UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

GEOPHYSICAL AND LITHOLOGIC LOGS OF 1980-81 COAL DRILLING IN THE WARRIOR COAL FIELD, TUSCALOOSA, FAYETTE, AND WALKER COUNTIES, ALABAMA

By

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and
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Geological Survey of Alabama

Open File Report 81-618

1981

This report has not been edited for conformity
with U.S. Geological Survey editorial standards
or stratigraphic nomenclature

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Metric equivalents:

1 meter = 3.28 feet

1 kilometer = 0.62 statute mile

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INTRODUCTION

Forty-eight coal test holes were cored between July 1980 and May 1981 in the Berry, Carbon Hill, Glen Allen, Howard, Oakman, Berry SE, Lake Tuscaloosa North, Townley, Wiley and Windham Springs 7 1/2' quadrangles, Townships 12 through 19 S., Ranges 9 and 10 W., in Tuscaloosa, Fayette, and Walker Counties, Alabama.

The purpose of this drilling was to determine the general distribution, thickness, and quality of potentially strippable and underground minable coal on Federal mineral properties in the western part of the Warrior coal field (Fig. 1). This open-file report contains the core descriptions and geophysical logs from the drilling project. No interpretive maps such as isopachs are included.

The Warrior coal field comprises about 9,000 square kilometers (km^2). This study is limited to the Pottsville Formation (Lower Pennsylvanian) in the western 5,000 km^2 of this field. Maximum total thickness of the Pottsville in the drilling area is about 1,350 meters (m). In the Warrior coal field, the Pottsville is divided into lower and upper parts. Coring was concentrated in the upper part: a cyclic sequence of sandstone, underclay, coal, and shale, which contains the main commercial coal beds (Fig. 2). The lower part contains little or no potentially economic coal.

In the southwestern part of the Warrior coal field, the Pottsville is unconformably overlain by the Upper Cretaceous Tuscaloosa Group, which consists mainly of unconsolidated beds of clay, sand, and gravel.

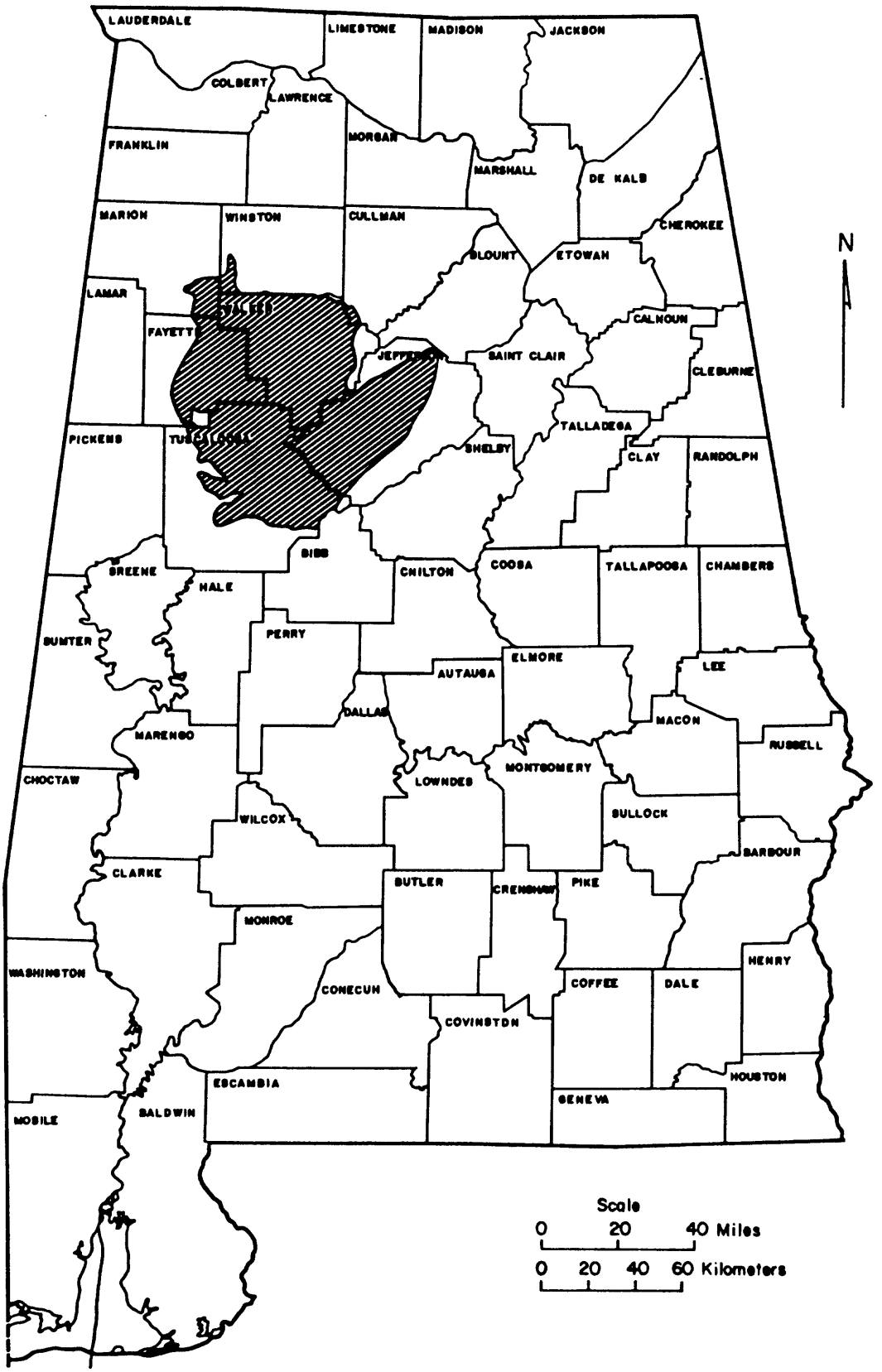

Figure 1.-- Index map of Alabama showing location of Warrior coal field.

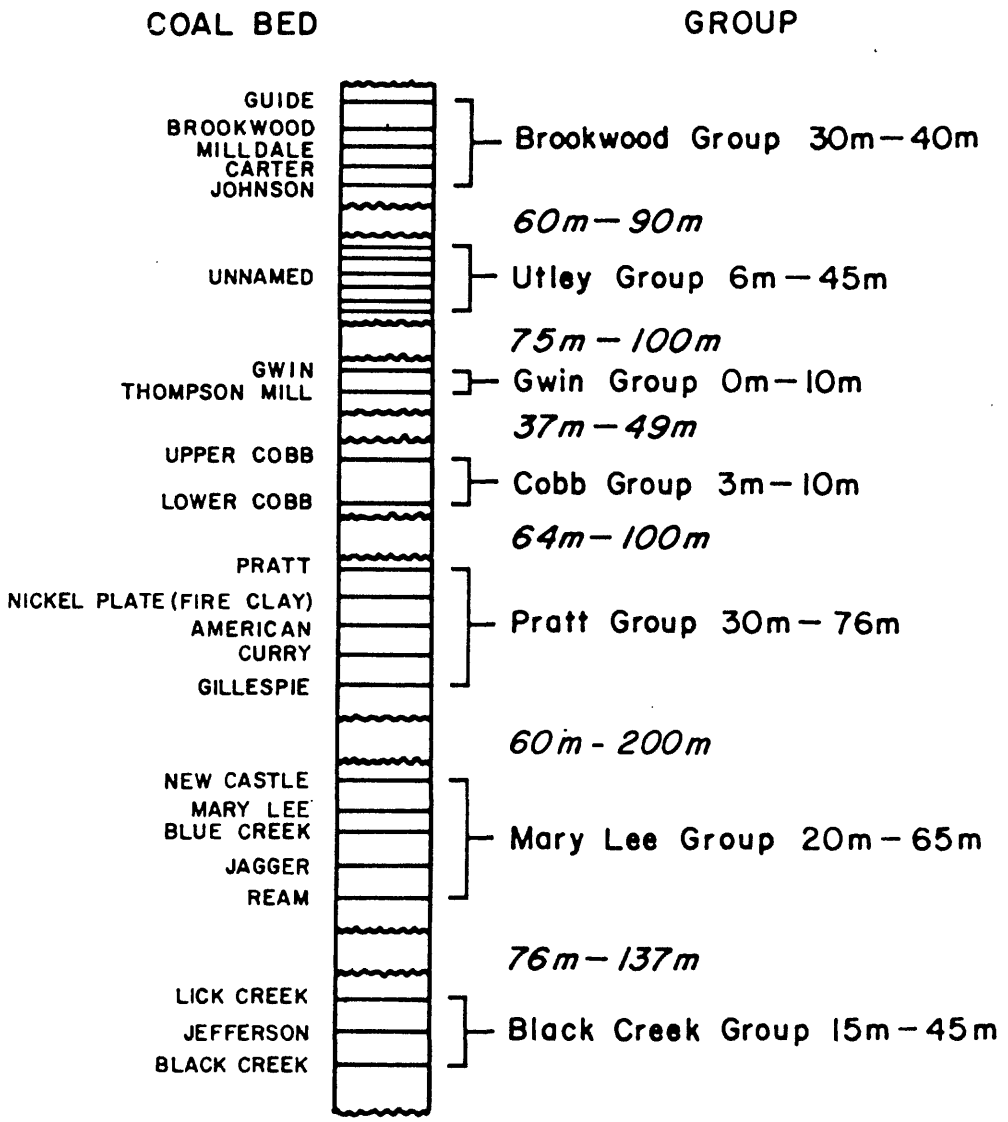

Figure 2. -- Generalized columnar section showing the coal-bearing beds in the upper part of the Pottsville Formation. No vertical scale intended.

In the study area, the Tuscaloosa Group thickens southwestward from 0 to 152 m, and dips in that direction at about 10 m/km.

Almost all coal production in the Warrior coal field has come from seven coal groups in the Pottsville. The coals in the western part of the field are generally high-volatile A bituminous in rank, increasing to medium-volatile bituminous in the eastern part of the field. Their stratigraphic occurrence from bottom to top as described by Culbertson (1964) and Southern Railway (1972) is summarized below:

(1) Black Creek group - contains three coal beds, the Black Creek, Jefferson, and Lick Creek, in an interval of 15-45 m. The Black Creek coal bed is generally 0.5-0.8 m thick but ranges up to 1.3 m. It is high-volatile A bituminous coal in rank with low ash and sulfur content. The Jefferson coal bed ranges in thickness from 0-1.5 m, but normally is less than 0.75 m. The Lick Creek coal bed is thin and usually not mined.

(2) Mary Lee coal group - occurs 76-137 m above the Black Creek coal group, and contains the largest reserves in the Warrior field. It consists of five coal beds within a stratigraphic interval of 20-65 m: the Ream, Jagger, Blue Creek, Mary Lee, and New Castle. The group is widespread, but distribution and thickness of individual coal beds are highly variable. Much of the coal in this group has high ash but a low sulfur content.

(3) Pratt coal group - consists of five named coal beds within a stratigraphic interval of 30-76 m. It is 60-200 m above the Mary Lee group. Of the five coal beds--the Gillespie, Curry, American, Nickel Plate (Fire Clay), and Pratt--the lowest two are less than 0.35 m thick and are not commercially mined. The America coal bed varies in thickness from 0.75-1.5 m and contains moderate ash and low sulfur. The Nickel Plate (Fire Clay) coal bed is as much as 1 m thick in eastern sections of the Warrior coal field but is thinner and generally noncommercial elsewhere. The Pratt coal bed is 0.75-2.00 m thick.

(4) Cobb coal group - occurs 64-100 m above the Pratt group. It commonly contains a lower and an upper Cobb coal bed, but in some areas only one bed is present. The bed or beds are less than 0.6 m thick.

(5) Gwin coal group - contains the Thompson Mill and the Gwin coal beds in a stratigraphic interval up to 10 m thick, which occurs 37-49 m above the Cobb. The Thompson Mill coal bed is commonly too thin for mining. The Gwin coal bed is highly variable in thickness and has been mined only to a limited extent.

(6) Utley coal group - was named by Culbertson (1964). It occurs about 75-100 m above the Gwin group, and consists of two to six coal beds in an interval of 6-45 m. Only the lower four beds averaging 1.2-2.2 m in total thickness are known to be locally mined.

(7) Brookwood coal group - consists of five coal beds: the Johnson, Carter, Milldale, Brookwood, and Guide. It occurs 60-90 m above the Utley coal group. The Brookwood coal bed is the most widespread and thickest of the coal beds in this group, with an average thickness of 1.0-1.3 m. In places where the Milldale and Brookwood coal beds coalesce, the combined thickness of the beds is 1.8-2.2 m.

Drilling was done with truck-mounted rotary drilling rigs by B.H. Mott and Sons, Inc., of Huntington, West Virginia, under U.S. Geological Survey contract number 14-08-0001-18940. Water was used as a drilling medium. Drill hole locations are shown in plate 1, and locations and depths are summarized in table 1.

Geophysical logging by BPB Instruments, Inc., Northport, Alabama, provided natural gamma, caliper, gamma density, and resistivity records. A BPB Series A Slimline Logging Unit* was utilized for the geophysical logging. All logs were run at a logging speed of 9.15 m per minute (30 ft. per minute) and were recorded at a scale of 1 cm equals 1.2 m (1 in. equals 10 ft.). They were reduced to a scale of 1 cm equals 3 m (1 in. equals 25 ft.) for publication in this report. No horizontal scales are given for the geophysical logs; however, natural gamma, resistivity, and density increase toward the right and caliper increases toward the left. Coal locations are marked on the strip column in the drill hole logs.

*Use of trade names in this open-file report is for descriptive purposes only and does not constitute an endorsement by the U.S. Geological Survey.

Full-size copies of the geophysical logs are available for public viewing at the U.S. Geological Survey office, 1725 K St., N.W., Washington, D.C., 20006, or can be purchased from the National Geophysical and Solar-Terrestrial Data Center (NGSDC) in Boulder, Colorado. Refer to USGS data set 1981 when requesting this data.

A total of 7,831 m of 7.37 cm diameter rotary drilling was done, of which 7,228 m was cored. Core recovery was close to 100 percent. (These totals do not include coreholes 1, 3, and 5, which were still in progress during preparation of this report.) The core was described lithologically by R.L. Barnett, Victor Wuerch, and other geologists of the Energy Resources Division, Geological Survey of Alabama.

REFERENCES

Culbertson, W.C., 1964, Geology and coal resources of the coal-bearing rocks of Alabama: U.S. Geological Survey Bulletin 1182-B, 79 p.

Mineral Resources Group Research and Planning Section, 1972, Coal reserves of Alabama served by Southern Railway System: Washington, D.C., Industrial Development Department, Southern Railway System, 82 p.

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ABBREVIATIONS USED IN LITHOLOGIC DESCRIPTIONS

abnt.	abundant
bk.	black
bl.	blue
bn.	brown
c.	coarse
calc.	calcite, calcareous
carb.	carbonaceous
cm.	centimeters
dk.	dark
f.	fine
fc.	fireclay
fossif.	fossiliferous
fpm.	feet per minute
gn.	green
gr.	grained
gy.	gray
HPM.	Huntsville Principal Meridian
intbd(s).	interbed(s)
intbdd.	interbedded
intbdg.	interbedding
lam(s).	laminae, laminations
ls.	limestone
lt.	light
m.	medium
mica.	micaceous
mpcm.	meters per centimeter
mpm.	meters per minute
occ.	occasional
or.	orange
sh.	shale
slst.	siltstone
ss.	sandstone
uc.	underclay
v.	very
wh.	white
x-bd(s).	crossbed(s)
x-bdd.	crossbedded
x-bdg.	crossbedding
x-lam(s).	cross-lamination(s)
yw.	yellow

Table 1.--Summary of U.S. Geological Survey coal test drilling in the Warrior coal field in Tuscaloosa, Fayette, and Walker Counties, Alabama, July 1980-May 1981

All measurements in meters; to convert to feet multiply by 3.28. All depths are measured from the ground surface.

Core Hole No.	Map Quad (7 1/2 min.)	Location T.(S), R.(W), Sec. Huntsville mer.				Date Drilling Completed	Surface Elev. (meters)	Total Depth Drilled (meters)	Interval Cored (meters)	Total Depth Logged (meters)	Final Casing Depth (meters)[1]
1	Berry, SE	17	10	35	SE 1/4	[2]	--	--	--	--	--
2	Windham Springs	19	9	14	SE 1/4	10/7/80	184.4	33.5	[3]	--	--
3	Berry, SE	17	10	3	NE 1/4	[2]	--	--	--	--	--
4	Windham Springs	19	9	10	SE 1/4	10/8/80	178.3	18.6	[3]	--	--
5	Windham Springs	18	9	28	SE 1/4	[2]	--	--	--	--	--
6	Windham Springs	18	9	26	SE 1/4	8/12/80	178.3	342.9	332.9	342.5	18.5
9	Berry, SE	18	9	6	NW 1/4	7/9/80	167.7	60.8	40.2	60.8	9.9
10	Wiley	17	9	36	SW 1/4	9/23/80	213.4	414.6	402.1	403.8	27.9
11	Wiley	17	9	15	NW 1/4	9/11/80	198.2	420.4	411.2	418.0	8.5
12	Wiley	17	9	13	SW 1/4	12/29/80	196.6	33.0	24.3	31.7	5.2
14	Berry, SE	17	9	5	SW 1/4	11/19/80	170.7	46.7	39.5	45.7	6.1
15	Berry, SE	17	10	2	NE 1/4	12/15/80	166.2	24.2	16.3	24.1	8.5
16	Wiley	17	9	4	NE 1/4	12/30/80	181.4	43.0	37.0	42.7	5.5
17	Wiley	16	9	34	SE 1/4	9/6/80	192.1	23.0	20.1	23.0	2.6
18	Berry, SE	16	9	32	SW 1/4	12/2/80	195.1	49.0	39.2	48.1	9.4
19	Oakman	16	9	21	SW 1/4	12/17/80	221.0	43.6	29.7	41.6	10.7
20	Oakman	16	9	22	NW 1/4	9/9/80	207.3	26.4	20.5	26.4	5.9
21	Berry	15	10	24	SE 1/4	11/25/80	219.5	50.2	41.4	42.9	5.9
22	Howard	14	9	20	NW 1/4	10/10/80	225.6	181.9	158.9	179.3	23.3
23	Howard	14	9	18	NW 1/4	10/10/80	233.2	194.2	182.3	192.5	11.7
24	Howard	14	10	11	SW 1/4	9/17/80	218.0	38.6	32.9	38.6	5.8
25	Howard	14	10	2	SW 1/4	9/12/80	216.5	35.5	29.7	22.6	5.9
27	Howard	14	10	5	SW 1/4	10/28/80	221.0	28.1	18.5	27.9	5.8
28	Glen Allen	12	10	30	NW 1/4	10/7/80	208.8	64.2	60.8	64.0	3.4

Table 1.--Continued

Core Hole No.	Map Quad (7 1/2 min.)	Location T.(S), R.(W). Sec. Huntsville mer.				Date Drilling Completed	Surface Elev. (meters)	Total Depth Drilled (meters)	Interval Cored (meters)	Total Depth Logged (meters)	Final Casing Depth (meters)[1]
30	Windham Springs	18	9	34	NE 1/4	11/11/80	186.0	357.9	336.2	356.0	20.6
31	Windham Springs	18	9	33	NE 1/4	12/15/80	170.7	348.3	317.7	347.3	30.5
32	Lake Tuscaloosa North	18	9	31	SE 1/4	2/4/81	149.4	525.0	507.4	523.8	17.7
33	Lake Tuscaloosa North	18	10	36	NE 1/4	12/9/80	160.4	121.8	87.2	121.8	34.8
35	Lake Tuscaloosa North	18	9	20	SW 1/4	12/12/80	166.2	306.4	283.8	302.8	23.3
37	Lake Tuscaloosa North	18	9	18	SE 1/4	2/6/81	166.2	472.5	450.7	471.0	25.0
38	Lake Tuscaloosa North	18	9	7	NE 1/4	4/1/81	141.8	267.4	256.2	265.4	9.1
40	Berry, SE	17	9	32	NW 1/4	3/19/81	172.0	515.0	493.7	480.8	21.3
41	Wiley	17	9	33	NE 1/4	4/9/81	141.8	501.0	493.4	496.5	3.0
43	Wiley	17	9	22	NW 1/4	12/18/80	182.9	36.6	28.3	36.3	11.0
46	Wiley	17	9	12	SE 1/4	3/11/81	164.6	502.8	493.8	502.8	9.3
48	Berry, SE	17	9	7	SW 1/4	3/9/81	161.6	394.6	381.2	392.3	12.5
49	Wiley	17	9	4	SW 1/4	2/21/81	204.3	407.2	384.6	404.6	38.1
52	Berry, SE	16	9	31	SW 1/4	11/11/80	190.5	39.3	28.2	39.3	11.0
53	Berry, SE	16	9	31	NE 1/4	12/5/80	190.5	33.4	22.1	33.4	11.4
54	Oakman	16	9	29	NE 1/4	11/11/80	208.8	34.3	23.1	34.3	11.0
55	Berry	15	10	23	SE 1/4	12/4/80	208.8	45.7	37.2	45.7	6.6
56	Howard	15	9	7	SE 1/4	11/10/80	236.3	49.7	36.7	49.7	13.1
57	Howard	14	9	19	SW 1/4	10/23/80	222.6	193.0	184.8	190.9	8.2
58	Townley	14	9	21	SE 1/4	12/9/80	213.4	177.4	154.8	176.2	22.0
60	Howard	14	9	17	NE 1/4	11/13/80	152.4	104.5	92.5	103.7	11.6
61	Howard	14	9	7	NE 1/4	11/4/80	198.2	112.4	100.5	112.4	11.9
62	Carbon Hill	13	10	32	NW 1/4	10/21/80	225.6	36.3	25.5	36.3	10.7
63	Carbon Hill	12	10	30	SE 1/4	10/15/80	230.2	76.4	70.9	75.3	5.5

[1]Casing depths listed in table 1 may not agree with depths reported in lithologic descriptions. Casing depths reported in lithologic logs were measured to the top of the first cored interval and, in some instances, additional casing was added later to alleviate downhole caving.
[2]Drilling still in progress upon completion of open-file report.
[3]Corehole total depth in unconsolidated overburden, hole not logged.
[4]A skip in the core hole numbering sequence represents holes deleted from the drilling program.

DRILL HOLE LOG

Hole #: 2

Geophysical Log Date: - , County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: SE¼ Sec. 14 , T. 19 S , R. 9 W HPM

Surface Elev.: 184.4 m, Logged Depth: - m, Drilled Depth: 33.5 m, Core Int: - m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
0 - 33.54	Unconsolidated material, not described.			No geophysical log.			
33.54	Total depth.						

DRILL HOLE LOG

Hole #: 4

Geophysical Log Date: - , County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: SE¼ Sec. 10 , T. 19 S , R. 9 W HPM

Surface Elev.: 178.3 m, Logged Depth: - m, Drilled Depth: 18.6 m, Core Int: - m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
0 - 18.60	Unconsolidated materiel, not described.			No geophysical log.			
18.60	Total depth.						

DRILL HOLE LOG

Hole #: 6

Geophysical Log Date: 8-12-80, County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: SE¼ Sec. 26, T. 18 S, R. 9 W HPM

Surface Elev.: 178.3 m, Logged Depth: 342.5 m, Drilled Depth: 342.9 m, Core Int: 332.9 m,

LITHOLOGY

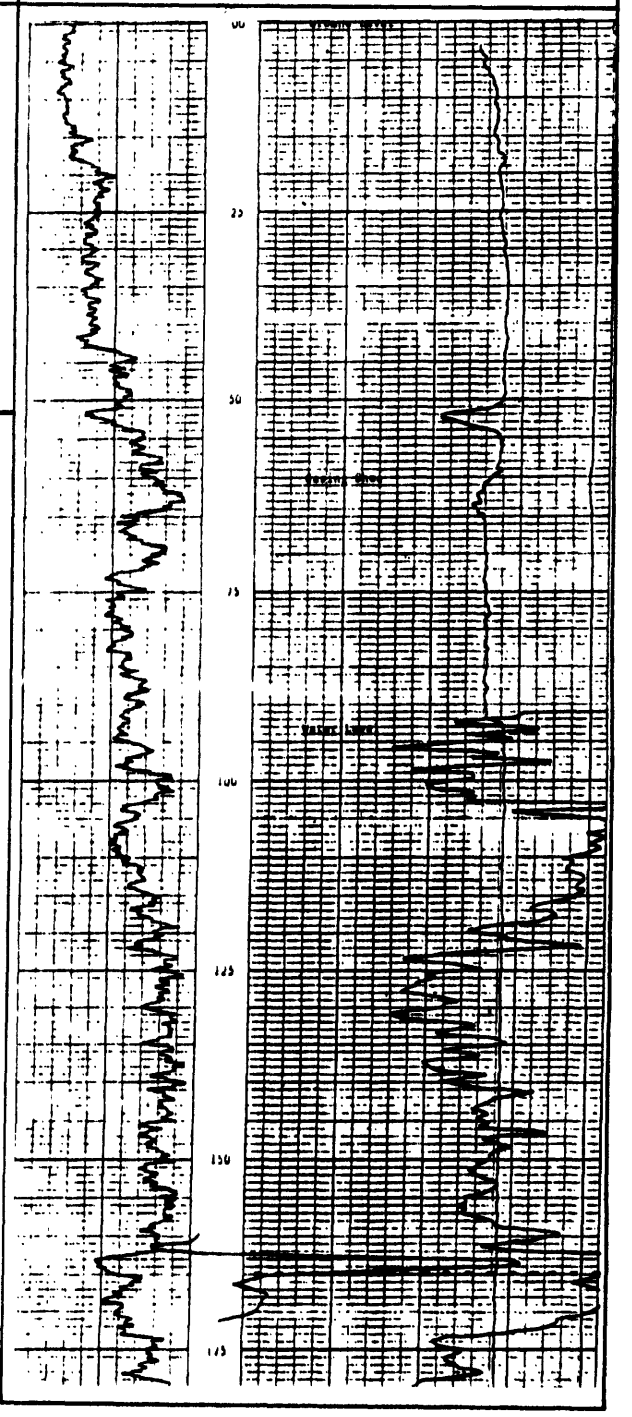
0 - 9.95	Cased in unconsolidated material.
9.95 - 10.94	Ss., gy., f.gr., mica., x-bdg. near bottom, carb. at base.
10.94 - 15.74	Fc., m.gy., mica., silty; some core loss.
15.74 - 16.37	COAL, undifferentiated; some core loss, about 42 cm. recovered from 14.95 - 16.16 meters; Brookwood group.
16.37 - 17.86	Fc., m.gy.; some quartz pebbles; some core loss, about 1.06 meters.
17.86 - 79.72	Ss., sh. beds and intbds.; ss., gy.-dk.gy., f.-m.gr., massive in part, mica., x-bds., rooted in part; sh., gy.-dk.gy., mica., sandy in part, churned in part; some flow structure, burrowed in part, carb. in part, some siderite pebbles and lams., some calc.-filled structures, minor slumping.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



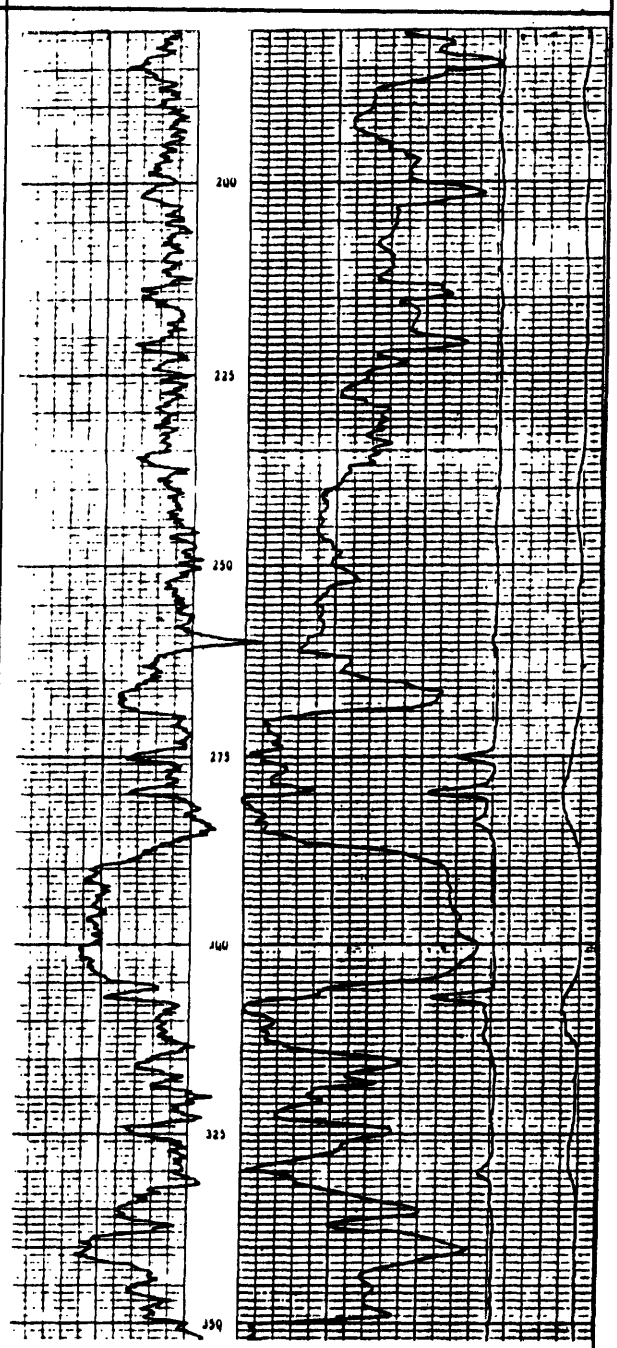
LITHOLOGY

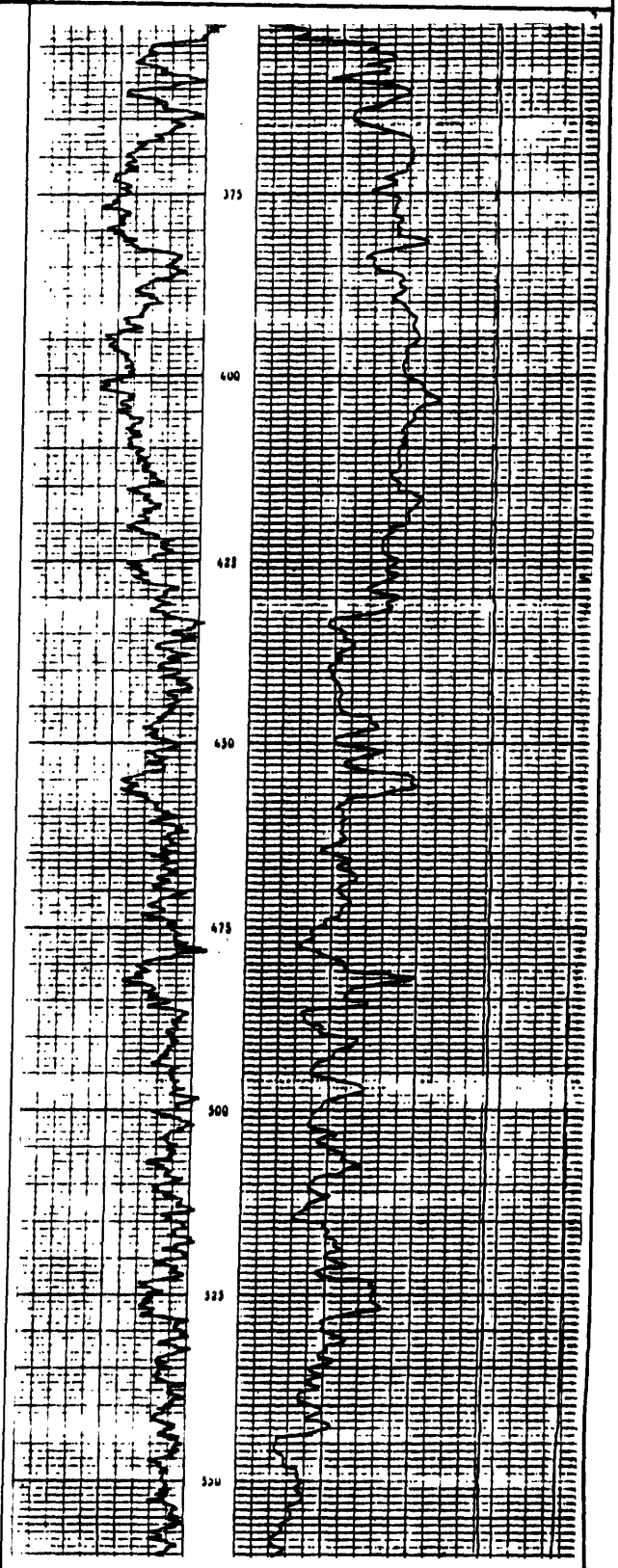
79.72 - 79.79	COAL, undifferentiated.
79.79 - 85.46	Sh., ss. intbds.; sh., dk.gy., sandy, massive in part, carb. in part, churned in part; ss., f.gr.; 7 cm. coal band at 84.40 meters.
85.46 - 85.61	Fc.
85.61 - 85.87	COAL, undifferentiated; Utley group.
85.87 - 86.58	Fc., dk.gy., waxy luster.
86.58 - 86.98	Sh., dk.gy., few clay lams.
86.98 - 87.04	COAL, undifferentiated; Utley group.
87.04 - 87.96	Fc., bn.-dk.gy., sandy.
87.96 - 93.93	Ss., sh. beds; ss., gy., f.gr., mica.; sh., dk.gy., sandy; coal lams 90.70 - 90.80 meters.
93.93 - 94.15	COAL, undifferentiated; Utley group.
94.15 - 95.79	Fc., dk.gy.
95.79 - 98.87	Sh., dk.gy., massive in part, some sand, little siderite; some intbdd. bk. sh. 96.10 - 96.13, 98.51 - 98.87 meters.
98.87 - 99.18	Fc., dk.gy., few coal lams.
99.18 - 100.78	Sh., ss. intbds.; sh., dk.gy., some plant fossils; ss., v.f.gr.; scattered siderite bands, some minor slumping.
100.78 - 102.01	Fc., dk.gy.-bk., sandy, carb. in part, fractured; coal lams. 101.07 - 101.22 meters.
102.01 - 107.29	Ss., sh. beds and intbds.; ss., lt.gy., f.gr.; sh., dk.gy.; some siderite lams.; burrowed in part.
107.29 - 107.47	COAL, core lost; Utley group.

Depth m.

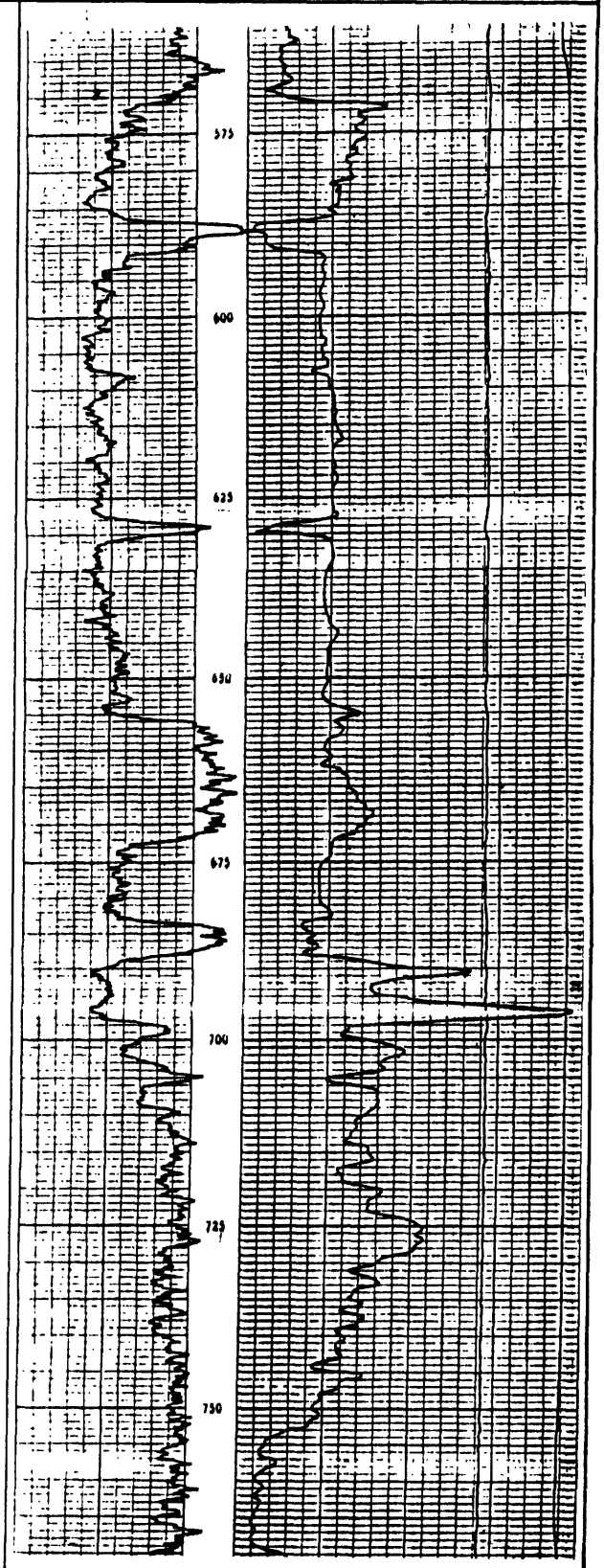
Strip Log

GEOPHYSICAL LOGS

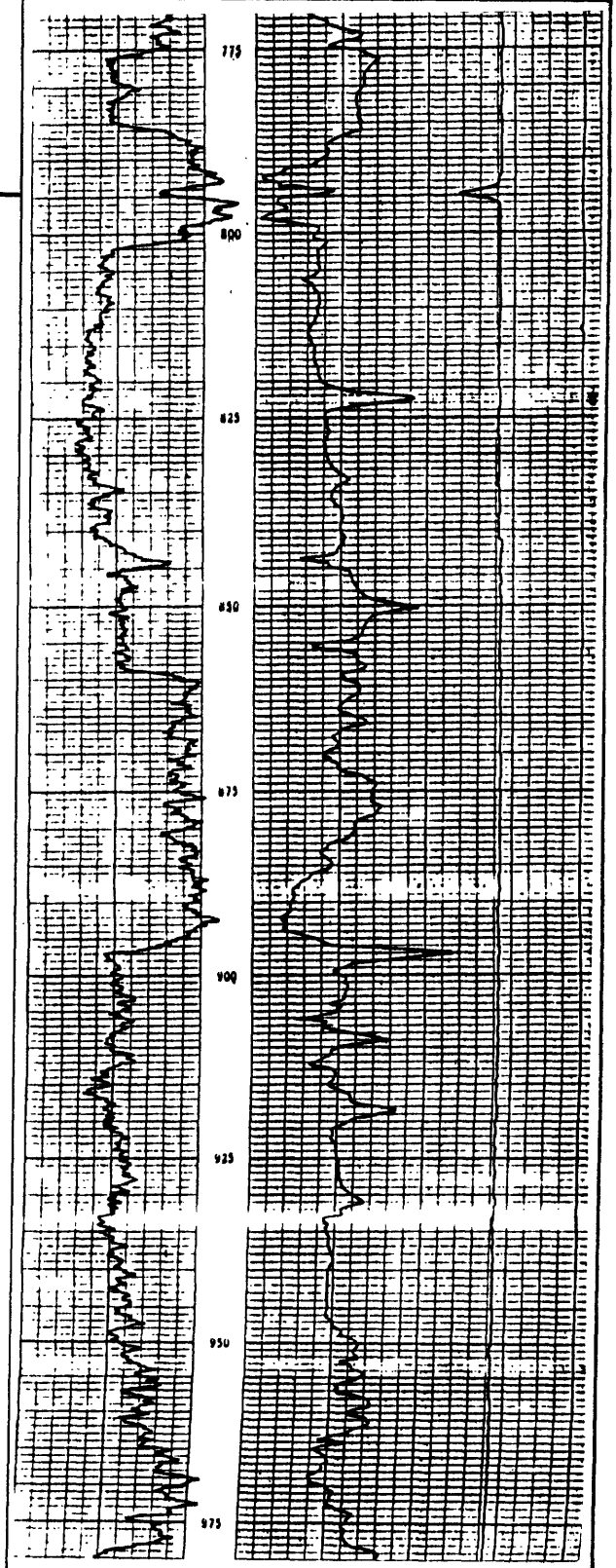


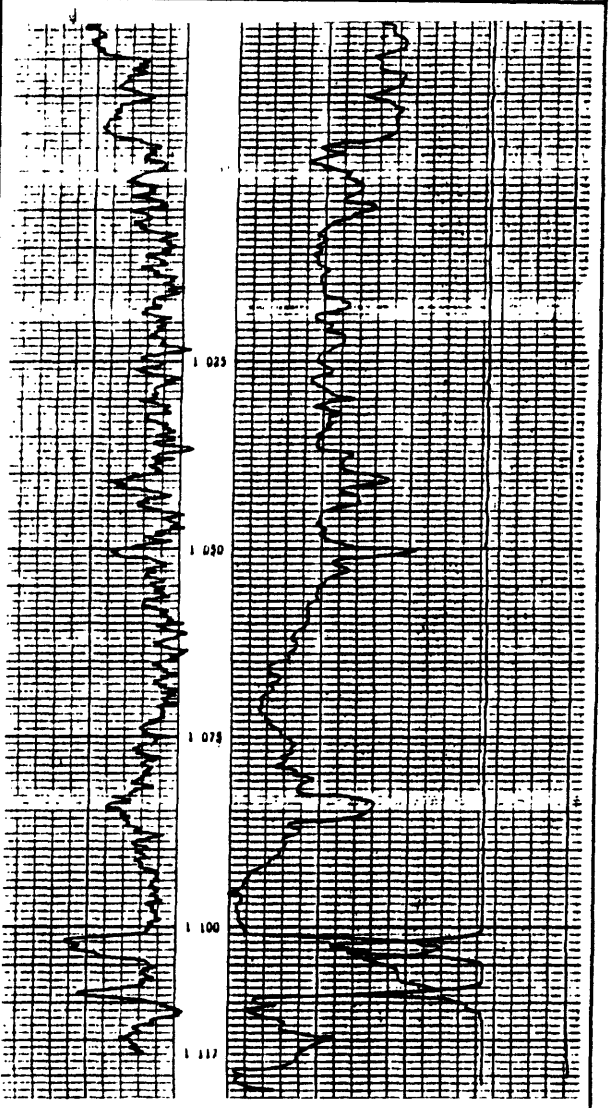
LITHOLOGY	Depth m.	Strip Log	GEOPHYSICAL LOGS
			GAMMA RES. DENSITY CAL.
107.47 - 179.74 Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., churned in part, few plant fossils; ss., lt.gy.-gy., f.gr., mica., few x-bds.; carb. in part, burrowed in part, some flow structure, some minor slumping, calc.-filled structure rare, scattered siderite lams. and nodules, scattered coal lams 125.65 - 129.21 meters.	110 120 130 140 150 160 170		

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
179.74 - 179.83	Sh., bk., v. carb.			GAMMA RES. DENSITY CAL.
179.83 - 181.07	Fc., dk.gy., carb., churned in part, some waxy luster.			
181.07 - 192.50	Ss., gy., f.-m.gr., mica., massive, carb. in part, scattered siderite pebbles; scattered coal lams. and spers 186.29 - 192.5 meters.			
192.50 - 192.96	Fc., dk.gy., carb. in part.			
192.96 - 243.23	Sh., ss. beds and intbds.; sh., dk.gy., sandy in part, carb. in part, few plant fossils; ss., gy., f.-m.gr., mica., few x-bds.; massive in part, burrowed in pert, some flow structure, few calc.-filled structures; coal lams. 192.96 - 193.05, and 242.68 - 243.23 meters.	180		
		190		
		200		
		210		
		220		
		230		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
243.23 - 243.60	COAL, undifferentieted; intbdd. carb., bk. sh. 243.29 - 243.33 and 243.46 - 243.55 meters; Cobb group.			GAMMA RES. DENSITY CAL.
243.60 - 244.60	Fc., dk.gy., carb., waxy.			
244.60 - 336.66	Ss., sh. beds and intbds.; ss., gy., v.f.-m.gr., mica., calc. in part, few x-bds.; sh., dk.gy., mica., sandy in part, churned in part; carb. in part, massive in part, burrowed in part, some calc.-filled structure, siderite lams. and nodules, few marine fossils; scattered coal lams. 251.52 - 258.01 meters.	240 250 260 270 280 290		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA RES. DENSITY CAL.
336.66 - 337.54	COAL, undifferentieted; intbdd. dk.gy-bk., carb. sh. 336.92 - 336.99, 337.32 - 336.99, 337.32 - 337.36, end 337.48 - 337.51 meters; Pratt bed.	300		
337.54 - 338.41	Fc., dk.gy., sendy, fractured.			
338.41 - 338.83	Sh., dk.gy., sandy, carb., few coal lams.			
338.83 - 339.49	COAL, undifferentiated; dk.gy.-bk., carb. sh. parting 339.20 - 339.38 meters; Pratt bed.			
339.49 - 340.30	Fc., dk.gy., sandy.			
340.30 - 342.90	Sh., dk.gy., massive, sandy, carb. in part, some siderite; few coal lams.			
342.90	Total depth.	310		
		320		
		330		
		340		

DRILL HOLE LOG

Hole #: 9

Geophysical Log Date: 7-10-80, County, State: Tuscaloosa, Alabama

Map: Berry SE, 7½' quad. Location: NW¼ Sec. 6, T. 18 S, R. 9 W HPM

Surface Elev.: 167.7 m, Logged Depth: 60.8 m, Drilled Depth: 60.8 m, Core Int: 40.2 m,

LITHOLOGY

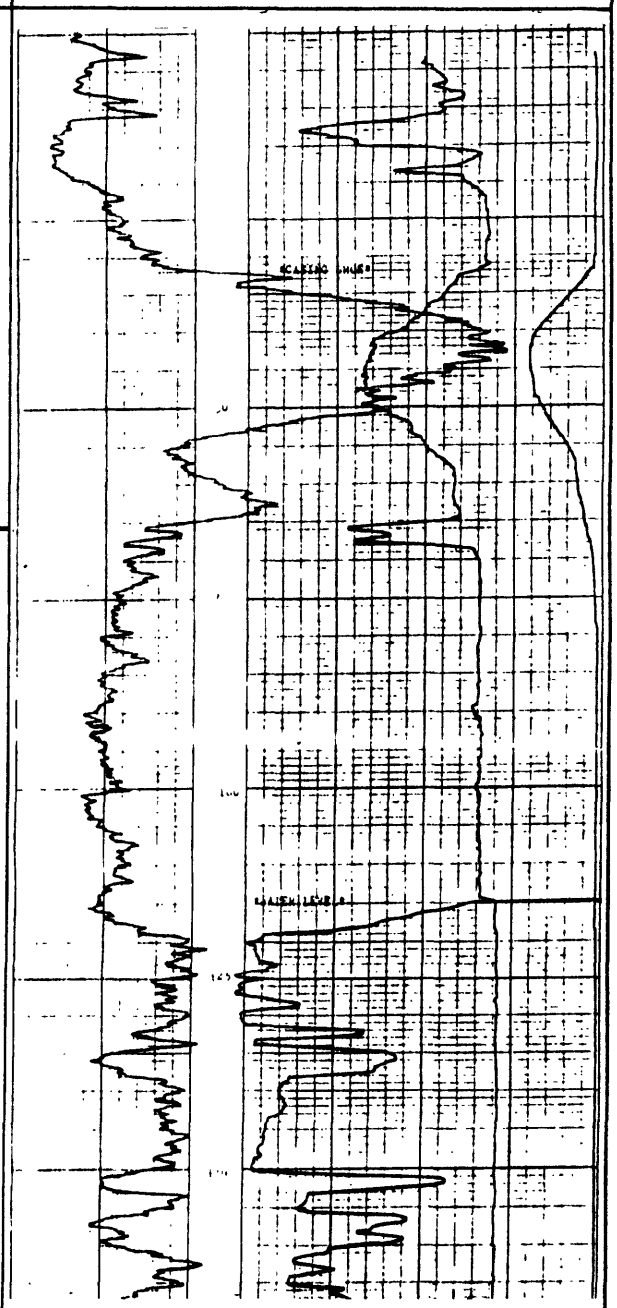
0 - 20.64	Cased in unconsolidated material. Probable coal at 20 meters.
20.64 - 36.02	Ss., gy., f.-m.gr., massive, mica.; siderita and carb. zones, occ. calc.-filled fracture, iron staining, plant fragments, and coal streaks; coal bands at 25.03 meters, coal spar at 35.55 meters.
36.02 - 50.96	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., sh. streaks; sh., gy.-dk.gy., ss. streaks; sparse plant fragments; calc. and limonite-filled fracture near top.

