elevation (feet): G.L. 520
D.F. 531

Depth (feet)	Description
Eocene	
Claiborne Group, in Tallahatta Formation	
0-10 Ctgs:	Sand, clear to very light-gray (N8) but uniformly ferruginous-stained grayish-orange (10YR7/4), quartzose, subangular to subrounded, moderately well sorted, medium to coarse but predominantly coarse with rare grains very coarse, 100%; unidentified heavy mineral, olive-black (5Y2/1) to black (N1), subangular, fine to medium, trace; no fossils or fossil fragments observed.
10-20 Ctgs:	General lithology as above, plus limonite grains, dark-reddish-brown (10R3/4), medium to coarse, trace.
20-30 Ctgs:	Lithology same. No fossils or fossil fragments observed.
30-40 Ctgs:	Sand, same, but very pale-orange (10YR8/2) to grayish-orange and distinctly finer grained, predominantly medium. Trace amounts of limonite, same. No fossils or fossil fragments observed.
40-50 Ctgs:	Sand, same, but predominantly coarse. Trace constituents and paleontology same.
50-60 Ctgs:	Lithology and paleontology same.
60-70 Ctgs:	General lithology same, plus muscovite mica, fresh, coarse to very coarse, trace; no fossils observed.
70-80 Ctgs:	Sand, clear to very light-gray, ferruginous-stained very pale-orange to grayish-orange, quartzose, angular to subangular, very well sorted, fine, 80%; gravel, quartzose, very light-gray to somewhat ferruginous-stained very pale-orange, quartzose, subangular to subrounded with many grains frosted or pitted, well sorted, granular, 18%; limonitic siltstone to very fine-grained sandstone, dark-yellowish-orange (10YR6/6) to very dusky-red (10R2/2), indurated, dense, noncalcareous, 2%; muscovite mica, same, trace; no fossils or fossil fragments observed.

Wilcox Group, Hatchetigbee Formation (E-log not recorded above 112.8 feet)

80-90 Ctgs: Sand, same, but moderately well sorted, fine to medium, 90%; clay/shale, light-gray (N7) to medium-light-gray (N6), massive to weakly and indistinctly fissile, very finely muscovitic and carbonaceous, noncalcareous, 6%; limonite and limonitic sandstone, same, 2%; gravel, same, granular, 1%; glauconite, pale-yellowish-green (10GY7/2) to moderate-yellowish-green (10GY6/4), weathered, medium to coarse, 1%; muscovite mica, same, but fine to coarse, trace; carbonized woody fragments, olive-black, medium to coarse, trace; no fossils or fossil fragments observed.

90-100 Ctgs: General lithology and paleontology as above.

100-110 Ctgs: Clay, medium-light-gray, massive, firm, friable, lignitic, very slightly and very finely muscovitic, noncalcareous, 75%; gravel, same, granular, 15%; sand, same, coarse to very coarse, 8%; limonite and limonitic sandstone, same, fine to medium, 2%; muscovite, fine to medium, fresh, trace; pyrite, somewhat oxidized and dull, in granular gravel-size nodular masses, trace; no glauconite observed; no fossils or fossil fragments observed.

110-120 Ctgs: Sand, very light-gray to rarely very pale-orange, quartzose, angular, very well sorted, very fine to fine, 60%; clay, very light-gray to light-gray, massive, dense, indurated, very finely muscovitic, sparingly carbonaceous, noncalcareous, 30%; glauconite, greenish-gray (5GY6/1), weathered and oxidized, fine, 10%; carbonized woody fragments, black, fine to medium, trace; muscovite mica, fresh, fine to medium, trace; no fossils or fossil fragments observed.

Bashi Marl Member (E-log top at 142 feet)

120-130 Ctgs: General lithology as above, plus sandstone to highly sandy limestone, white (N9) to very pale-orange, massive, indurated, dense, abundantly fine to medium glauconitic, very highly calcareous, fine- to medium-grained, trace; phosphatic grains, olive-black to black, polished, fine to medium, trace; noticed very rare deeply weathered chalky white fragments which are believed to be "rotten" pelecypod shell fragments.

130-140 Ctgs: General lithology same, plus very rare, weathered, oyster shell fragments.

Paleocene

Wilcox Group, Tuscahoma Sand (E-log top at 147 feet)

140-150 Ctgs: Clay/shale, light-olive-gray (5Y6/1) to pale-yellowish-brown (10YR6/2), massive to weakly and thinly fissile, firm, friable, highly quartzose silty, very slightly and finely glauconitic, coarsely carbonaceous, noncalcareous, 97%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to medium, 3%; carbonized woody fragments, olive-black to black, trace; muscovite mica, weathered and somewhat cloudy, coarse, trace; no fossils or fossil fragments observed.

150-160 Ctgs: Sand, same, but subangular to subrounded, well sorted, very fine to fine, 75%; clay/shale, same, noncalcareous, 20%; glauconite, dark-yellowish-green (10GY4/4) to dusky-yellowish-green (10GY3/2), fresh, somewhat botryoidal, fine to medium, 5%; carbonized woody fragments, same, trace; muscovite mica, same, weathered and chalky, medium to very coarse, trace; no fossils or fossil fragments observed.

160-170 Ctgs: General lithology and paleontology as above.

170-180 Ctgs: Lithology and paleontology same.

180-190 Ctgs: Clay/shale, same, noncalcareous, 100%; sand, clear to very light-gray, quartzose, subangular to subrounded, coarse, trace; no fossils or fossil fragments observed.

Nanafalia Formation (E-log top at 194 feet)

190-200 Ctgs: Clay/shale, same, 90%; sand, same, but in part glauconite-stained pale-olive (10Y6/2), poorly sorted, medium to coarse, 9%; glauconite, moderate-yellowish-green to dark-yellowish-green, fresh to somewhat weathered, fine to coarse, 1%; muscovite mica, same, medium to coarse, trace; no fossils or fossil fragments observed.

200-210 Ctgs: General lithology as above, but with clay/shale, same, 75%; sand, same, very poorly sorted, fine to very coarse, 25%; glauconite, same, trace; carbonized woody fragments, same, trace; no fossils or fossil fragments observed.

210-220 Ctgs: Clay/shale, predominantly light-olive-gray, massive to weakly and indistinctly fissile, firm, friable, in part quartzose silty and in part coarsely carbonaceous, noncalcareous, 60%; sand, clear to very light-gray but predominantly glauconite-stained pale-olive, quartzose, subangular to subrounded, very poorly sorted, fine to very coarse, 40%; carbonized woody fragments, olive-black to black, coarse, trace; muscovite mica, predominantly weathered and glauconite-stained, coarse to very coarse, trace; pyrite, dull and oxidized, in part sulfurous and fibrous, trace; no fossils or fossil fragments observed.

220-230 Ctgs: Sand, same, predominantly glauconite-stained, 87%; clay/shale, lignitic and carbonaceous, same, 10%; glauconite, same, 3%; muscovite mica, same, medium to coarse, trace; carbonized woody fragments, same, trace; no fossils observed.

230-240 Ctgs: Lithology same plus very rare, weathered, oyster shell fragments.

240-250 Ctgs: General lithology as above, plus gravel, clear to very light-gray but predominantly glauconite-stained pale-yellowish-green, subrounded, in part etched, frosted, or pitted, granular, trace; limestone, white to pinkish-gray (5YR8/1), massive, indurated, dense, very finely glauconitic and quartzose silty to very fine quartzose sandy, highly calcareous, trace; paleontology as above plus noted a single small shark tooth.

250-260 Ctgs:	General lithology as above but with sand predominantly very fine to fine; no fossils or fossil fragments observed.
260-270 Ctgs:	Lithology same, plus noted rare to common fresh oyster shell fragments.
270-280 Ctgs:	Sand, clear to very light-gray but predominantly glauconite-stained pale-olive, quartzose, angular to subrounded, very poorly sorted, very fine to very coarse, 85%; clay/shale, predominantly light-olive-gray, massive to weakly and indistinctly and thinly laminated, lignitic, firm, friable, very finely glauconitic, muscovitic, and carbonaceous, noncalcareous, 10%; glauconite, dark-yellowish-green to dusky-yellowish-green, fresh, fine to medium, 3%; gravel, same, granular, 2%; muscovite mica, fresh to weathered, fine to very coarse, trace; very rare oyster shell fragments.
280-290 Ctgs:	Sand, clear to very light-gray, quartzose, angular, very well sorted, fine, 95%; clay/shale, same, 3%; glauconite, same, but fine, 2%; muscovite mica, same, trace; rare to common chalky-white medium to coarse sand-size pelecypod shell fragments; very rare ostracodes.
290-300 Ctgs:	Lithology same but with part of clay/shale fraction light-bluish-gray (5B7/1); paleontology as above.
300-310 Ctgs:	Lithology and paleontology as above plus very rare oyster shell fragments.
310-320 Ctgs:	No sample.
320-330 Ctgs:	Lithology as at 300-310 feet, but with common oyster shell fragments.
330-340 Ctgs:	Lithology and paleontology same.
340-350 Ctgs:	Sand, clear to very light-gray, in part glauconite-stained pale-olive and dusky-yellow (5Y6/4) to grayish-orange, quartzose, subangular to subrounded, poorly sorted, fine to very coarse, 90%; clay/shale, light-olive-gray, massive, firm, friable, lignitic, very finely muscovitic and carbonaceous, noncalcareous, 5%; glauconite, dark-yellowish-green to dusky-yellowish-green, fresh, rounded, fine to medium, 3%; gravel, glauconite-stained pale-olive to dusky-yellow, quartzose, subrounded, in part etched or frosted, granular, 2%; phosphatic grains, very dusky-red to moderate-brown, rounded, medium, trace; carbonized woody fragments, black, coarse, trace; rare to common oyster shell fragments.
350-360 Ctgs:	No sample.
360-370 Ctgs:	Lignite, olive-black to brownish-black (5YR2/1), massive, firm, friable, in part very finely muscovitic and chloritic, 100%.
370-380 Ctgs:	No sample.
380-390 Ctgs:	Sand, clear to very light-gray and very pale-orange, quartzose, subangular to subrounded, moderately well sorted, medium to very coarse with larger grains frosted or etched, 85%; gravel, very light-gray to very pale-orange, quartzose, subangular to subrounded, well sorted, with majority of grains etched, frosted, or finely pitted, granular, 10%; clay, same, medium-light-

gray, 4%; muscovite mica, weathered and chalky, coarse to very coarse, 1%; lignite, same, trace; rare to common oyster shell fragments.

390-400 Ctgs: Lithology and paleontology as above.

400-410 Ctgs: Lithology and paleontology same.

410-420 Ctgs: Very slightly muscovitic granular coarse to very coarse quartzose sand as above.

420-430 Ctgs: Lithology and paleontology same. Note that the clay and lignite fractions are undoubtedly caved.

430-440 Ctgs: Sand, same, medium to very coarse, 99%; muscovite mica, same, 1%; lignite, black, trace (undoubtedly caved from above); lignitic clay/shale, finely carbonaceous and muscovitic, trace (caved); rare to common oyster shell fragments.

Midway Group, Clayton Formation (E-log top at 400 feet)

440-450 Ctgs: Sandy limestone, white, massive, indurated, dense, abundantly medium to coarse quartzose sandy, sparingly fossiliferous, very highly calcareous, 94%; sand, clear to very light-gray and pale-olive, quartzose, subangular to subrounded, moderately well sorted, medium to very coarse, 6%; very rare oyster shell fragments.

450-460 Ctgs: Sandy limestone, same, but in part fine to medium glauconitic, 90%; sand, same, 10%; common to abundant oyster shell fragments.

460-470 Ctgs: General lithology same; common to abundant oyster shell fragments, and very rare gastropod and bryozoan fragments.