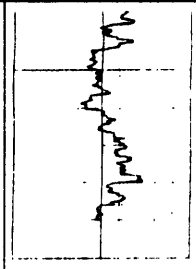
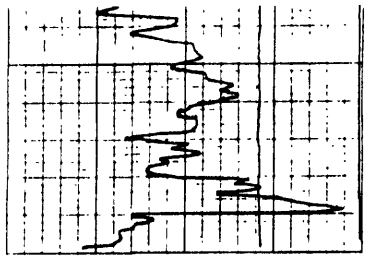
Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
50.96 - 60.79	Ss., dk.gy., f.gr., intermittent sh. streaks and bands; siderite pebbles and bands; calc.-filled fracture near top; highly carb. pyritized sh. at top; coal spars at 56.25 meters.						
60.79	Total depth.	60					

DRILL HOLE LOG

Hole #: 10

Geophysical Log Date: 9-26-80, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½' quad. Location: SW¼ Sec. 36, T. 17 S, R. 9 W HPM

Surface Elev.: 213.4 m, Logged Depth: 403.8 m, Drilled Depth: 414.6 m, Core Int: 402.1 m,

LITHOLOGY

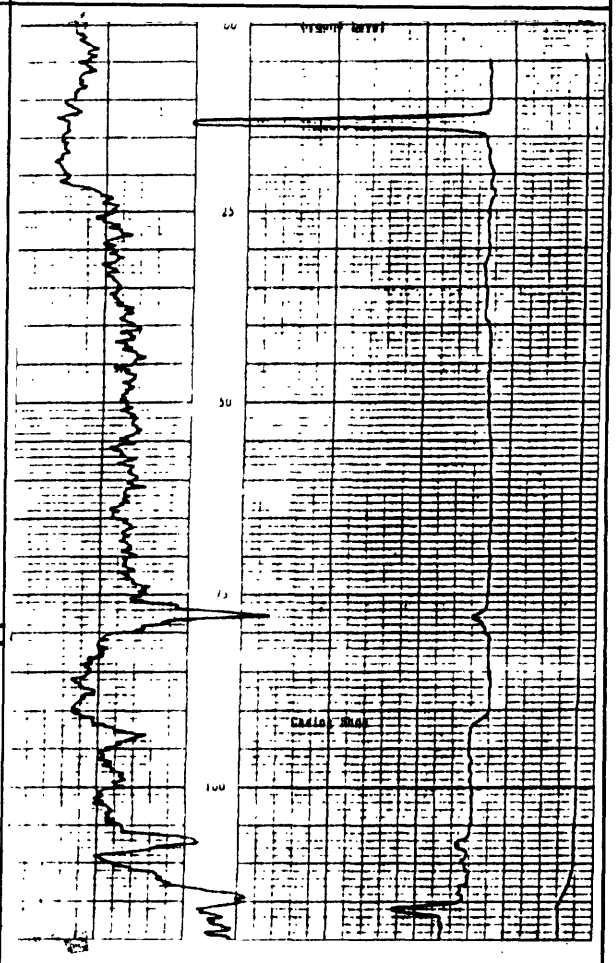
0 - 12.50	Cased in unconsolidated material.
12.50 - 18.20	Clay, gy., massive, quartz pebbles.
18.20 - 23.96	Sh., dk.gy., rare ss. streaks, thin clay beds.
23.96 - 24.25	COAL, undifferentiated; Utley group.
24.25 - 24.73	Fc., dk.gy., carb., soft.
24.73 - 24.76	COAL; Utley group.
24.76 - 25.30	Fc., gy., carb., sandy, irregular surface and fracture, rooted in upper portion.
25.30 - 32.96	Ss., dk.gy., f.-m.gr., mica.; occ. coal bands to 30.70 metars, more numerous 30.70 - 31.46 meters.
32.96 - 33.02	COAL, sh. lams.; Utley group.
33.02 - 33.23	Fc., dk.gy., irregular fracture and surface.
33.23 - 35.61	Ss., sh. intbdd.; ss., gy., f.-m.gr., mica., carb.; sh., dk.gy.; coal bands and spars, siderite pebbles.
35.61 - 35.82	COAL; Utley group.
35.82 - 36.83	Fc., gy., sandy, carb., soft, occ. pyrite.

Depth m.

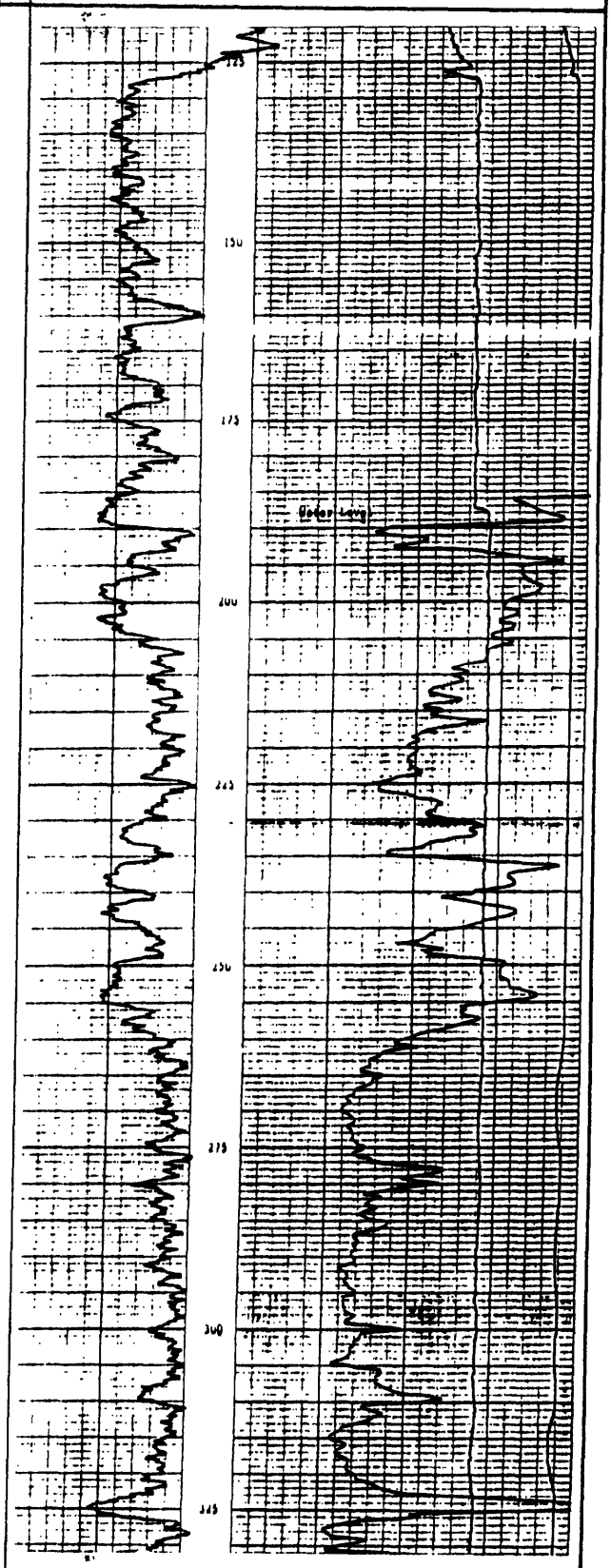
Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
36.83 - 113.32	Ss., sh. beds and inthds.; ss., gy., f.gr., mica., carb.; sh., dk.gy., slightly sandy, massive; siderite banding, occ. coal spars and bands, occ. burrowing, rare plant fossils, churned, occ. mud flows.			GAMMA RES. DENSITY CAL.

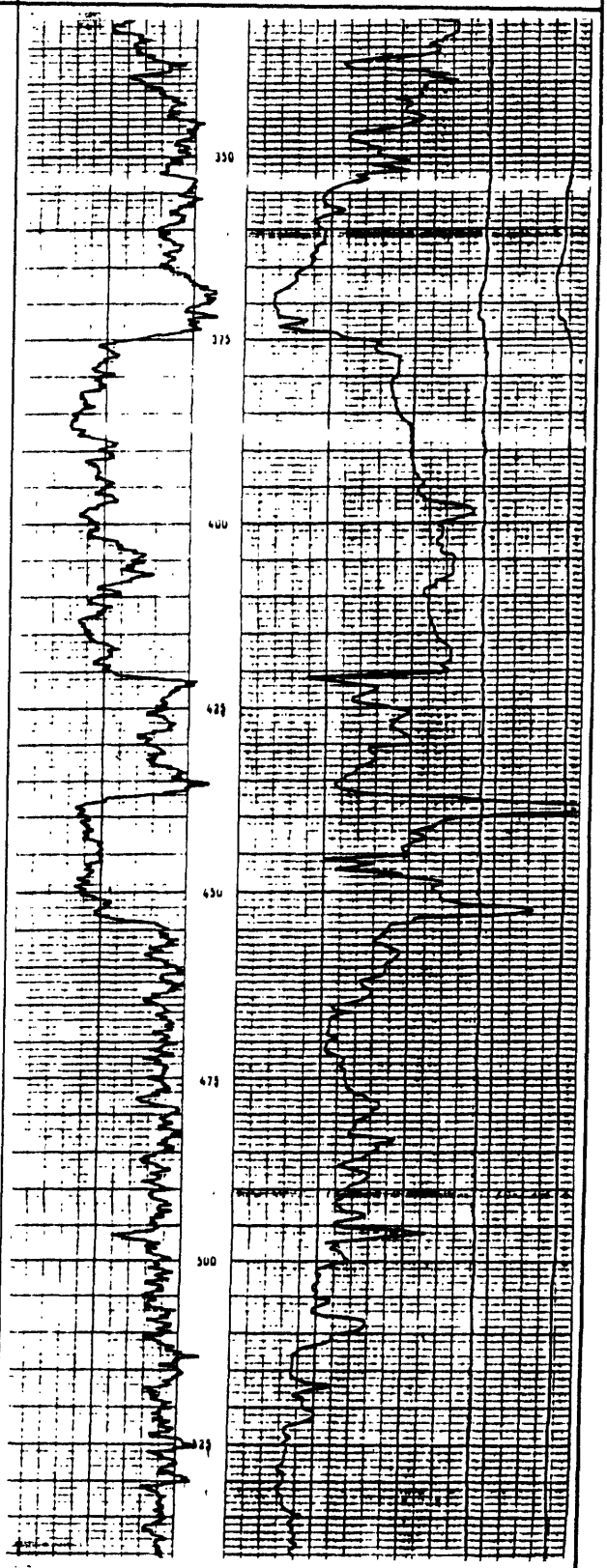


LITHOLOGY	
113.32 - 114.74	Fc., sandy, irregular fractures, plant fossils; Gwin horizon.
114.74 - 169.37	Sh., ss. beds and intbds.; sh., dk.gy., sandy-silty, massive; ss., lt.gy.-gy., f.-m.gr., massive, mica.; occ. thin coal bands, siderite banding and nodules, occ. slumping, burrowing and plant fossils increase with depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS



LITHOLOGY

169.37 - 169.74 COAL, banded, intbdd. with bone, finely cleated, calc.-filled cleat; 3.9 cm of bone parting near base; Cobb bed.

169.74 - 170.24 Slst., m.gy., carb., rooted, abnt. plant fossils.

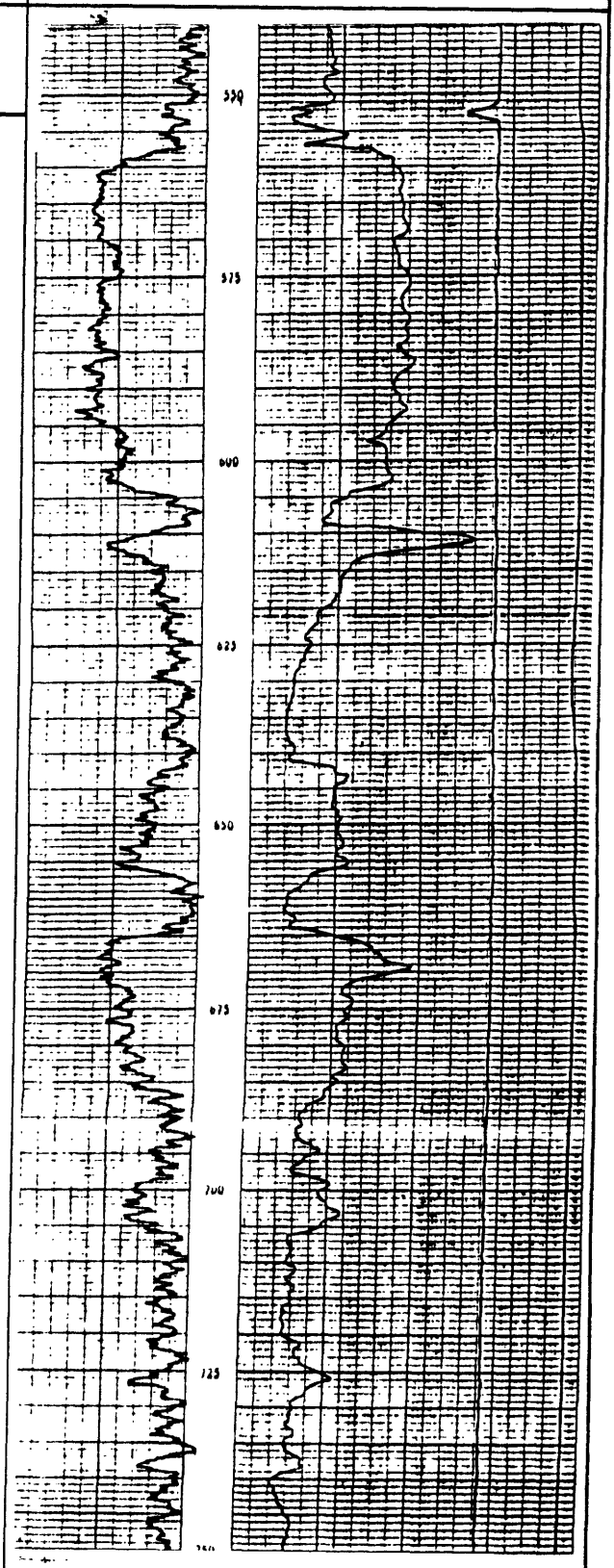
170.24 - 253.79 Sh., ss. beds and intbds.; sh., gy.-dk.gy., massive, mica., calc. in part, slightly sandy; ss., gy., f.-m.gr., massive, mica., x-bdg. in upper section; occ. coal spars and bands, highly fossif. zone 186.92 - 187.96 meters, siderite bands and nodules scattered throughout, occ. turbidity zone, occ. pyrite nodules, rooted, numerous carb. zones, slumped zones scattered throughout, little churning.

Depth m.

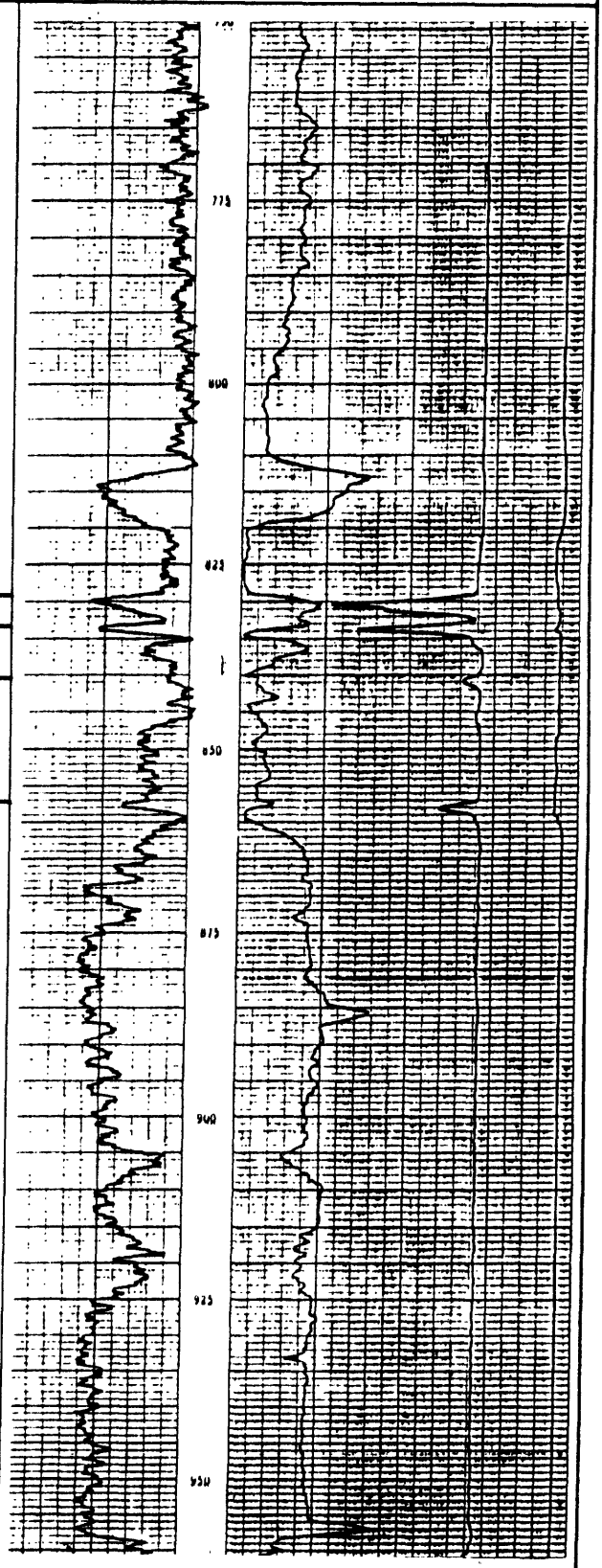
Strip Log

GEOPHYSICAL LOGS

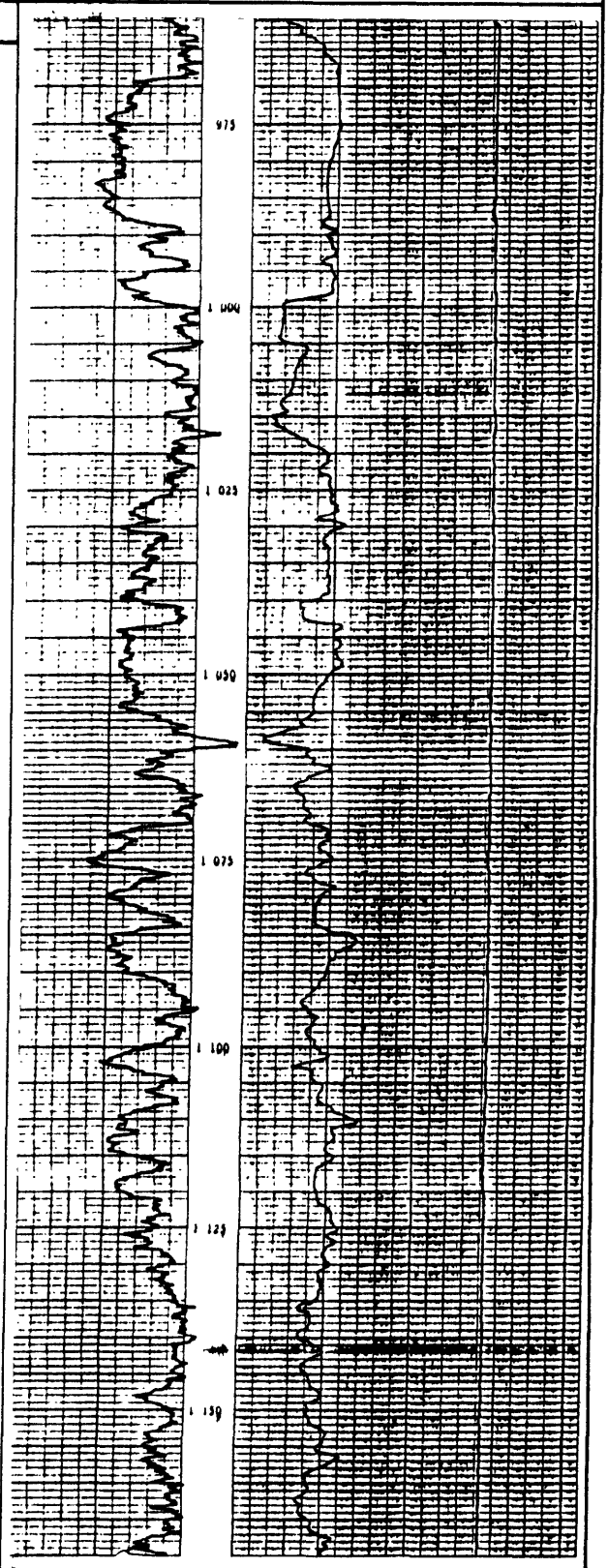
GAMMA RES. DENSITY CAL.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA RES. DENSITY CAL.
253.79 - 254.08	Fc., dk.gy., thin coal lam.			
254.08 - 255.78	COAL, bone, and fc. intbdd., occ. sh. streaks; Pratt bed.	230		
255.78 - 257.20	Sh., gy., sandy, mica., occ. plant fossils, few siderite pebbles.			
257.20 - 257.80	COAL and fc. intbdd.; Nickel Plate bed.			
257.80 - 262.48	Sh., gy., massive, sandy, slightly mica., occ. plant fossils, ss. streaks, some burrowing and churning; thin coal band 258.84 meters.	240		
262.48 - 262.68	COAL, undifferentiated; Amarican bed.			
262.68 - 294.22	Ss., sh. beds and intbds.; ss., gy., f.gr., conglomeratic in part, mica.; sh., dk.gy.; numerous sh. and siderite pebbles, sh. streaks, large calc.-filled fractures, occ. thin coal bands and spars, occ. slumping, rooting.	250		
		260		
		270		
		280		
		290		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
294.22 - 294.42	COAL; Curry bed.			
294.42 - 295.12	Fc., dk.gy., sandy, rooted, occ. plant fossils.			
295.12 - 393.44	Sh., ss. beds and intbds.; sh., dk.gy., silty to sandy, carb.; ss., gy., f.gr., mica., carb.; rooted, burrowed, occ. marine fossils, slightly churned.			



LITHOLOGY

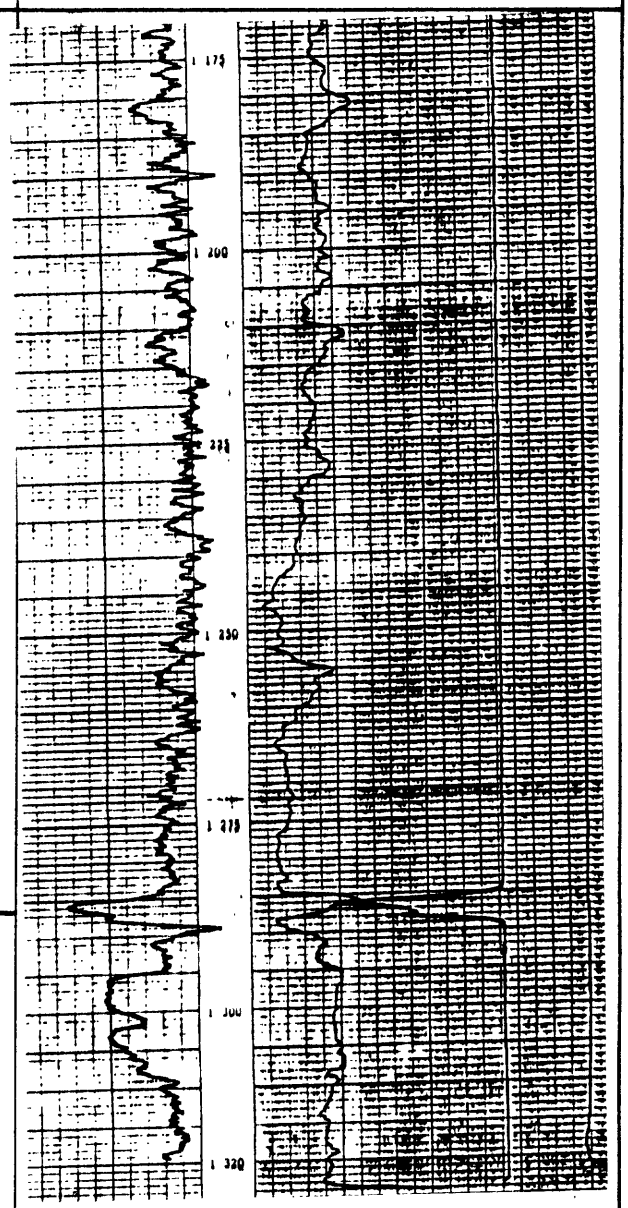
393.44 - 394.42	COAL, banded, thin fc. band, thin sh. layers; New Castle bed.
394.42 - 394.88	Fc., dk.gy.
394.88 - 405.19	Sh., ss. intbdd.; sh., gy., sandy, massive; ss., gy., f.gr.; few thin coal bands, occ. churning, scattered plant fossils.
405.19 - 405.69	COAL, banded, few thin sh. and bone layers, some pyrite; Mery Lee bed.
405.69 - 405.84	Fc., dk.gy.
405.84 - 406.00	Sh., intbdd. with coal and fc.
406.00 - 407.16	COAL, banded, scattered pyrite and bone layers; Blue Creek bed.
407.16 - 407.27	Sh., bk., coal streaks.
407.27 - 409.12	Fc., gy.-dk.gy., some plant fossils.
409.12 - 414.66	Sh., ss. intbdd.; sh., dk.gy., sandy, massive; ss., gy.; churned, abnt. burrowing.
414.66	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 11

Geophysical Log Date: 9-12-80, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½' quad. Location: NW¼ Sec. 15, T. 17 S, R. 9 W HPM

Surface Elev.: 198.2 m, Logged Depth: 418.0 m, Drilled Depth: 420.4 m, Core Int: 411.2 m,

LITHOLOGY

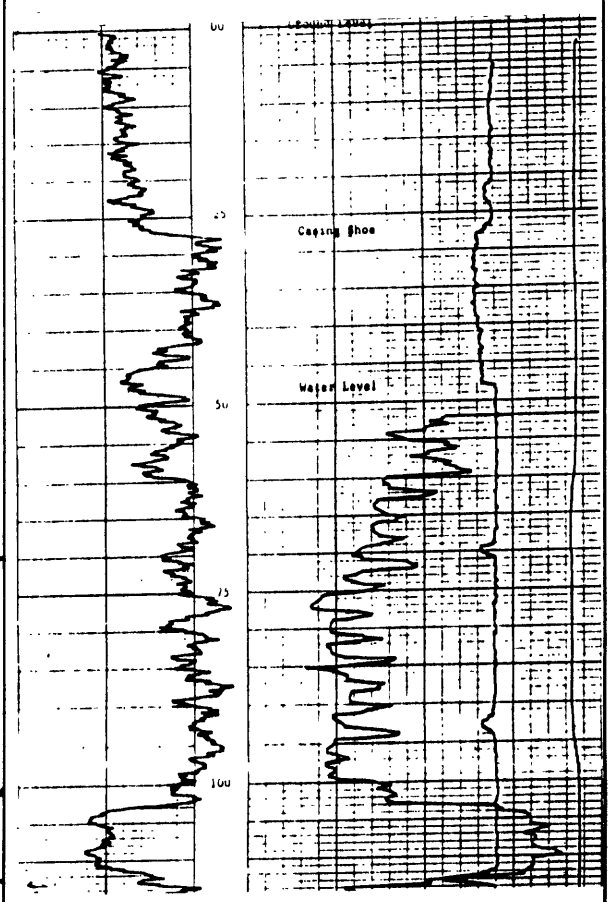
0 - 9.15	Cased in unconsolidated material.
9.15 - 21.74	Ss., sh. beds and intbds.; ss., gy., f.gr., mica., carb., sh. streaks and intbds., some churning and slumping; sh., dk.gy., mica., occ. burrowing, siderite.
21.74 - 21.8	COAL; Utley group.
21.8 - 22.45	Ss., gy., f.gr., carb.
22.45 - 28.38	Sh., dk.gy., siderite nodules, carb., coal lams., plant fossils.
28.38 - 28.45	Fc., lt.gy., sandy, carb.
28.45 - 28.55	Sh., dk.gy., coal lams.
28.55 - 28.96	Fc., lt.gy.
28.96 - 31.12	Sh., dk.gy., ss. streaks, carb.
31.12 - 31.13	COAL; Utley group.
31.13 - 34.60	Ss., sh. streaks and intbds.; ss., gy., f.gr., some burrowing; sh., dk.gy., ss. streaks.
34.60 - 34.91	COAL; Utley group.

Depth m.

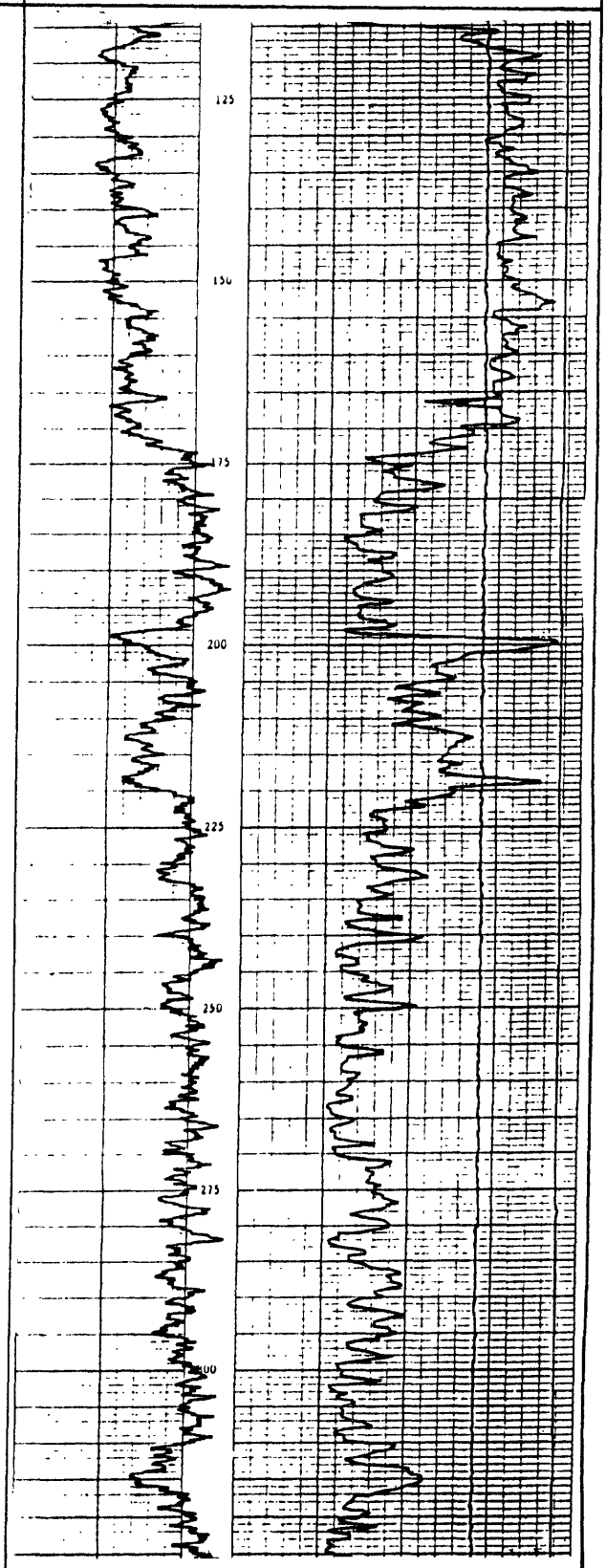
Strip Log

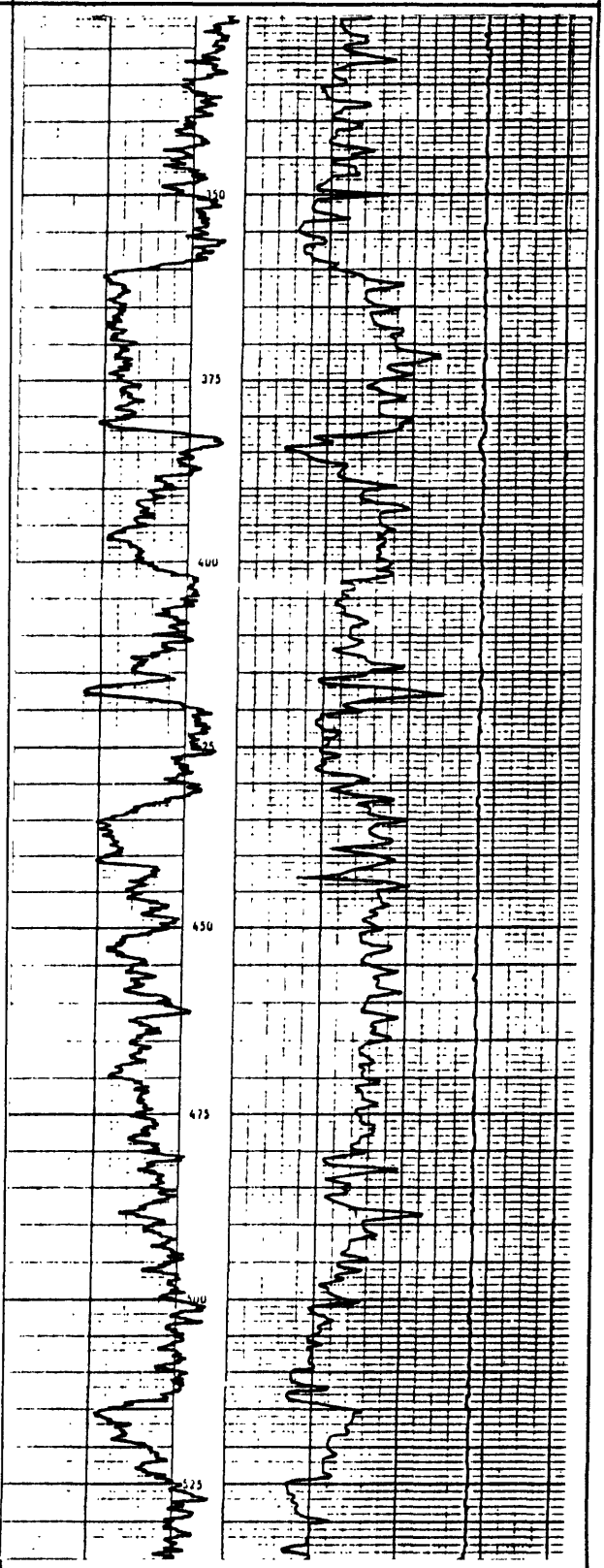
GEOPHYSICAL LOGS

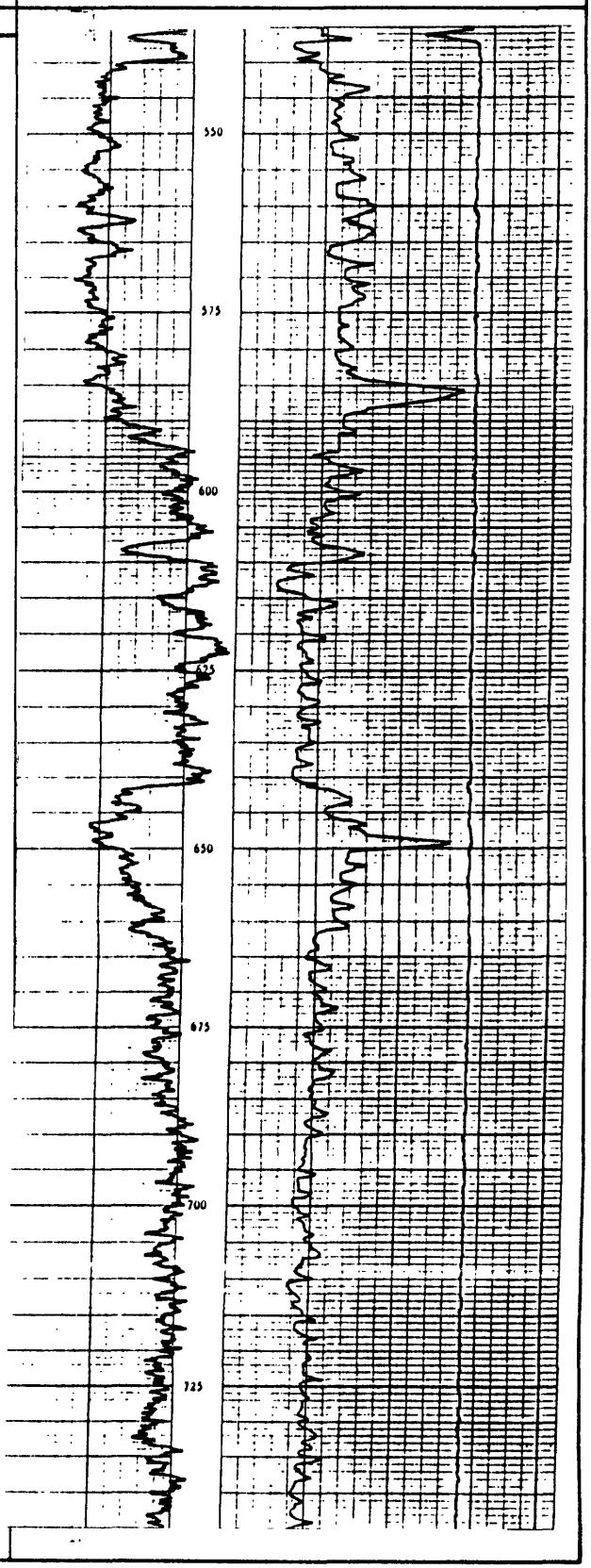
GAMMA RES. DENSITY CAL.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
34.91 - 118.48	Ss., sh. beds and intbds.; ss., gy., v.f.-m.gr., mica., occ. coal bands and spars, siderite, occ. slumping, plant fossils, coal lams. near base.			GAMMA RES. DENSITY CAL.

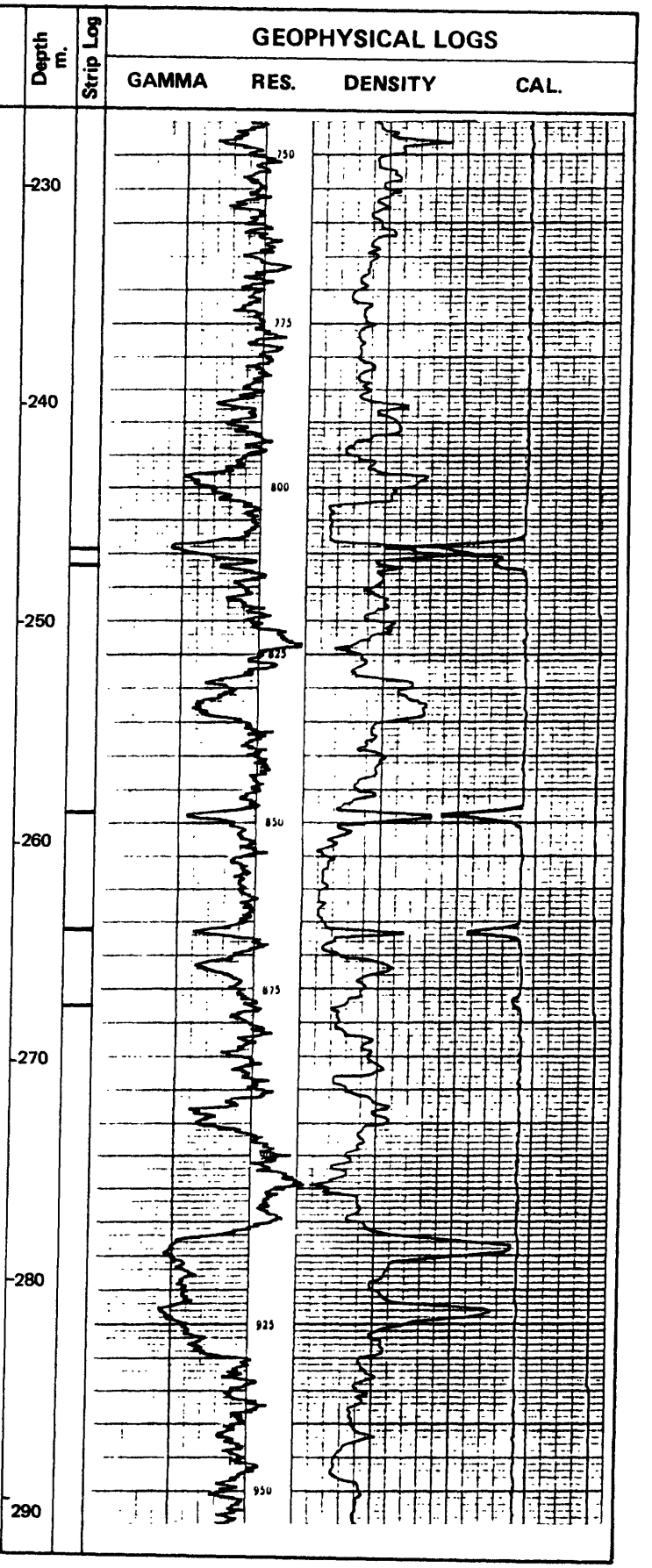


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
118.48 - 118.93	Fc., dk.gy.			GAMMA RES. DENSITY CAL.
118.93 - 164.47	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., sh. streeks and intbds., coal bands, spars 135.06 -136.89, 139.94 - 141.16 meters; sh., dk.gy.-bk., mica., sandy with ss. streaks and intbds., occ. coal lams.; siderite, occ. slumping and burrowing, some plant fossils.	100 110 120 130 140 150 160		

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
164.47 - 164.88	COAL, sh. intbds., calc.; Cobb group.			GAMMA RES. DENSITY CAL.
164.88 - 165.32	Fc., dk.gy., silty, rooted, rare coal spars.			
165.32 - 248.35	Sh., ss. beds and intbds.; sh., dk.gy., sandy in part with ss. streaks, mica., carb., mudflows, siderite, burrowing; ss., gy.-dk.gy., f.-m.gr., mica., carb., sh. streaks end intbds., some slumping and burrowing, occ. siderite.	170 180 190 200 210 220		

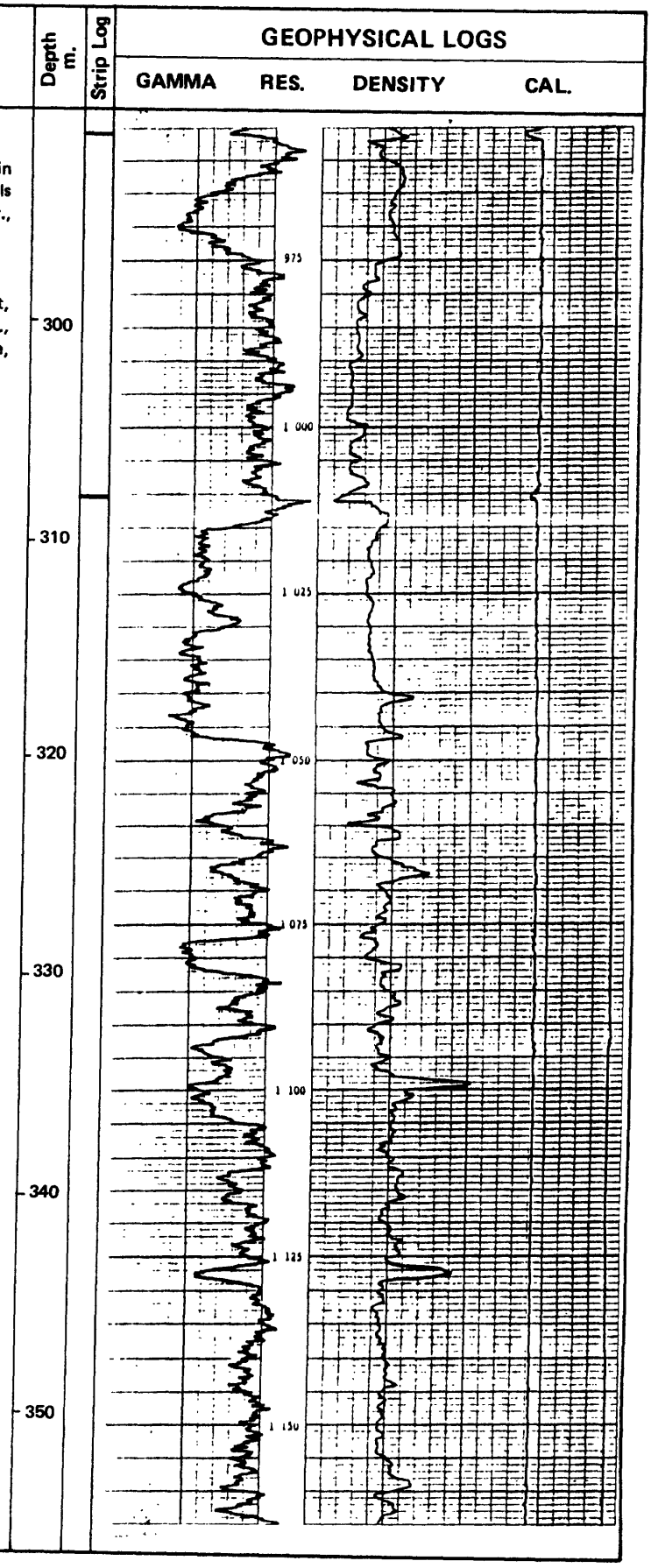
LITHOLOGY

248.35 - 249.53	COAL, sh. intbds., calc.; Pratt bed.
249.53 - 250.52	Fc., dk.gy., sandy, mica., rooted.
250.52 - 260.53	Ss., sh. intbds.; ss., gy.-dk.gy., f.gr., mica., carb., rooted, x-bdd., sh. streaks; sh., dk.gy., ss. streaks in upper part, mica., carb., siderite.
260.53 - 261.16	COAL, banded, shale partings, calc.; Nickel Plate bed.
261.16 - 261.68	Fc., dk.gy., mica., carb., rooted, coal band in lower part.
261.68 - 266.02	Sh., dk.gy., ss. streaks, mica., carb., coal bands, siderite.
266.02 - 266.29	COAL, banded, calc., American bed.
266.29 - 267.27	Fc., dk.gy., rooted.
267.27 - 268.19	Ss., gy., f.-m.gr., mica., sh. streaks.
268.19 - 269.28	Sh., dk.gy., ss. streaks, siderite.
269.28 - 269.41	COAL, impure; Pratt group.
269.41 - 270.98	Fc., dk.gy.
270.98 - 272.68	Ss., sh. intbdd.; mica., burrowed.
272.68 - 272.78	Fc., dk.gy., sandy, coal band.
272.78 - 293.72	Ss., sh. beds and intbds.; ss., gy.-dk.gy., f.-m.gr., mica., carb., sh. streaks; sh., dk.gy., sandy in part, ss. streaks and intbds., burrowed, slumped; sidarite, marine fossils 288.72 - 289.63 meters.



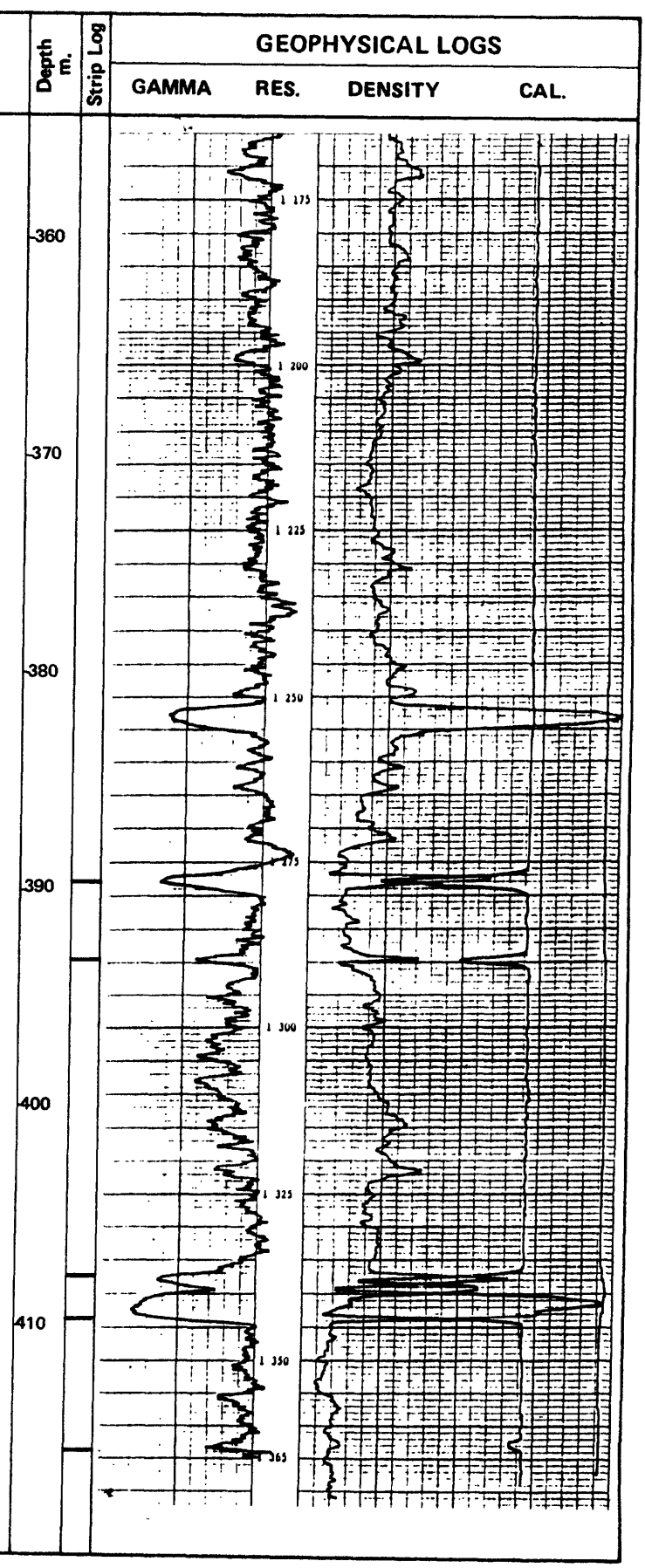
LITHOLOGY

293.72 - 293.90	COAL; Curry bed.
293.90 - 294.09	Fc., dk.gy., carb.
294.09 - 311.01	Sh., ss. beds and intbds.; sh., m.dk.-dk.gy., sandy in part, ss. streaks, burrowed, siderite, abnt. marine fossils 307.19 - 307.32 meters; ss., m.lt.gy.-m.gy., f.-m.gr., mica., carb., sh. streaks and intbds.
311.01 - 311.10	COAL, sh. parting, calc.; Gillespie bed.
311.10 - 311.92	Fc., rooted, coal bands.
311.92 - 392.86	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part, ss. streaks, mica., plant fossils; ss., gy.-dk.gy., f.-m.gr., mica., sh. streaks and intbds.; occ. coal spars, siderite, occ. rooting and burrowing, carb. in part.



LITHOLOGY

392.86 - 392.87	COAL and bone.
392.87 - 393.42	COAL; Mary Lee bed.
393.42 - 393.48	Sh., dk.gy., sandy, occ. fossil plants.
393.48 - 393.61	COAL; Mary Lee bed.
393.61 - 396.66	Sh., gy., ss. streaks, burrowed, slumped, plant fossils, coal bands.
396.66 - 396.69	Bone and sh.
396.69 - 397.02	COAL; Mary Lee bed.
397.02 - 397.36	Fc.
397.36 - 397.66	Sh., gy., sandy, plant fossils.
397.66 - 411.46	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., sh. streaks, mica., occ. x-bdg.; sh., gy., sandy in part with ss. streaks and intbds., mica., siderite, occ. slumping, plant fossils, rare coal bands near bottom.
411.46 - 412.04	COAL, banded, rare pyrite; Blue Creek bed.
412.04 - 412.26	Sh., m.dk.gy., abnt. plant fossils.
412.26 - 413.61	COAL, bended, calc., few thin shale lams., little pyrite; Blue Creek bed.
413.61 - 414.02	Fc., m.gy., sh. intbds., rooted.
414.02 - 420.43	Sh., m.gy., rooted, calc., abnt. plant fossils, occ. siderite, slumping near top.
420.43	Total depth.



DRILL HOLE LOG

Hole #: 12

Geophysical Log Date: 12-31-80, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½′ quad. Location: SW¼ Sec. 13, T. 17 S, R. 9 W HPM

Surface Elev.: 196.6 m, Logged Depth: 31.7 m, Drilled Depth: 33.0 m, Core Int: 24.3 m,

LITHOLOGY

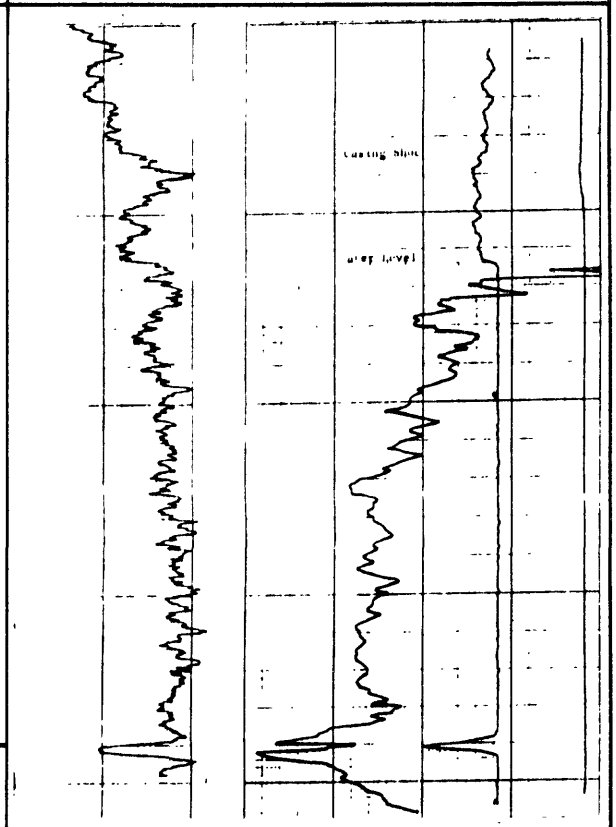
0 - 8.69	Cased in unconsolidated material.
8.69 - 28.78	Sh., ss. beds and intbds.; sh., gy., sandy, mica., carb. in part, little siderite; ss., gy., f.-m.gr., mica.; some flow structure; scattered plant fossils.
28.78 - 29.18	COAL, mostly banded, little intbdd. bone, pyrite at base; Utley group.
29.18 - 29.47	Fc., waxy, some intbdd. bk. sh. at top, some plent fossil fragments.
29.47 - 33.02	Sh., gy., mica., some sand, scattered siderite lems., plent fossils.
33.02	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 14

Geophysical Log Date: 12-15-80, County, State: Tuscaloosa, Alabama

Map: Berry SE, 7½' quad. Location: SW¼ Sec. 5, T. 17 S, R. 9 W HPM

Surface Elev.: 170.7 m, Logged Depth: 45.7 m, Drilled Depth: 46.7 m, Core Int: 39.5 m,

LITHOLOGY

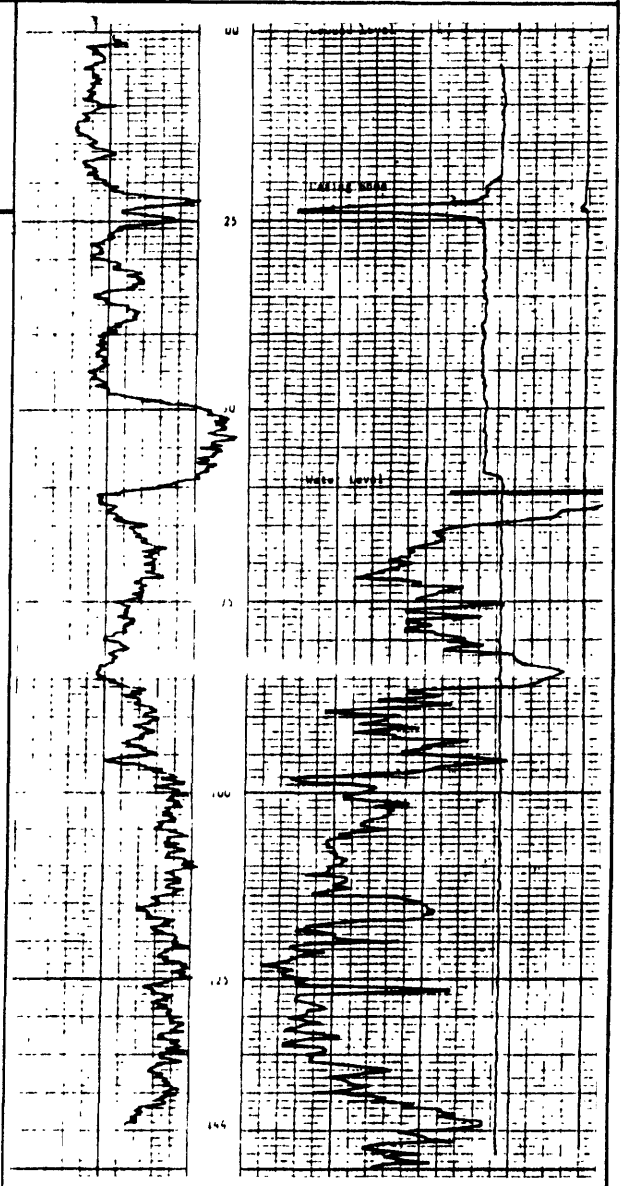
0 - 7.16	Cased in unconsolidated material.
7.16 - 7.76	Ss., gy., m.-c.gr.; few coal spars.
7.76 - 8.06	Fc., hard, waxy; few coal bands.
8.06 - 8.42	COAL, bright, little pyrite; Utley group.
8.42 - 8.56	Fc., gy., weathered.
8.56 - 46.74	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica.; sh., gy.-dk.gy., carb. in part; some flow structure; few fossil plants.
46.74	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

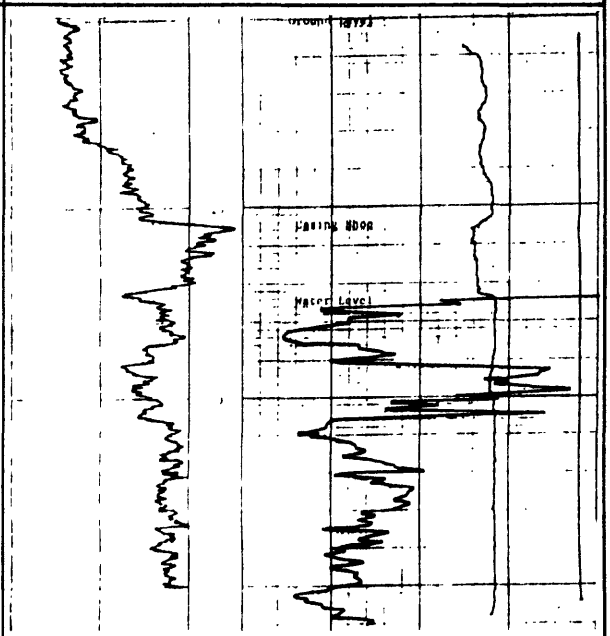
Hole #: 15

Geophysical Log Date: 12-15-80, County, State: Tuscaloosa, Alabama

Map: Berry SE, 7½' quad. Location: NE¼ Sec. 2, T. 17 S, R. 10 W HPM

Surface Elev.: 166.2 m, Logged Depth: 24.1 m, Drilled Depth: 24.2 m, Core Int: 16.3 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 8.11	Cased in unconsolidated material.			GAMMA RES. DENSITY CAL.
8.11 - 24.18	Ss., sh. beds and intbds.; ss., f.-m.gr., mica.; sh., gy., sandy, mica.; rooted in part, churned in part; some scattered coal spars.			
24.18	Total depth.			



DRILL HOLE LOG

Hole #: 16

Geophysical Log Date: 12-31-80, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½' quad. Location: NE¼ Sec. 4, T. 17 S, R. 9 W HPM

Surface Elev.: 181.4 m, Logged Depth: 42.7 m, Drilled Depth: 43.0 m, Core Int: 37.0 m,

LITHOLOGY

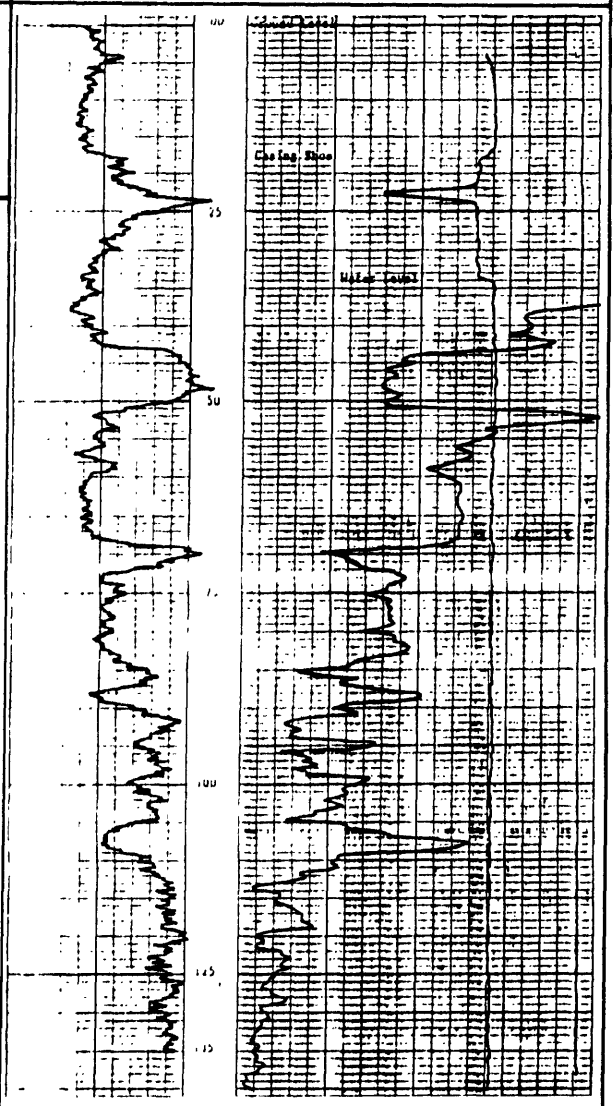
0 - 5.99	Cased in unconsolidated material.
5.99 - 6.94	Ss., gy., f.-m.gr., mica., massive; v. few thin sh. lams.
6.94 - 7.23	COAL, banded; boney with plant fragments near top; few pyrite nodules and lams. in lower portion; gy.-bk. sh. parting 6.99 - 7.02 meters; Utley group.
7.23 - 7.68	Fc., sandy, massive; plant fossils common.
7.68 - 43.02	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica.; sh., sandy, mica., carb. in part; siderite, x-bdg.; coal lams. and spars, 12.5 - 13.23, 21.0 - 21.2, 25.49 - 25.7, 27.29 - 27.45, 32.32 - 34.08 meters.
43.02	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 17

Geophysical Log Date: 9-12-80, County, State: Fayette, Alabama

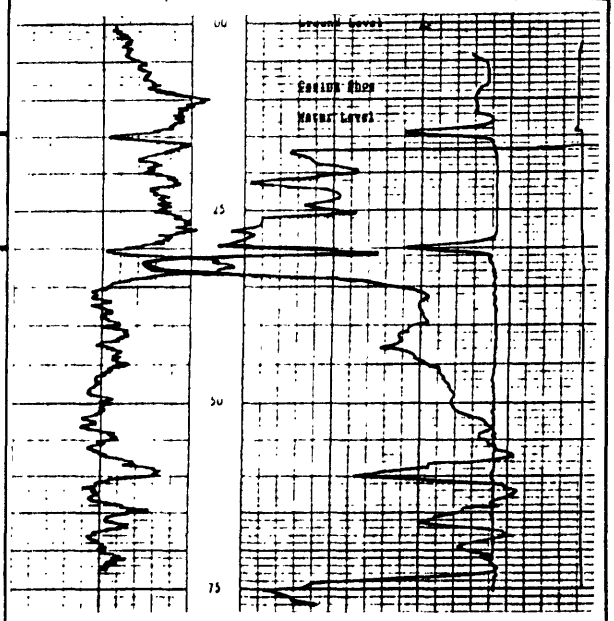
Map: Wiley, 7½' quad. Location: SE¼ Sec. 34, T. 16 S, R. 9 W HPM

Surface Elev.: 192.1 m, Logged Depth: 23.0 m, Drilled Depth: 23.0 m, Core Int: 20.1 m,

LITHOLOGY		Depth m.	Strip Log
0 - 2.87	Cased in unconsolidated material.		
2.87 - 4.24	Sh., dk.gy., occ. siderite bands, ss. streaks, carb. plant remains in lower part.		
4.24 - 4.54	COAL; Utley group.		
4.54 - 5.05	Fc., dk.gy., carb., conchoidal fracture.		
5.05 - 5.98	Ss., gy., f.gr., mica., slumped near base of intarval.		
5.98 - 9.07	Sh., dk.gy., some sand, mica., carb., some siderite and ss. streaks; carb. fc. with coal bands at bottom.		
9.07 - 9.38	COAL, occ. pyrite streaks; Utley group.		
9.38 - 10.00	Fc., dk.gy., carb., rooted.		
10.00 - 23.02	Ss., sh. beds; ss., gy., f.-m.gr., mica., carb., some sandy sh. streaks and intbds., coal bands and spars common; siderite bands and nodules; burrowed in part.	10	
23.02	Total depth.	20	

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 18

Geophysical Log Date: 12-15-80, County, State: Fayette, Alabama

Map: Berry SE, 7½' quad. Location: SW¼ Sec. 32, T. 16 S, R. 9 W HPM

Surface Elev.: 195.1 m, Logged Depth: 48.1 m, Drilled Depth: 49.0 m, Core Int: 39.2 m,

LITHOLOGY

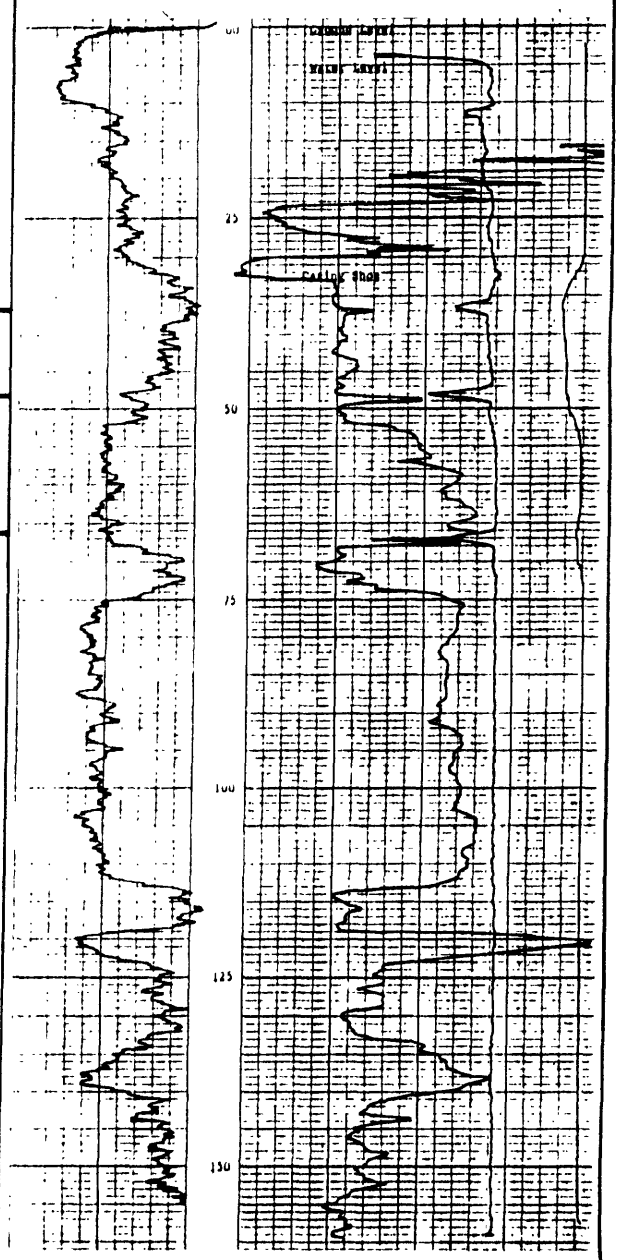
0 - 9.76	Cased in unconsolideted material.
9.76 - 11.02	Sh., gy., sandy, weathered.
11.02 - 11.25	Core lost. Probable coal.
11.25 - 11.31	Fc., sandy, soft.
11.31 - 11.52	Core lost. Probable coal.
11.52 - 11.62	Fc., soft.
11.62 - 15.00	Sh., gy.-bk., little broken coal; some core lost.
15.00 - 15.79	Fc., sandy, fossil plants common.
15.79 - 20.33	Ss., f.-m.gr., mica., massive.
20.33 - 20.57	COAL, banded; Utley group.
20.57 - 21.71	Fc., sandy, soft, fossil plants common.
21.71 - 49.02	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica.; sh., gy.-dk.gy., often carb.; few coal spars and siderite nodules; marine fossil bed.
49.02	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 19

Geophysical Log Date: 12-31-80, County, State: Walker, Alabama

Map: Oakman, 7½' quad. Location: SW¼ Sec. 21, T. 16 S, R. 9 W HPM

Surface Elev.: 221.0 m, Logged Depth: 41.6 m, Drilled Depth: 43.6 m, Core Int: 29.7 m,

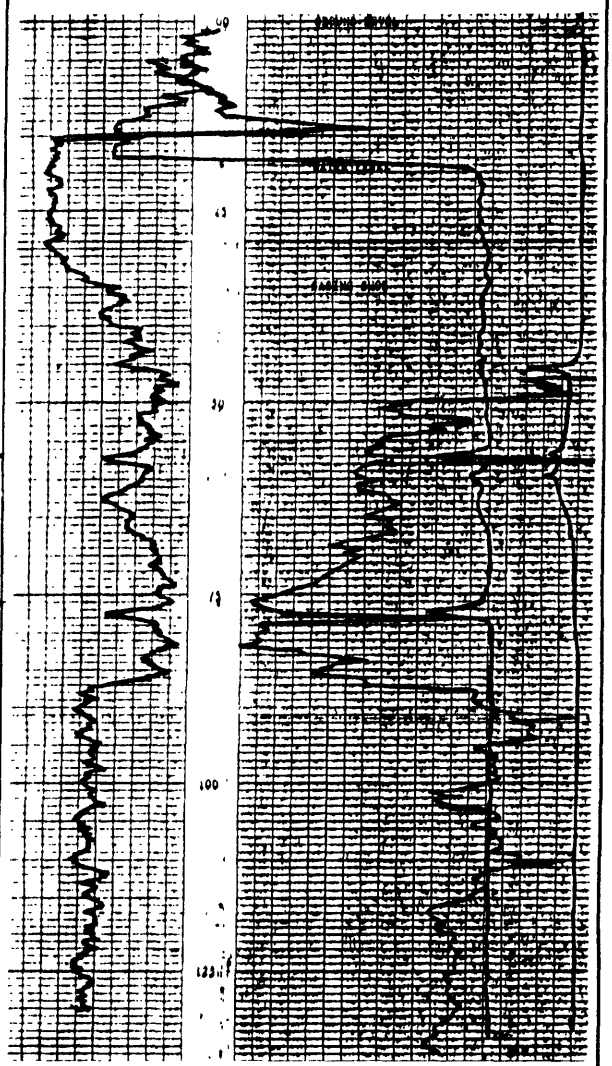
LITHOLOGY

0 - 13.93	Cased in unconsolidated material.
13.93 - 15.64	Core not recovered.
15.64 - 18.63	Sh., ss. intbds.; sh., gy., weathered, some clay, numerous plant fossils.
18.63 - 18.81	Sh., gy. and bk. intbdd., pyrite common, many plant fossils; some coal lams.; weathered.
18.81 - 19.12	COAL, banded; Utley group.
19.12 - 19.79	Fc., soft, some plent fragments.
19.79 - 22.99	Sh., ss. intbds.; sh., gy., sandy in part, siderite nodules common; ss., f.-m.gr.; weathered.
22.99 - 23.56	Sh., bk., some siderite nodules; coal lams.; some weathering.
23.56 - 23.84	COAL, banded, little intbdd. bone, scattered pyrite lams; Utley group.
23.84 - 24.79	Fc., many plent fossils; intbdd. bk. sh. 23.84 - 24.02 meters.
24.79 - 43.60	Ss., sh. intbds.; ss., gy., f.-m.gr., mica., x-bds., carb. in part, little siderite; sh., gy., sandy, carb., burrowed in part; severel conglomerate beds; some plent fossils; merine fossil bed; scattered coel lems. 26.52 - 37.71 meters, 39.97 - 41.83 meters.
43.60	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS



DRILL HOLE LOG

Hole #: 20

Geophysical Log Date: 9-12-80, County, State: Walker, Alabama

Map: Oakman, 7½' quad. Location: NW¼ Sec. 22, T. 16 S, R. 9 W HPM

Surface Elev.: 207.3 m, Logged Depth: 26.4 m, Drilled Depth: 26.4 m, Core Int: 20.5 m,

LITHOLOGY

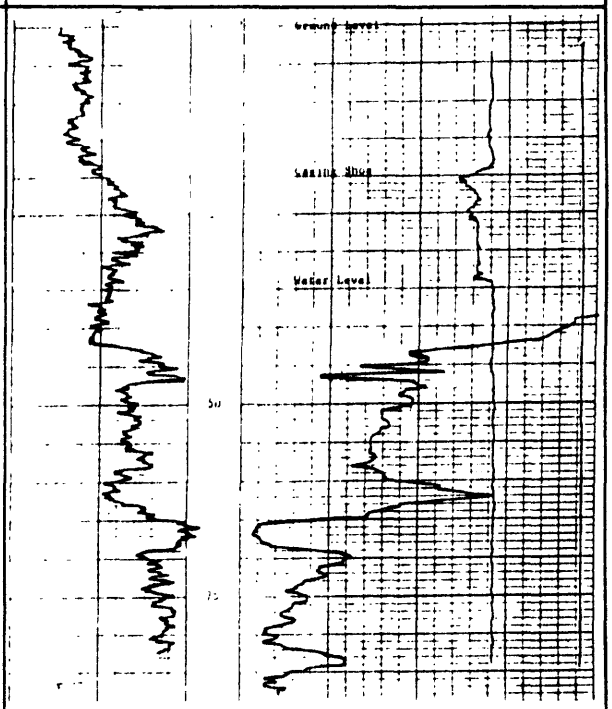
0 - 5.88	Cased in unconsolidated material.
5.88 - 19.45	Ss., m.lt.gy., v.f.-f.gr., mica., partly massive, carb.; mica., carb. lams. and x-bds.; rara sh. m.dk.gy. intbds., partly carb. sh.
19.45 - 20.58	Sh., m.dk.gy., silty, mica., carb., rare f.gr. ss. burrows.
20.58 - 26.43	Ss., sh. intbdd.; ss., m.gy., v.f.gr., mica., carb.; sh., m.dk. gy., silty; high angle calc.-filled fractions.
26.43	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 21

Geophysical Log Date: 12-9-80, County, State: Fayette, Alabama

Map: Berry, 7½' quad. Location: SE¼ Sec. 24, T. 15 S, R. 10 W HPM

Surface Elev.: 219.5 m, Logged Depth: 42.9 m, Drilled Depth: 50.2 m, Core Int: 41.4 m,

LITHOLOGY

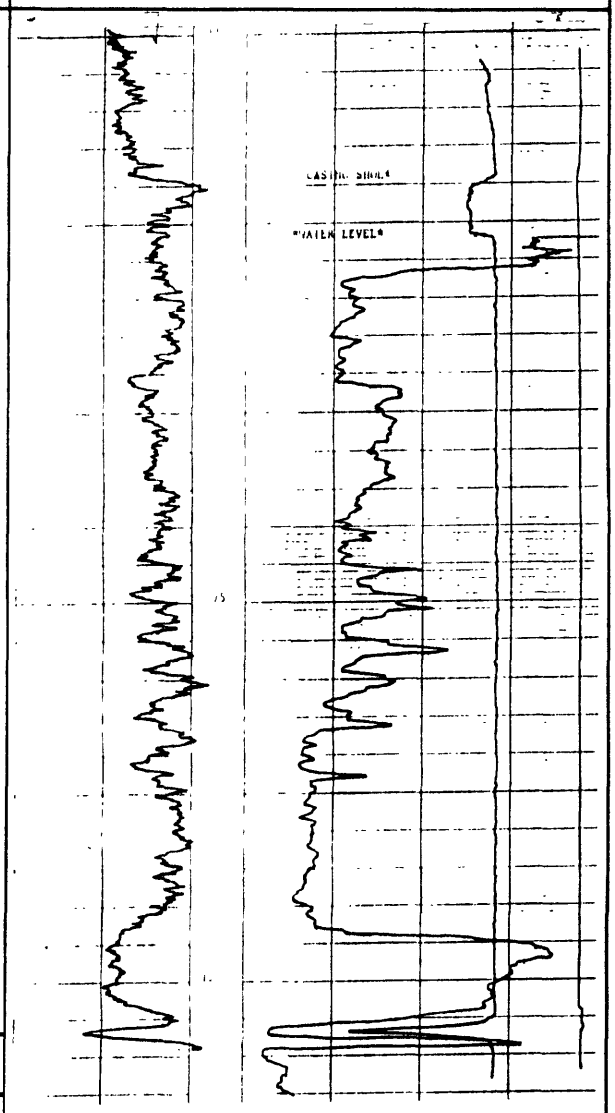
0 - 8.84	Cased in unconsolidated material.
8.84 - 40.47	Sh., ss. beds and intbds.; sh., gy., sandy, mica, carb. in part, some siderite; ss., gy., f.gr., mica.; some plant fossils.
40.47 - 40.89	COAL, banded, calc. lams. at top, pyrite lam. at 40.61 meters; Upper Cobb bed.
40.89 - 41.65	Fc., massive, many fossil plant fragments.
41.65 - 43.03	Sh., dk. gy., carb., scattered sidarite lams. and nodules.
43.03 - 43.27	COAL, intbdd. bona, some bk. sh., pyrite lams. in upper part; Lower Cobb bed.
43.27 - 44.21	Fc., sandy, massive, some plant fossil fragments.
44.21 - 50.24	Ss., sh. intbds.; ss., gy., f.-c.gr., mica.; sh., gy., mica.; few thin coal spars 45.24 - 50.24.
50.24	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

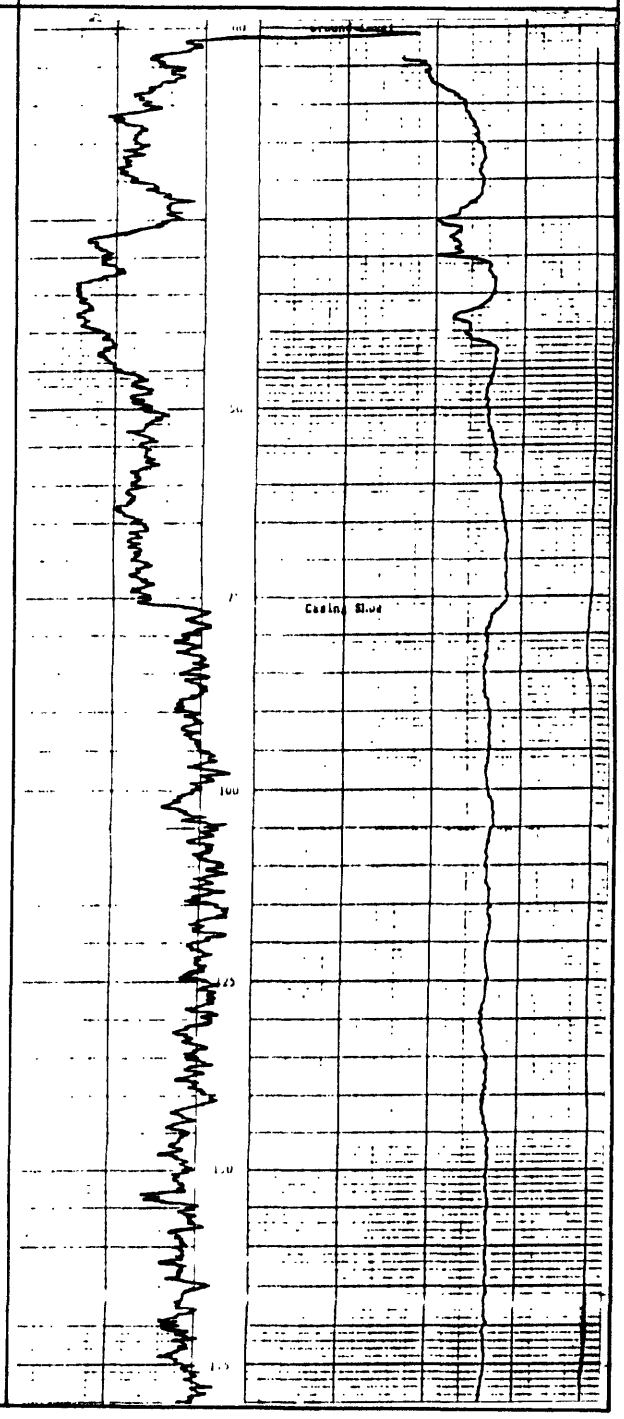
Hole #: 22

Geophysical Log Date: 10-11-80, County, State: Walker, Alabama

Map: Howard, 7½' quad. Location: NW¼ Sec. 20, T. 14 S, R. 9 W HPM

Surface Elev.: 225.6 m, Logged Depth: 179.3 m, Drilled Depth: 181.9 m, Core Int: 158.9 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 22.97	Cased in unconsolidated material.			GAMMA RES. DENSITY CAL.
22.97 - 23.54	Sh., bk., mica., plant fossils common.			
23.54 - 64.76	Sh., gy.-dk.gy., sandy, mica., some plant fossils, some flow structure, scattered siderite lams. and nodules.			