470-480 Ctgs: Sand, clear to very light-gray, quartzose, angular to subangular, moderately well sorted, very fine to medium, 60%; sandy fossiliferous limestone, same, 40%; muscovite mica, fresh, medium to coarse, trace; feldspar (? orthoclase), very light-gray to pale-olive, fresh, coarse to very coarse, trace; paleontology as above.

480-490 Ctgs: Sand, same, but very fine to coarse, 50%; sandy limestone, same, 50%; trace constituents same, plus phosphatic grains, olive-black, polished, medium to coarse, trace; pyrite, fresh, in medium to coarse sand-size nodular massive, trace; paleontology as above.

490-500 Ctgs: Sand, same, but predominantly fine to medium, 75%; sandy limestone, same, 25%; trace constituents and paleontology same.

500-510 Ctgs: Sandy limestone, white to yellowish-gray (5Y8/1), massive, indurated, dense, very highly and finely quartzose sandy, in part finely glauconitic and fossiliferous, very highly calcareous, 97%; sand, clear to very light-gray and pale-olive, quartzose, subangular to subrounded, poorly sorted, medium to very coarse, 3%; muscovite mica, somewhat weathered and chalky, medium to coarse, trace; common to abundant oyster shell fragments and rare bryozoan fragments.

510-520 Ctgs: General lithology and paleontology same.

520-530 Ctgs: Lithology as above.

Cretaceous

Selma Group, Providence Sand (E-log top at 528 feet)

530-540 Ctgs: Sand, clear to very light-gray, quartzose, subangular to subrounded, moderately well sorted, fine to medium, 95%; feldspar (? orthoclase), medium-light-gray to medium-gray (N5), fresh, often with highly reflective cleavage faces, medium to coarse, 5%; muscovite mica, weathered and somewhat chalky, coarse to very coarse, trace; very rare oyster shell fragments.

540-550 Ctgs: Lithology and paleontology same.

550-560 Ctgs: Lithology same plus chlorite mica, moderate-yellowish-green, fresh, coarse, trace; paleontology same.

560-570 Ctgs: Sand, same, 97%; feldspar (? orthoclase), same, 2%; muscovite mica, same, 1%; paleontology same plus very rare bryozoan fragments.

570-580 Ctgs: General lithology and paleontology same, plus glauconite, fresh to weathered and oxidized, dusky-yellowish-green to dusky-yellow, medium, trace.

580-590 Ctgs: General lithology as above but with clay, medium-dark-gray (N4), massive, firm, friable, very highly quartzose silty to very fine quartzose sandy and very highly yet finely muscovitic and chloritic, very slightly calcareous, trace.

590-600 Ctgs: Lithology and paleontology as above.

Ripley Formation (E-log top at 610 feet)

600-610 Ctgs: Sand, clear to very light-gray, quartzose, angular to subangular, very well sorted, very fine to fine, 95%; muscovite and chlorite mica, fresh, fine, 4%; clay, medium-gray to medium-dark-gray, massive, firm, friable, very finely muscovitic and chloritic and in part finely carbonaceous, noncalcareous, 1%; no fossils or fossil fragments observed.

610-620 Ctgs: General lithology as above plus carbonized woody fragments, olive-black, medium, trace.

620-630 Ctgs: Lithology same. Sand is predominantly very fine.

630-640 Ctgs: Lithology as above plus rare to common smaller calcareous benthonic foraminifera.

640-650 Ctgs: Sand, same, but poorly sorted with larger grains stained dusky-yellow, very fine to medium, 98%; muscovite mica, same, 2%; clay, same, finely muscovitic, trace; observed very rare thin-walled pelecypod shell fragments.

650-660 Ctgs: Limestone, yellowish-gray (5Y7/2) to pale-olive, massive, indurated, dense to highly porous from solution of fossil fragments, very highly fine to coarse quartzose sandy, very highly fossiliferous, highly calcareous, 75%; sand, clear to very light-gray with larger grains stained dusky-yellow, quartzose, subangular to subrounded, poorly sorted, fine to very coarse, 25%; clay, medium-gray, same, trace; abundant gastropod and pelecypod shell fragments including common internal molds.

660-670 Ctgs: General lithology and paleontology same.

670-680 Ctgs: Sand, same, poorly sorted, 60%; sandy limestone to highly calcareous sandstone, same, 40%; muscovite mica, fresh, fine to coarse, trace; paleontology as above.

680-690 Ctgs: Sand, clear to very light-gray with about half of fraction stained dusky-yellow, quartzose, angular to subrounded, moderately well sorted, very fine to medium, 100%; muscovite and chlorite mica, fresh, medium, trace; sandy limestone, same, trace; rare thin-walled pelecypod shell fragments; very rare ostracodes and foraminifera.

690-700 Ctgs: Lithology and paleontology same.

700-710 Ctgs: Sand, same, but poorly sorted and very fine to coarse, 100%; muscovite mica, same, trace; glauconite, dusky-yellowish-green, fresh, medium, trace; paleontology same.

Cusseta Sand Member (E-log top at 725 feet)

710-720 Ctgs: Silt to sand, clear to very light-gray with very rare grains stained dusky-yellow, quartzose, angular to subangular, very well sorted, silt to very fine, 97%; muscovite and chlorite mica, fresh, medium to coarse, 3%; carbonized woody fragments, olive-black, fresh, fine to medium, trace; very rare pelecypod shell fragments.

720-730 Ctgs: No sample.

730-740 Ctgs: As at 700-720, but with sand poorly sorted, very fine to medium. Trace constituents and paleontology same.

740-750 Ctgs: Sand, same, with larger grains stained dusky-yellow, 99%; muscovite mica, same, 1%; glauconite, dusky-yellowish-green, medium, trace; very rare pelecypod shell fragments; very rare microfossils.

750-760 Ctgs: Lithology as above.

760-770 Ctgs: General lithology same, with sand very fine to coarse and with larger grains stained dusky-yellow.

770-780 Ctgs: Lithology same, but with sand predominantly very fine to fine and well sorted.

780-790 Ctgs: Lithology same. Contains very rare thin-walled pelecypod shell fragments and very rare calcareous benthonic foraminifera.

790-800 Ctgs: Sand, same, but very fine to coarse and poorly sorted, 99%; muscovite mica, same, 1%; glauconite, same, trace; paleontology as above.

800-810 Ctgs: Lithology same, plus carbonized woody fragments, olive-black to black, fine to medium, trace.

810-820 Ctgs: Sand, clear to very light-gray with larger grains stained dusky-yellow, quartzose, subangular to subrounded, poorly sorted, very fine to coarse, 100%; muscovite mica, fresh, medium to very coarse, trace; glauconite, dusky-yellowish-green, fresh, medium to coarse, trace; carbonized woody fragments, olive-black, medium, trace; very rare pelecypod shell fragments.

820-830 Ctgs: General lithology and paleontology as above.

830-840 Ctgs: General lithology same but with rare sand grains very coarse in size; paleontology as above.

840-850 Ctgs: Lithology and paleontology same.

Blufftown Formation (E-log top at 865 feet)

850-860 Ctgs: Sand, same, but well sorted and predominantly very fine to fine, 99%; muscovite mica, same, fresh, fine to medium, 1%; glauconite and carbonized woody fragments, same, as trace constituents; very rare thin-walled pelecypod shell fragments.

860-870 Ctgs: General lithology same, plus feldspar (? orthoclase), medium-gray, fresh, highly reflective cleavage faces, fine to medium, trace.

870-880 Ctgs: Lithology and paleontology same.

880-890 Ctgs: Lithology as above, but with sand, same, 98%; muscovite mica, same, 1%; clay, medium-dark-gray to olive-gray (5Y4/1), massive, firm, friable, very finely muscovitic and carbonaceous, noncalcareous, 1%; trace constituents and paleontology same.

890-900 Ctgs: Sand, same, 96%; clay, same, 4%; muscovite mica, carbonized woody fragments, and feldspar (? orthoclase), same, as trace constituents; very rare pelecypod shell fragments.

900-910 Ctgs: Sand, clear to very light-gray, quartzose, angular, very well sorted, very fine to fine, 97%; muscovite mica, fresh, fine to medium, 3%; muscovitic clay, same, trace; very rare pelecypod shell fragments.

910-920 Ctgs: Lithology as above.

920-930 Ctgs: General lithology same, plus feldspar (? orthoclase), medium-gray, fresh, fine to medium, trace.

930-940 Ctgs: Lithology same.

940-950 Ctgs: General lithology same.

950-960 Ctgs: Lithology same, plus shale, medium-gray, very thinly laminated, firm, friable, very finely carbonaceous, noncalcareous, trace.

960-970 Ctgs:	General lithology and paleontology as above.
970-980 Ctgs:	General lithology and paleontology same.
980-990 Ctgs:	Sand, same, predominantly very fine to fine, 93%; clay, same, 5%; muscovite mica, fresh, fine to medium, 2%; no fossils or fossil fragments observed.
990-1,000 Ctgs:	Lithology same, but with clay, medium-light-gray and very highly calcareous.
1,000-1,010 Ctgs:	General lithology as above plus common to abundant smaller calcareous benthonic and planktonic foraminifera.
1,010-1,020 Ctgs:	Sand, clear to very light-gray, quartzose, angular to subangular, very well sorted, very fine to fine, 95%; clay/shale, medium-gray, very faintly and thinly laminated, firm, friable, very finely muscovitic and carbonaceous, highly calcareous, 3%; muscovite mica, fresh, medium to coarse, 2%; carbonized woody fragments, olive-black to black, fine to medium, trace; abundant calcareous benthonic and planktonic foraminifera.
1,020-1,030 Ctgs:	General lithology as above, but with sand, same, 80%; clay/shale, same, 18%; muscovite mica, same, 2%; trace constituents and paleontology same.
1,030-1,040 Ctgs:	Sand, same, but poorly sorted and fine to coarse, 50%; clay/shale, same, finely fossiliferous, 49%; muscovite mica, same, 1%; very rare finely divided oyster shell fragments; abundant microfossils as above.
1,040-1,050 Ctgs:	General lithology same, but with sand well sorted and very fine to fine.
1,050-1,060 Ctgs:	Clay/shale, light-gray to medium-light-gray, massive to thinly and weakly fissile, firm, friable, very finely muscovitic and quartzose silty, very highly calcareous, 100%; muscovite mica, fresh, medium to coarse, trace; sand, very light-gray, quartzose, subangular to subrounded, medium to coarse, trace; no fossils or fossil fragments observed.
1,060-1,070 Ctgs:	Lithology same, plus observed rare *Lituola* sp., a larger arenaceous benthonic foraminifera.
1,070-1,080 Ctgs:	Clay/shale, same, 95%; sand, same, fine to coarse, 5%; trace constituents, same; paleontology same.
1,080-1,090 Ctgs:	Lithology and paleontology same.
1,090-1,100 Ctgs:	Clay/shale, same, 70%; sand, clear to very light-gray, quartzose, angular to subangular to subangular, very well sorted, very fine, 30%; muscovite mica, fresh, fine to medium, trace; very rare oyster shell fragments; rare to common foraminifera including common large *Lituola* sp.
1,100-1,110 Ctgs:	Lithology and paleontology as above.
1,110-1,120 Ctgs:	General lithology same. Contains common large *Lituola* sp.
1,120-1,130 Ctgs:	Lithology same.