LITHOLOGY

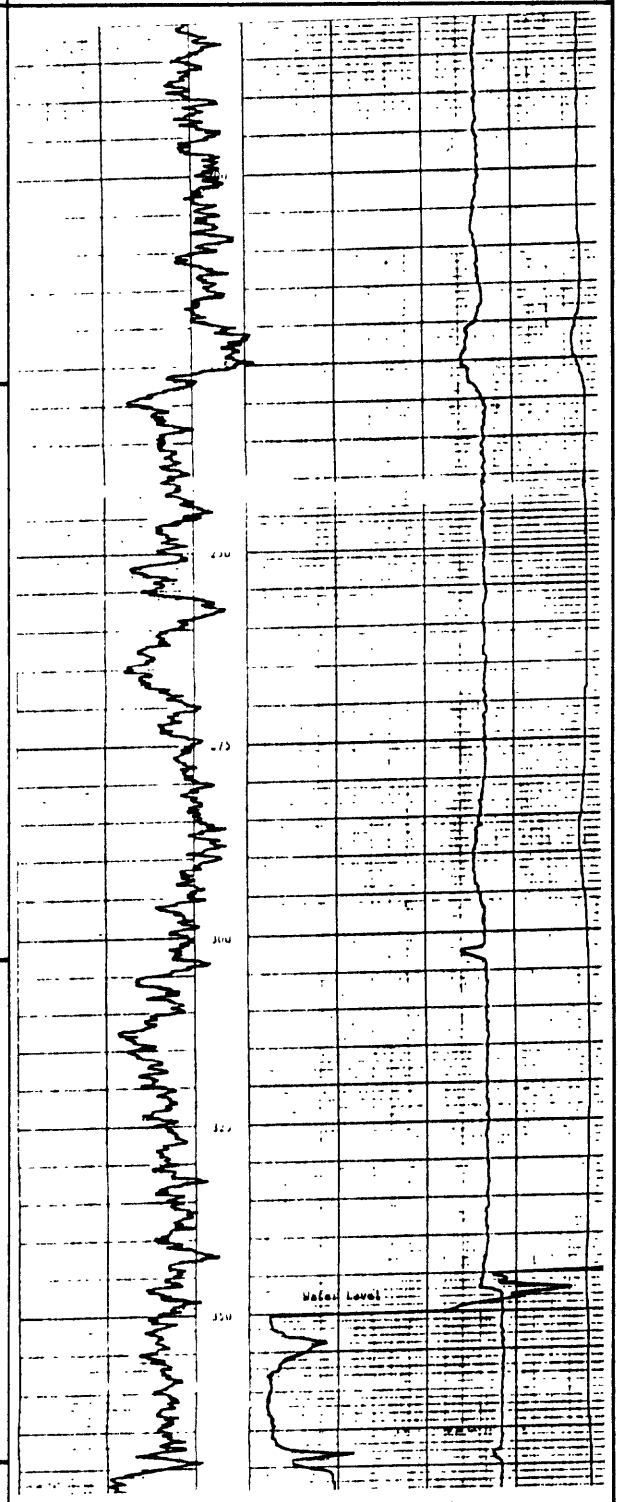
64.76 - 66.31	Fc., dk.gy., massive, waxy, many plant fossils.
66.31 - 70.15	Sh., ss. intbds.; sh., gy., mica., few sidarite nodules; ss., f.gr.; few marine fossils.
70.15 - 70.27	COAL, intbdd. bone.
70.27 - 70.88	Fc., dk.gy., massive, waxy, plant fossils.
70.88 - 88.98	Sh., ss. intbds.; sh., gy.-dk.gy., mica., carb. in part, some siderite, few plant fossils; ss., gy., f.-m.gr.; burrowed in part.
88.98 - 89.13	COAL, intbdd. bone.
89.13 - 113.14	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy, mica., carb. in part, churned in part, scattered siderite, burrowed in part, many marine fossils; ss., gy., f.-m.gr.; coal bands 112.93 - 113.14.
113.14 - 113.27	COAL, intbdd. bone.
113.27 - 113.69	Fc., dk.gy., sandy, massive.

Depth m.

Strip Log

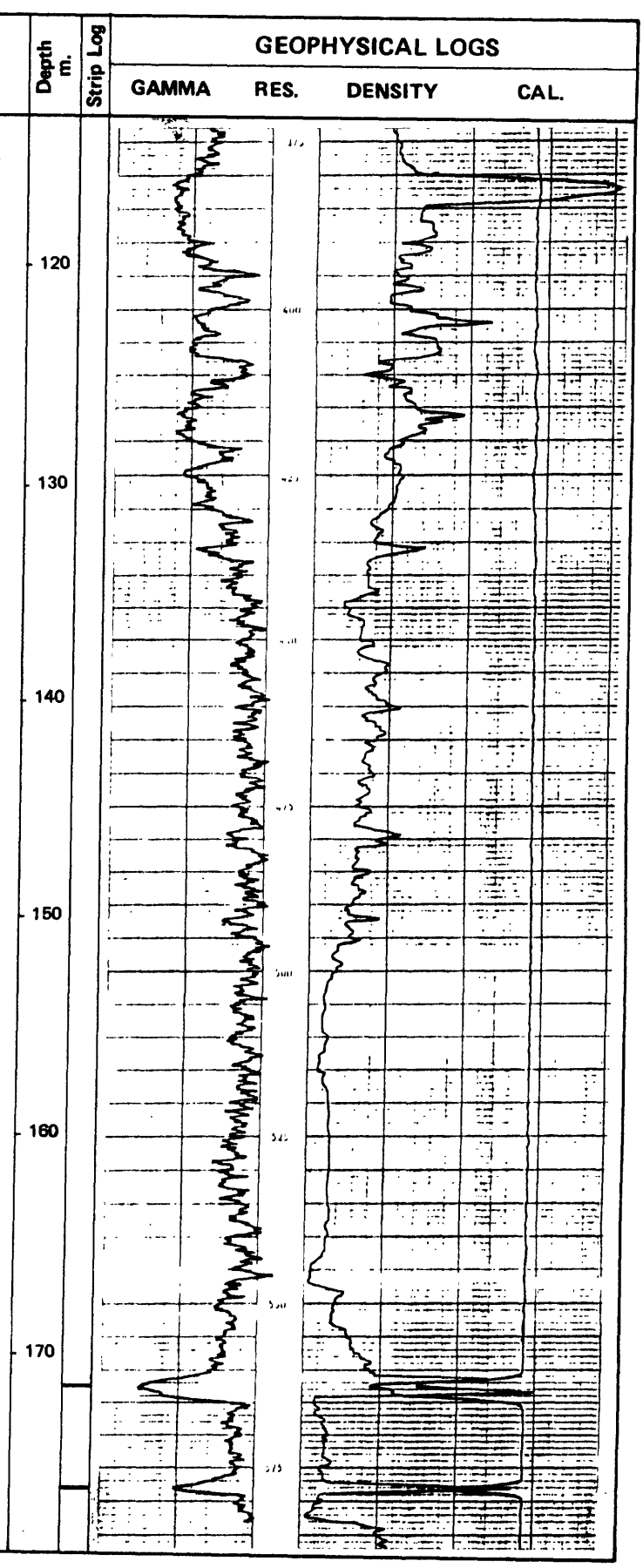
GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



LITHOLOGY

113.69 - 172.47	Ss., sh. beds and intbds.; ss., lt.gy.-gy., f.-m.gr., mica., x-bds.; sh., gy.-dk.gy., mica., carb. in part; many siderite lams. and nodules, some flow structure, little burrowing.
172.47 - 173.44	COAL, banded, some pyrite, little bone; Mary Lee bed.
173.44 - 174.10	Fc., carb., rare coal streaks.
174.10 - 177.44	Sh., dk.gy., siderite bands and nodules common, rare burrowing, few scattered coal bands and spars.
177.44 - 177.79	COAL, undifferentiated; Blue Creek bed.
177.79 - 178.51	Fc., carb., plant fossils.
178.51 - 181.86	Sh., ss. intbds.; sh., dk.gy., some sand, carb. in part, many plant fossils, burrowing rare.
181.86	Total depth.



DRILL HOLE LOG

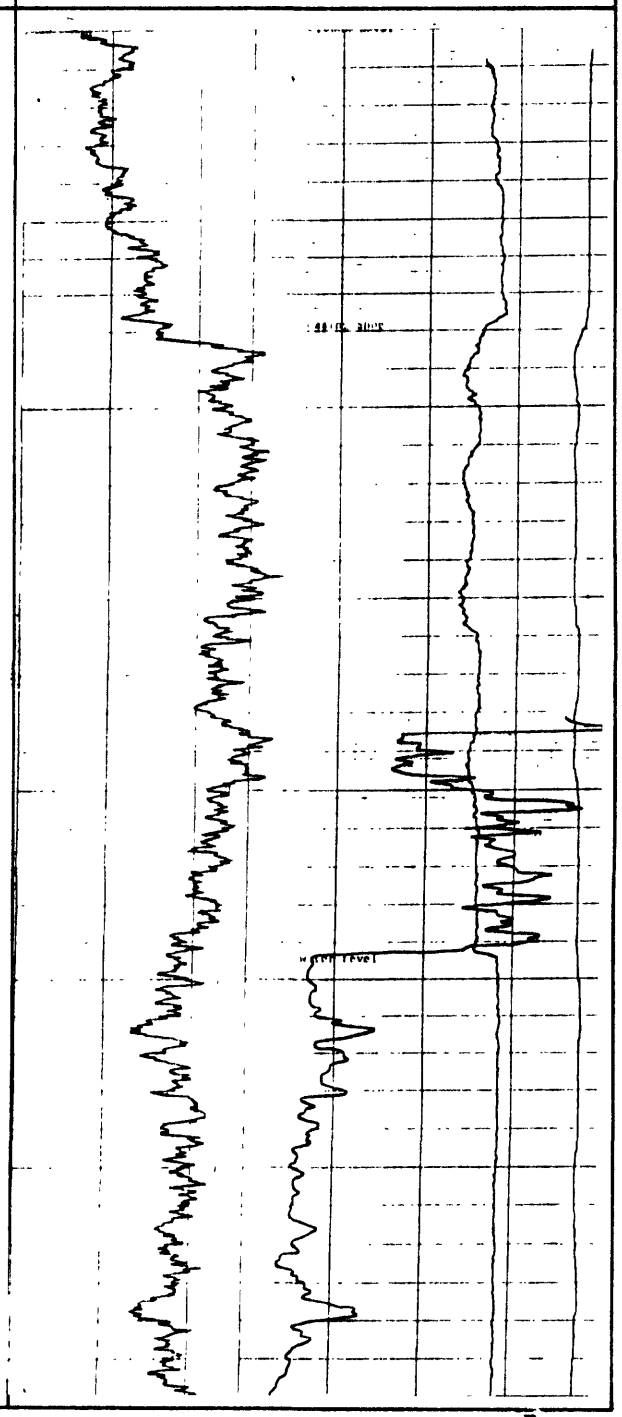
Hole #: 23

Geophysical Log Date: 10-11-80, County, State: Walker, Alabama

Map: Howard, 7½' quad. Location: NW¼ Sec. 18, T. 14 S, R. 9 W HPM

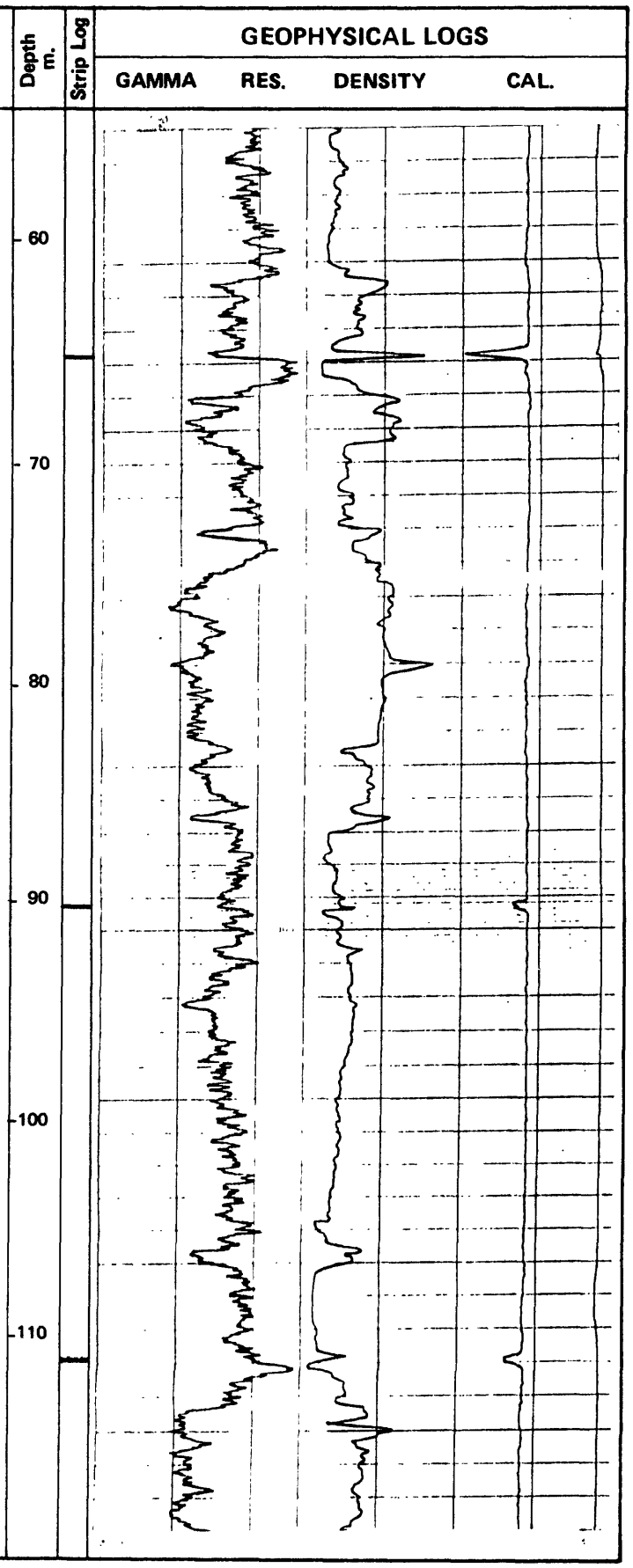
Surface Elev.: 233.2 m, Logged Depth: 192.5 m, Drilled Depth: 194.2 m, Core Int: 182.3 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 11.89	Cased in unconsolideted material.			
11.89 - 65.19	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy; ss., f.-m.gr., mica., massive; carb, in part, few plant fossils, some burrowing.			



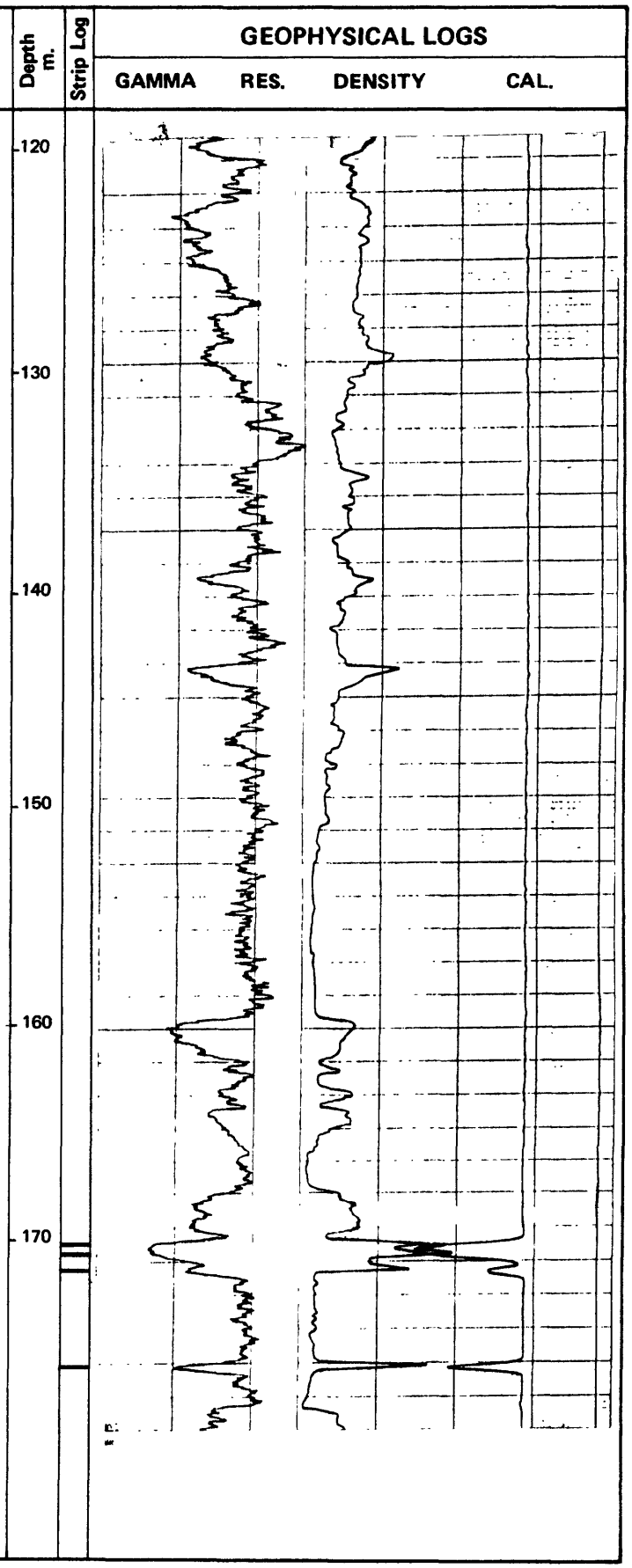
LITHOLOGY

65.19 - 65.52	COAL, boney with pyrite streeks to 65.34 meters; banded below; Pratt bed.
65.52 - 66.22	Fc., soft to hard, few coal spars and lams., plant fossils and rootlets.
66.22 - 90.61	Ss., sh. beds and intbds.; ss., gy., m.-c.gr., mica.; sh., gy.-bk., mica., sandy, carb.; x-bds., burrowed in part, some marine fossils, coal lams. 83.17 - 83.69 meters.
90.61 - 90.74	COAL, banded, thin calc. lams. at top contact; Pratt group.
90.74 - 91.28	Fc., sandy, ironstone nodules, plant fossils.
91.28 - 111.28	Sh., dk.gy.-bk., mica., sandy, carb., siderite, ss. lams. scattered; burrowed in part, some marine fossils, calc. in part.
111.28 - 111.43	COAL, mostly banded, bonay at top, pyrite and calc. lams., few fc. intbds.; Pratt group.
111.43 - 111.92	Sh., bk., plant fossils, coal bands.
111.92 - 170.00	Sh., ss. bads and intbds.; sh., gy.-bk., mica., sandy, burrowed in part; ss., gy., f.-c.gr., mica., some marine fossils; carb. in part, some siderite, scattered plant fragments, little rooting.

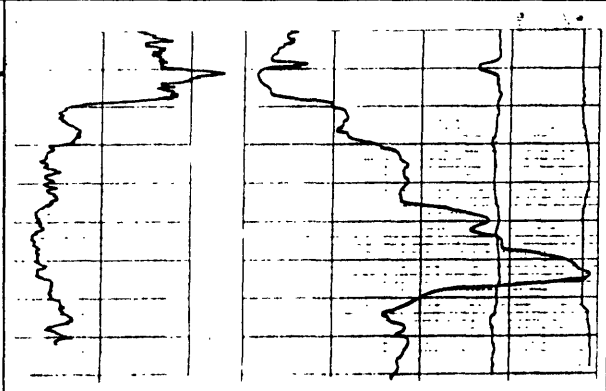


LITHOLOGY

170.00 - 170.10	COAL, banded; Mary Lee group.
170.10 - 170.60	Sh., ss. intbdd.; sh., bk., carb.; ss., f.gr., mica., sh. lams., carb.
170.60 - 171.55	COAL, banded, few thin ss. intbds., pyrite; Mary Lee bed.
171.55 - 171.81	Sh., sandy, carb., burrowed, plant fossils, thin intbdd. coal.
171.81 - 171.92	Fc., sandy, carb., plant fossils, thin intbdd. coal.
171.92 - 172.16	COAL, banded; Blue Creek bed.
172.16 - 176.22	Sh., bk., mica., carb., fossil plant fragments, scattered siderite nodules; coal lams. to 172.56 meters.
176.22 - 176.52	COAL, thin intbdd. bone at top, remainder is banded; Jagger bed.
176.52 - 178.41	Fc., dk.gy., massive, plant fossils, siderite nodules.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
178.41 - 180.52	Sh., gy., mica., sandy, carb., burrowed; bottom 15 cm. is bk. sh. with plant fossils.			
180.52 - 180.64	COAL, banded; Mary Lee group.	180		
180.64 - 181.95	Fc., massive, plant fossils; soft and sandy 180.91 - 180.94 and 181.07 - 181.13 meters.			
181.95 - 194.24	Ss., f.-c.gr., mica., massive, some sh. lams.			
194.24	Total depth.	190		



DRILL HOLE LOG

Hole #: 24

Geophysical Log Date: 9-26-80, County, State: Fayette, Alabama

Map: Howard, 7½' quad. Location: SW¼ Sec. 11, T. 14 S, R. 10 W HPM

Surface Elev.: 218 m, Logged Depth: 38.6 m, Drilled Depth: 38.6 m, Core Int: 32.9 m,

LITHOLOGY

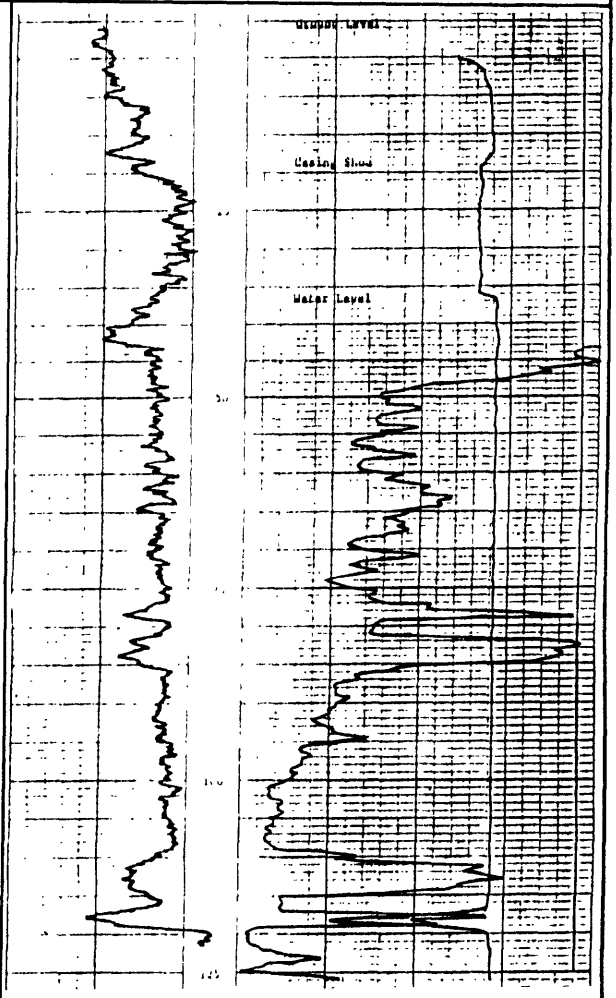
0 - 5.68	Cased in unconsolidated material.
5.68 - 35.85	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., burrowed in part, some fossil plants; ss., gy., f.-m.gr., mica., calc. in part; x-bds., numerous calc.-filled structures, some siderite, few pyrite nodules.
35.85 - 36.40	COAL, 3 cm. shale parting; Pratt bed.
36.40 - 37.63	Fc., dk.gy., sandy.
37.63 - 38.58	Sh., ss. intbds.; sh., gy., mica., sandy, massive, plent fossils; ss., gy., f.-m.gr., mica., massive.
38.58	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 25

Geophysical Log Date: 9-26-80, County, State: Fayette, Alabama

Map: Howard, 7½' quad. Location: SW¼ Sec. 2, T. 14 S, R. 10 W HPM

Surface Elev.: 216.5 m, Logged Depth: 22.6 m, Drilled Depth: 35.5 m, Core Int: 29.7 m,

LITHOLOGY

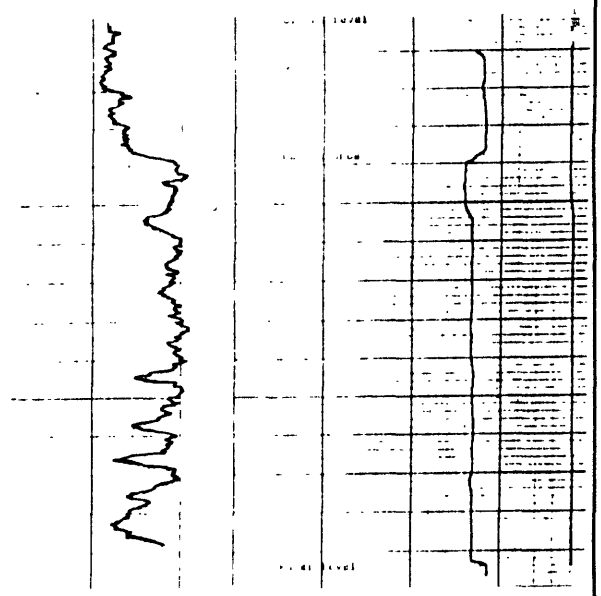
0 - 5.95	Cased in unconsolidated material.
5.95 - 8.09	Sh., gy., sandy, soft, slightly mica., occ. iron stain.
8.09 - 8.85	Ss., dk.gy., massive, slightly mica.; sh. streaks and pebbles; zone of lt.gy. calc. ss.
8.85 - 9.03	Ss., sh. intbdd.; gy., massive, some mica.
9.03 - 14.37	Sh., gy., massive; few ss. streaks, bands, and intbds.; rare plant fossils, x-bds.
14.37 - 32.62	Sh., ss. beds and intbds.; sh., m.-dk.gy., sandy end massive in parts, plant fragment and calc. lam. zones; ss., lt.-m.gy., v.f.-m.gr., occ. massive, high angle calc.-filled fracture, high angle iron stained fracture; carb. areas, siderite present near base.
32.62 - 32.74	Fc., gy., v. silty, weathered.
32.74 - 33.35	COAL, bony, impure, weathered, broken; Pratt bed.
33.35 - 34.54	Fc., gy., silty, weathered; less silt and weathering with depth.
34.54 - 35.47	Sh., gy., massive, ss. streaks. Core loss: approximately 20 cm. core lost either to washout in weathered zones, or more likely due to problems in retrieving core from barrel.
35.47	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 27

Geophysical Log Date: 11-5-80, County, State: Fayette, Alabama

Map: Howard, 7½' quad. Location: SW¼ Sec. 5, T. 14 S, R. 10 W HPM

Surface Elev.: 221.0 m, Logged Depth: 27.9 m, Drilled Depth: 28.1 m, Core Int: 18.5 m,

LITHOLOGY

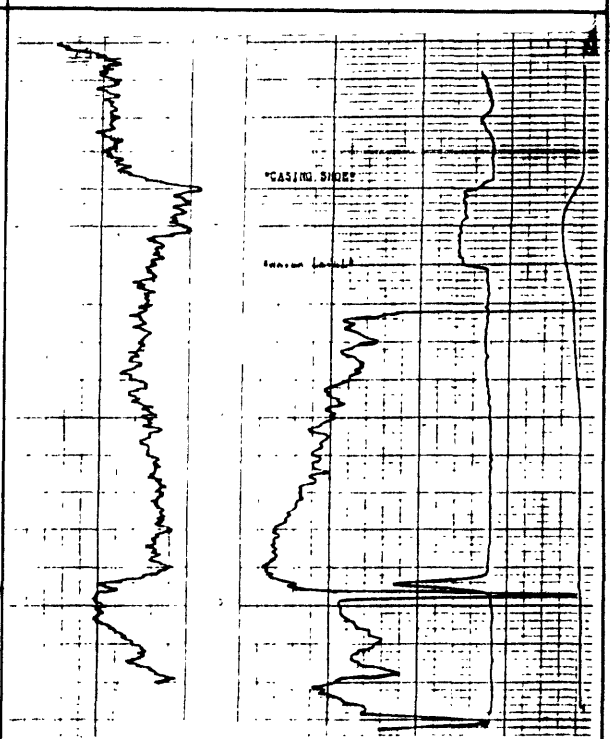
0 - 9.57	Cased in unconsolidated material.
9.57 - 22.38	Cley, gy.-dk.gy., sandy, some plant fossils; weathered shale.
22.38 - 22.66	COAL, banded, some pyrite, 3 cm bone near base; Pratt bed.
22.66 - 24.51	Fc., sandy, weathered.
24.51 - 28.14	Ss., sh. intbds.; coal spars 25.91 - 27.13 meters; weathered.
28.14	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 28

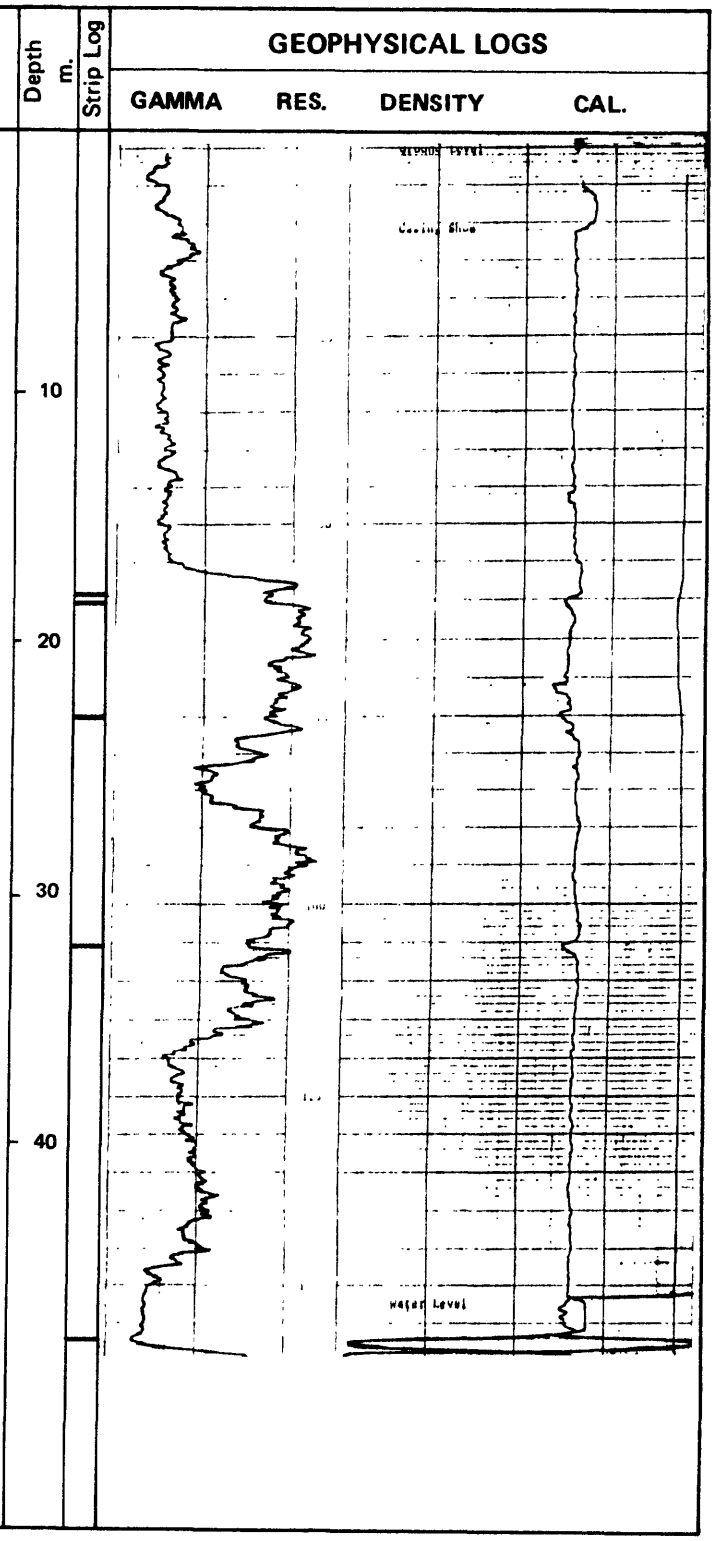
Geophysical Log Date: 10-11-80, County, State: Walker, Alabama

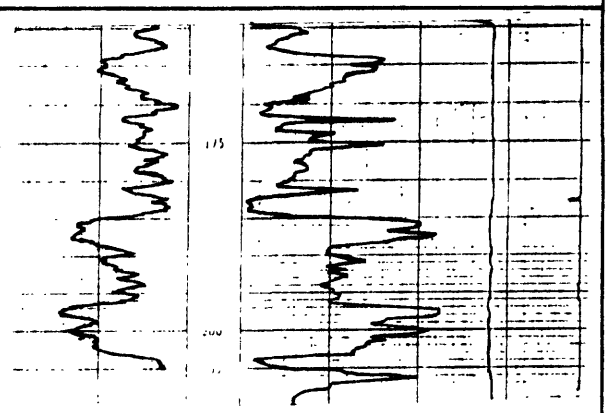
Map: Glen Allen, 7½' quad. Location: NW¼ Sec. 30, T. 12 S, R. 10 W HPM

Surface Elev.: 208.8 m, Logged Depth: 64.0 m, Drilled Depth: 64.2 m, Core Int: 60.8 m,

LITHOLOGY

0 - 3.38	Cased in unconsolidated material.
3.38 - 17.38	Ss., lt.-m.gy., f.-m.gr., sh. streaks, occ. coal spars in lower part, siderite, x-bdg. in upper part.
17.38 - 17.44	COAL, undifferentiated.
17.44 - 18.52	Ss., sh. beds and intbds.; ss., gy., occ. coal spars; sh., gy.-dk.gy.; plant roots abnt.
18.52 - 18.61	COAL, intbdd. with bone.
18.61 - 22.73	Sh., ss. intbdd.; sh., gy., plant fragments; ss., f.gr.
22.73 - 22.81	COAL, undifferentiated.
22.81 - 23.48	Fc., plant fossils.
23.48 - 32.10	Ss., sh. beds, occ. intbds.; ss., gy., f.-m.gr., sh. straaks and siderita, rare burrowing and sidarita.
32.10 - 32.29	COAL, bone intbds.
32.29 - 32.93	Fc., dk.gy., sendy, rooted, plant fragments.
32.93 - 47.99	Ss., gy., f.-m.gr., sh. streaks, occ. coal lams. near bottom.
47.99 - 48.63	COAL, occ. bona intbds.; Jeffarson bed.
48.63 - 48.70	Fc., plant fragments.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
48.70 - 64.24	Ss., sh. beds and intbds.; ss., gy., m.gr., with sh. streaks, mica., carb., some burrowing, occ. siderite; sh., dk.gy., sandy in part with ss. streaks and intbds., some plant fossils.	50					
64.24	Total depth.	60					

DRILL HOLE LOG

Hole #: 30

Geophysical Log Date: 11-14-80, County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: NE¼ Sec. 34, T. 18 S, R. 9 W HPM

Surface Elev.: 186 m, Logged Depth: 356.0 m, Drilled Depth: 357.9 m, Core Int: 336.2 m,

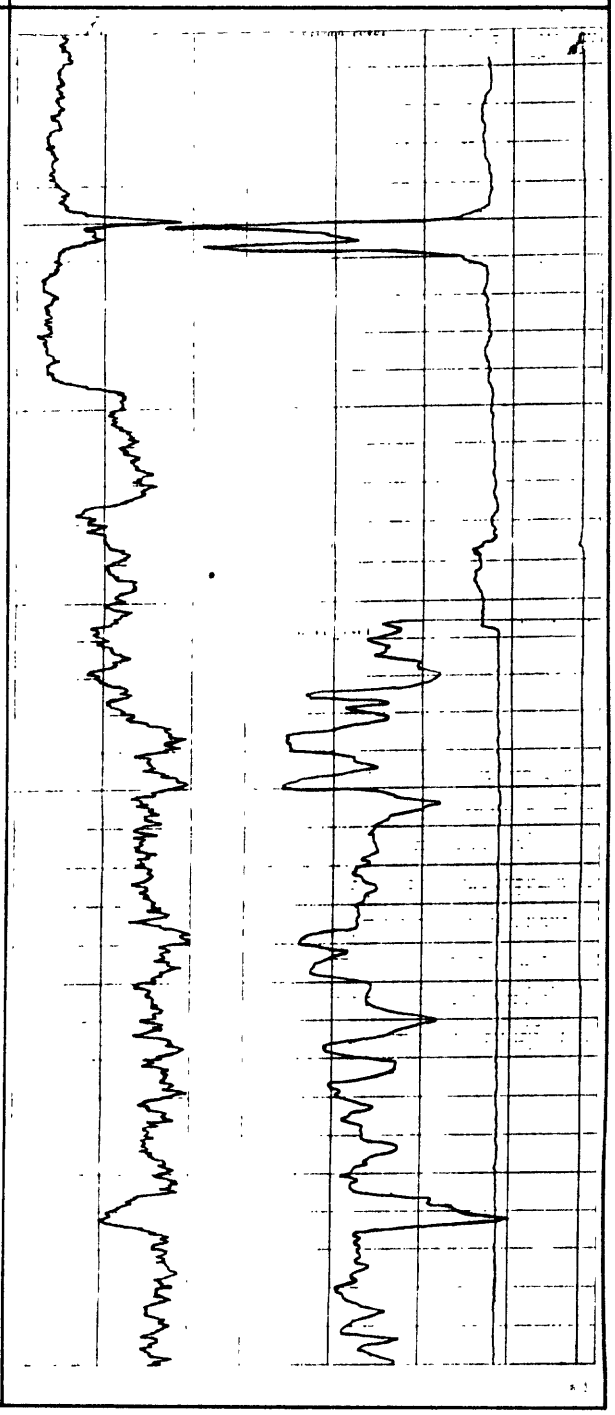
LITHOLOGY

0 - 21.65	Cased in unconsolidated material. Possible coal at 8.0 meters.
21.65 - 35.12	Ss., sh. beds and intbds.; ss., lt.-dk.gy., f.-m.gr., mica., marine fossils at 22.26 meters, pyrite, siderite, some plant fossils; sh., dk.gy., massive, mica.; calc. in part.
35.12 - 73.69	Sh., ss. beds and intbds.; sh., m.-dk.gy., massive, mica., siderite nodules and bands, marine fossils 38.99 meters, rare plant fossils; ss., gy., f.-m.gr., mica., x-bdd., siderite bands and nodules, pyrite, calc., plant fossils.

Depth m.

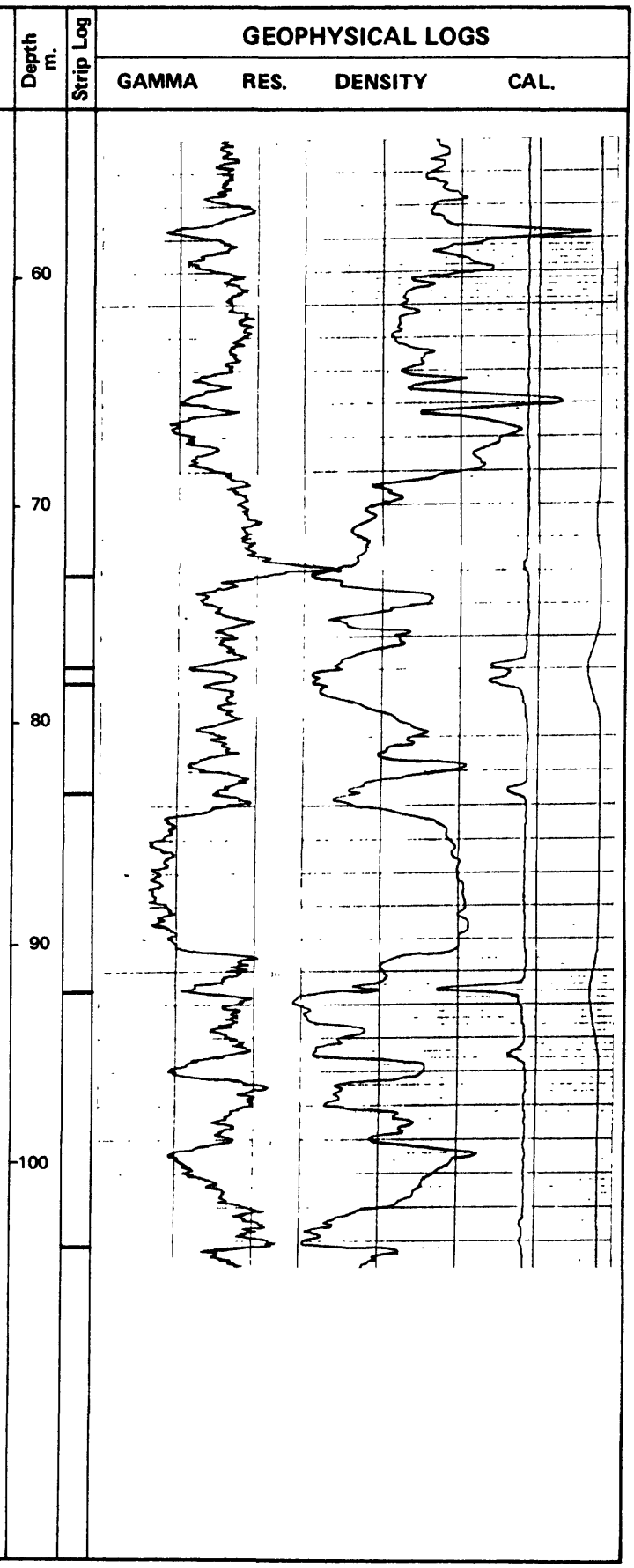
Strip Log

GEOPHYSICAL LOGS



LITHOLOGY

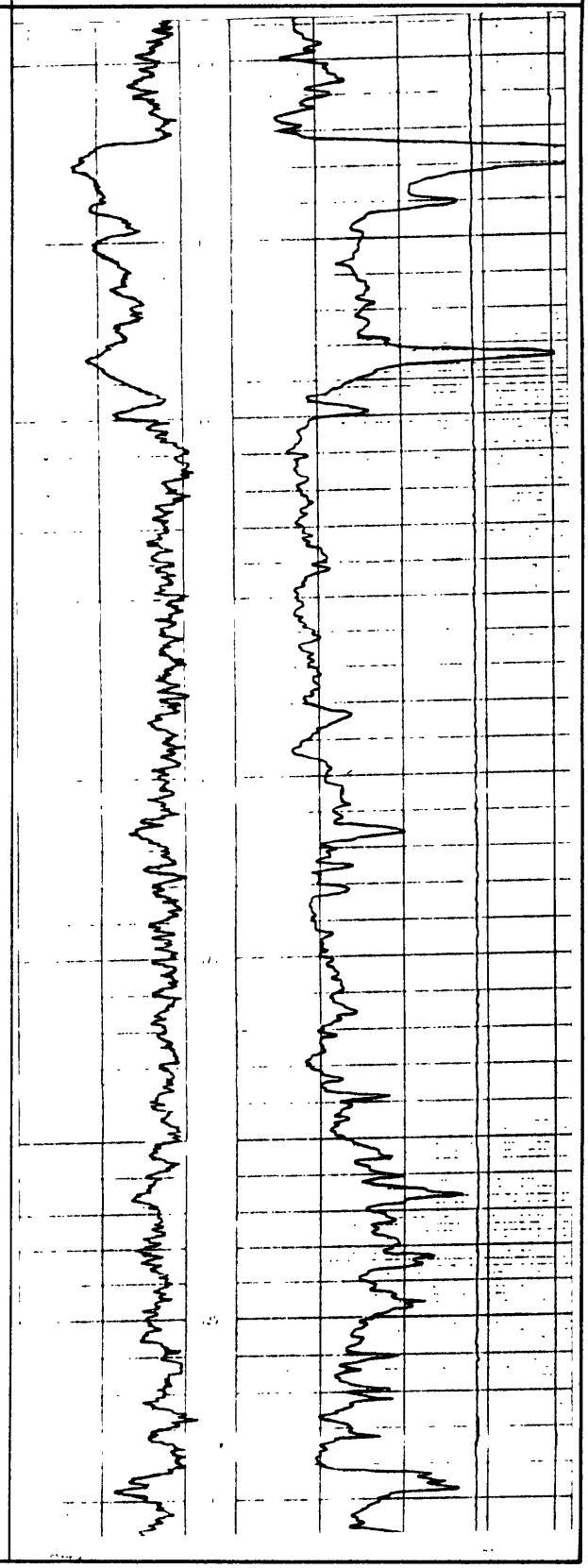
73.69 - 73.74	COAL, bright, calc. streak at top; Utley group.
73.74 - 74.15	Fc., dk.gy., hard.
74.15 - 78.17	Ss., sh. beds and intbds.; ss., gy., f.gr., mica., x-bdd. at 76.52 meters, rare plant fossils; sh. m.-dk.gy., massive, sandy.
78.17-78.39	COAL, bright, shiny, few sh. partings; Utley group.
78.39 - 78.78	Fc., gy., hard, thin coal bands, intbdd. sh., pyrite.
78.78 - 78.94	COAL, bright, shiny, thin sh. partings; Utley group.
78.94 - 79.44	Fc., gy., hard, numerous plant fossils.
79.44 - 83.57	Sh., ss. beds and intbds.; sh., gy., massive, mica., siderite nodules; ss., gy., massive, flat sh. streaks, mica., siderite bands.
83.57 - 83.67	Fc., gy., hard, few thin coal streaks.
83.67 - 83.81	COAL, bright, shiny, calc.-filled frectures; Utley group.
83.81 - 84.52	Fc., hard, sandy, numerous plant fossils.
84.52 - 93.05	Sh., ss. beds and intbds.; sh., gy., massive, mica., siderite bands, plant fossils; ss., gy., messive, siderite nodules, thin coal streaks.
93.05 - 93.34	COAL, bright, shiny; Utley group.
93.34 - 98.71	Sh., fc. intbdd.; sh., gy., massive, slightly to v. sandy, siderite nodules; fc., gy., hard, waxy, thin coal bands.
98.71 - 103.99	Ss., sh. beds and intbds.; ss., gy., f.gr., massive, mica.; sh., gy., massive, mica., sandy.
103.99 - 104.05	COAL, bright, shiny, shale partings; Utley group.
104.05 - 104.88	Fc., hard, waxy, thin coal bands.

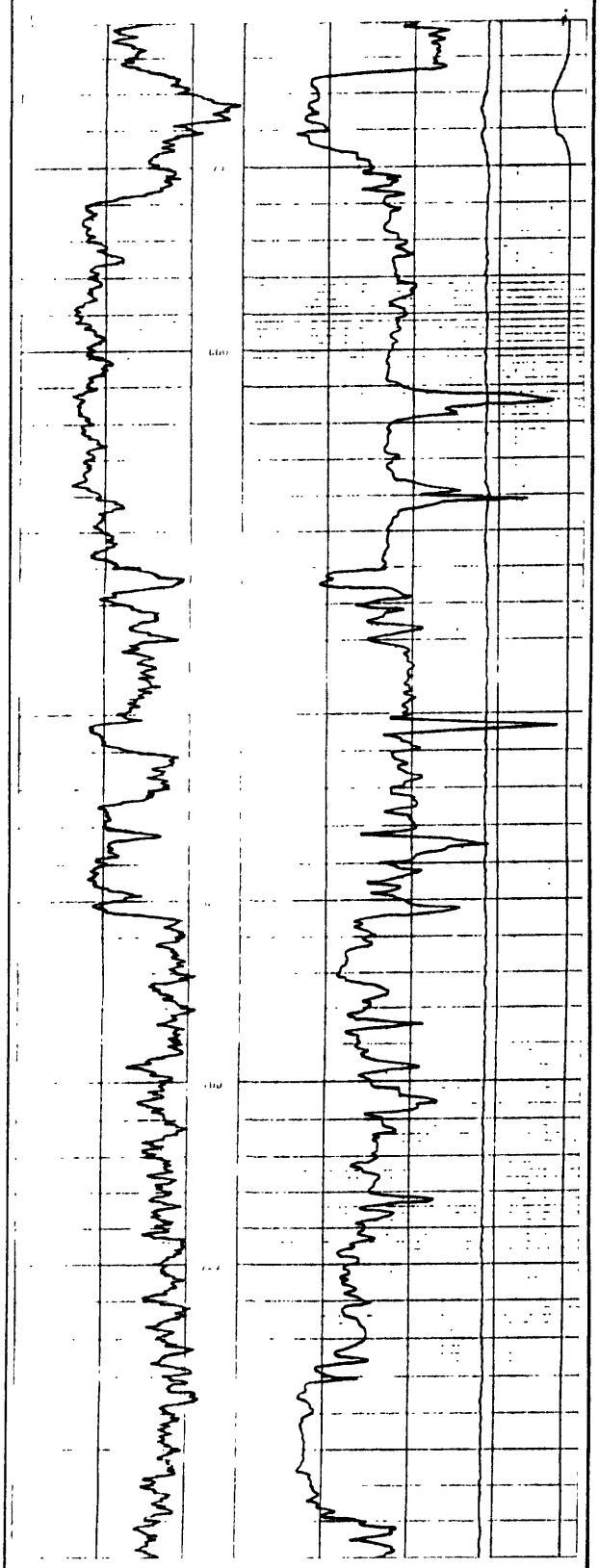


LITHOLOGY	Depth m.	Strip Log	GEOPHYSICAL LOGS
			GAMMA RES. DENSITY CAL.

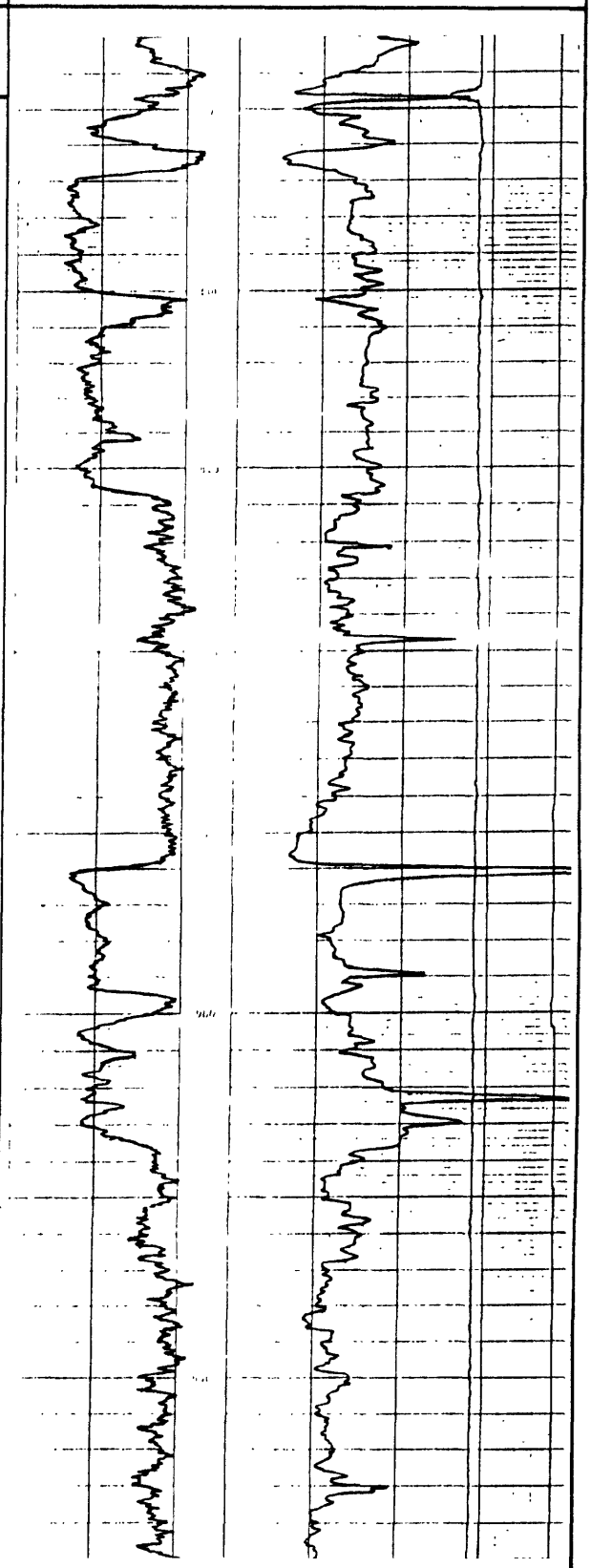
104.88 - 174.33 Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., some burrowing and slumping; sh., gy.-dk.gy., some siderite bands.

174.33 - 175.43 Fc., hard, waxy, abnt. plant fossils.



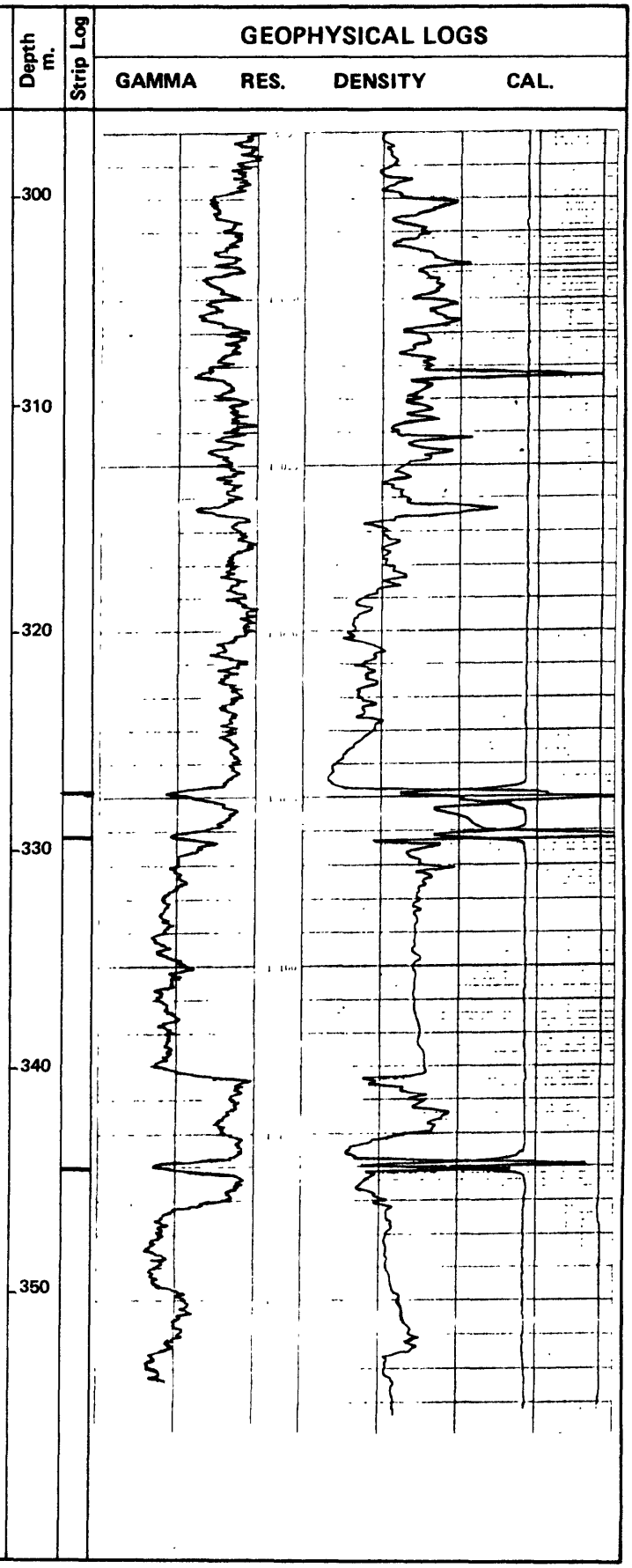
LITHOLOGY	Depth m.	Strip Log	GEOPHYSICAL LOGS
			GAMMA RES. DENSITY CAL.
175.43 - 236.70 Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., rare slumping and x-bdg.; sh., gy., mica.; few plant fossils; marine fossils 212.01 - 212.23 matars and 230.55 - 231.04 metars; faw mudflows.	170 180 190 200 210 220 230		

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
236.70 - 236.87	COAL; Cobb bed.			GAMMA RES. DENSITY CAL.
236.87 - 237.93	Fc., v. sandy, massive, abnt. plant fossils.			
237.93 - 239.15	Ss., sh. beds and intbds.; ss., gy., f.gr.; sh., gy., mica.			
239.15 - 239.79	Fc., gy., sandy, massive, some plant fossils.			
239.79 - 317.17	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., some mica, little calc.; sh., gy., mica.; few sand and mud flows; rare plant fossils; few siderite bands.			



LITHOLOGY

317.17 - 328.69	Sh., gy.-dk.gy., rare ss., occ. burrowing, ebnt. siderite bands, marine fossils 321.71 - 321.86 meters.
328.69 - 329.47	COAL, sh. and fc. intbds., rare pyrite; Pratt bed.
329.47 - 329.53	Sh., bk., few coal bands.
329.53 - 329.81	Fc., gy., hard, sandy, few coal spars, abnt. plant fossils.
329.81 - 330.62	Sh., gy., sandy, few plant fossils.
330.62 - 330.95	COAL, few sh. intbds.; Nickel Plate bed.
330.95 - 331.24	Fc., gy., hard, waxy, abnt. plant fossils.
331.24 - 345.53	Ss., sh. beds and intbds.; ss., gy., f.g., mica., some x-bdg.; sh., gy.-dk.gy., mica.; rare plant fossils and siderite bands.
345.53 - 345.91	Fc., gy., hard, waxy; coal band 5 cm. thick.
345.91 - 346.27	COAL, fractured; American bed.
346.27 - 347.87	Fc., gy., hard, waxy; few plant fossils.
347.87 - 357.90	Ss., gy., m.-c.gr., flat sh. streaks; few coal bands.
357.90	Total depth.



DRILL HOLE LOG

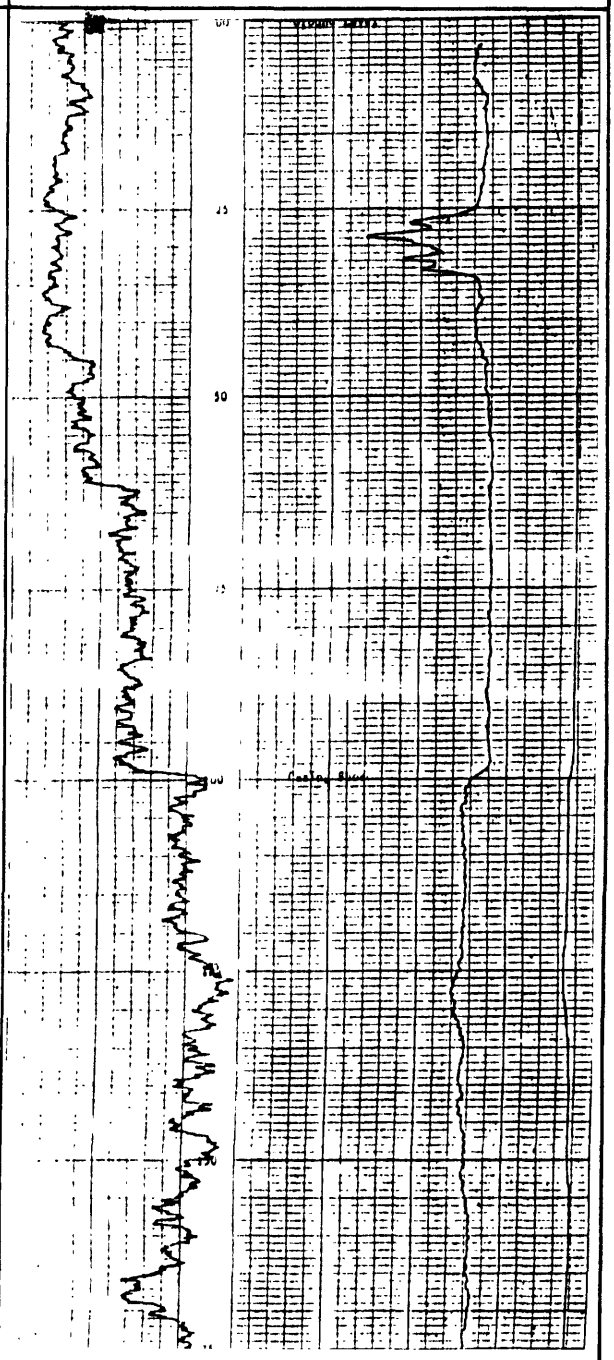
Hole #: 31

Geophysical Log Date: 12-15-80, County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: NE¼ Sec. 33, T. 18 S, R. 9 W HPM

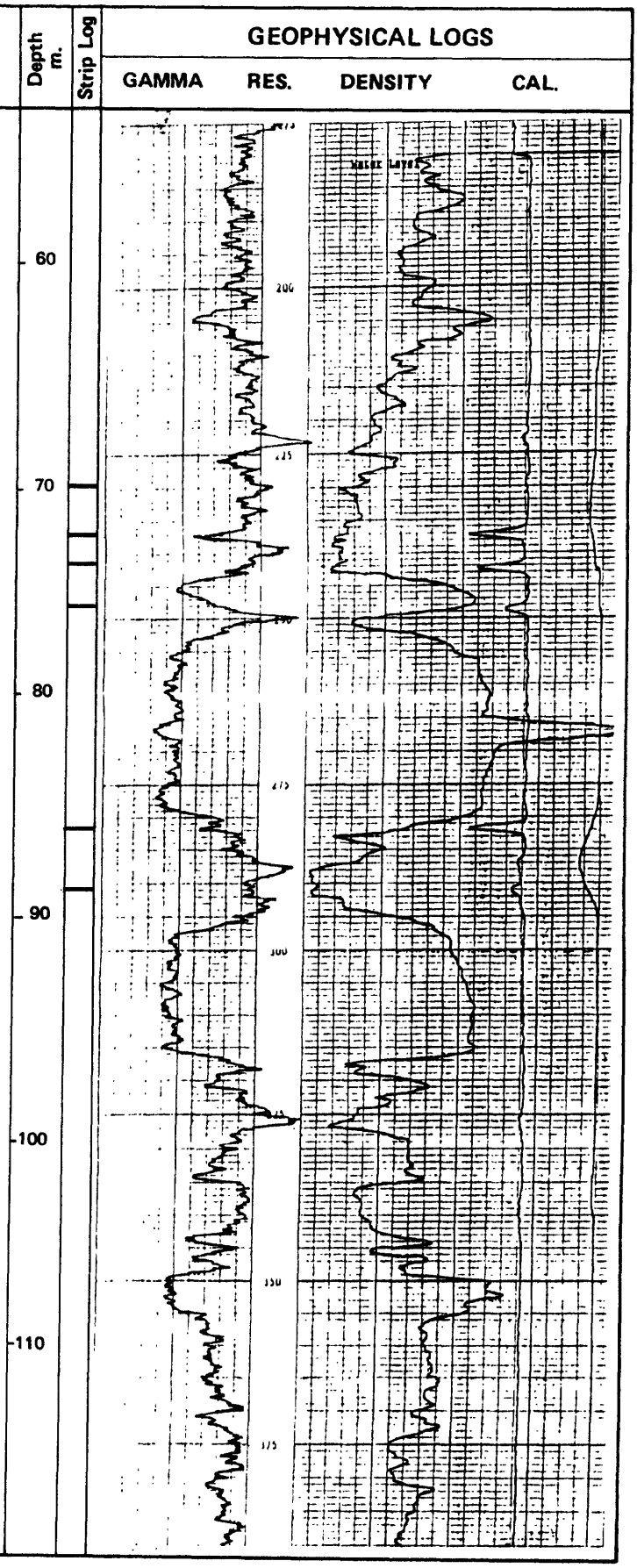
Surface Elev.: 170.7 m, Logged Depth: 347.3 m, Drilled Depth: 348.3 m, Core Int: 317.7 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA	RES.	DENSITY	CAL.
0 - 30.64	Cased in unconsolidated material.						
30.64 - 47.68	Sh., gy., with calc. ss. streaks, mica., scattered marine fossils, siderite bands and nodules.						
47.68 - 70.25	Ss. and sh., with sandy sh. intbds.; ss., gy., f.gr., mica., with sh. streaks, some turbid zones, and x-bds.; sh., gy., mica., with ss. streaks and intbds., calc. lams., siderite bands, rare plant fossils in lower part.						

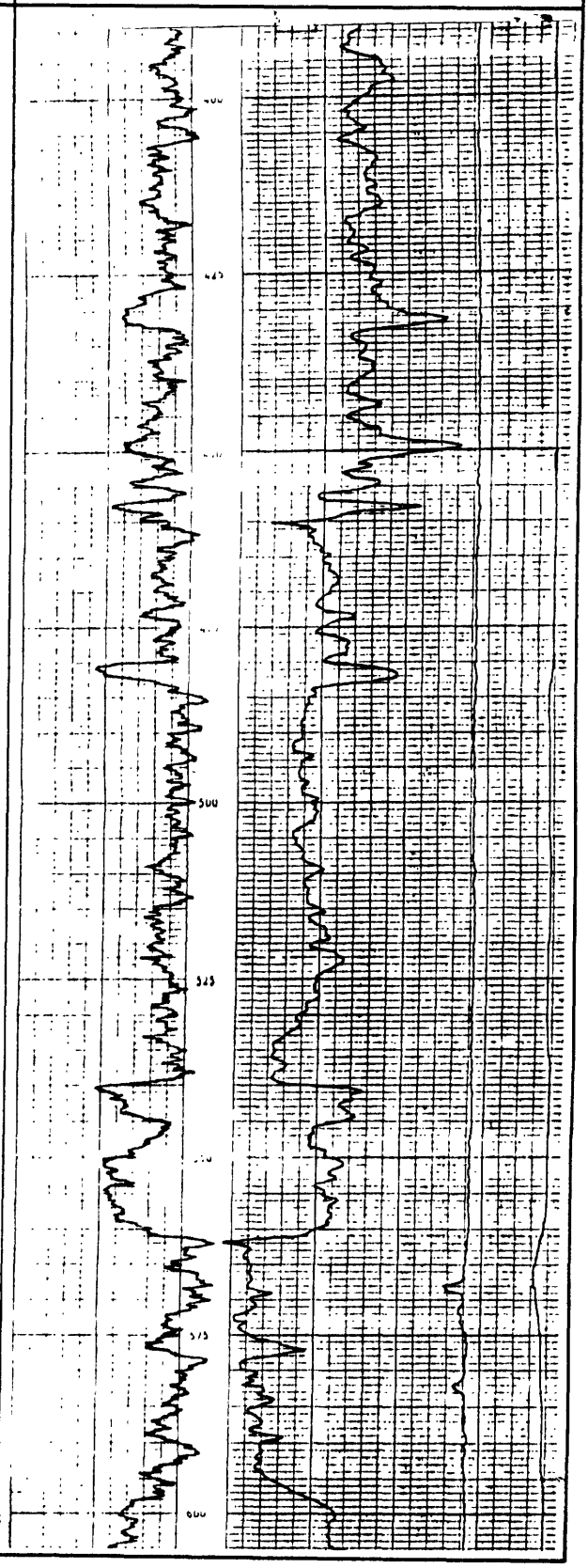


LITHOLOGY

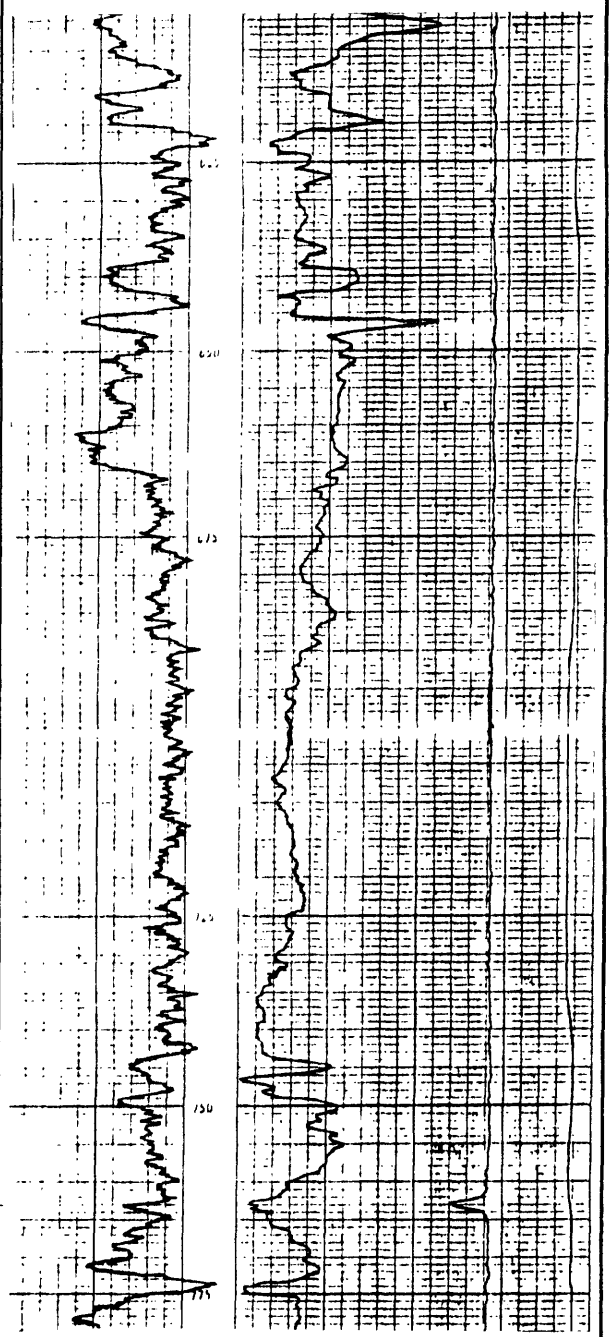
70.25 - 70.30	COAL, undifferentiated, bright, shiny; Utley group.
70.30 - 70.61	Fc., numerous plant fossils.
70.61 - 72.27	Sh., gy., sandy, siderite bands and plant fossils.
72.27 - 72.54	COAL, bright, shiny; Utley group.
72.54 - 73.93	Fc., plant fossils.
73.93 - 74.16	COAL; Utley group.
74.16 - 74.21	Fc.
74.21 - 75.83	Ss., m.gr., mica., sh. streaks and chips, plant fossils.
75.83 - 75.89	Fc.
75.89 - 75.99	COAL, bright, shiny; Utley group.
75.99 - 76.54	Fc., siderite pebbles.
76.54 - 85.44	Ss., gy., f.gr., mica., sh. streaks, coal spars, siderite pebbles.
85.44 - 85.77	Sh., dk.gy., sandy, mica., siderite bands.
85.77 - 86.00	COAL, bright, shiny, sh. lams, near base; Utley group.
86.00 - 86.58	Fc., plant fossils.
86.58 - 87.14	Sh., dk.gy., sandy, mica, plant fossils.
87.14 - 88.92	Fc., coal bands, plent fossils.
88.92 - 89.04	COAL, bright, shiny; Utley group.
89.04 - 89.41	Fc., sandy.
89.41 - 174.72	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., sh. streaks, siderite, some turbid zones, slumps; sh., gy.-dk.gy., sand streaks, intbds., mica.; siderite bands and nodules; occ. coal bands and plant fossils.

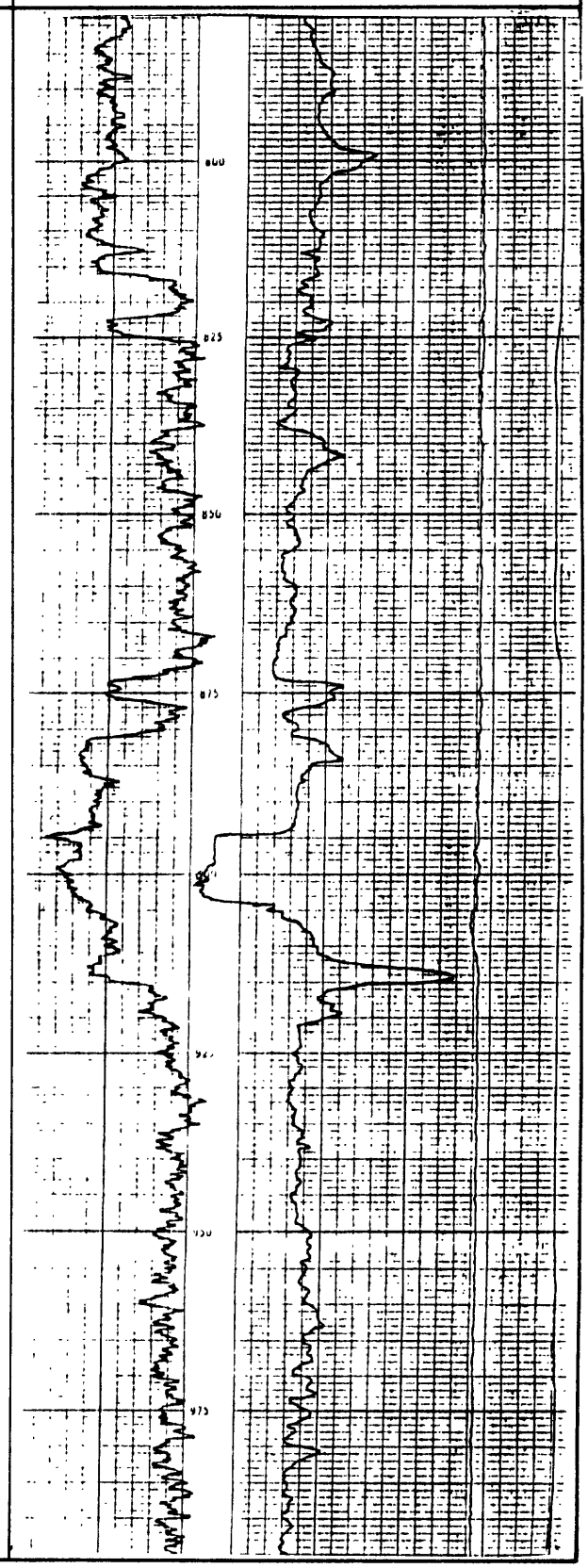


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
174.72 - 176.79	Fc., hard, waxy, few coal bands, plant fossils, sandy in lower part; Gwin horizon.	120		
176.79 - 233.78	Sh., ss. beds and intbds.; sh., gy.-m.gy., sandy, mica., siderite bands and nodules, few plant fossils and rare coal bands; ss., gy., f.-m.gr., mica., sh. streaks and intbds., becomes m.gr. with siderite, coal spars, plant fragments in upper part.	130		
		140		
		150		
		160		
		170		
		180		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
233.78 - 233.93	COAL, bright, shiny; Cobb group.			
233.93 - 235.14	Fc., v. sandy, hard, mica., abnt. plant fossils and sidarite pebbles.			
235.14 - 236.84	Ss., sh., intbdd.; ss., gy., f.-m.gr., mica.; sh., gy.			
236.84 - 237.84	Fc., dk.gy., sandy in lower part.	190		
		200		
		210		
		220		
		230		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
237.84 - 332.09	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica., sh. pebbles, streaks, and intbds.; sh., gy.-dk.gy., sandy in part with ss. streaks, mica.; siderite bands and nodules, plant fossils, scattered marine fossils, rooting, burrowed in part, some turbid zones, few slumps; coal bands and spars.	240 250 260 270 280 290 300		

LITHOLOGY

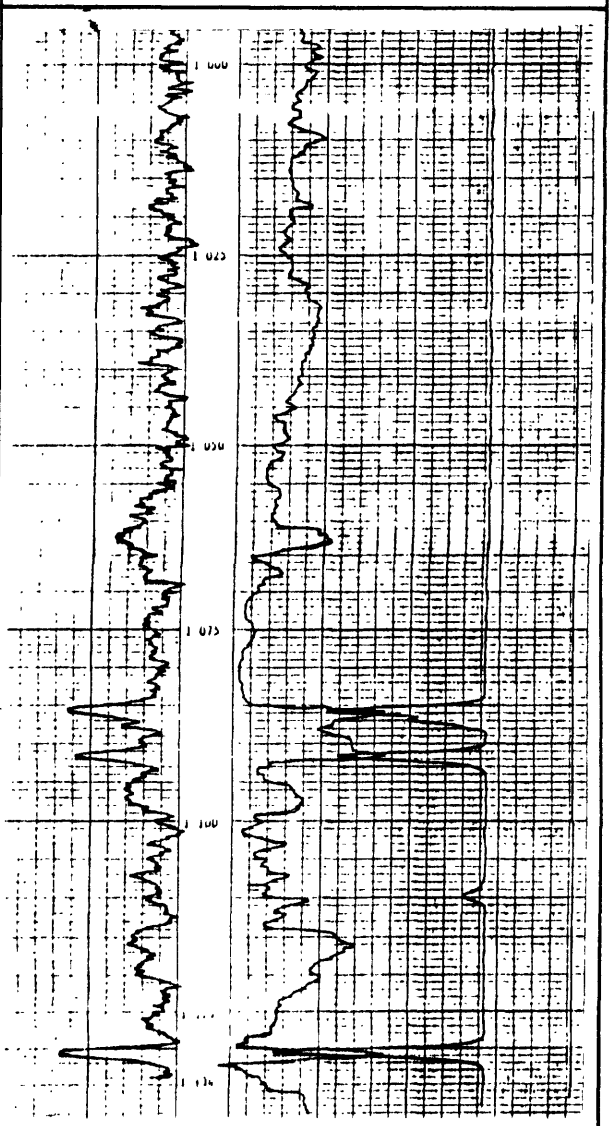
332.09 - 332.89	COAL, sh. and bone partings; Pratt bed.
332.89 - 333.05	Fc., sandy, waxy, abnt. plant fossils.
333.05 - 333.83	Sh., gy., v. sandy, mica., siderite bands.
333.83 - 334.33	COAL, 9 cm. sh. parting; Nickel Plate bed.
334.33 - 334.66	Fc., sandy, waxy.
334.66 - 339.36	Sh., gy., sandy, mica., abnt. plant fossils, few coal streaks in lower part.
339.36 - 339.97	Fc., waxy, abnt. coal lams., becoming shaly in lower part.
339.97 - 345.44	Sh., gy., sandy with some ss. streaks, mica., siderite bands and plent fossils in lower pert.
345.44 - 346.15	COAL, bright, with bk. sh. lams.; American bed.
346.15 - 346.26	Sh., bk., little sand, mica.
346.26 - 347.06	Fc., gy., waxy, abnt. plant fossils, sandy in lower part.
347.06 - 348.33	Sh., gy., sandy, mica., some siderite.
348.33	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

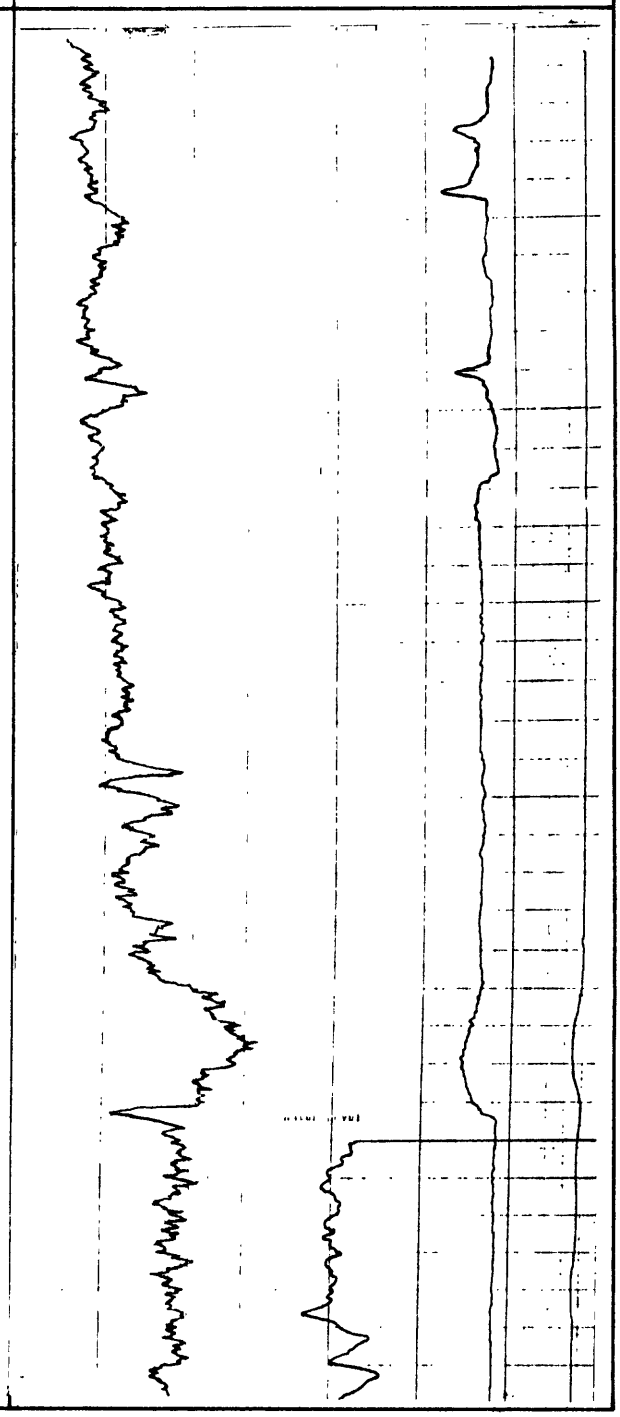
Hole #: 32

Geophysical Log Date: 2-4-81, County, State: Tuscaloosa, Alabama

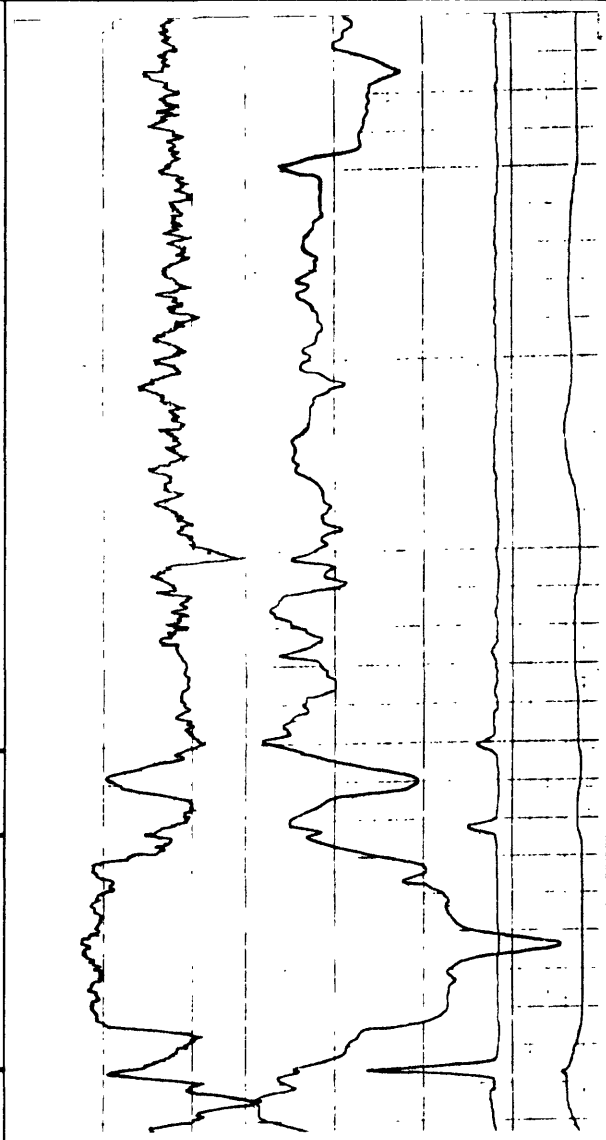
Map: Lake Tuscaloosa North, 7½' quad. Location: SE¼ Sec. 31, T. 18 S, R. 9 W HPM

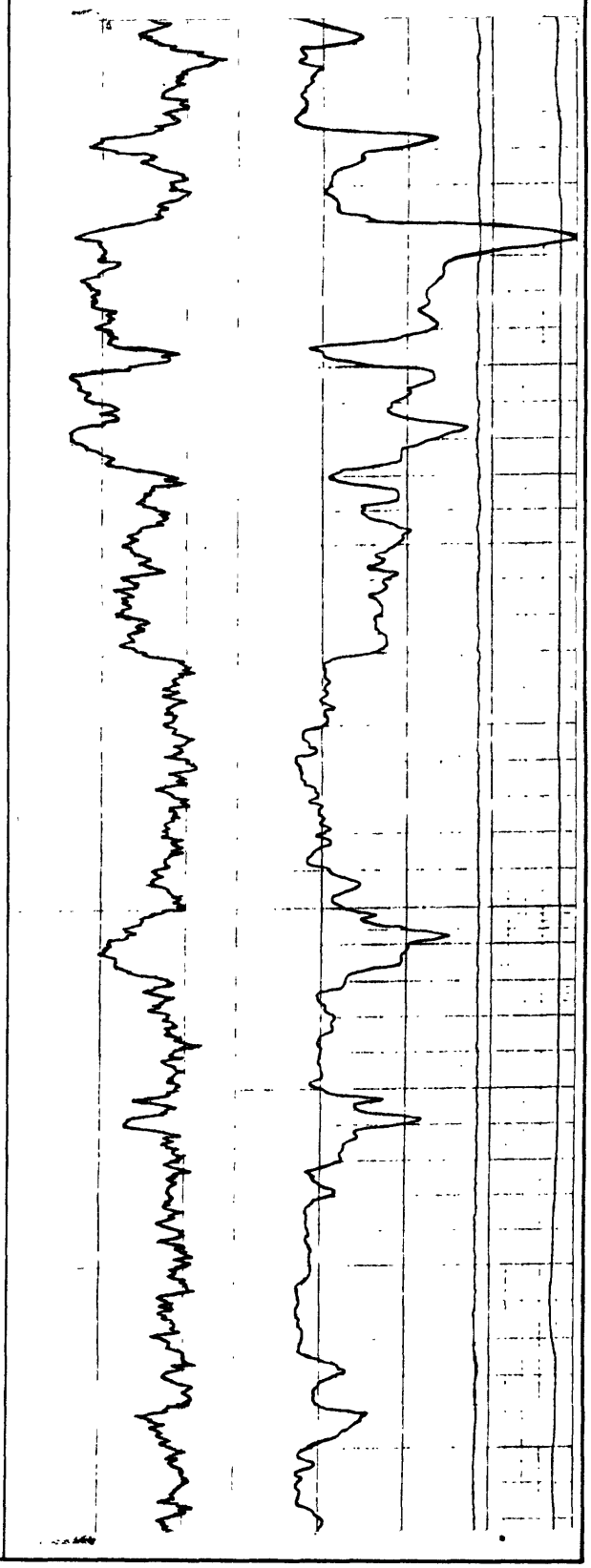
Surface Elev.: 149.4 m, Logged Depth: 523.8 m, Drilled Depth: 525 m, Core Int: 507.4 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 17.62	Cased in unconsolidated matarial.			GAMMA RES. DENSITY CAL.
17.62 - 76.81	Sh., ss. beds and intbds.; sh., gy., mica. sandy, siderite, rooted in part; ss., gy., f.-c.gr., mica., calc. in part, x-bds.; marine fossils scattered; coal streaks and spars 19.54 - 29.60, 35.06 - 38.25 meters, thin coal lens at 76.78 meters.			