1,130-1,140 Ctgs:	Lithology and paleontology same.
1,140-1,150 Ctgs:	Same.
1,150-1,160 Ctgs:	Sand, clear to very light-gray, quartzose, angular to subangular, very well sorted, very fine, 100%; muscovite mica, fresh, fine to medium, trace; phosphatic grains, light-brown (5YR5/6) to moderate-brown (5YR4/4), somewhat rounded, medium to coarse, trace; very abundant microfossils.
1,160-1,170 Ctgs:	Lithology and paleontology as above, plus pyrite, fresh, "brassy," in coarse sand-sized nodular masses, trace.
1,170-1,180 Ctgs:	Lithology and paleontology same.
1,180-1,190 Ctgs:	Clay, light-gray to light-olive-gray, massive, firm, friable, very highly quartzose silty to very fine quartzose sandy, finely muscovitic, very highly calcareous, 85%; silt to sand, same, 15%; muscovite mica, fresh, fine to medium, trace; very abundant calcareous microfossils.
1,190-1,200 Ctgs:	Lithology and paleontology same.
1,200-1,210 Ctgs:	Lithology and paleontology same.
1,210-1,220 Ctgs:	Sand, as at 1,150 to 1,160 feet, very fine, 100%; muscovite mica, fresh, fine to medium, trace; very abundant calcareous benthonic and planktonic microfossils.
1,220-1,230 Ctgs:	General lithology as above plus clay, light-olive-gray, massive, firm, friable, relatively "clean," very slightly finely muscovitic, highly calcareous, trace; paleontology same.
1,230-1,240 Ctgs:	General lithology and paleontology same.
1,240-1,250 Ctgs:	Silt to sand, clear, quartzose, angular, very well sorted, silt to very fine, 100%; trace constituents and paleontology same.
1,250-1,260 Ctgs:	Lithology and paleontology same.
1,260-1,270 Ctgs:	Sand, clear to very light-gray, quartzose, angular to subrounded, moderately well sorted, very fine to medium, 90%; glauconite, dusky-yellowish-green, fresh, medium to coarse, 8%; muscovite mica, fresh, medium to coarse, 1%; clayey sandstone, massive, indurated, very highly clayey, finely glauconitic, very fine-grained, 1%; phosphatic grains, moderate-brown, polished, rounded, medium, trace; very rare oyster shell fragments; very abundant calcareous microfossils.
1,270-1,280 Ctgs:	Sand, same, but predominantly fine to medium, 85%; glauconite, same, 10%; sandstone, same, 4%; muscovite mica, same, 1%; paleontology same.
1,280-1,290 Ctgs:	General lithology and paleontology same.
1,290-1,300 Ctgs:	Sand, clear, quartzose, angular, very well sorted, very fine, 95%; glauconite, dusky-yellowish-green, fresh, fine, 4%; muscovite mica, fresh, fine to medium, 1%; carbonized woody fragments, olive-black to black, fine, trace; very rare calcareous benthonic foraminifera.

1,300-1,310 Ctgs: Sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to coarse, 97%; clay, light-olive-gray, massive, firm, friable, very highly finely muscovitic and fossiliferous, very highly calcareous, 3%; glauconite, same, but medium, trace; muscovite mica, same, medium to coarse, trace; very rare oyster shell fragments and common microfossils.

1,310-1,320 Ctgs: General lithology as above, but with sand, same, 90%; clay, same, 10%; trace constituents and paleontology same.

1,320-1,330 Ctgs: Clay, same, very highly calcareous, 100%; sand, same, trace; very rare inoceramid shell fragments.

1,330-1,340 Ctgs: Lithology as at 1,310 to 1,320 feet.

1,340-1,350 Ctgs: Sand, same, predominantly medium to coarse, 60%; clay, same, very highly calcareous, 39%; glauconite, dusky-yellowish-green, fresh, medium, 1%; muscovite mica, fresh, medium to coarse, trace; common oyster and inoceramid shell fragments and rare to common microfossils.

1,350-1,360 Ctgs: Lithology and paleontology as above.

1,360-1,370 Ctgs: Clay, same, 75%; sand, same, poorly sorted, fine to coarse, 24%; glauconite, same, 1%; trace constituents and paleontology same.

1,370-1,380 Ctgs: Lithology and paleontology same.

1,380-1,390 Ctgs: Clay, yellowish-gray to light-olive-gray, massive, firm, friable, very slightly and very finely muscovitic and glauconitic, very highly calcareous, 95%; sand, same, poorly sorted, fine to coarse, 5%; glauconite, same, trace; muscovite mica, same, fine to coarse, trace; very rare oyster shell fragments.

1,390-1,400 Ctgs: Lithology and paleontology same.

1,400-1,410 Ctgs: Sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to coarse, 97%; glauconite, dusky-yellowish-green, fresh, medium to coarse, 3%; muscovite mica, fresh, medium to coarse, trace; common oyster shell fragments and calcareous benthonic foraminifera.

1,410-1,420 Ctgs: Sand, clear, angular, very well sorted, very fine to fine, 99%; clay, light-olive-gray, massive, firm, very slightly muscovitic, highly calcareous, 1%; glauconite, dark-yellowish-green, medium, trace; paleontology as above.

Arcola limestone (E-log top at 1,414 feet)

1,420-1,430 Ctgs: Sand, same, but very fine to coarse, 92%; clay, same, 5%; limestone (calcisphere packstone), pinkish-gray, massive, dense, indurated, consisting of innumerable tiny calcispheres cemented by a fine micrite matrix, highly calcareous, 2%; glauconite, same, 1%; common oyster shell fragments and foraminifera.

Blufftown Formation (E-log top at 1,420 feet)

1,430-1,440 Ctgs:	Sand, same, 98%; clay, same, 2%; limestone (calcisphere packstone) and glauconite, as trace constituents; paleontology same.
1,440-1,450 Ctgs:	General lithology same.
1,450-1,460 Ctgs:	General lithology same, but with sand predominantly very fine. Continue to see trace amounts of Arcola calcisphere packstone.
1,460-1,470 Ctgs:	Sand, same, but poorly sorted and fine to coarse, 90%; clay, same, 9%; glauconite, same, medium to coarse, 1%; muscovite mica, same, trace; paleontology as above.
1,470-1,480 Ctgs:	Clay, same, very highly calcareous, 96%; sand, same, but predominantly coarse to very coarse, 4%; glauconite, same, trace; very rare pelecypod shell fragments.
1,480-1,490 Ctgs:	Lithology and paleontology as above.
1,490-1,500 Ctgs:	Lithology same. Continue to see trace amounts of Arcola Limestone from the sample interval at 1,420 to 1,430 feet.
1,500-1,510 Ctgs:	General lithology as above, but with clay, same, 100%; sand, same, trace.
1,510-1,520 Ctgs:	Lithology same. Continue to see fragments of Arcola Limestone.
1,520-1,530 Ctgs:	Lithology as above.
1,530-1,540 Ctgs:	Clay, light-olive-gray, massive, firm, friable, very slightly and finely muscovitic, very highly calcareous, 100%; muscovite mica, fresh, fine to medium, trace; sand, clear, quartzose, subangular to subrounded, fine to medium, trace (may be caved); no fossils or fossil fragments observed.
1,540-1,550 Ctgs:	Lithology same. Continue to see Arcola Limestone contamination from 1,420 to 1,430 feet.
1,550-1,560 Ctgs:	Lithology same. Noted very rare pelecypod shell fragments.
1,560-1,570 Ctgs:	Lithology and paleontology same, plus very rare calcareous benthonic foraminifera.
1,570-1,580 Ctgs:	Lithology and paleontology as above.
1,580-1,590 Ctgs:	No sample.
1,590-1,600 Ctgs:	General lithology and paleontology same, but with clay in part pinkish-gray.
1,600-1,610 Ctgs:	Lithology and paleontology same.
1,610-1,620 Ctgs:	Clay, same, 98%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to coarse, 1%; glauconite, dusky-yellowish-green, fresh, medium, 1%; rare oyster shell fragments and microfossils.

1,620-1,630 Ctgs:	Silt to sand, clear, quartzose, angular, very well sorted, silt to very fine, 99%; clay, same, 1%; glauconite, same, but fine to medium, trace; muscovite mica, fresh, fine to medium, trace; very rare foraminifera.
1,630-1,640 Ctgs:	General lithology and paleontology same.
1,640-1,650 Ctgs:	Clay, same, very highly quartzose silty to very fine sandy, 60%; silt and sand, same, 40%; glauconite and muscovite mica, same, as trace constituents; very rare to rare microfossils.
1,650-1,660 Ctgs:	General lithology same, but with very abundant calcareous microfossils.
1,660-1,670 Ctgs:	Silt to sand, same, 85%; clay, same, 15%; trace constituents and paleontology same.
1,670-1,680 Ctgs:	General lithology same. Contains extremely abundant small foraminifera.
1,680-1,690 Ctgs:	Clay, light-gray to light-olive-gray, massive to weakly fissile, firm, friable, in part relatively clean and in part fine to medium muscovitic, quartzose silty, glauconitic, nonfossiliferous, very highly calcareous, 100%; no fossils or fossil fragments observed.
1,690-1,700 Ctgs:	General lithology and paleontology as above.
1,700-1,710 Ctgs:	Lithology and paleontology same.
1,710-1,720 Ctgs:	Clay, same, 97%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, medium to coarse, 2%; glauconite, fresh, dusky-yellowish-green, medium, 1%; noted a single oyster shell fragment; no microfossils observed.
1,720-1,730 Ctgs:	Lithology and paleontology as above.
1,730-1,740 Ctgs:	Lithology and paleontology same.
1,740-1,750 Ctgs:	Clay, same, 100%; quartzose sand and glauconite as trace constituents; paleontology same.
1,750-1,760 Ctgs:	Lithology and paleontology same.
1,760-1,770 Ctgs:	As above.
1,770-1,780 Ctgs:	Lithology same plus muscovite mica, fresh, medium, trace; paleontology same.
1,780-1,790 Ctgs:	Lithology same.
1,790-1,800 Ctgs:	Lithology and paleontology same.
1,800-1,810 Ctgs:	Clay, light-gray to light-olive-gray, massive, firm, friable, about half of fraction relatively clean and about half fine to medium quartzose sandy, glauconitic, muscovitic, and very finely fossiliferous, very highly calcareous, 100%; sand, clear, quartzose, subangular to subrounded, medium, trace; glauconite, fresh, dusky-yellowish-green, medium, trace; muscovite mica, medium to coarse, trace; very rare inoceramid and oyster shell fragments; very rare ostracodes.

1,810-1,820 Ctgs:	Lithology and paleontology same.
1,820-1,830 Ctgs:	Lithology and paleontology as above.
1,830-1,840 Ctgs:	Clay, same, but highly very finely fossiliferous and quartzose silty yielding a rinsed sample consisting of little other than extremely abundant very small foraminifera; no coarse fraction observed.
1,840-1,850 Ctgs:	Lithology same.
1,850-1,860 Ctgs:	Lithology and paleontology same.
1,860-1,870 Ctgs:	No sample.
1,870-1,880 Ctgs:	Extremely abundant small foraminifera as at 1,850 to 1,860 feet.
1,880-1,890 Ctgs:	Lithology same.
1,890-1,900 Ctgs:	Lithology same.
1,900-1,910 Ctgs:	Lithology same.
1,910-1,920 Ctgs:	Lithology same.
1,920-1,930 Ctgs:	No sample.
1,930-1,940 Ctgs:	Clay, light-gray to light-olive-gray, massive to weakly fissile, firm, friable, about half of fraction relatively clean and about half very fine to medium quartzose sandy, muscovitic, glauconitic, and finely fossiliferous, very highly calcareous, 100%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to coarse, trace; muscovite mica, fresh, medium to coarse, trace; observed very rare inoceramid shell fragments; no microfossils observed.
1,940-1,950 Ctgs:	Lithology and paleontology same.
1,950-1,960 Ctgs:	Lithology and paleontology as above.
1,960-1,970 Ctgs:	Lithology and paleontology same.
1,970-1,980 Ctgs:	Lithology and paleontology same.
1,980-1,990 Ctgs:	Lithology same.
1,990-2,000 Ctgs:	Highly calcareous clay, same, 100%; trace constituents and paleontology same.
2,000-2,010 Ctgs:	Lithology same.