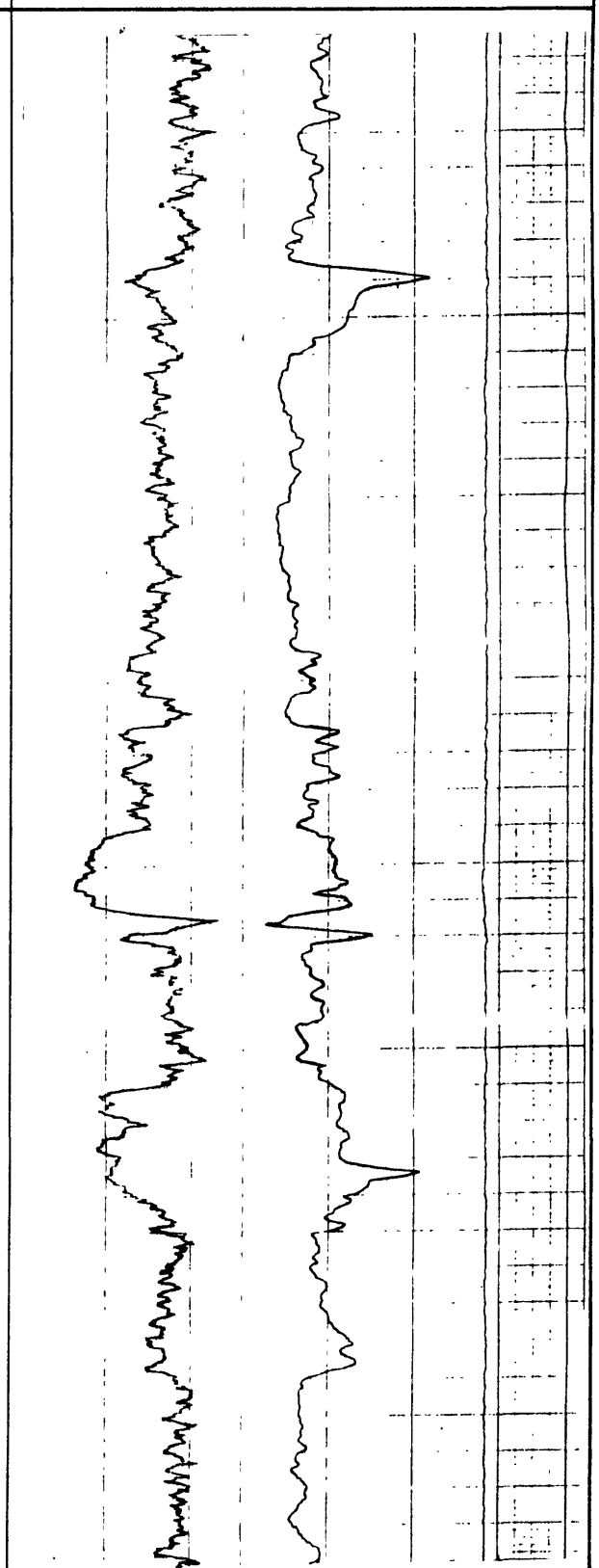


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
76.81 - 78.11	Fc., gy., sandy, waxy luster.			
78.11 - 80.88	Sh., gy., mica., sandy, siderite; coal lams., thin coal lens at 80.85 meters.			
80.88 - 81.37	Fc., gy., mica., sandy.			
81.37 - 83.54	Sh., gy., mica., sandy, ss. streaks, siderite.			
83.54 - 83.63	COAL, boney; Utley group.	60		
83.63 - 85.09	Fc., dk.gy., sandy, plant fragments, coal streaks.			
85.09 - 87.58	Sh., ss. beds; sh., gy., mica., v. sandy, siderite, plant fossils; ss., gy., f.gr., mica., sh. streaks.			
87.58 - 87.77	COAL, banded, little bone, 3 cm. bk. sh. parting; Utley group.			
87.77 - 88.48	Fc., gy., mica., v. sandy, plant fossils.			
88.48 - 97.30	Ss., sh. beds; ss., gy., f.-m.gr., mica., sh. streaks; sh., gy., mica., v. little sand, siderite; thin coal streaks 89.33 - 89.79 meters.	70		
97.30 - 97.65	COAL, banded, v. little sh.; Utley group.			
97.65 - 99.54	Fc., gy., waxy luster.	80		
		90		

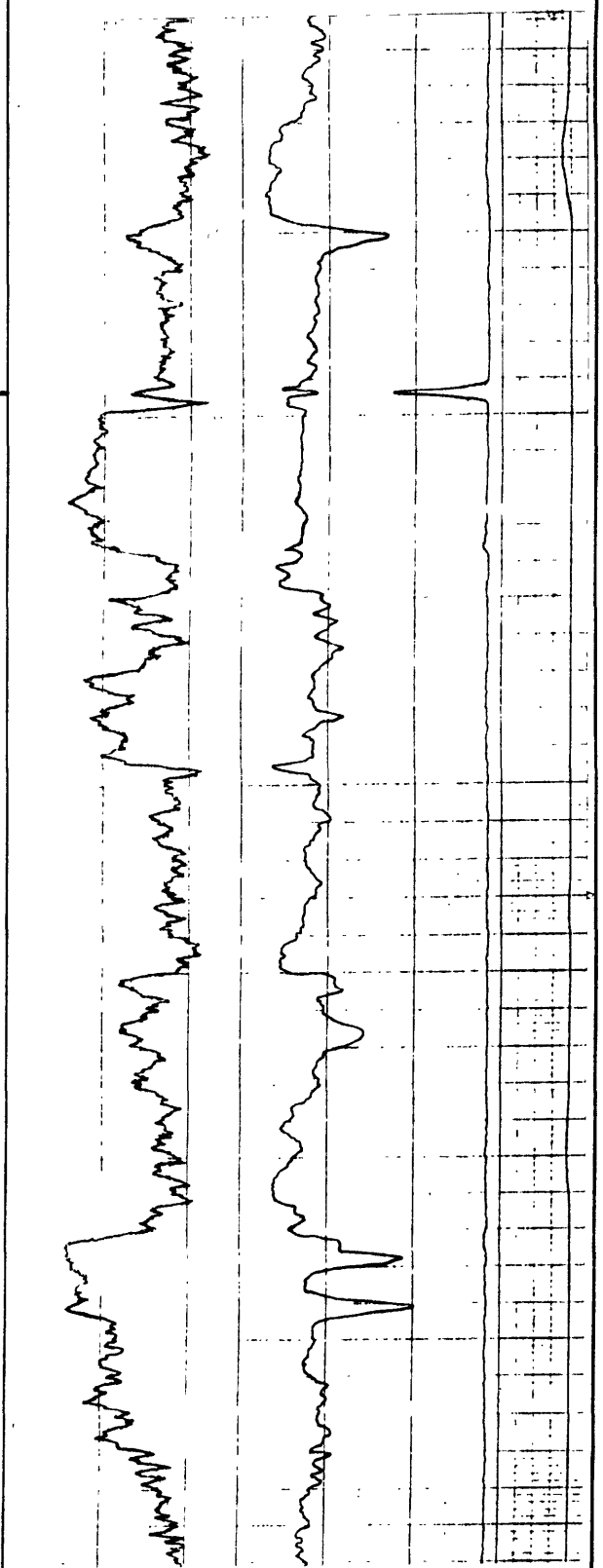


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
99.54 - 201.22	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, siderite, carb. in part; ss., lt.gy.-gy., v.f.-c.gr., mica., calc. in part, few siderite pebbles; calc.-filled structure scattered; burrowed in part; few marine fossils; coal lens 101.83 - 101.89; 107.99; coal streaks and spars 108.78 - 114.39, 118.23 - 118.99, 199.70 - 200.61 meters.	100 110 120 130 140 150 160					

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
201.22 - 201.89	Fc., dk.gy., waxy luster, coal streaks; bone and coal layered 201.60 - 201.65 meters; Gwin horizon.						
201.89 - 243.79	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, siderite, burrowed in part, calc.-filled structure, little rooting, few plant fossils; ss., gy., f.-m.gr., mica., sh. streaks, calc. in part; scattered marine fossils; coal streaks end spars 208.35 - 213.08 meters.	170					
		180					
		190					
		200					
		210					
		220					

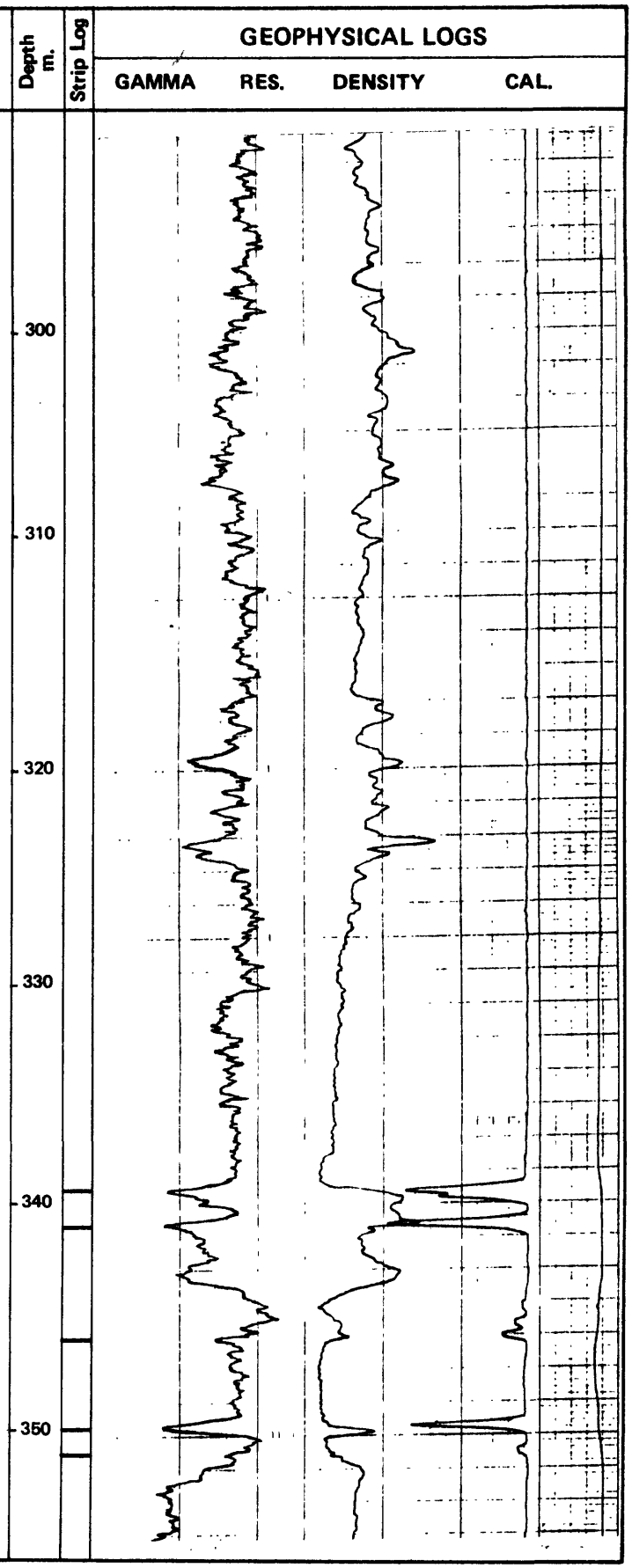


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
243.79 - 244.21	COAL, undifferentiated, thin bk. sh. parting; Cobb group.						
244.21 - 244.54	Fc., massive, waxy luster, v. sandy near base.						
244.54 - 339.88	Sh., ss. beds and intbds.; sh., gy., mica., sandy, siderite, little burrowing, v. few plant fossils; ss., gy., f.-c.gr., mica., calc. in part, sh. streeks; marine fossils scattered.						

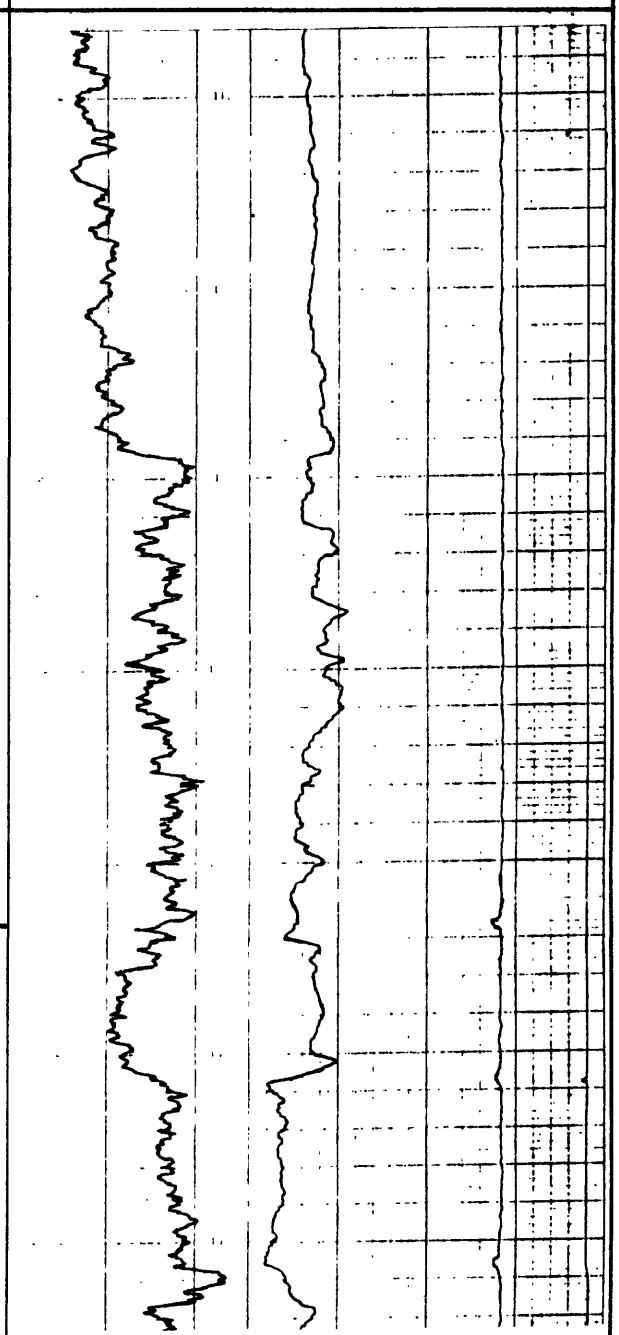


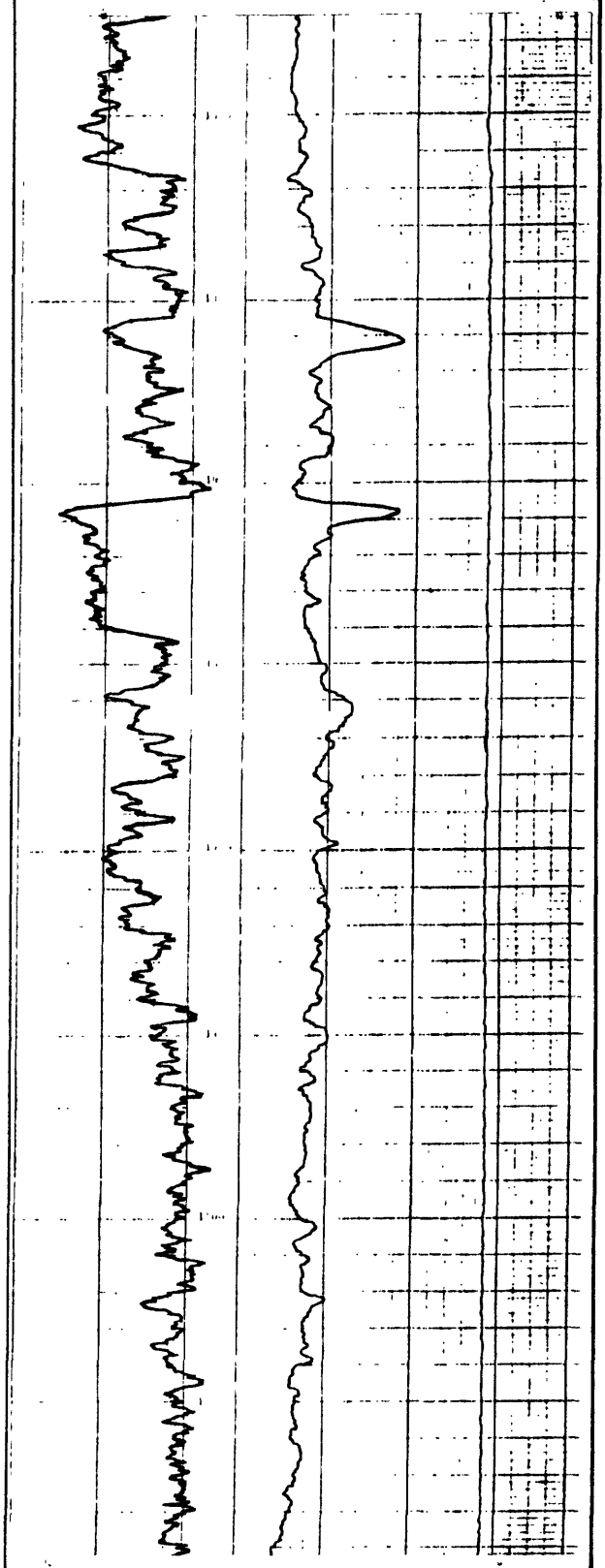
LITHOLOGY

339.88 - 340.72	COAL, banded, thin sh. layers in part; upper Pratt bed.
340.72 - 341.47	Fc., gy., sandy, thin coal streaks.
341.47 - 342.07	COAL, banded, few sh. streaks; lower Pratt bed.
342.07 - 342.68	Fc., gy., sandy, plant fossils.
342.68 - 345.43	Sh., gy., mica., sandy, siderite, plant fossils.
345.43 - 346.78	Fc., dk.gy., v. little mica or sand, waxy luster; banded coal lens 346.25 - 346.37 meters.
346.78 - 346.97	COAL, banded, few sh. lams.; Nickel Plate (Fire Clay) bed.
346.97 - 347.44	Fc., gy., v. little mica or sand, waxy luster.
347.44 - 350.78	Sh., gy., v. little mica, few ss. streeks.
350.78 - 351.16	COAL, undifferentiated, few calc. and sh. lems. at top; American bed.
351.16 - 351.22	Sh., dk.gy.-bk., v. little mica or sand.
351.22 - 351.95	Fc., gy., little mica or sand, waxy luster, siderite nodules.
351.95 - 352.20	COAL, sh. intbdd.; coal, undifferentiated; sh., dk.gy., little sand or mica.
352.20 - 352.59	Fc., gy., sandy, plant fossils, siderite staining and few nodules.
352.59 - 392.35	Ss., sh. beds end intbds.; ss., gy., f.-m.gr., mica., calc. in part, few x-bds.; sh., gy., mica., sandy, siderite, some burrowing; coal lams. and spars 357.93 - 371.62 meters.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
392.35 - 392.41	COAL, undifferentiated, few sh. layers, calc. lams. top and bottom.			GAMMA RES. DENSITY CAL.
392.41 - 392.99	Fc., gy., mica., sandy, abnt. plant rootlets.			
392.99 - 406.16	Sh., ss. intbdd.; sh., gy., mica., sandy, siderite, marine fossils near base; ss., gy., f.gr., mica., calc., sh. lams. scattered, calc.-filled structure.	360		
406.16 - 407.32	Fc., gy., v. little mica or sand, plant debris, waxy luster, siderite staining and nodules in lower portion.	370		
		380		
		390		
		400		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
407.32 - 499.48	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, siderite, scattered burrowing; ss., lt.gy.-gy., f.-m.gr., mica., sh. lams., x-bds., calc.; plant fossils and fragments scattered throughout; coal lams. and spars 412.99 - 413.17, 436.71 - 438.23, 490.55 - 491.16, 494.51 - 499.39 meters.	410 420 430 440 450 460 470					

LITHOLOGY

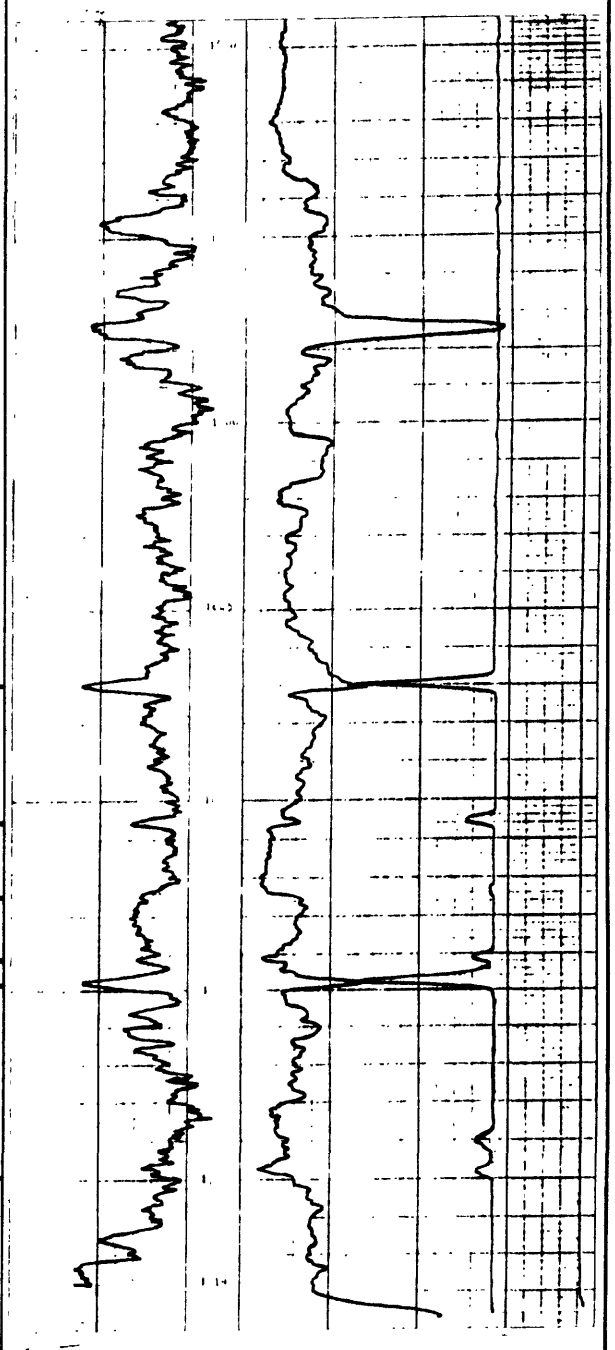
499.48 - 499.88	COAL, undifferentiated, few sh. layers; New Castle bed.
499.88 - 505.18	Sh., gy.-dk.gr., mica., sandy, siderite, plant fossils, coal lams. in upper part.
505.18 - 505.36	COAL, undifferentiated, few sh. lams.; Mary Lee bed.
505.36 - 507.86	Fc., slst. intbdd.; fc., gy., slightly mica., little sand; slst., gy., slightly mica., sandy; plant fossils throughout.
507.86 - 507.91	COAL, undifferentiated, sh. layers, calc.-filled fractures; Mary Lee group.
507.91 - 510.52	Sh., gy., mica., ss. lams., plant fossils.
510.52 - 510.62	COAL, undifferentiated, sh. lams., calc.-filled fractures; Mary Lee group.
510.62 - 511.37	Fc., gy., coal lams.
511.37 - 511.72	COAL, banded, few sh. streaks; Blue Creek bed.
511.72 - 512.44	Fc., gy., mica., sandy, rootlets.
512.44 - 518.14	Sh., gy., mica., v. sandy, siderite staining, coal lams. 517.99 - 518.14 meters.
518.14 - 518.54	Fc., gy., mica., sandy.
518.54 - 518.99	Sh., as above.
518.99 - 519.10	COAL, undifferentiated, some intbdd. sh.; Mary Lee group.
519.10 - 519.51	Fc., gy., mica., some sand.
519.51 - 524.97	Ss., sh. interbdd., ss., gy., f.gr., mica., calc. in part; sh., gy., mica., sandy, plant fossils scattered.
524.97	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 33

Geophysical Log Date: 12-9-80, County, State: Tuscaloosa, Alabama

Map: Lake Tuscaloosa North, 7½' quad. Location: NE¼ Sec. 36, T. 18 S, R. 10 W HPM

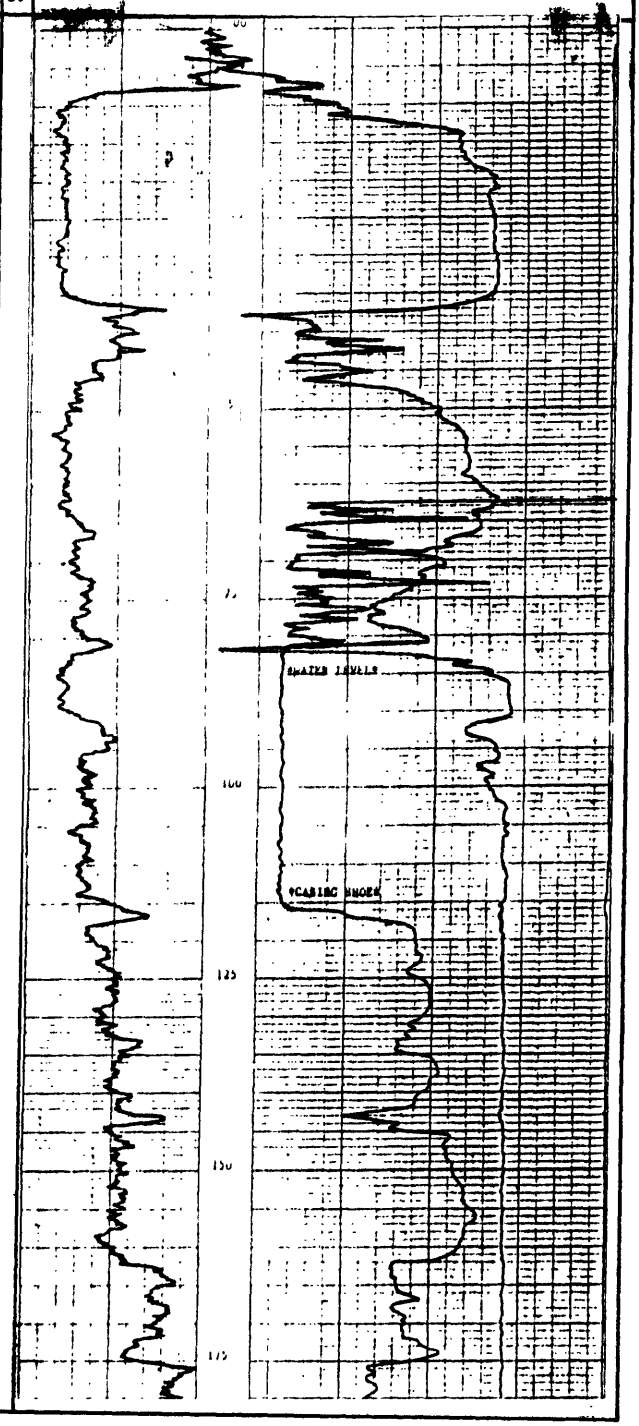
Surface Elev.: 160.4 m, Logged Depth: 121.8 m, Drilled Depth: 121.8 m, Core Int: 87.2 m,

LITHOLOGY	
0 - 34.60	Cased in unconsolidated material.
34.60 - 94.69	Sh., ss. beds and intbds.; sh., gy., sandy, mica., some siderite, scattered calc. lams., some calc.-filled structure; ss., gy., f.-m.gr., mica., calc. in part, x-bds., scattered marine fossils; scattered coal spars 34.6 - 49.45 meters.

Depth m.

Strip Log

GEOPHYSICAL LOGS



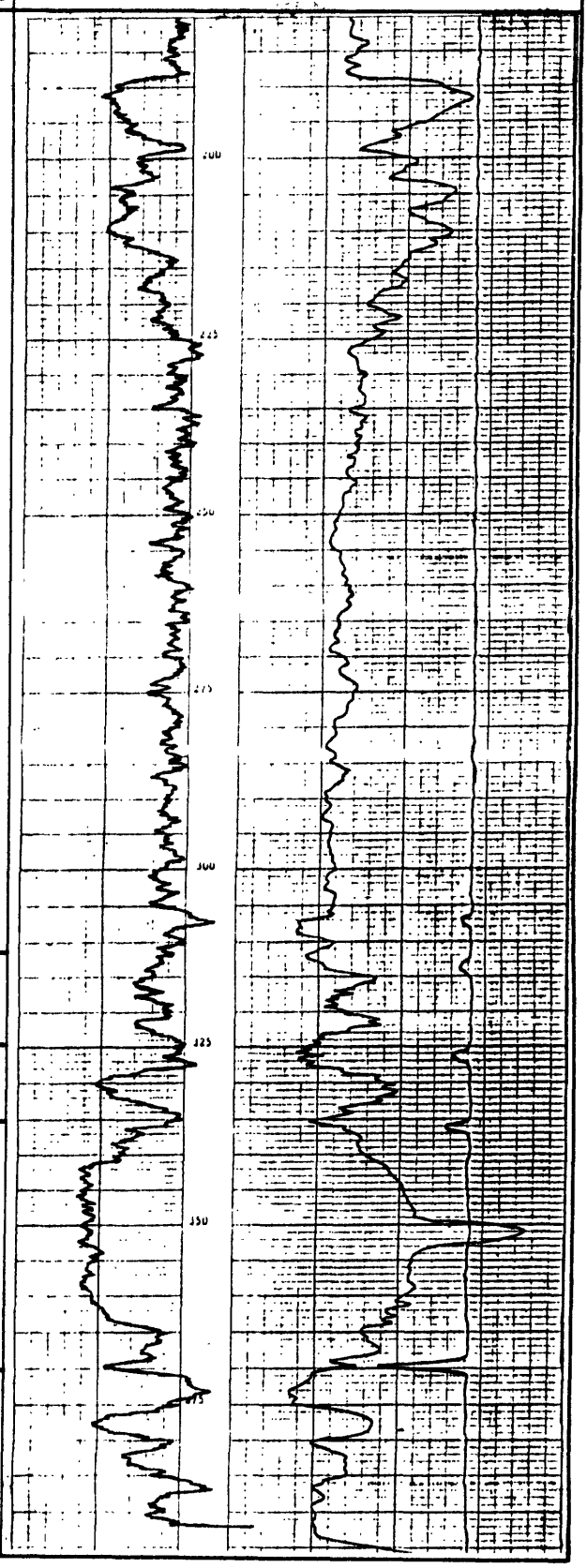
LITHOLOGY

94.69 - 94.79	COAL, banded, some sh. and calc. lams. at base; Utley group.
94.79 - 98.95	Sh., gy., sandy, mica., massive in part, scattered siderite.
98.95 - 99.05	COAL, banded; Utley group.
99.05 - 99.60	Fc., massive, little sand.
99.60 - 102.10	Sh., ss. intbds.; sh., gy., sandy, mica., some siderite; ss., gy., f.-m.gr., mica., massive.
102.10 - 102.26	COAL, banded; Utley group.
102.26 - 103.11	Fc., gy., v. sandy, mica., massive.
103.11 - 112.29	Ss., sh. intbds.; ss., gy., f.-c.gr., mica., calc. in part, massive, some siderite nodules and lams.; sh., dk.gy., mica., slightly sandy; some coal spars 106.08 - 110.79 meters.
112.29 - 112.59	COAL, banded, rare pyrite lams.; Utley group.
112.59 - 114.12	Fc., dk.gy., sandy, rooted, carb.
114.12 - 121.83	Sh., ss. beds and intbds.; sh., gy.-bk., mica., carb., sandy, some plant fossils, churned in part, some siderite; ss., f.-m.gr., mica.; intbdd. bk. sh. 115.44 - 115.60 and 117.22 - 119.97 meters; thin intbdd. bone and coal 117.47 - 117.70 meters.
121.83	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS



DRILL HOLE LOG

Hole #: 35

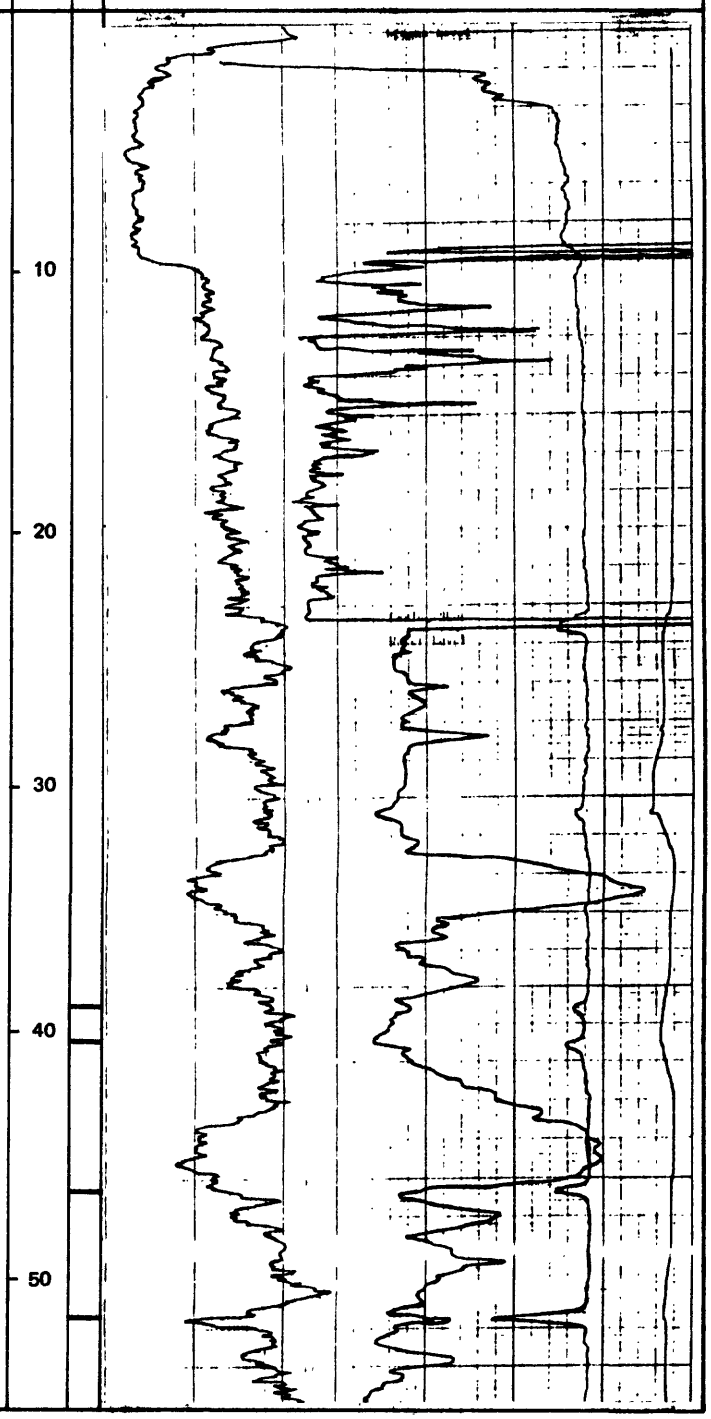
Geophysical Log Date: 12-15-80, County, State: Tuscaloosa, Alabama

Map: Lake Tuscaloosa North, 7½' quad Location: SW¼ Sec. 20, T. 18 S, R. 9 W HPM

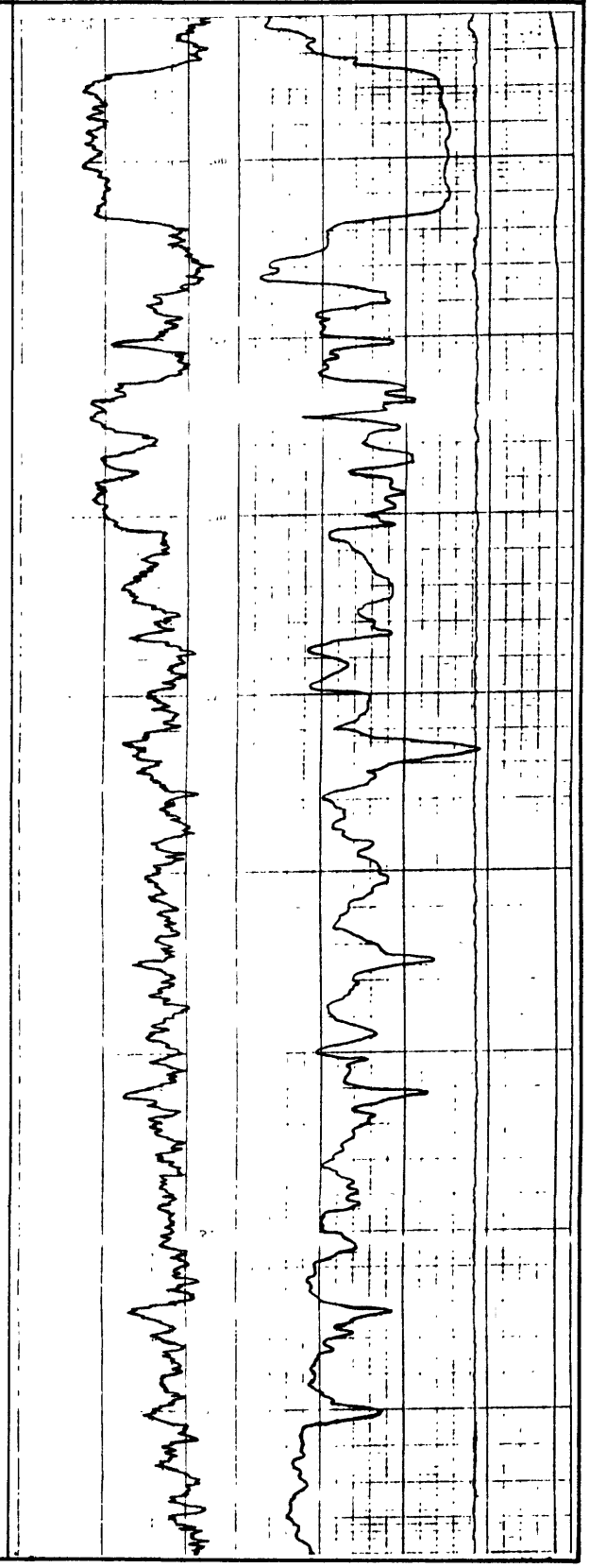
Surface Elev.: 166.2 m, Logged Depth: 302.8 m, Drilled Depth: 306.4 m, Core Int: 283.8 m,

LITHOLOGY

0 - 22.56	Cased in unconsolidated material.
22.56 - 40.12	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., siderite bands, ss. streaks and intbds.; ss., gy., f.gr., shale streaks and intbds., siderite pebbles, sh. chips.
40.12 - 40.23	COAL; Utley group.
40.23 - 41.58	Sh., dk.gy., calc.
41.58 - 41.65	COAL; Utley group.
41.65 - 42.16	Fc., gy., sandy, mica., abnt. plant fossils.
42.16 - 44.04	Sh., gy., sandy, ss. streaks, mica., siderite.
44.04 - 47.12	Ss., gy., f.gr., mica., shale streaks.
47.12 - 47.16	Fc., intbdd. sh.; sh., dk.gy., sandy.
47.16 - 47.35	COAL; Utley group.
47.35 - 47.71	Fc., gy., sandy, mica., plant fossils.
47.71 - 52.28	Sh., gy.-dk.gy., sandy, few ss. streaks, siderite bands, turbid zones, calc. lam. at 51.65 meters.
52.28 - 52.63	COAL; Utley group.
52.63 - 53.48	Fc., gy., sandy.
53.48 - 54.76	Sh., gy., mica., ss. streaks.
54.76 - 57.62	Fc., gy., coal streaks and bands, plant fossils.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
57.62 - 66.20	Ss., sh. beds; ss., gy., f.-m.gr., mica., sh. streaks; sh., gy., mica., ss. streaks, coal band 66.17 - 66.20 meters.			GAMMA RES. DENSITY CAL.
66.20 - 67.34	Fc., gy., plant fossils, coal band 67.33 meters.			
67.34 - 132.99	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part with ss. streaks and intbds., mudflows, burrowing, rare siderite; ss., gy., f.-m.gr., mica., sh. streaks and intbds., flows, slumps, calc. in part, some burrowing.	60		
		70		
		80		
		90		
		100		
		110		
		120		



LITHOLOGY

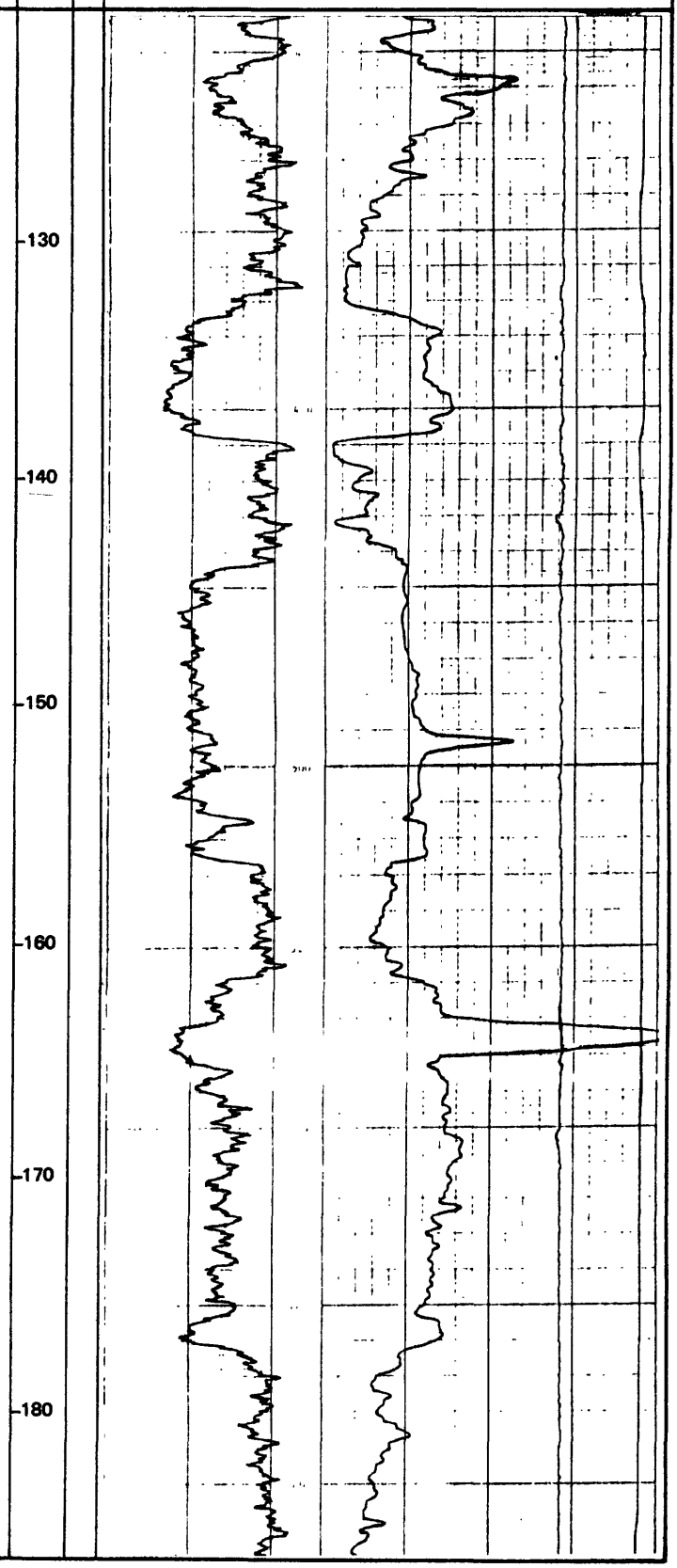
132.99 - 133.93	Fc., gy., v. sandy, mica., siderite.
133.93 - 139.24	Ss., gy., m.-c.gr., mica., sh. streaks, sandflow, calc. in part, few coal spars.
139.24 - 140.58	Fc., waxy, iron-stained, few plant fossils.
140.58 - 142.68	Sh., gy., sandy, few plant fossils.
142.68 - 142.79	Bone, coal streaks, calc. lams.; Gwin horizon.
142.79 - 142.96	Fc., gy., waxy, coal streaks.
142.96 - 143.03	Bone, coal streaks, calc. lams.
143.03 - 143.45	Fc., gy., some sand, waxy, siderite.
143.45 - 194.09	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., sh. streaks, mica., calc. in part, coal lams. and spars 165.55 - 167.99 meters; sh., gy., ss. streaks and intbds., mica., flows, turbid zones, burrowing, rare marine fossils, siderite.

Depth m.

Strip Log

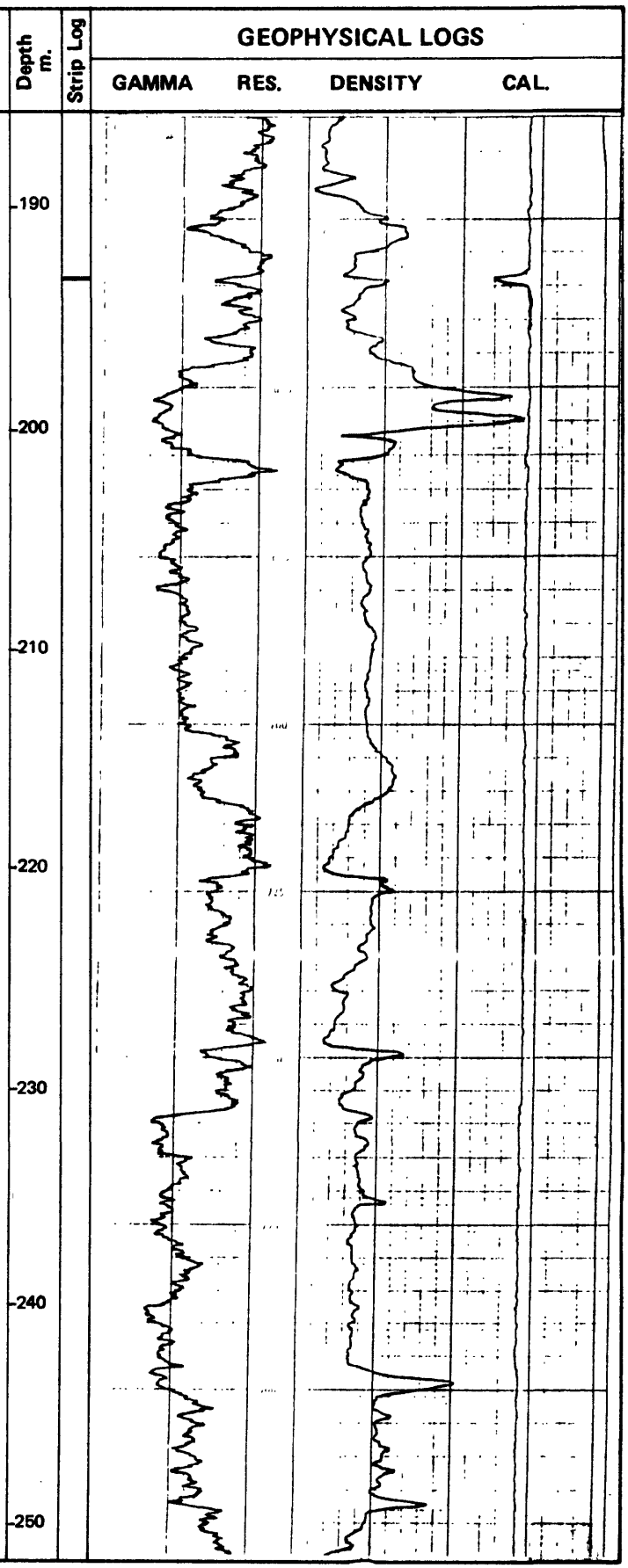
GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.

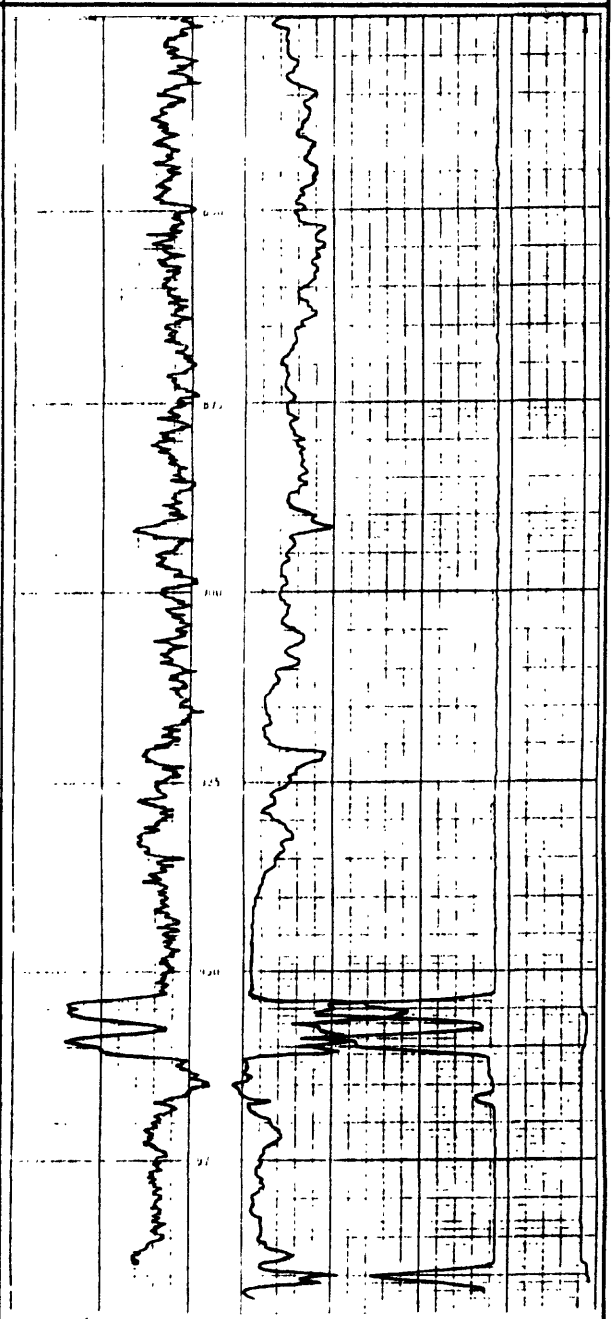


LITHOLOGY

194.09 - 194.39	COAL, intbdd. bone, calc. lams.; Cobb group.
194.39 - 196.02	Fc., gy., sandy, mica., plant fossils, siderite nodules.
196.02 - 196.46	Sh., gy., mica., ss. streaks.
196.46 - 197.29	Fc., gy., sandy, mica.
197.29 - 202.36	Ss., sh. streaks, sh. intbd. 197.29 - 197.87 meters; ss., gy., f.-c.gr., coal spars 201.52 - 202.36 meters.
202.36 - 202.46	Sh., bk., intbdd. bone end coal.
202.46 - 203.14	Fc., gy., waxy., sandy.
203.14 - 291.84	Ss., sh. beds end intbds.; ss., gy., f.-m.gr., mica., sh. streaks and intbds., siderite, occ. coal lams., burrowing; sh., gy.-dk.gy., sandy in part, ss. streaks and intbds., carb., mica., rare calc. lams., burrowing, slumped, siderite, coal lams., plant fossils.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
291.84 - 292.75	COAL, intbdd. bk. sh. and bone; Pratt bed.			
292.75 - 293.18	Fc., gy., sandy, mica., coal lams.			
293.18 - 293.72	COAL, intbdd. bk. sh. and bone, calc. lams.; Pratt bed.			
293.72 - 295.85	Fc., gy., shaly in part, coal lams.			
295.85 - 295.93	COAL, bone intbds.; Nickel Plate bed.			
295.93 - 296.48	Fc., gy., sandy.			
296.48 - 302.71	Sh., ss. intbds.; sh., gy., ss. streaks, mica., rare burrowing; ss., gy., f.gr., mica.			
302.71 - 303.32	COAL, bk. sh. intbdd., bone lams.; American bed.	260		
303.32 - 303.83	Fc., dk.gy., waxy, slightly mica. and sandy.			
303.83 - 303.98	COAL and bone, rare pyrite; American bed.			
303.98 - 304.54	Fc., gy., sandy, mica., coal lams.			
304.54 - 306.40	Ss., gy., m.-c.gr., mica., sh. streaks.			
306.40	Total depth.			
		270		
		280		
		290		
		300		



DRILL HOLE LOG

Hole #: 37

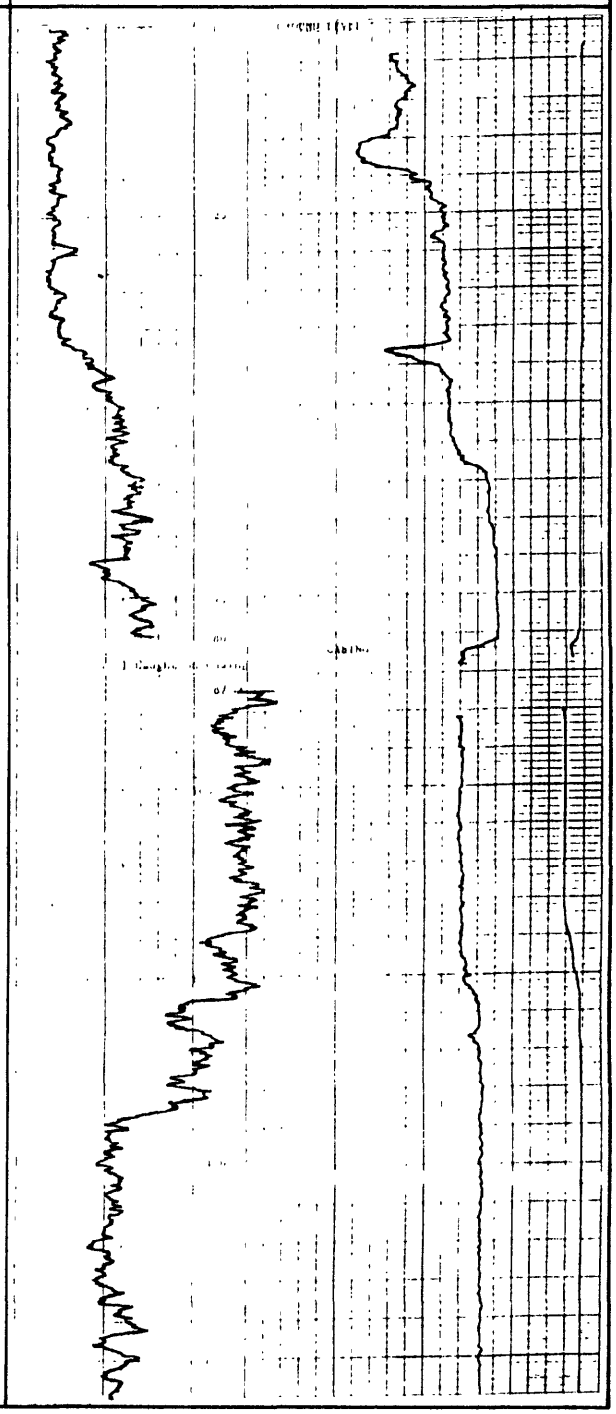
Geophysical Log Date: 2-6-81, County, State: Tuscaloosa, Alabama

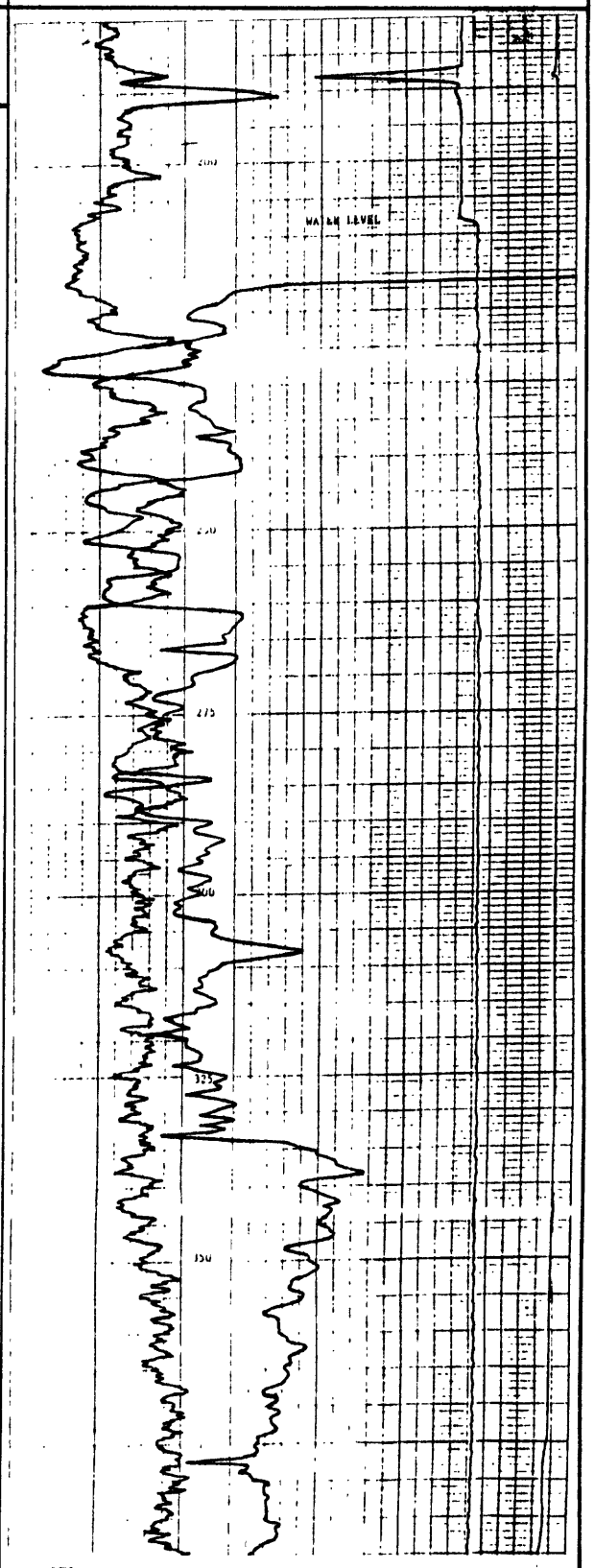
Map: Lake Tuscaloosa North, 7½' quad Location: SE¼ Sec. 18, T. 18 S, R. 9 W HPM

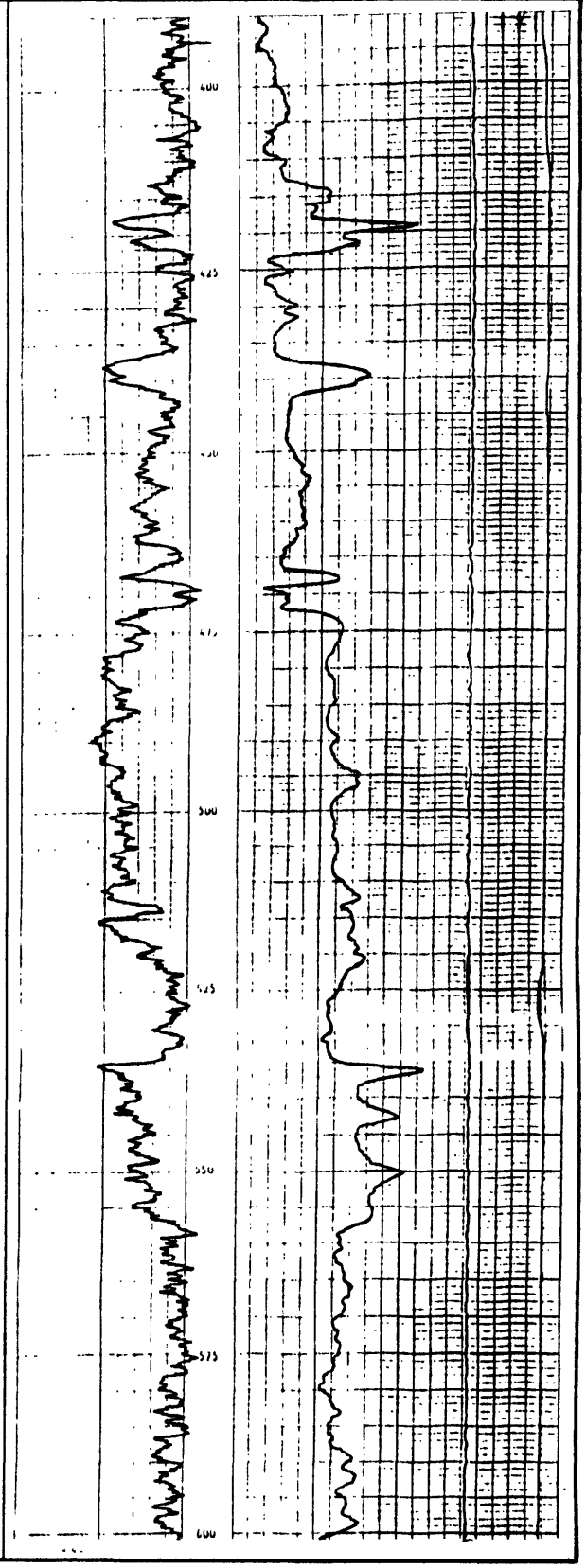
Surface Elev.: 166.2 m, Logged Depth: 471.0 m, Drilled Depth: 472.5 m, Core Int: 450.7 m,

LITHOLOGY		Depth m.	Strip Log
0 - 21.80	Cased in unconsolidated material.		
21.80 - 21.95	Ss., sh. intbds.; ss., gy., m.-c.gr., mica.; sh., gy., mica.		
21.95 - 39.15	Sh., gy., sandy with ss. streaks, calc., siderita, mudflow near top of interval.		
39.15 - 39.24	Bona, coal intbds., pyrite; Utley group.		
39.24 - 39.95	Fc., dk.gy., sandy, waxy in upper part.		
39.95 - 41.62	Sh., gy.-bk., ss. streaks and flow zona in upper part, coal streaks, plant fossils in lower part.		
41.62 - 41.98	Fc., gy., sandy, mica., siderite.		
41.98 - 44.16	Sh., gy., mica., ss. streaks, occ. sidarite.	10	
44.16 - 57.85	Ss., gy., f.-c.gr., mica., abnt. coal spers, some x-bdg.		
		20	
		30	
		40	
		50	

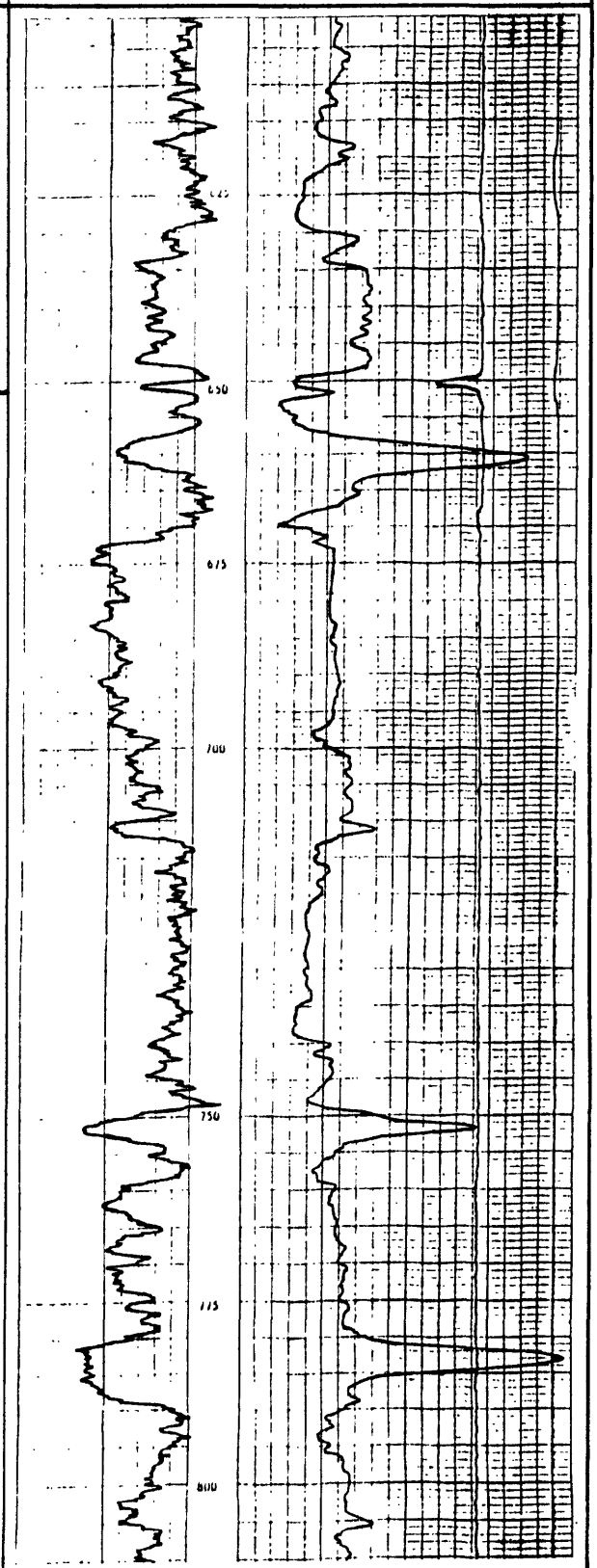
GEOPHYSICAL LOGS



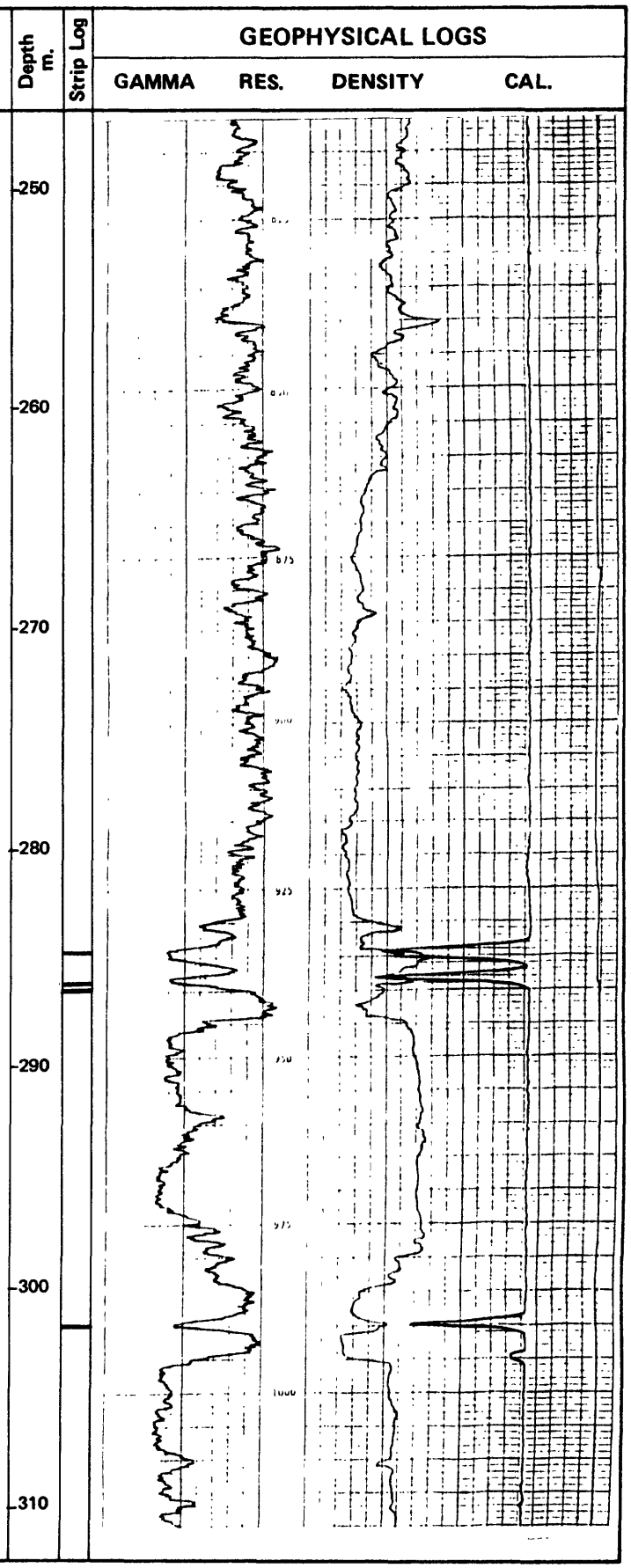
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
57.85 - 58.01	Sh., gy., little sand, mica., coal streaks near bottom.			
58.01 - 58.41	COAL, rare sh. streaks and pyrite; Utley group.			
58.41 - 59.05	Fc., gy., little sand, waxy.			
59.05 - 143.90	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica., calc. in part, sh. streaks and intbds., rare coal streaks, occ. burrowing; sh., gy.-dk.gy., sandy in part with ss. streaks and intbds., abnt. marine fossils 134.45 meters, plant fossils, siderite, occ. burrowing.	60 70 80 90 100 110		

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
143.90 - 144.42	Fc., dk.gy., sandy, mica., coal streaks, calc. lams.						
144.42 - 199.73	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part with ss. streaks and intbds., siderite, plant fossils, burrowing, slumping; ss., gy., f.-c.gr., mica., calc. in part, sh. pebbles, streaks, and intbds., siderite, occ. burrowing, rare coal spars.	120 130 140 150 160 170 180					

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
199.73 - 199.97	COAL, thin fc. parting; Cobb bed.			GAMMA RES. DENSITY CAL.
199.97 - 201.37	Fc., hard, sandy, some siderite.			
201.37 - 203.11	Ss., gy., f.gr., mica., sh. streaks, calc.			
203.11 - 204.91	Sh., gy., sandy in part with ss. streaks, mica., some siderite, rare plant fossils, coal band at bottom.			
204.91 - 205.52	Fc., hard, little sand, coal streaks.			
205.52 - 286.13	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., sh. streaks and intbds., coal spars in upper part, siderite, calc. in part, burrowing, occ. slumping; sh., gy., sandy in part with ss. streaks and intbds., occ. plant and marine fossils, abnt. burrowing, siderite pebbles and bands, calc. in part.	190 200 210 220 230 240		

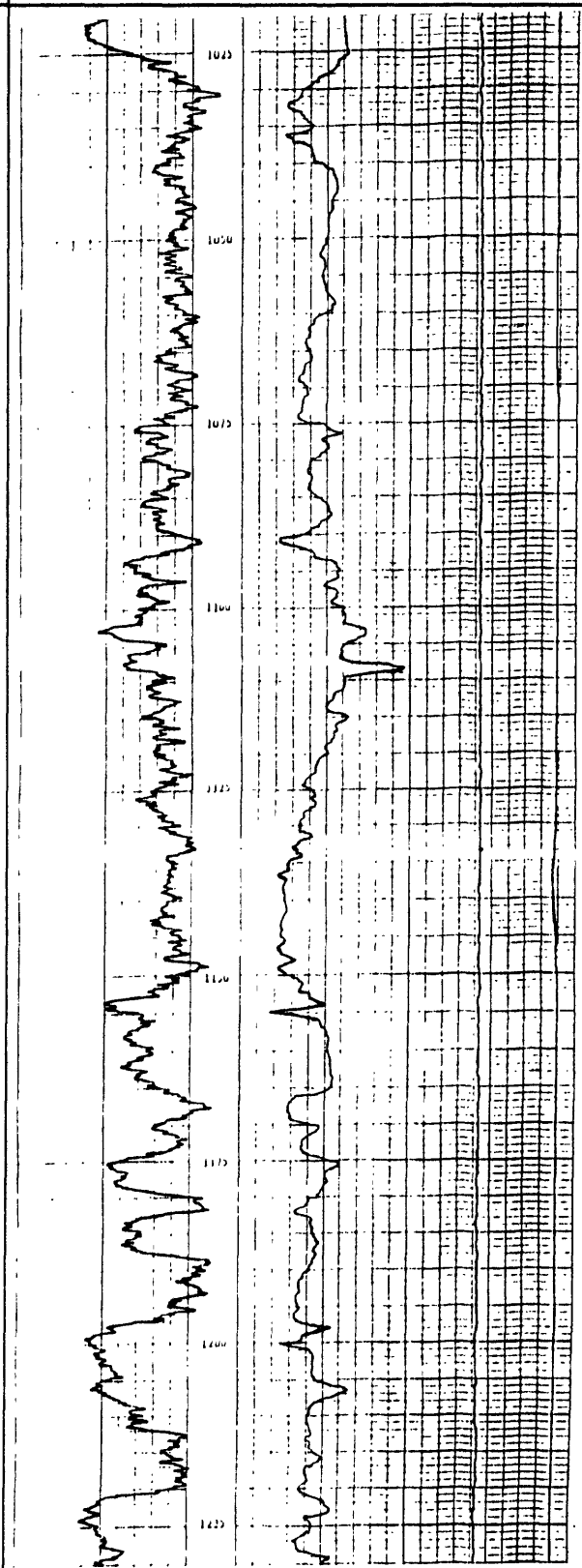


LITHOLOGY	
286.13 - 286.58	COAL, sh. and fc. intbds., calc. lam.; Pratt bed.
286.58 - 287.03	Fc., hard, sandy, coal streaks.
287.03 - 287.41	COAL; Pratt bed.
287.41 - 287.50	Sh., bk., few coal streaks.
287.50 - 287.62	COAL, sh. parting, scattered pyrite, calc.; Pratt bed.
287.62 - 288.60	Fc., hard, sandy, waxy, mica.
288.60 - 289.02	Sh., gy., sandy, mica.
289.02 - 301.31	Ss., gy., f.-m.gr., sh. streaks and intbds., coal streaks, calc. in part, plant fossils, siderite pebbles.
301.31 - 302.87	Sh., gy., mica., ss. streaks, plant fossils.
302.87 - 303.34	COAL, sh. intbds.; American bed.
303.34 - 304.45	Fc., hard, waxy, little sand, coal bands near bottom.
304.45 - 333.44	Sh., ss. beds and intbds.; sh., gy., sandy in part, ss. streaks and intbds., mica., scattered plant and marine fossils, coal spers, siderite, burrowing; ss., gy., m.-c. gr., sh. streaks and intbds., siderite, calc. in part.

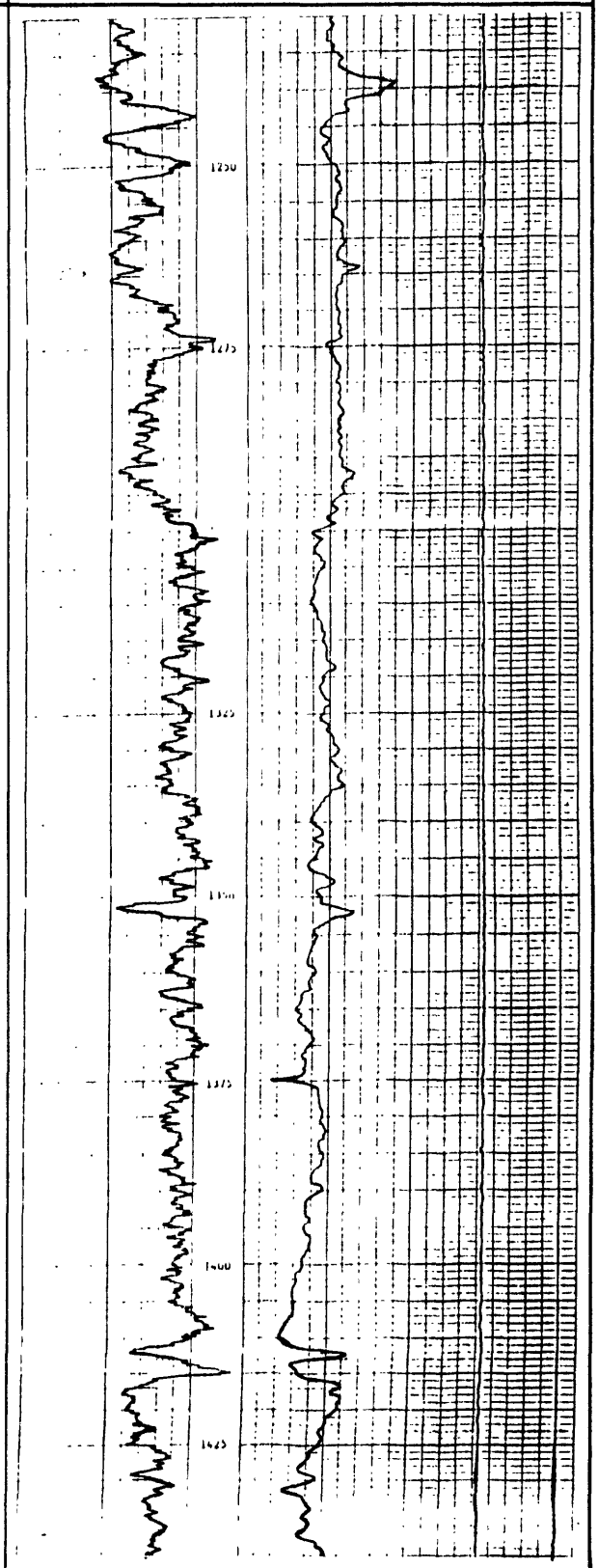


LITHOLOGY	
333.44 - 334.39	Fc., gy., sandy, waxy, coal band, plant fossils.
334.39 - 348.48	Ss., sh. beds and intbds.; ss., gy., f.-m.gr.; sh., gy., sandy, few plant fossils, rare mud flows, some marine fossils 341.77 - 348.48 meters.
348.48 - 351.31	Sh., gy., sandy in part, marine fossils 349.69 - 350.91 meters, burrowed 350.91 - 351.1 meters.
351.31 - 351.83	Fc., gy.; 3 cm. coal band.
351.83 - 413.48	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., some calc.; sh., gy., mica., some siderite, burrowing, rare fossil plants, few sand flows.

Depth m. | Strip Log | GEOPHYSICAL LOGS



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
413.48 - 432.84	Sh., gy., mica., sandy, abnt. siderite bands; occ. slumping; occ. rooting.			
432.84 - 440.99	Ss., sh. beds and intbds.; ss., gy., f.gr., occ. calc.; sh., gy., mica.; occ. sand flows; scattered burrowing and coal spars.			



LITHOLOGY

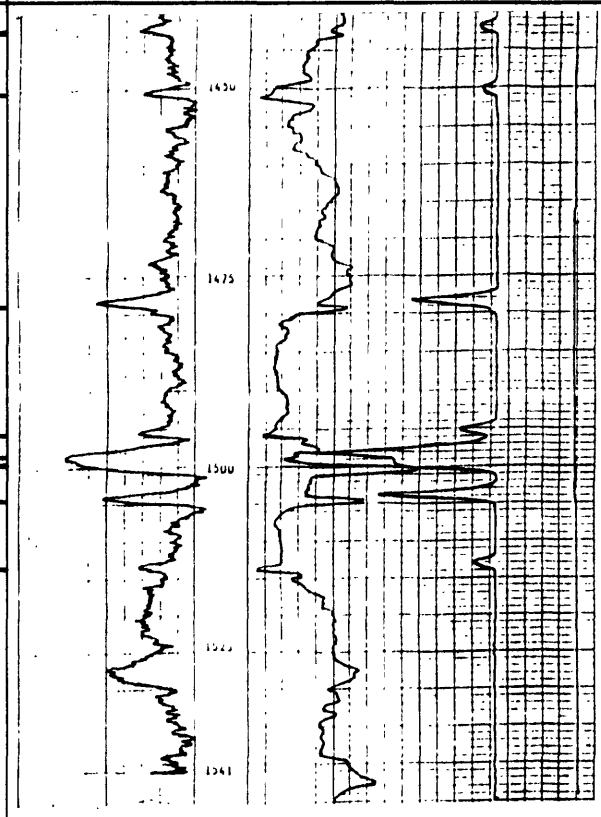
440.99 - 441.14	COAL, hard, bright; Mary Lee group.
441.14 - 441.37	Fc., hard, waxy.
441.37 - 443.49	Sh., gy., sandy in part, few fossil plants.
443.49 - 443.60	COAL, hard, bright.
443.60 - 451.84	Sh., gy., mica., slightly sandy, abnt. plant fossils, some ss. streaks.
451.84 - 452.15	COAL, hard, bright; New Castle bed.
452.15 - 456.98	Sh., gy., some mica and sand, some ss. streaks, abnt. plant fossils, few coal bands.
456.98 - 457.21	COAL, hard, bright; Mary Lee bed.
457.21 - 457.56	Fc., hard.
457.56 - 457.68	COAL, intbdd. sh.
457.68 - 457.82	Bone, streaked with coal.
457.82 - 458.70	COAL, few sh. layers; Mary Lee bed.
458.70 - 459.50	Fc., intbdd. gy. sh.
459.50 - 459.85	COAL, occ. bone layers; Blue Creek bed.
459.85 - 460.67	Fc., gy., abnt. fossil plants.
460.67 - 462.50	Sh., gy., abnt. fossil plants.
462.50 - 462.68	COAL, some sh. and bone layers; Jagger bed.
462.68 - 463.11	Fc., gy., abnt. fossil plants.
463.11 - 472.50	Ss., sh. beds and intbds.; ss., gy., f.gr.; sh., gy., mica., sandy in part, some burrowing, few sand flows, scattered calc. ss.
472.50	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 38

Geophysical Log Date: 4-10-81, County, State: Tuscaloosa, Alabama

Map: Lake Tuscaloosa North, 7½' quad, Location: NE¼ Sec. 7, T. 18 S, R. 9 W HPM

Surface Elev.: 141.8 m, Logged Depth: 265.4 m, Drilled Depth: 267.4 m, Core Int: 256.2 m,

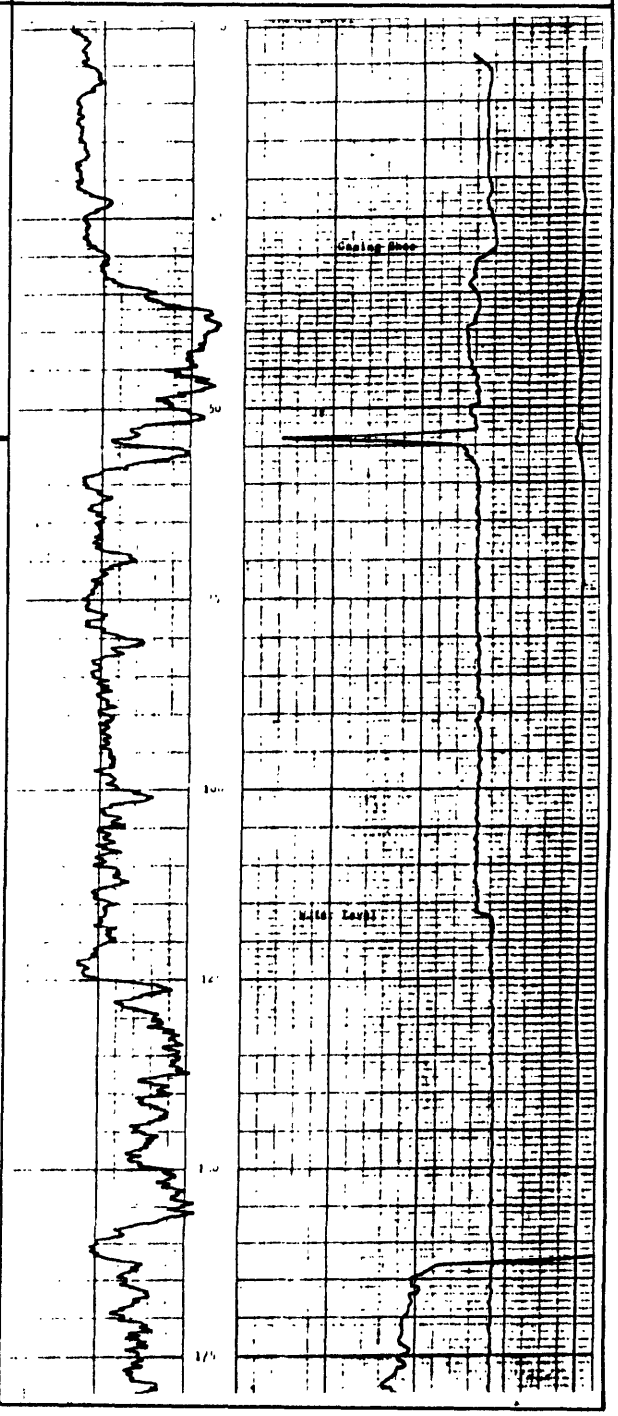
LITHOLOGY

0 - 11.19	Cased in unconsolidated material.
11.19 - 16.31	Ss., sh. intbdd.; ss., gy., f.-m.gr., mica.; sh., sandy, massive, mica.; scattered siderite, few coal spars.
16.31 - 16.65	COAL, banded, few v.thin pyrite lams. et top; Utley group.
16.65 - 17.07	Fc., sandy, massive, waxy in part, fossil plants.
17.07 - 54.88	Sh., ss. beds and intbds.; sh., gy.-v.dk.gy., sandy, silty in pert, mica.; ss., gy., f.-c.gr., x-bds., mica.; carb. in part, some siderite, little burrowing and rooting, some flow zones, scattered plant fossils, little pyrite, few coal lams.

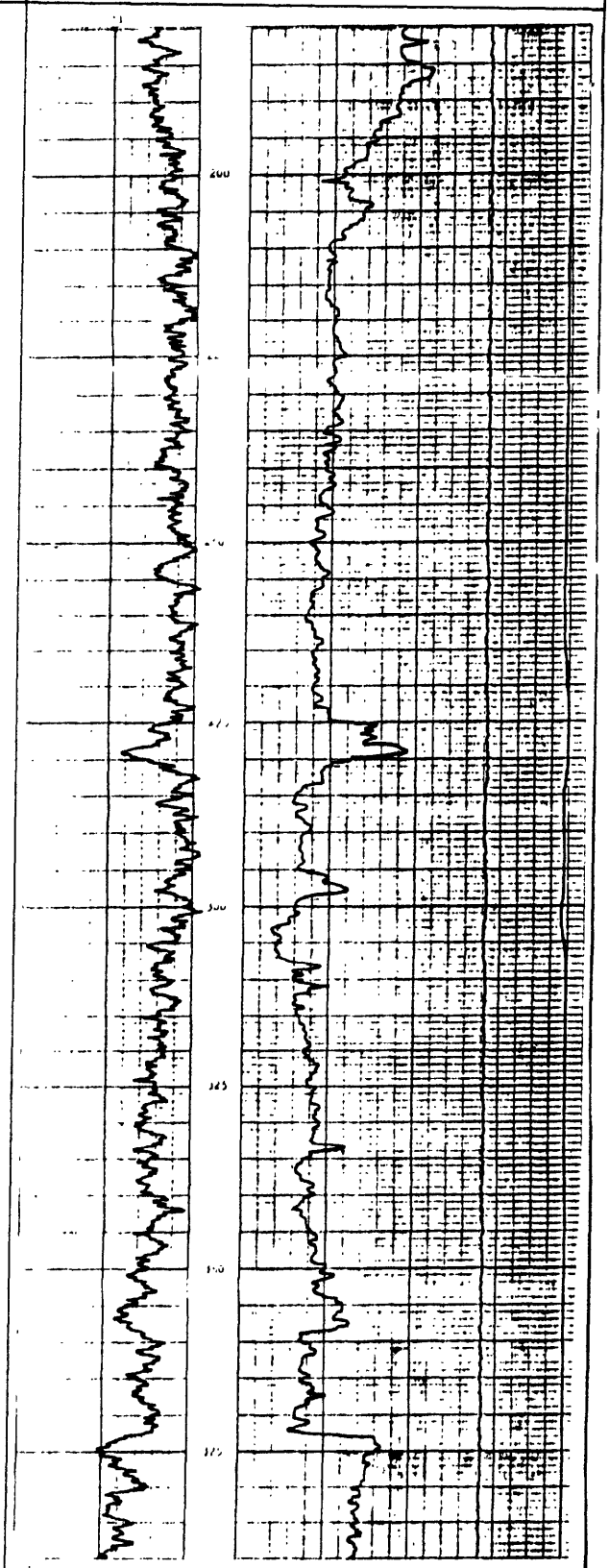
Depth m.