Eutaw Formation (E-log top not recognized)

2,010-2,020 Ctgs:	Clay, light-gray to light-olive-gray, massive, firm, friable, very slightly and very finely muscovitic but otherwise relatively clean, very highly calcareous, 100%; muscovite mica, fresh, medium to coarse, trace; glauconite, fresh, dusky-yellowish-green, fine to medium, trace; carbonized woody fragments, olive-black to black, medium, trace; sand, very light-gray, quartzose, subrounded, medium to coarse, trace; very rare inoceramid and oyster shell fragments.

2,020-2,100 Ctgs: The samples within this interval appear to have been excessively washed on the rig site and consist almost entirely of silt- to very fine sand-sized carbonate grains (tiny inoceramid fragments, small immature foraminifera, and other unidentifiable fragments). There is sufficient clay, as observed in the overlying samples, to suggest that my suspicion regarding field processing is an accurate one.

2,100-2,110 Ctgs: This sample consists of about 80% very fine carbonate grains (small foraminifera) and about 20% muscovitic clay as described above. It consists of a very slight increase in abundance of fine to coarse muscovite mica and very fine to fine carbonized woody fragments, although neither constituent comprises 1% or more of the sample. Noted very rare oyster and inoceramid shell fragments.

2,110-2,120 Ctgs: Very fine carbonate grains as above, 80%; clay, light-olive-gray, massive, firm, friable, in part very finely lignitic and muscovitic, finely quartzose silty to very fine quartzose sandy, very highly calcareous, 18%; muscovite mica, fresh, very fine to very coarse, 1%; glauconite, dark-yellowish-green, fresh, fine to medium, 1%; extremely abundant small microfossils and small inoceramid prisms as above.

2,120-2,130 Ctgs: Clay, same, but in part highly medium to coarse glauconitic, 95%; glauconite, same, but predominantly medium to coarse, 4%; sand, clear to very light-gray, quartzose, subangular to subrounded, 1%; pyrite, fresh, "brassy," trace; muscovite mica, same, trace; extremely abundant very fine microfossils. Note that this sample appears to be properly collected and field processed.

2,130-2,140 Ctgs: General lithology as above.

2,140-2,150 Ctgs: Clay/shale, light-olive-gray, massive to thinly and weakly fissile, firm, friable, relatively "clean," highly calcareous, 100%; muscovite mica, fine to medium, trace; no fossils observed.

2,150-2,160 Ctgs: Clay/shale, same, 100%; paleontology same.

2,160-2,170 Ctgs: Lithology and paleontology same.

Tuscaloosa Group, Gordo Formation (E-log top at 2,178 feet)

2,170-2,180 Ctgs: Clay/shale, same, 90%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to coarse, 10%; muscovite mica, fresh, medium, trace; glauconite, moderate-yellowish-green, somewhat weathered, medium, trace; feldspar (? orthoclase), medium-light-gray, fresh, medium to coarse, trace; abundant oyster shell fragments, predominantly weathered and chalky; rare to common inoceramid prisms and microfossils.

2,180-2,190 Ctgs: General lithology as above, plus sandstone, very light-gray, massive, indurated, dense, very highly yet finely fossiliferous, medium-grained, trace; feldspar (? orthoclase), medium-light-gray, fresh, medium to coarse, trace; paleontology same.

2,190-2,200 Ctgs:	Clay/shale, same, 80%; sand, same, but medium to coarse, 20%; trace constituents and paleontology as above.
2,200-2,210 Ctgs:	Sand, clear to very light-gray, quartzose, subangular to subrounded, moderately well sorted, fine to coarse, 85%; clay/shale, same, 10% (may be in part or entirely caved); feldspar (? orthoclase), moderate-light-gray, fresh, medium to coarse, 3%; glauconite, dusky-yellowish-green, fresh, medium, 2%; muscovite mica, fresh, fine to coarse, trace; phosphatic grains, olive-gray, medium, trace; rare oyster shell fragments; common very fine microfossils.
2,210-2,220 Ctgs:	Sand, same, but fine to medium, 95%; clay/shale, same, 5%; trace constituents and paleontology as above.
2,220-2,230 Ctgs:	General lithology and paleontology same.
2,230-2,240 Ctgs:	Sand, same, but fine to medium, 99%; muscovite mica, same, 1%; phosphatic grains and glauconite, same, as trace constituents; paleontology as above.
2,240-2,250 Ctgs:	Sand, same, 95%; muscovite mica, fresh, fine to very coarse, 3%; carbonized woody fragments, olive-black to black, coarse to very coarse, 2%; other trace constituents and paleontology as above.
2,250-2,260 Ctgs:	General lithology and paleontology same, but with sand, coarse to very coarse.
2,260-2,270 Ctgs:	Sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, medium to very coarse, 80%; clay, light-olive-gray, massive, firm, friable, relatively clean, highly calcareous, 10%; carbonized woody fragments, black, coarse to very coarse, 8%; muscovite mica, fresh, medium to very coarse, 1%; feldspar (? orthoclase), very light-gray, fresh, coarse, 1%; very rare oyster shell fragments.
2,270-2,280 Ctgs:	Lithology as above plus clay, light-greenish-gray (5GY8/1), massive to thinly and weakly fissile, firm, friable, very slightly very finely muscovitic, somewhat "oily" or "waxy," noncalcareous, trace; paleontology as above.
2,280-2,290 Ctgs:	Sand, same, predominantly coarse, 75%; carbonized woody fragments, same, 15%; clay, very light-gray, same, 8%; muscovite mica, same, 1%; feldspar (? orthoclase), same, 1%; no fossils observed.
2,290-2,300 Ctgs:	Clay, same, highly calcareous, 60%; sand, same, but poorly sorted, fine to very coarse, 35%; carbonized woody fragments, same, 3%; muscovite mica, same, 2%; no fossils observed.
2,300-2,310 Ctgs:	Sand, same, 70%; clay, same, very highly calcareous, 25%; carbonized woody fragments, same, 3%; feldspar (? orthoclase), medium to coarse, 1%; muscovite mica, same, 1%; no fossils observed.
2,310-2,320 Ctgs:	General lithology as above.
2,320-2,330 Ctgs:	No sample.

2,330-2,340 Ctgs:	Sand, white to very pale-orange, rare grains ferruginous-stained grayish-orange-pink (10R8/2) to moderate-orange-pink (10R7/4), quartzose, frosted or etched, subangular to subrounded, poorly sorted, medium to very coarse, 97%; clay, very light-gray, same, highly calcareous, 3% (may be caved); muscovite mica, fresh, medium to coarse, trace; no fossils observed.
2,340-2,350 Ctgs:	Lithology and paleontology same.
2,350-2,360 Ctgs:	General lithology same, plus clay, moderate-reddish-brown (10R4/6), somewhat "oily" or "waxy," firm, friable, massive, noncalcareous, trace.
2,360-2,370 Ctgs:	Lithology same. No fossils observed.
2,370-2,380 Ctgs:	Sand, same, 98%; clay, "red," same, 2%; muscovite mica, same, trace; no fossils observed.
2,380-2,390 Ctgs:	Sand, white to very light-gray, quartzose, frosted or etched, in part ferruginous-stained grayish-orange-pink to moderate-orange-pink and grayish-orange, subangular to subrounded, poorly sorted, fine to very coarse, 95%; clay, mixed yellowish-gray and moderate-reddish-brown, massive to thinly laminated, firm, friable, somewhat "oily," noncalcareous, 5%; muscovite mica, fine to medium, trace.
2,390-2,400 Ctgs:	Lithology and paleontology same.
2,400-2,410 Ctgs:	Sand, uniformly ferruginous-stained moderate-orange-pink, quartzose, angular to subangular, well sorted, fine to medium, 98%; clay, moderate-reddish-brown, firm, friable, noncalcareous, 2%; muscovite mica, fresh, medium, trace. No fossils observed.
2,410-2,420 Ctgs:	General lithology same, plus clay, very pale-green (10G8/2), firm, friable, somewhat "oily" or "waxy," trace.
2,420-2,430 Ctgs:	Sand, same, but fine to very coarse with only about half the fraction ferruginous-stained, 85%; clay, same, "reddish," noncalcareous, 14%; muscovite mica, same, 1%; no fossils observed.
2,430-2,440 Ctgs:	General lithology as above.
2,440-2,450 Ctgs:	Sand, same, but uniformly white to very light-gray, frosted or etched, medium to very coarse, 98%; clay, "gray" and "red," noncalcareous, 1%; muscovite mica, fresh, medium to very coarse, 1%; no fossils observed.
2,450-2,460 Ctgs:	Lithology and paleontology same.
2,460-2,470 Ctgs:	Sand, same, 90%; clay, same, 8%; muscovite mica, same, 1%; gravel, very light-gray to grayish-yellow (5Y8/4), quartzose, subrounded, granular, 1%; no fossils observed.
2,470-2,480 Ctgs:	General lithology as above, but with sand, same, 98%; gravel, same, 1%; clay, same, 1%.
2,480-2,490 Ctgs:	General lithology same.
2,490-2,500 Ctgs:	Lithology same. No fossils observed.

2,500-2,510 Ctgs:	Sand, same, 90%; clay, predominantly light-olive-gray, firm, friable, noncalcareous, 9%; gravel, same, 1%; muscovite mica, fresh, medium to coarse, trace; no fossils observed.
2,510-2,520 Ctgs:	Sand, same, 95%; clay, same, 3%; gravel, same, 2%; muscovite, same, trace.
2,520-2,530 Ctgs:	Lithology same.
2,530-2,540 Ctgs:	Sand, clear to very light-gray, quartzose, subangular to subrounded, well sorted, medium to coarse, 97%; clay, light-olive-gray, massive, dense, firm, friable, noncalcareous, 2%; muscovite mica, fresh, fine to coarse, 1%; pyrite, fresh, "brassy," trace; no fossils observed.
2,540-2,550 Ctgs:	Lithology same. Contains trace amounts to perhaps 1% carbonized woody fragments believed to be contamination perhaps from mud additives.
2,550-2,560 Ctgs:	Lithology as above.
2,560-2,570 Ctgs:	Lithology same.
2,570-2,580 Ctgs:	Lithology same, but with sand poorly sorted and fine to very coarse.
2,580-2,590 Ctgs:	Lithology same. Continue to see trace amounts of olive-black to black carbonized woody fragments believed to be contamination.
2,590-2,600 Ctgs:	General lithology as above, but with sand, same, 85%; clay, same, 15%; muscovite mica, same, trace. No fossils or fossil fragments observed. Continue to see carbonized woody fragments as contamination.
2,600-2,610 Ctgs:	Lithology as above but with sand predominantly coarse to very coarse.
2,610-2,620 Ctgs:	Sand, clear to very light-gray, quartzose, angular to subrounded, moderately well sorted, fine to medium, 98%; clay, yellowish-gray, massive to weakly fissile, firm, friable, noncalcareous, 2%; muscovite mica, fresh, fine to coarse, trace; pyrite, fresh, "brassy," trace; carbonized woody fragments as contamination. No fossils or fossil fragments observed.
2,620-2,630 Ctgs:	Lithology same.
2,630-2,640 Ctgs:	This sample has a lithology like that at 2,600 to 2,610 feet.
2,640-2,650 Ctgs:	Sand, as at 2,610 to 2,620 feet, fine, 80%; clay, as at 2,610 to 2,620 feet, 20%; muscovite mica, same, trace.
2,650-2,660 Ctgs:	General lithology as above.
2,660-2,670 Ctgs:	General lithology same. Note that this sample contains about 5% carbonized woody fragments believed to be a caved contaminant.
2,670-2,680 Ctgs:	Sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, fine to very coarse, 85%; clay, light-olive-gray, massive to weakly fissile, firm, friable, very finely muscovitic and lignitic, noncalcareous, 10%; gravel, very light-gray to yellowish-gray, quartzose, subrounded, etched or frosted, granular, 2%; carbonized woody fragments, black,

medium to very coarse, 2%; muscovite mica, fresh, fine to medium, 1%; feldspar (? orthoclase), medium-light-gray, fresh, coarse, trace; no fossils observed.

2,680-2,690 Ctgs: Sand, same, but predominantly fine to medium, 60%; clay, same, 37%; carbonized woody fragments, same, 2%; muscovite mica, same, 1%; no fossils observed.

2,690-2,700 Ctgs: Lithology as above.

2,700-2,710 Ctgs: General lithology same.

2,710-2,720 Ctgs: Sand, same, but very well sorted, fine, 95%; clay, same, 3%; muscovite mica, same, fine to medium, 1%; carbonized woody fragments, fine to medium, 1%; no fossils observed.

2,720-2,730 Ctgs: Lithology same.

2,730-2,740 Ctgs: Lithology same.

2,740-2,750 Ctgs: Sand, same, very fine to fine, 80%; clay, same, but in part highly lignitic and medium-dark-gray, 20%; carbonized woody fragments and muscovite mica as trace constituents; no fossils observed.

2,750-2,760 Ctgs: Lithology same, plus sandstone, very light-gray, massive, indurated, dense, calcareously cemented, very highly calcareous, fine-grained, trace.

2,760-2,770 Ctgs: Sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, very fine to very coarse, 50%; clay/shale, light-olive-gray, massive to weakly fissile, firm, friable, lignitic, finely carbonaceous, very finely muscovitic, noncalcareous, 48%; muscovite mica, fresh, fine to medium, 2%; carbonized woody fragments, black, medium to coarse, trace; no fossils observed.

2,770-2,780 Ctgs: Sand, same, but well sorted, fine to medium, 80%; clay, same, 19%; muscovite mica, same, 1%; carbonized woody fragments, same, trace; no fossils observed.

middle marine shale (E-log top at 2,767 feet)

2,780-2,790 Ctgs: General lithology same, plus common thin-walled pelecypod and oyster shell fragments and rare planktonic and benthonic foraminifera.

2,790-2,800 Ctgs: Sand, same, very well sorted, fine, 85%; clay, light-olive-gray, firm, friable, relatively clean, 14%; muscovite mica, fresh, fine to medium, 1%; very rare pelecypod shell fragments; no microfossils observed.

2,800-2,810 Ctgs: Lithology same. No fossils observed.

2,810-2,820 Ctgs: Clay, light-olive-gray, massive, firm, friable, very slightly and very finely muscovitic and fossiliferous, very highly calcareous, 100%; sand, very light-gray, quartzose, subangular to subrounded, medium to coarse, trace; noted very rare oyster shell fragments.

2,820-2,830 Ctgs: Clay, same, but light-olive-gray to medium-gray, very highly calcareous, 100%; no fossils observed.

2,830-2,840 Ctgs: Clay, same, 60%; silt to sand, clear, quartzose, angular, very well sorted, silt to very fine sand, 40%; muscovite mica, fine to medium, trace; no fossils observed.

2,840-2,850 Ctgs: Lithology same.

2,850-2,860 Ctgs: Clay, same, 80%; silt and sand, same, 20%; muscovite mica, same, trace; very rare oyster and pelecypod shell fragments.

2,860-2,870 Ctgs: Clay, same, 60%; silt to very fine sand, same, 40%; trace constituents and paleontology same.

2,870-2,880 Ctgs: Clay, same, very highly calcareous, 100%; no trace constituents observed; no fossils observed.

2,880-2,890 Ctgs: Clay, same, 85%; sand, clear to very light-gray, quartzose, subangular to subrounded, poorly sorted, medium to very coarse, 15%; muscovite mica, fresh, fine, trace; very rare oyster shell fragments.

2,890-2,900 Ctgs: Lithology and paleontology as above.

2,900-2,910 Ctgs: Clay, same, but sparingly fine to medium glauconitic, very highly calcareous, 60%; sand, same, but predominantly fine to medium, 40%; muscovite mica, fresh, fine to medium, trace; glauconite, dusky-yellowish-green, fresh, rounded, medium, trace; very rare oyster shell fragments.

2,910-2,920 Ctgs: Clay, same, 90%; sand, same, but medium to coarse, 10%; trace constituents and paleontology same.

2,920-2,930 Ctgs: Lithology as above.

Coker Formation (E-log top at 2,925 feet)

2,930-2,940 Ctgs: Sand, very light-gray, quartzose, subangular to subrounded, well sorted, fine to medium, 75%; clay, light-olive-gray, massive, firm, friable, very highly calcareous, 24%; muscovite mica, fresh, fine to coarse, 1%; carbonized woody fragments, black, medium, trace; no fossils observed.

2,940-2,950 Ctgs: Sand, same, but predominantly well sorted and very fine, 97%; clay, same, 3%; muscovite mica, same, fine to medium, trace; no fossils observed.

2,950-2,960 Ctgs: General lithology same, but with sand very poorly sorted and very fine to very porous. Also noted glauconite, dusky-yellowish-green, fresh, rounded, medium to coarse, trace.

2,960-2,970 Ctgs: Lithology same.

2,970-2,980 Ctgs: Sand, same, 97%; clay, same, 3%; trace constituents as above.

2,980-2,990 Ctgs: Sand, same, 70%; clay, very light-gray to pinkish-gray, massive to weakly fissile, firm, friable, finely carbonaceous and muscovitic, noncalcareous, 30%; muscovite mica and glauconite, same, as trace constituents; no fossils observed.

2,990-3,000 Ctgs:	Lithology as above.
3,000-3,010 Ctgs:	Sample total depth. Sand, very light-gray, quartzose, angular to subrounded, very poorly sorted, fine to very coarse, 95%; clay, moderate-reddish-brown, massive, dense, firm, friable, somewhat "oily" or "waxy," noncalcareous, 2%; clay, light-olive-gray, somewhat fissile, firm, friable, very finely muscovitic and carbonaceous, noncalcareous, 2%; muscovite mica, fresh, fine to coarse, 1%; no fossils or fossil fragments observed.

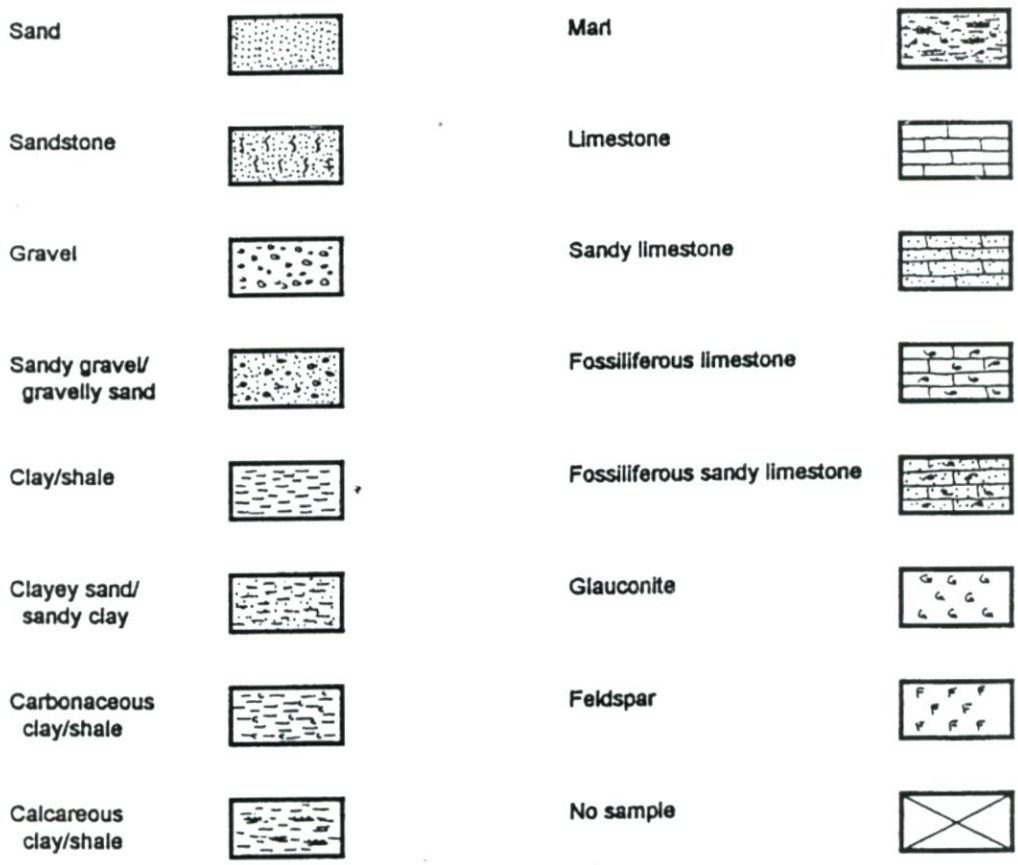
Description by
Charles C. Smith
Geologist

SUMMARY
Layne Central Drilling Company
Town of Ozark–Test Well
Well No. F-07

	Sample interval (feet)			E-log top (feet)
Eocene				
Claiborne Group				
in Tallahatta Formation	0	-	80	--
Wilcox Group				
Hatchetigbee Formation	80	-	120	--
Bashi Marl Member	120	-	140	142
Paleocene				
Wilcox Group				
Tuscahoma Sand	140	-	190	147
Nanafalia Formation	190	-	440	194
Midway Group				
Clayton Formation	440	-	530	400
Cretaceous				
Selma Group				
Providence Sand	530	-	600	528
Ripley Formation	600	-	710	610
Cusseta Sand Member	710	-	850	725
Blufftown Formation	850	-	1,420	865
Arcola Limestone	1,420	-	1,430	1,414
Blufftown Formation	1,430	-	2,010	1,420
Eutaw Formation	2,010	-	2,170	not recognized
Tuscaloosa Group				
Gordo Formation	2,170	-	2,780	2,178
middle marine shale	2,780	-	2,930	2,767
Coker Formation	2,930	-	--	2,925
Well total depth: 3,010 feet				

SCREENS	
2,260-2,265 feet	Gordo Formation
2,289-2,299 feet	Gordo Formation
2,430-2,465 feet	Gordo Formation
2,534-2,549 feet	Gordo Formation
2,563-2,573 feet	Gordo Formation
2,586-2,601 feet	Gordo Formation
2,615-2,640 feet	Gordo Formation
2,657-2,672 feet	Gordo Formation
2,694-2,734 feet	Gordo Formation

EXPLANATION



Figure—Explanation of symbols used on lithologic log.

GEOLOGICAL SURVEY OF ALABAMA
P.O. Box 869999
420 Hackberry Lane
Tuscaloosa, Alabama 35486-6999
205/349-2852

Berry H. (Nick) Tew, Jr., State Geologist

A list of the printed publications by the Geological Survey of Alabama can be obtained from the Publications Sales Office (205/247-3636) or through our web site at http://www.gsa.state.al.us/.

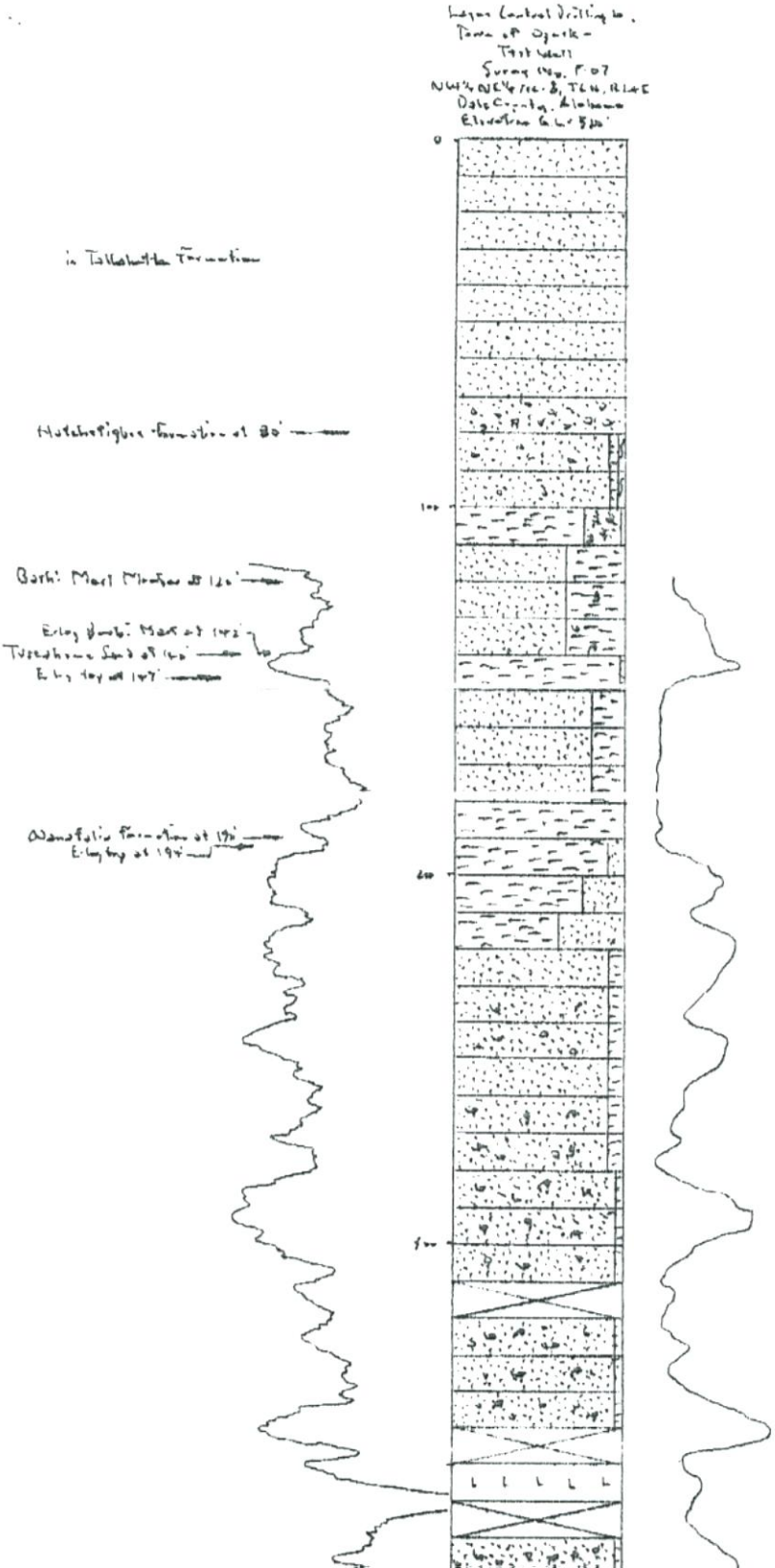
E-mail: info@gsa.state.al.us

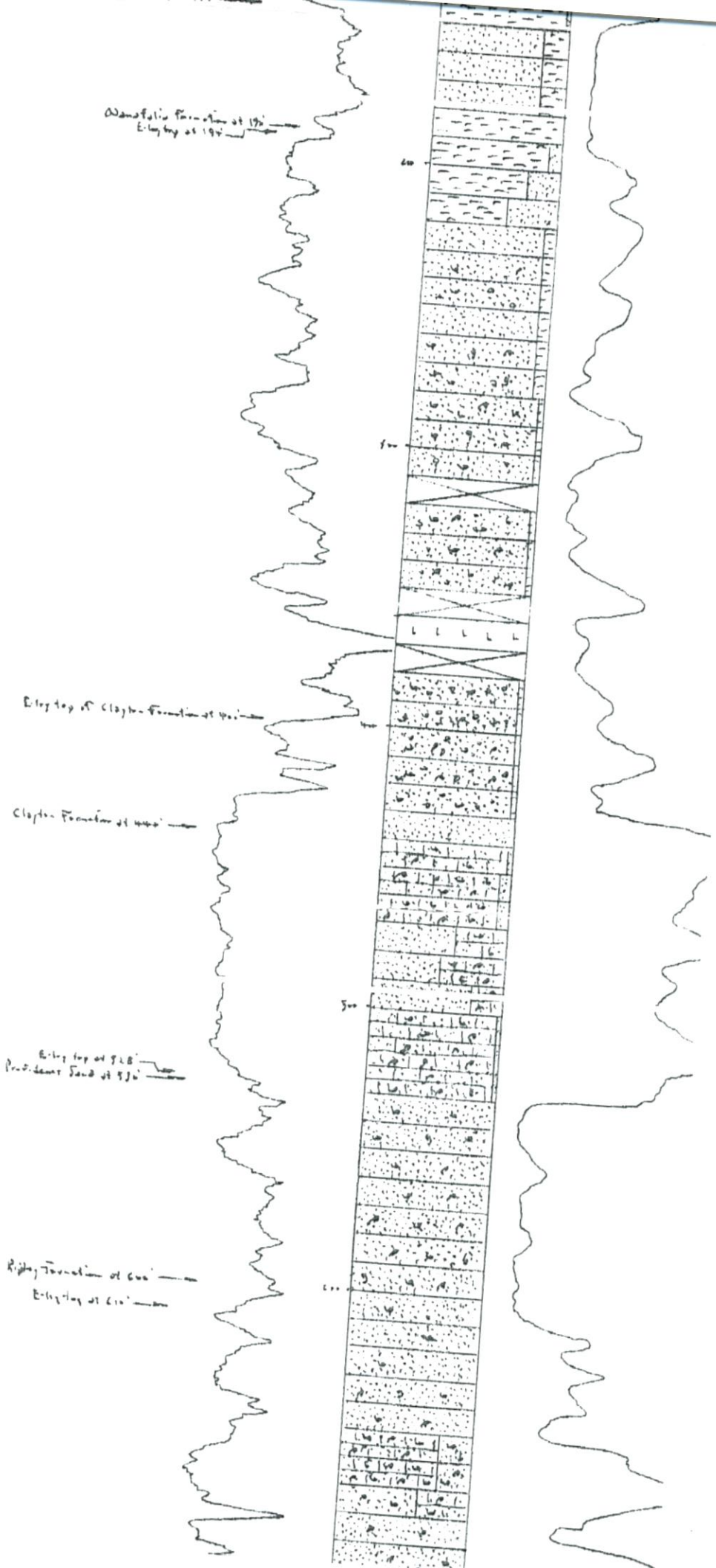
The Geological Survey of Alabama (GSA) makes every effort to collect, provide, and maintain accurate and complete information. However, data acquisition and research are ongoing activities of GSA, and interpretations may be revised as new data are acquired. Therefore, all information made available to the public by GSA should be viewed in that context. Neither the GSA nor any employee thereof makes any warranty, expressed or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed in this report. Conclusions drawn or actions taken on the basis of these data and information are the sole responsibility of the user.

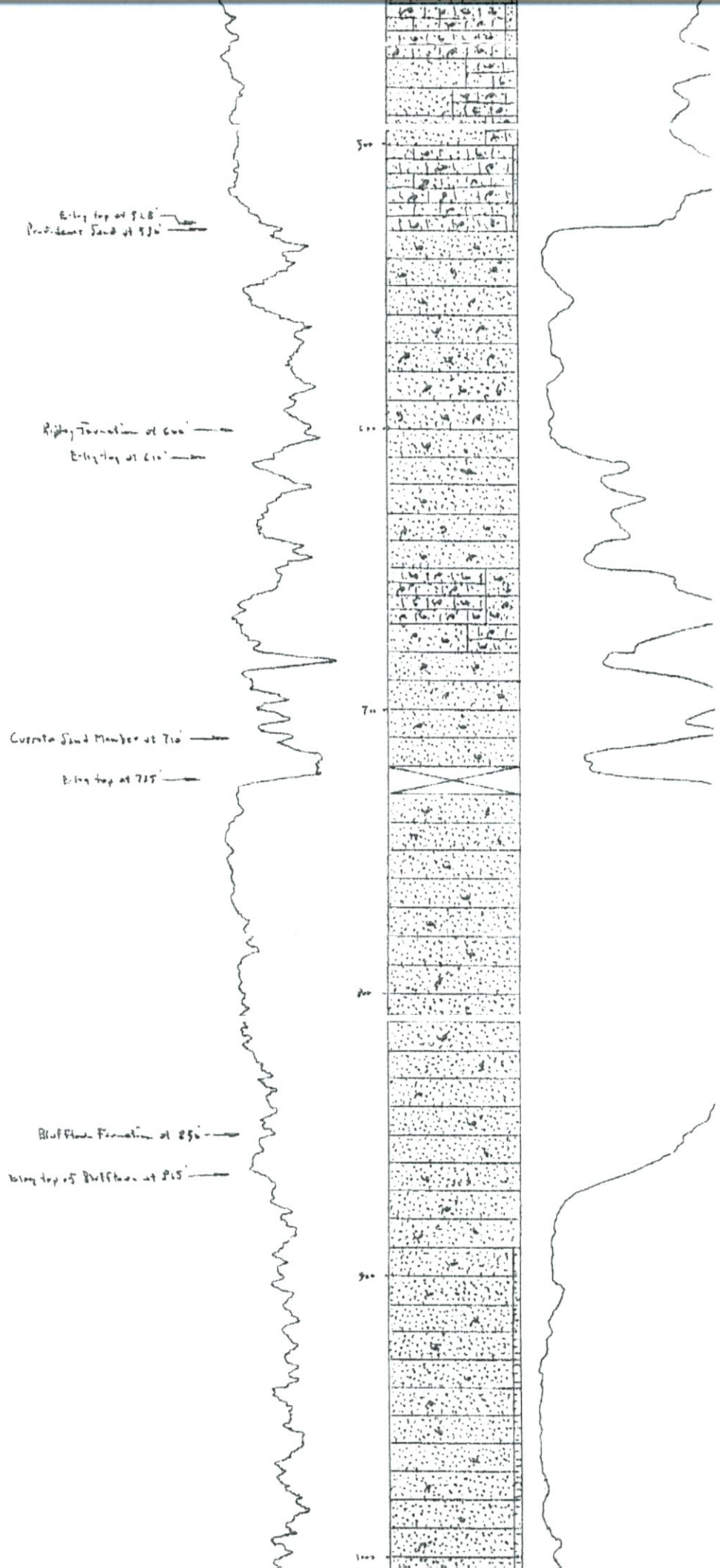
As a recipient of Federal financial assistance from the U.S. Department of the Interior, the GSA prohibits discrimination on the basis of race, color, national origin, age, or disability in its programs or activities. Discrimination on the basis of sex is prohibited in federally assisted GSA education programs. If anyone believes that he or she has been discriminated against in any of the GSA's programs or activities, including its employment practices, the individual may contact the U.S. Geological Survey, U.S. Department of the Interior, Washington, D.C. 20240.

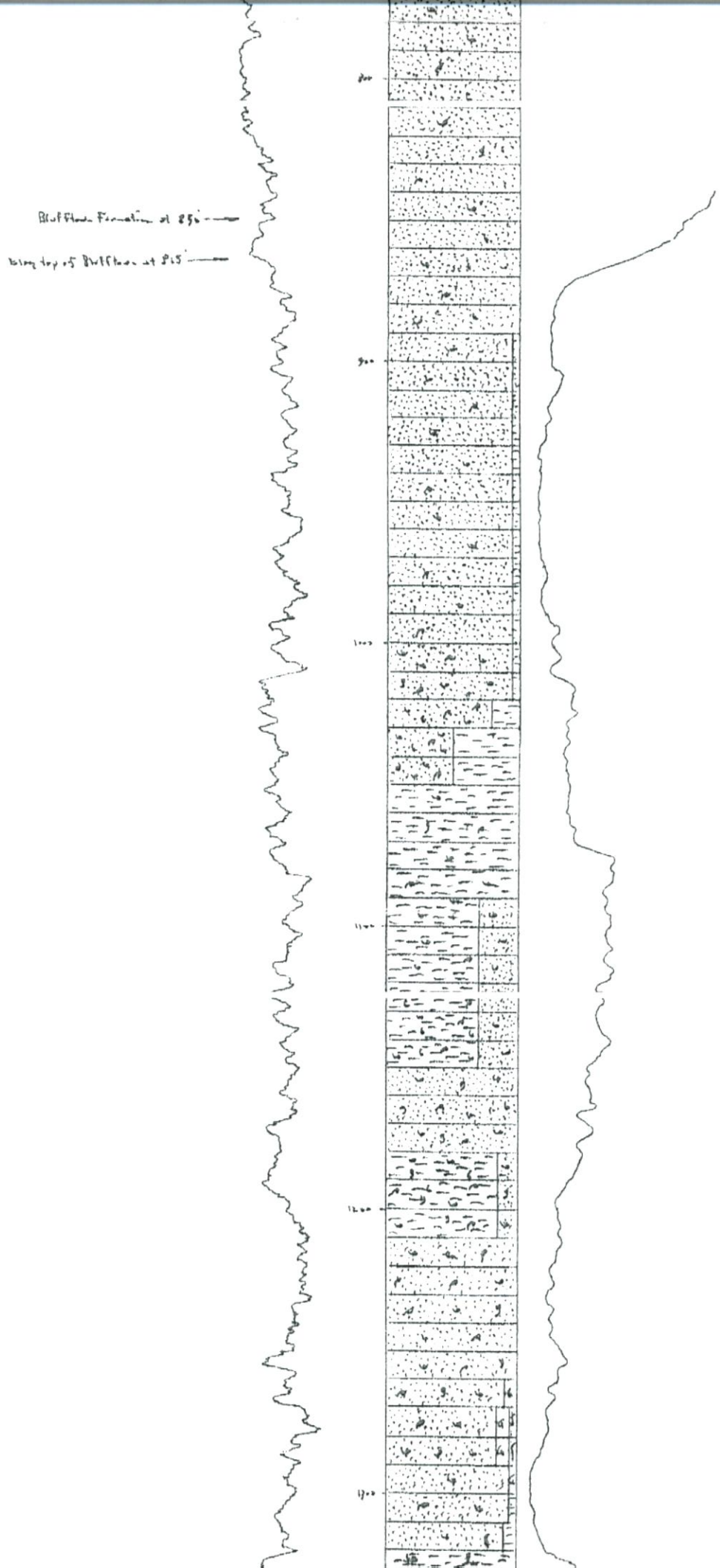
AN EQUAL OPPORTUNITY EMPLOYER

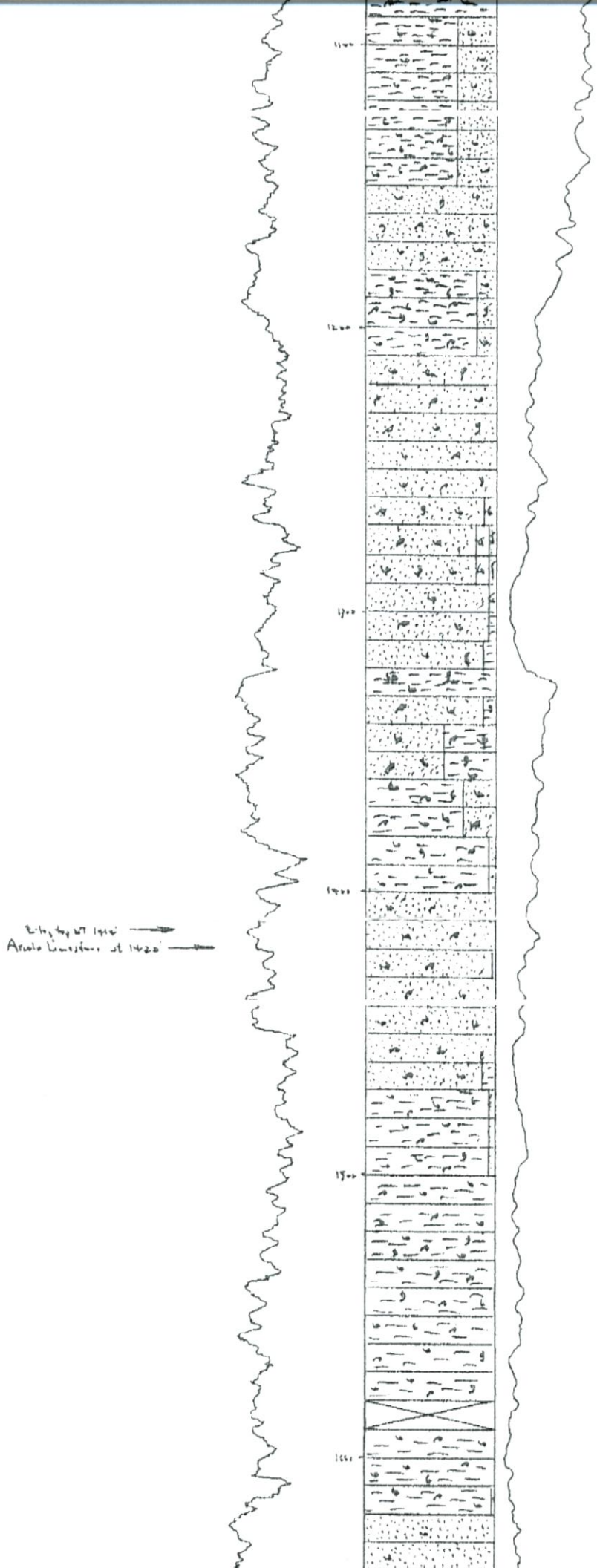
Serving Alabama since 1848

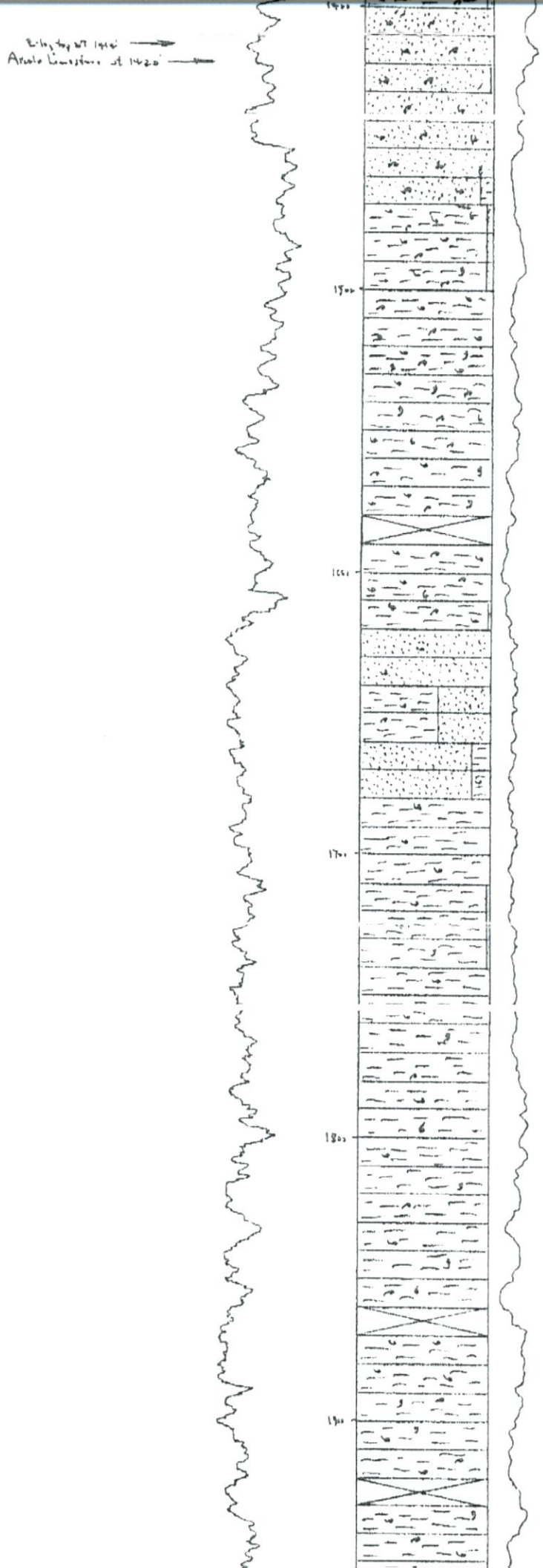

Layne Central Drilling Co.
Town of Ozark -
Test Well
Survey No. F-07
Dale County, Alabama
0
100
200
300
in Tallahatta Formation
Hatchetigbee Formation at 80'
Bashi Marl Member at 120'
Tuscahoma Sand at 140'
Wanafalia Formation at 190'
Erlay top at 194'

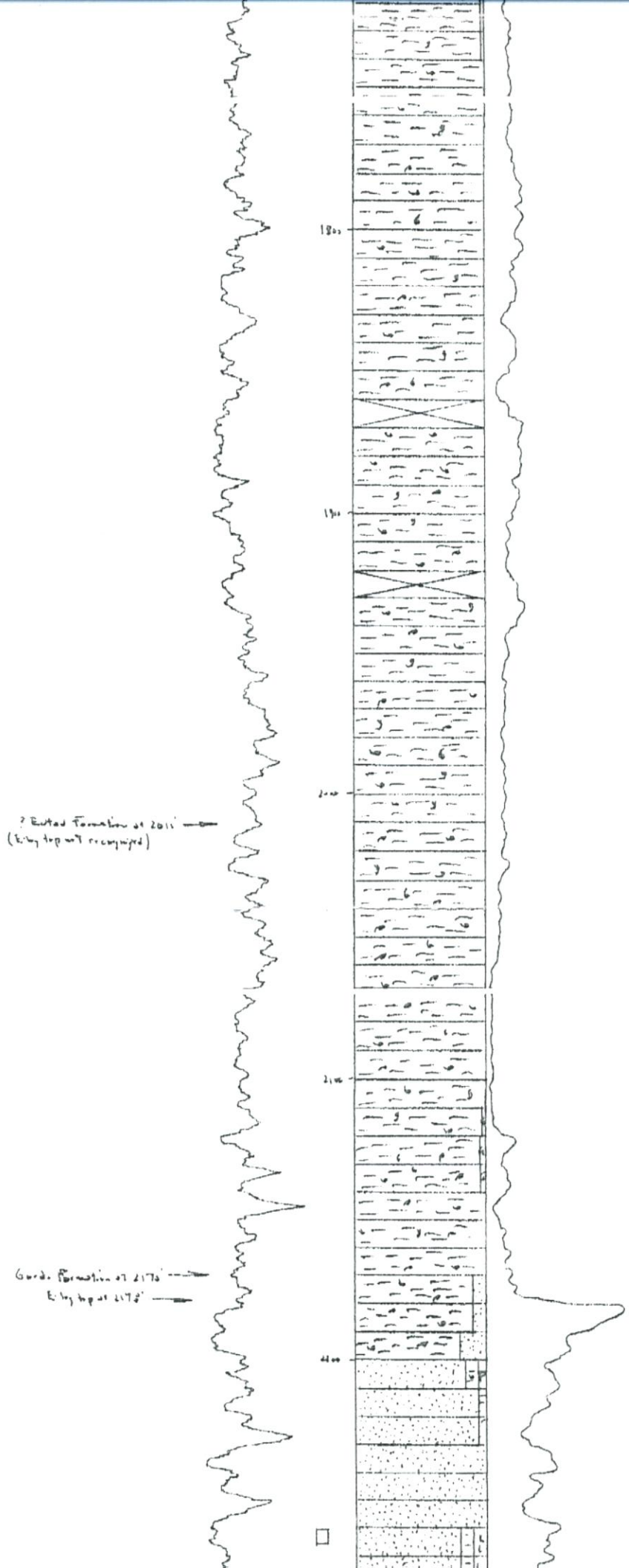

Wanafalia Formation at 190'
E-log top at 194'
E-log top of Clayton Formation at 400'
Clayton Formation at 440'
E-log top at 528'
Providence Sand at 530'
Ripley Formation at 600'
E-log top at 610'

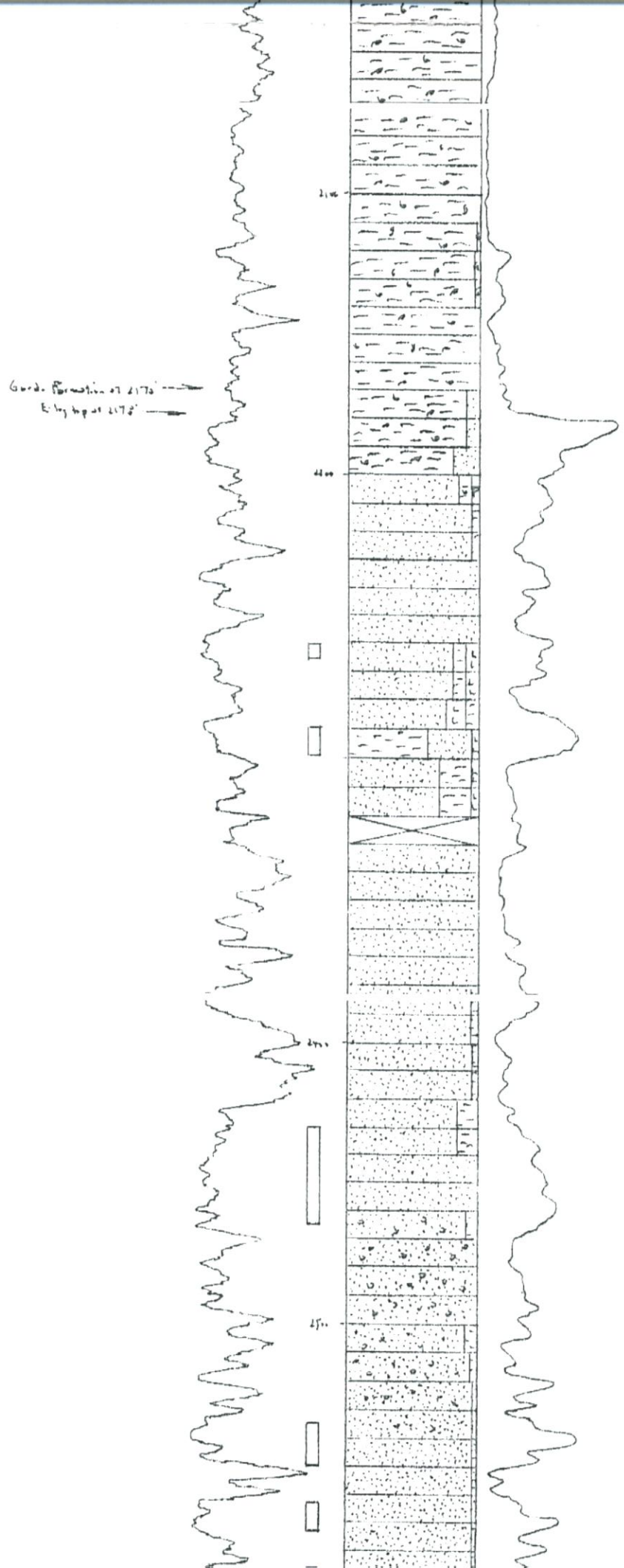

E-log top at 528'
President Sand at 530'
Ripley Formation at 600'
E-log top at 610'
Cusseta Sand Member at 710'
E-log top at 725'
Bluffton Formation at 850'
E-log top of Bluffton at 815'
500
600
700
800
900
1000

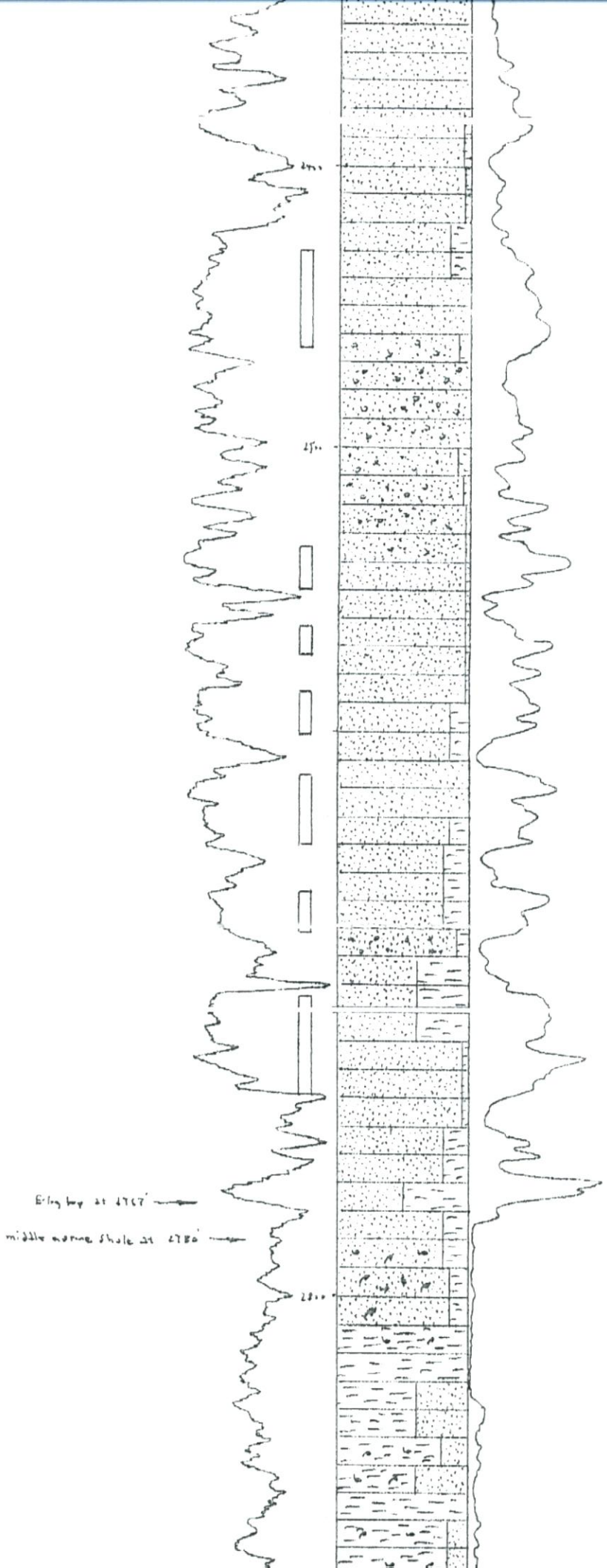

Bluffton Formation at 850'
Bloom top of Bluffton at 815'
800
900
1000
1100
1200
1300


Arnolo Limestone at 1420'

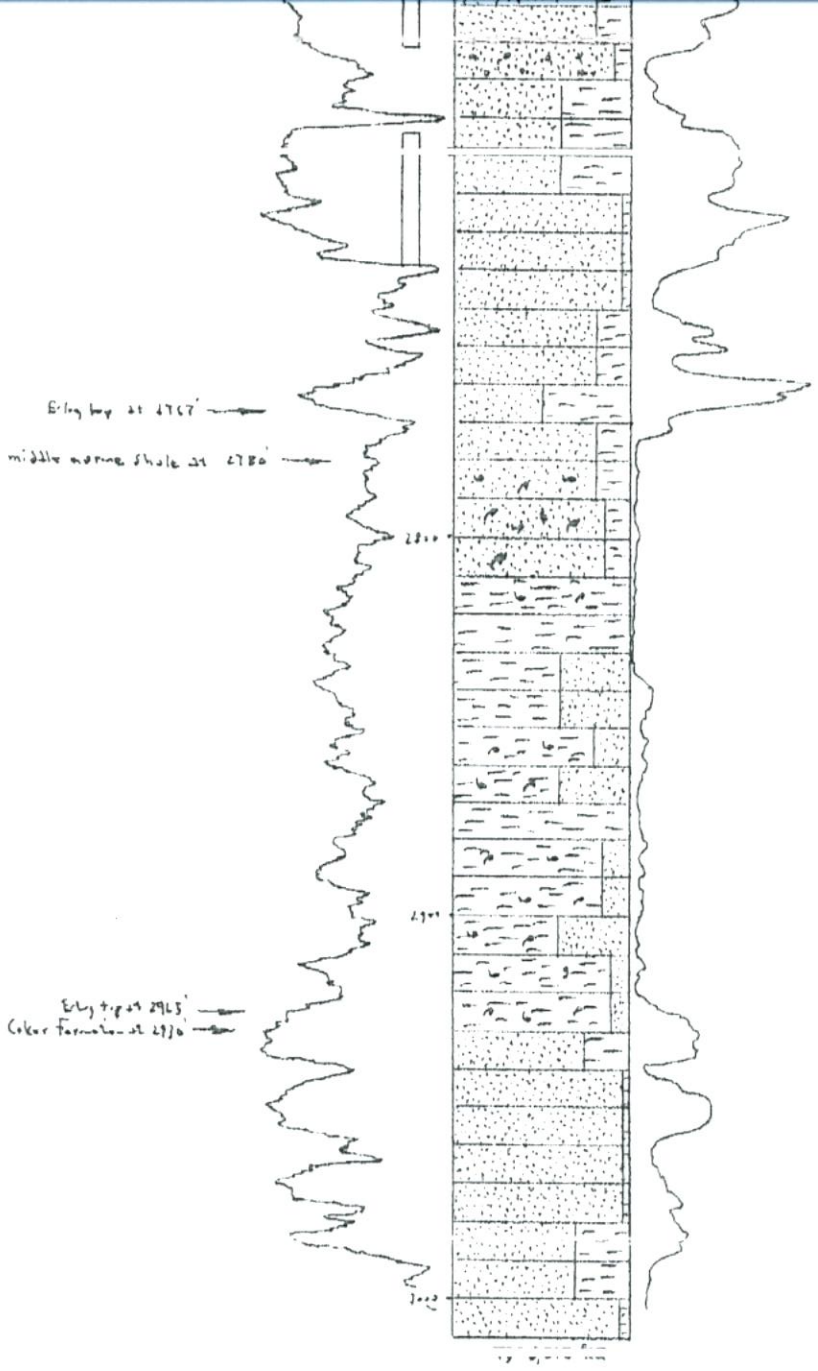

Arcola Limestone at 1420'
1500
1550
1700
1800
1900


1800
1900
2000
2100
2200
? Ewtad Formation at 2011'
(Ei log top not recognized)
Gordo Formation at 2170'
Ei log top at 2178'


Gordo Formation at 2170'
Entry top at 2178'



Erlag top at 2767'
middle marine shale at 2780'


Erlag top at 2767'
middle marine shale at 2780'
2800
2900
Erlag top at 2965'
Coker formation at 2970'
3000