Strip Log

GEOPHYSICAL LOGS

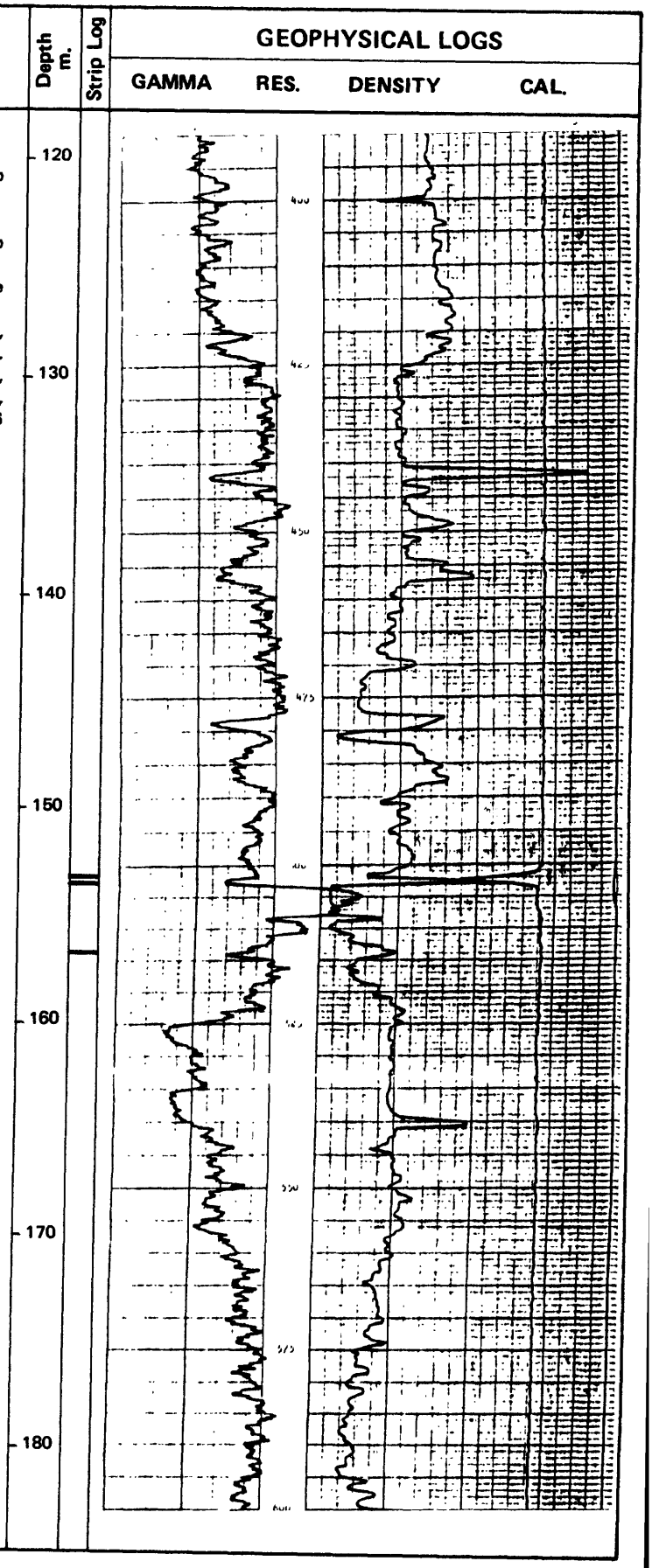


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
54.88 - 153.26	Sh., ss. beds and intbds.; sh., gy.-v.dk.gy., sandy, silty in part, mica.; ss., gy., f.-c.gr., x-bds., mica.; carb. in part, some siderite, little burrowing and rooting, some flow zones, scattered plant fossils, little pyrite, few coal lams.	60 70 80 90 100 110		GAMMA RES. DENSITY CAL.



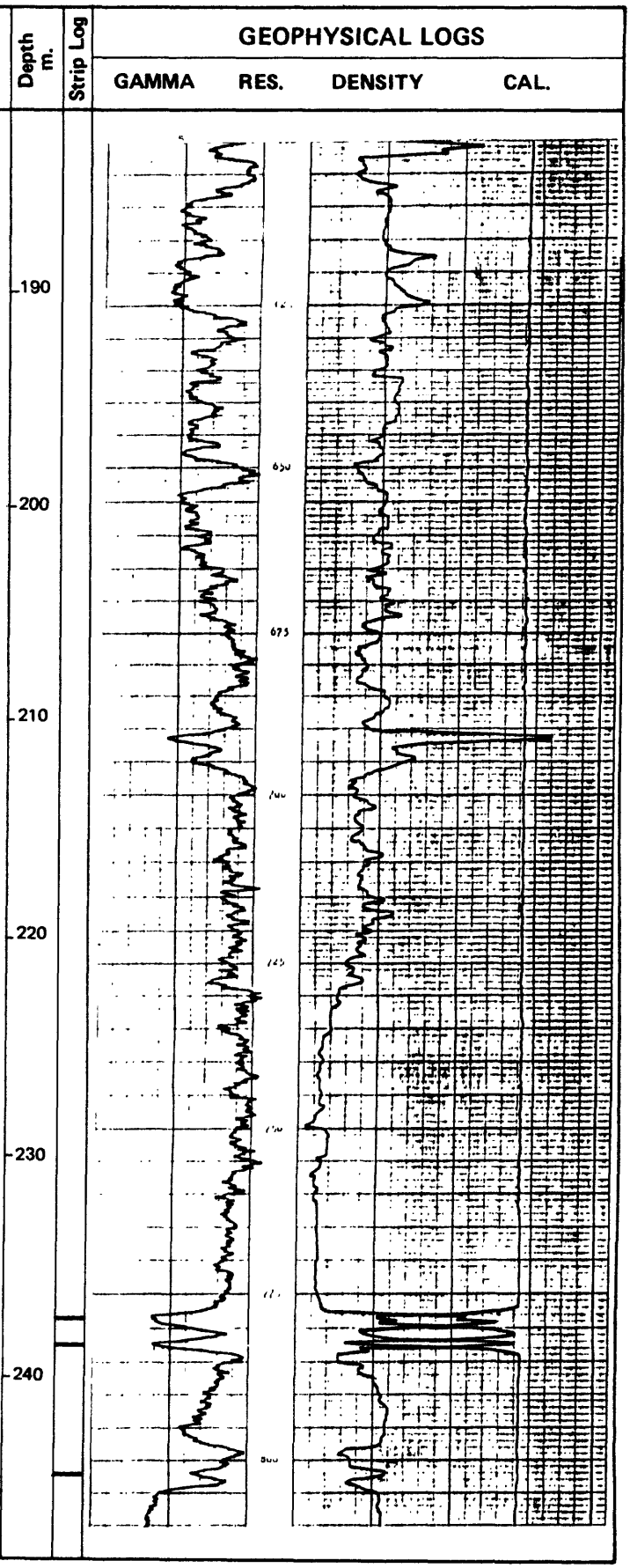
LITHOLOGY

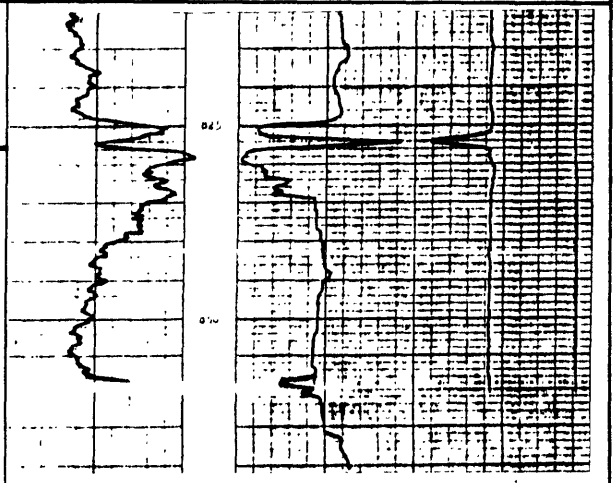
153.26 - 153.30	COAL, banded, some intbdd. bone; Cobb group.
153.30 - 153.52	Sh., bk., carb., abnt. plant fossils, coal spars and lams.
153.52 - 153.89	COAL, banded, some intbdd. bone, little pyrite; Cobb group.
153.89 - 156.66	Fc., gy., waxy in part, few thin coal lams. and spars.
156.66 - 156.71	COAL, banded, thin intbdd. bone and pyrite; Cobb group.
156.71 - 159.14	Fc., sandy, massive, rooted, abnt. plant fossils, little intbdd. bone and coal.
159.14 - 239.21	Sh., ss. beds and intbds.; sh., gy.-v.dk.gy., sandy in part, mica.; ss., v.f.-c.gr., massive in part, mica., x-bds., calc. in part; carb. in part, burrowed in part, occ. rooting, some flow structure, some siderite lams. and nodules, scattered plant fossils; thin coal lams. 193.87 - 197.56 meters.



LITHOLOGY

239.21 - 239.95	COAL, banded, little intbdd. bone 239.40 - 239.48, gy. sh. parting 239.76 - 239.80; Prett bed.
239.96 - 240.38	Fc., sandy, rooted, abnt. plant fossils.
240.38 - 240.90	COAL, banded, bone intbd. 240.73 - 240.75, intbdd. bone 240.85 - 240.90; Pratt bed.
240.90 - 241.49	Fc., sandy, massive, rooted.
241.49 - 245.37	Ss., gy.-dk.gy., f.-m.gr., little siderite, few coal spars.
245.37 - 245.58	Sh., gy.-bk., few coal spars.
245.58 - 245.61	COAL, banded.
245.61 - 245.67	Fc., dk.gy.-bk., waxy luster, abnt. plant fossils.
245.67 - 254.05	Ss., sh. beds; ss., gy., f.-c.gr.; sh., gy.-dk.gy., sandy; massive in part, some siderite nodules, occ. plant fossils, abnt. coal lams. and spars.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
254.05 - 254.42	COAL, banded; American bed.			
254.42 - 255.55	Fc., waxy luster, rooted, intbdd. bk. sh.			
255.55 - 267.38	Ss., sh. beds; ss., f.-c.gr.; sh., gy.-dk.gy., sandy; scattered thin coal lams.	250		
267.38	Total depth.	260		
		270		

DRILL HOLE LOG

Hole #: 40

Geophysical Log Date: 4-9-81, County, State: Tuscaloosa, Alabama

Map: Berry SE, 7½' quad. Location: NW¼ Sec. 32, T. 17 S, R. 9 W HPM

Surface Elev.: 172 m, Logged Depth: 480.8 m, Drilled Depth: 515.0 m, Core Int: 493.7 m,

LITHOLOGY

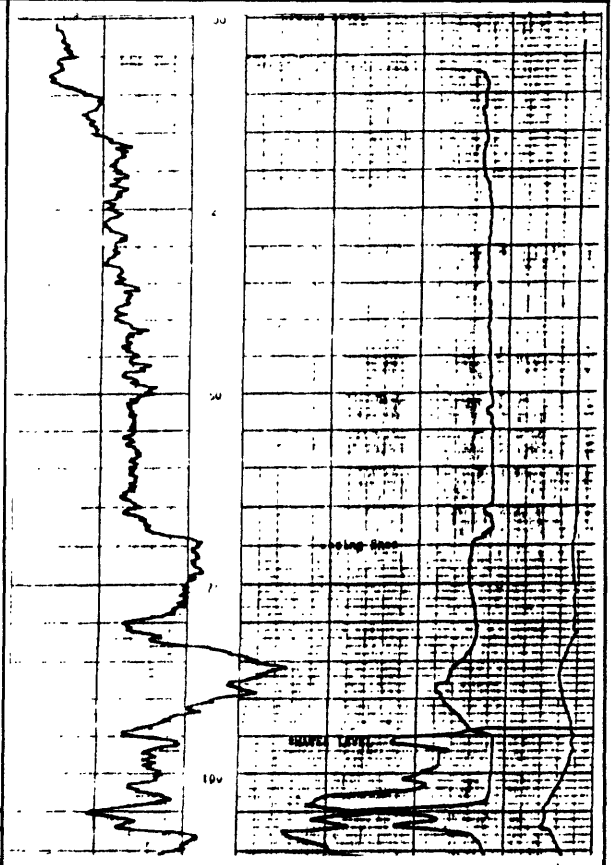
0 - 21.28	Cased in unconsolidated material.
21.28 - 31.74	Sh., ss. intbds.; sh., gy., massive, sandy, mica.; ss., gy., f.gr., massive, mica., calc.; some flow structure, few plant fossils, little siderite.
31.74 - 32.24	Sh., bk.
32.24 - 32.55	COAL, undifferentiated; Utley group.
32.55 - 32.74	Sh., bk., little intbdd. fc., few thin coal streaks.
32.74 - 32.89	COAL, undifferentiated; Utley group.
32.89 - 33.84	Fc., gy., sandy, massive.

Depth m.

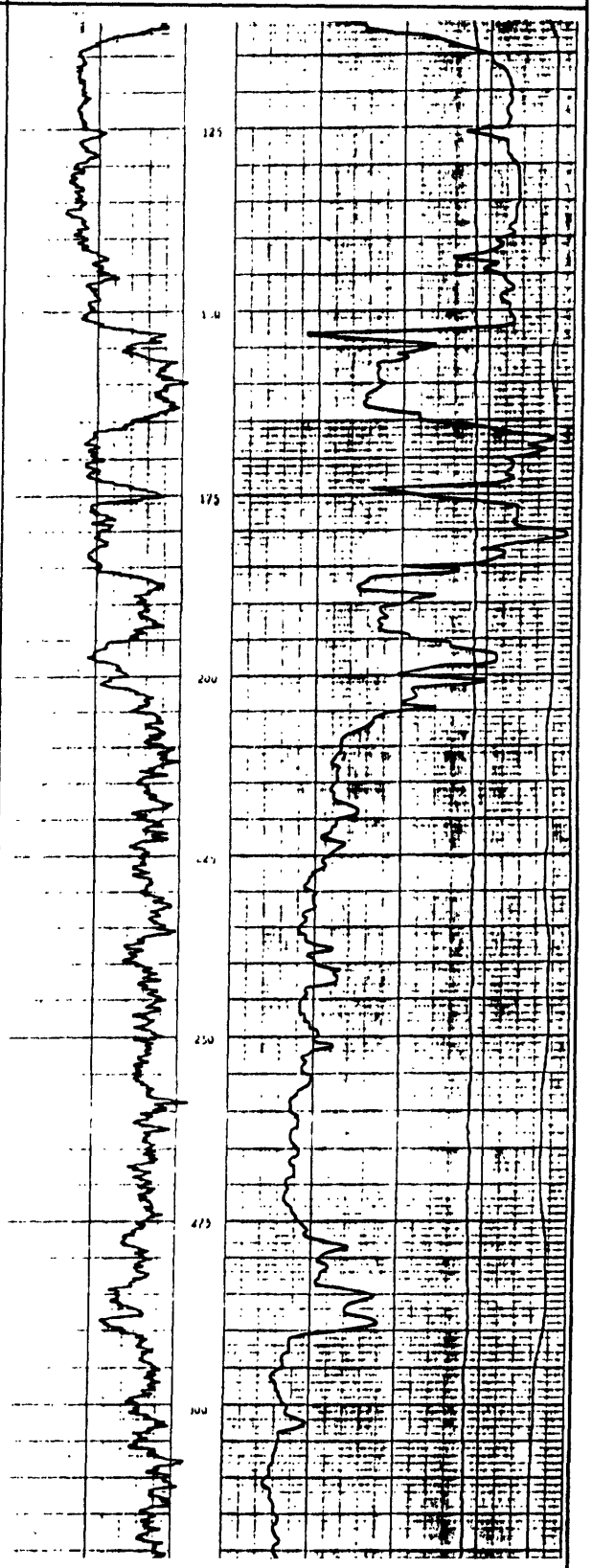
Strip Log

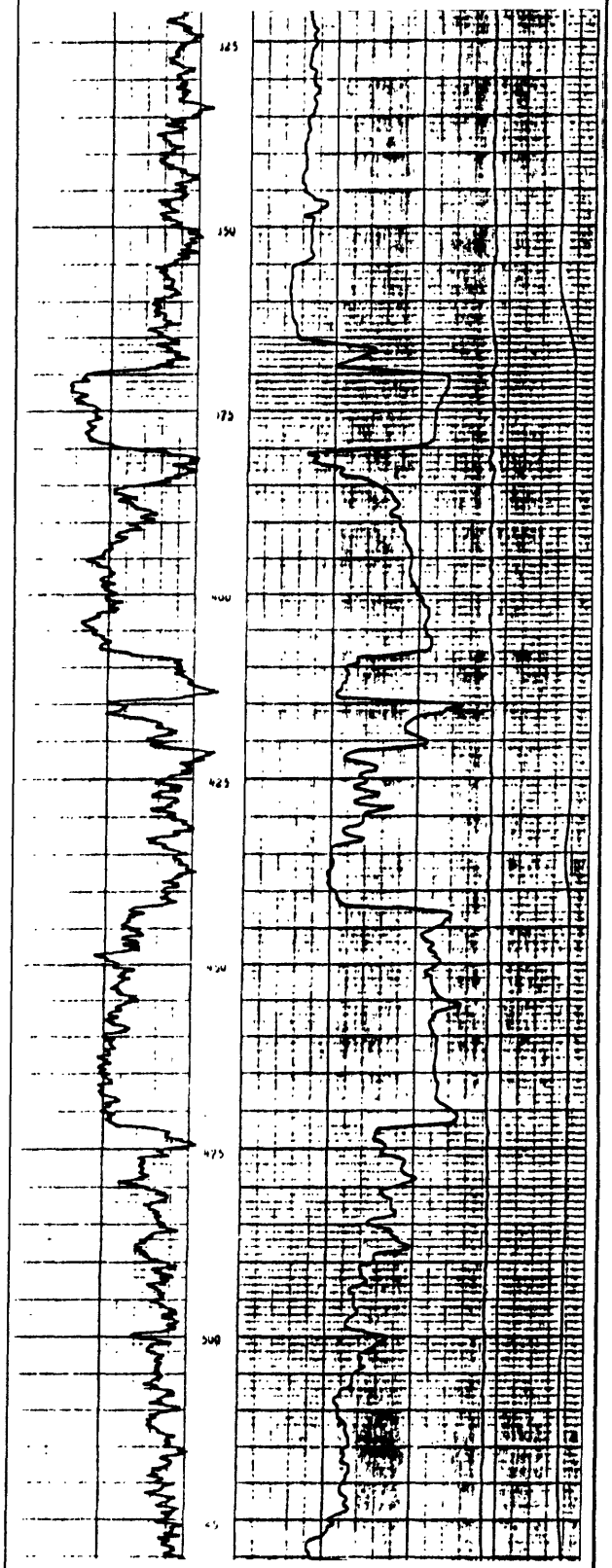
GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.

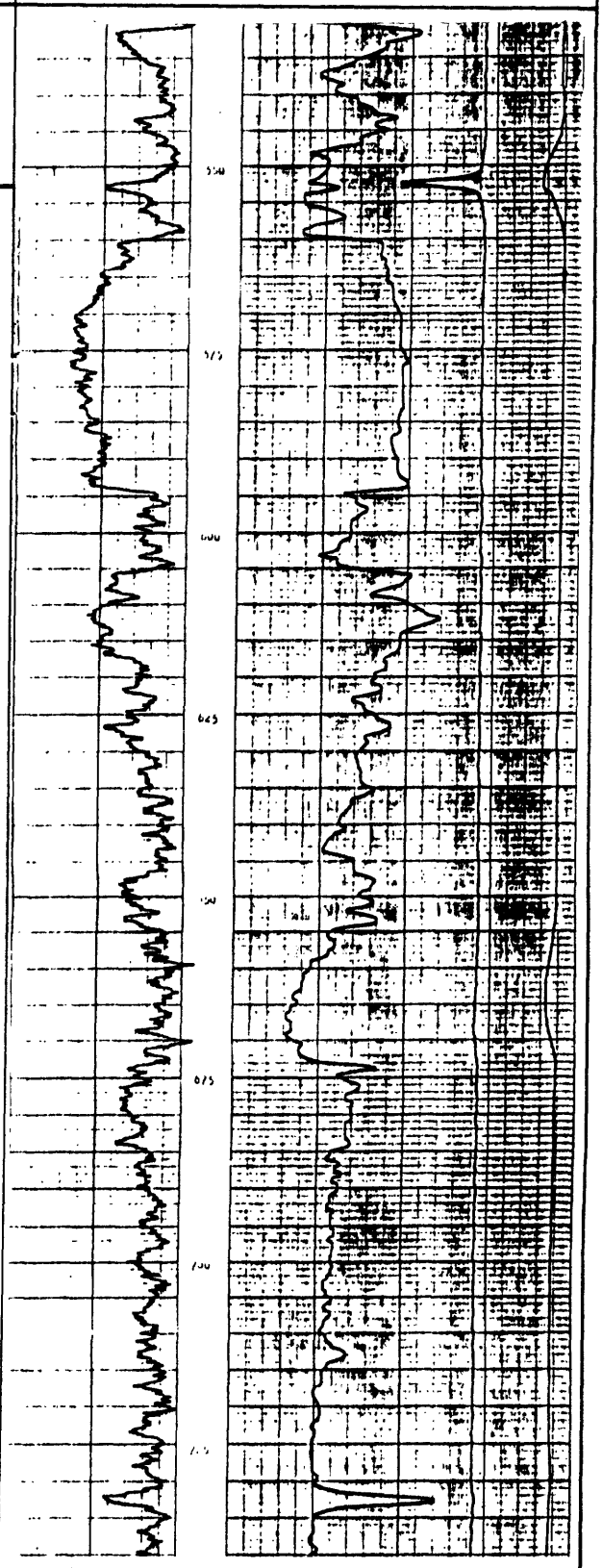


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
33.84 - 116.16	Sh., ss. beds and intbds.; sh., dk.gy., sandy in part with ss. streaks, mica., siderite, occ. plant and marine fossils, calc. in part, some flow zones.			GAMMA RES. DENSITY CAL.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
116.16 - 117.01	Fc., gy., slightly sandv, waxy, rare coal streaks; Gwin horizon.			
117.01 - 168.57	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part with ss. streaks, scattered burrowing, siderite; ss., gy., f.-c.gr., sh. streaks and intbds., mica., calc. in part, rare coal streaks, rare marine fossils, occ. burrowing.	100 110 120 130 140 150 160		

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
168.57 - 168.97	COAL, thin sh. parting, some bone; Cobb bed.			GAMMA RES. DENSITY CAL.
168.97 - 169.73	Fc., gy., v. sandy, siderite.			
169.73 - 257.57	Sh., ss. beds end intbds.; sh., gy.-dk.gy., sandy in part, ss. streaks, mica., siderite, some burrowing, calc. in part, scattered marine fossils; ss., gy., f.-m.gr., with sh. streaks and intbds., mica., coal streeks and spars in upper part, siderite, scattered flow zones, occ. calc., rare burrowing.	170 180 190 200 210 220		



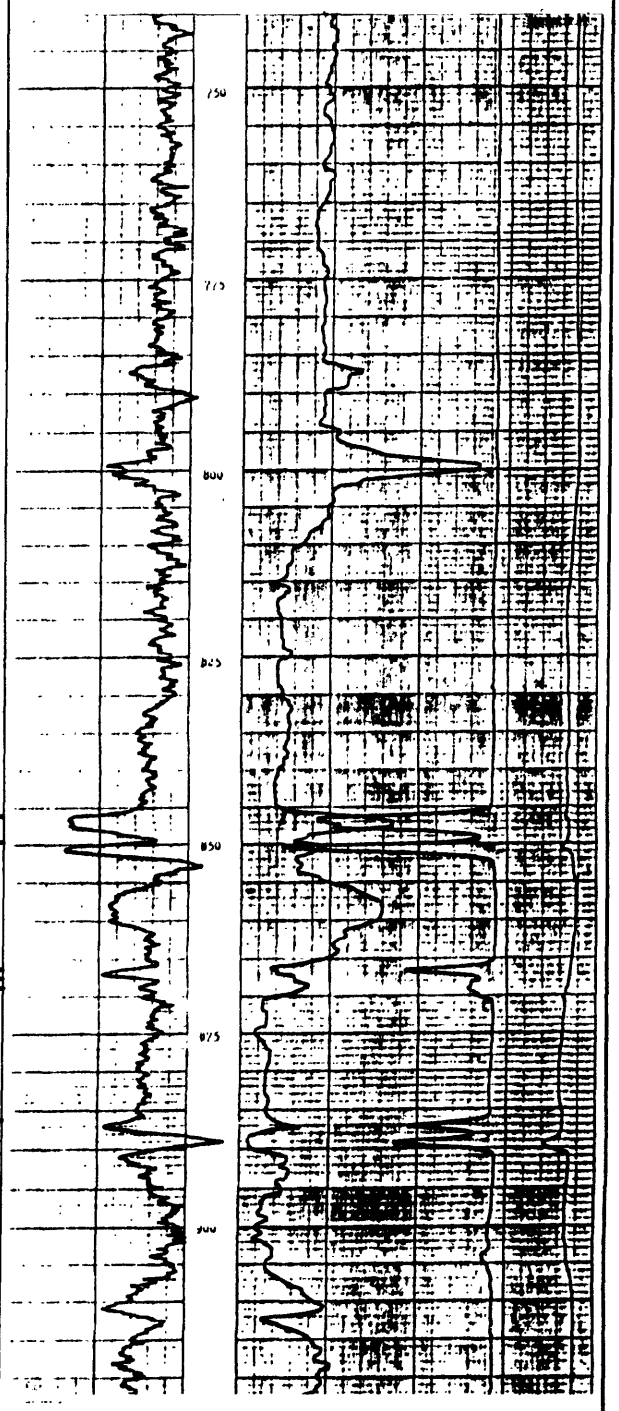
LITHOLOGY	
257.57 - 258.37	COAL, thin sh. lams.; Pratt bed.
258.37 - 258.69	Sh., grading into fc.
258.69 - 259.27	COAL, thin sh. lams.; Pratt bed.
259.27 - 259.51	Fc., waxy, little sand and mica.
259.51 - 263.68	Sh., ss. beds; sh., gy., slightly sandy with ss. streaks, mica., abnt. siderite, occ. plant fossils; ss., gy., f.gr., mica., sh. streaks, rare coal spars, some x-bds.
263.68 - 263.97	COAL, rare sh. lams.; Nickel Plate bed.
263.97 - 264.28	Fc., waxy, little sand, plant fossils, rare coal streaks.
264.28 - 264.47	COAL, scattered pyrite, rare sh. lams.; Nickel Plate bed.
264.47 - 264.66	Fc., dk.gy., waxy, little sand, abnt. plant fossils.
264.66 - 264.80	COAL, banded.; Nickel Plate bed.
264.80 - 269.84	Sh., dk.gy., little sand, mica., siderite, abnt. plant fossils.
269.84 - 270.08	COAL, rare sh. lams. in lower part, some pyrite; American bed.
270.08 - 271.03	Fc., gy., sandy, plant fossils.
271.03 - 273.72	Sh., gy., sandy, little mica, siderite.
273.72 - 276.22	Fc., gy., sandy in part, coal lams., siderite.
276.22 - 278.35	Sh., gy., v. sandy, mica., siderite.
278.35 - 280.55	Ss., sh., intbdd.; ss., gy., f.gr.; sh., gy., mica., siderite.
280.55 - 281.10	Fc., gy., little sand, waxy, coal band near bottom.

Depth m.

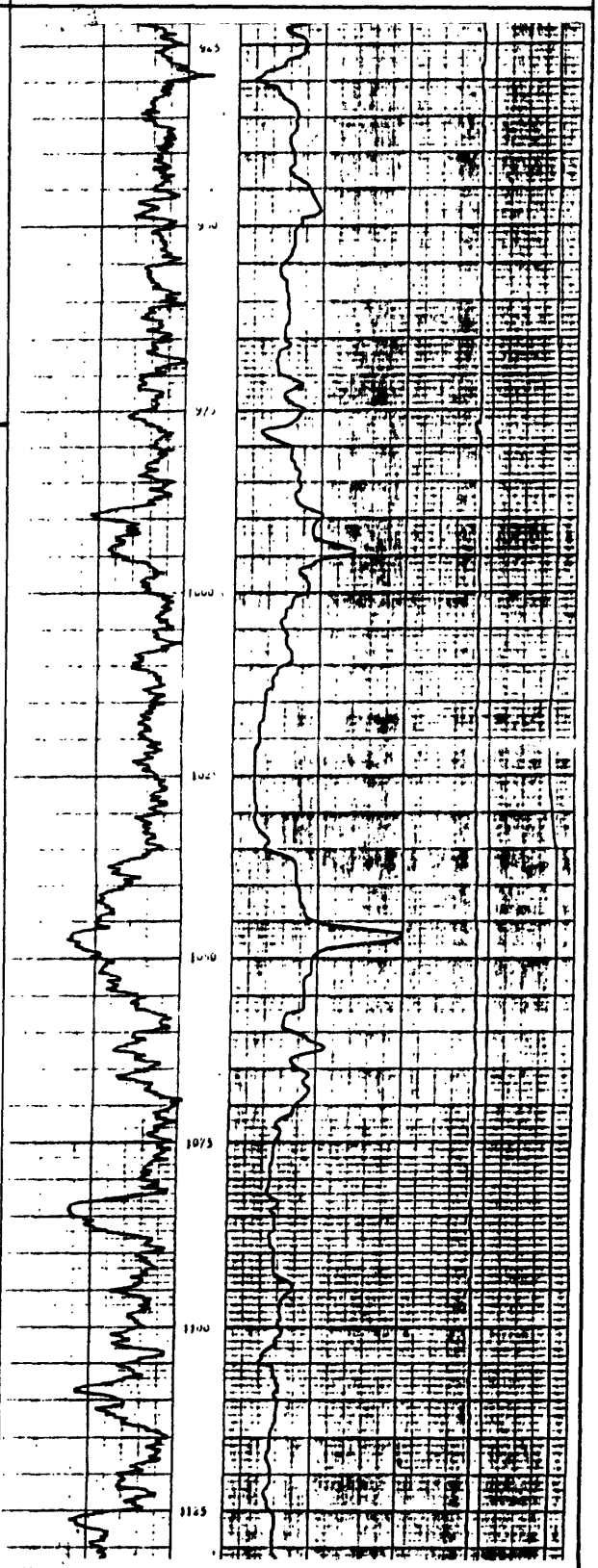
Strip Log

GEOPHYSICAL LOGS

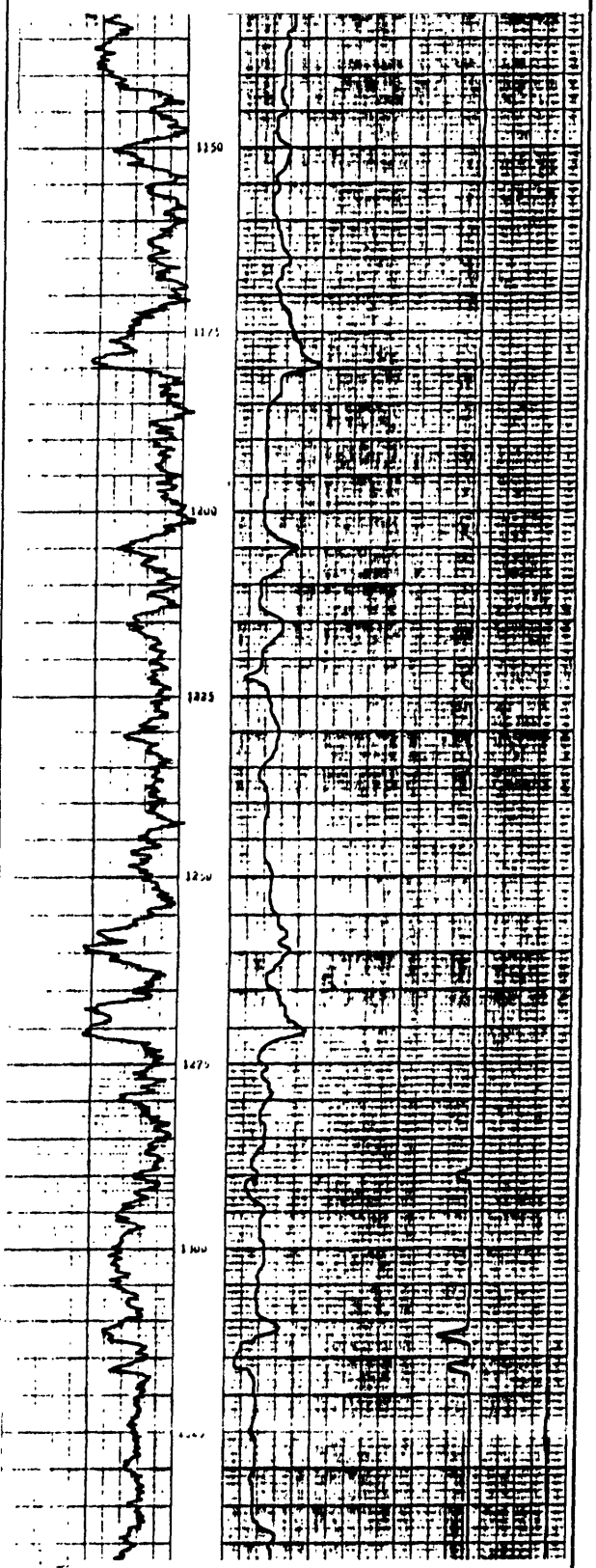
GAMMA RES. DENSITY CAL.



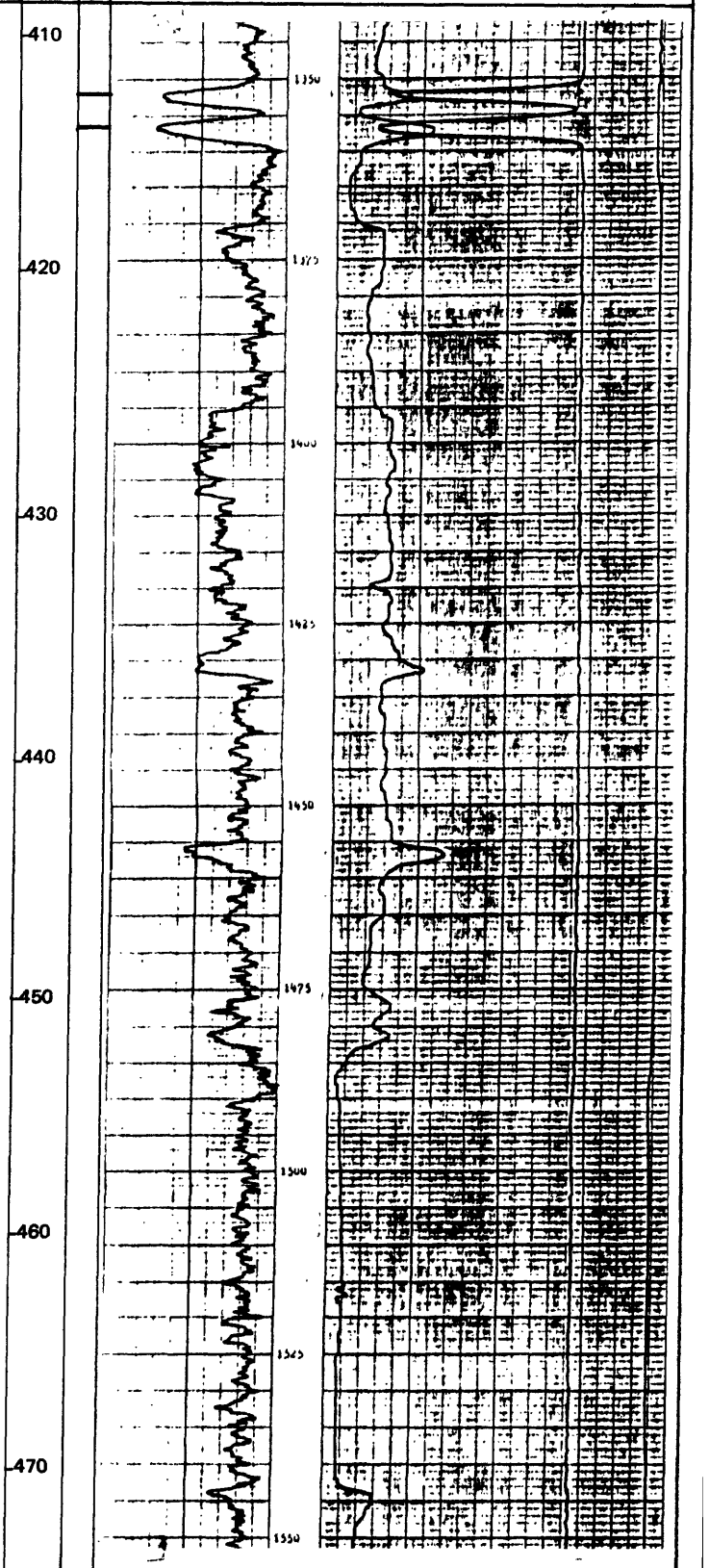
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
281.10 - 297.32	Sh., ss. streaks and intbds.; sh. gy., mica., ss. streaks in lower part, coal band 282.50 - 282.53 meters, scattered burrowing, abnt. marine fossils 293.69 - 293.93 meters; ss., gy., f.gr., calc., scattered burrowing.			
297.32 - 298.48	COAL, and fc., 3 cm. coal; fc., waxy, becoming sandy with depth.			
298.48 - 392.80	Ss., sh. beds and intbds.; ss., lt.gy.-gy., f.-m.gr., mica., sh. streaks, calc. in part, rare flow zones and coal spars, faulted at 347.87 meters; sh., gy.-dk.gy., sandy in part with ss. streaks and intbds., mica., burrowed, siderite; occ. plant and marine fossils.			



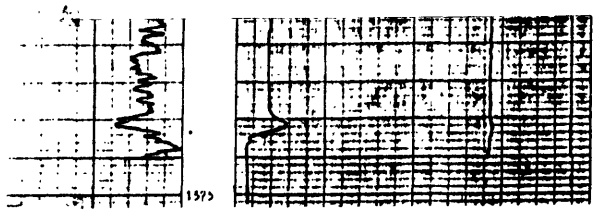
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
392.80 - 392.93	COAL, some bone; Mary Lee group.			GAMMA RES. DENSITY CAL.
392.93 - 393.29	Fc., sandy, plant fossils and coal streaks.			
393.29 - 401.14	Sh., dk.gy., sandy in part with ss. streaks, burrowing, plant fossils, siderite, abnt. coal spars and bands.			
401.14 - 401.31	COAL, rare sh. streaks, calc.; New Castle bed.			
401.31 - 402.23	Fc., gy., sandy, abnt. plant fossils, some siderite nodules.	350		
402.23 - 412.07	Sh., gy.-dk.gy., sandy in part with ss. streaks, calc. in part, siderite, plant fossils.	360		
		370		
		380		
		390		
		400		



LITHOLOGY	
412.07 - 412.77	COAL; Mary Lee/Blue Creek bed.
412.77 - 413.26	Fc., dk.gy., little sand, waxy.
413.26 - 414.15	COAL, rare sh. lams.; Mary Lee/Blue Creek bed.
414.15 - 414.94	Fc., sandy, abnt. plent fossils, coal streaks near top.
414.94 - 503.60	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part, ss. streaks, siderite bands and nodules, mica., some burrowing, calc. in part, occ. plant fossils; ss., gy., f.-m.gr., mica., with sh. streaks and intbds., calc. in part, some burrowing, coal bends in lower part of interval.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
503.60 - 503.81	COAL, 6 cm. sh. parting.						
503.81 - 504.02	Fc., dk.gy., waxy.						
504.02 - 504.12	COAL; undifferentieted.						
504.12 - 504.33	Fc., waxy, rare coal streaks.						
504.33 - 505.03	COAL, occ. bone lams., calc.; Bleck Creek group.						
505.03 - 505.98	Fc., sandy, mica., abnt. plant fossils.						
505.98 - 515.00	Ss., sh. intbdd.; ss., gy., f.gr., mica.; sh. gy., f.gr., mica.						
515.00	Total depth.	480					



DRILL HOLE LOG

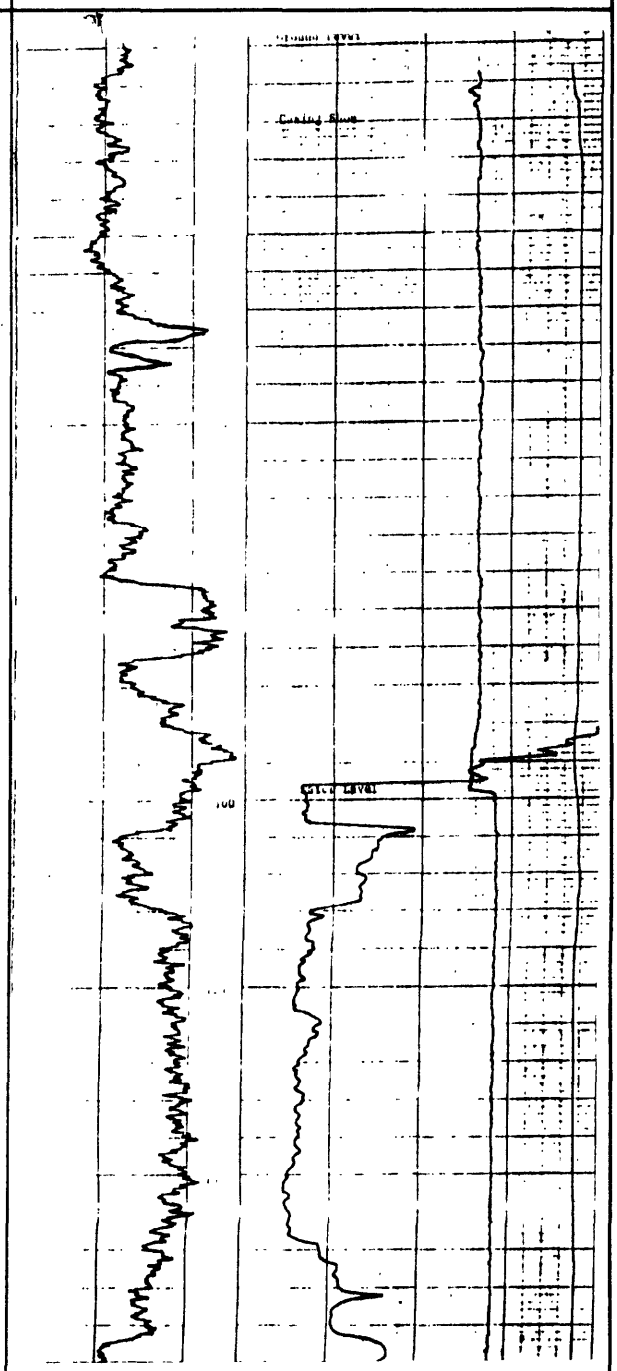
Hole #: 41

Geophysical Log Date: 4-10-81, County, State: Tuscaloosa, Alabama

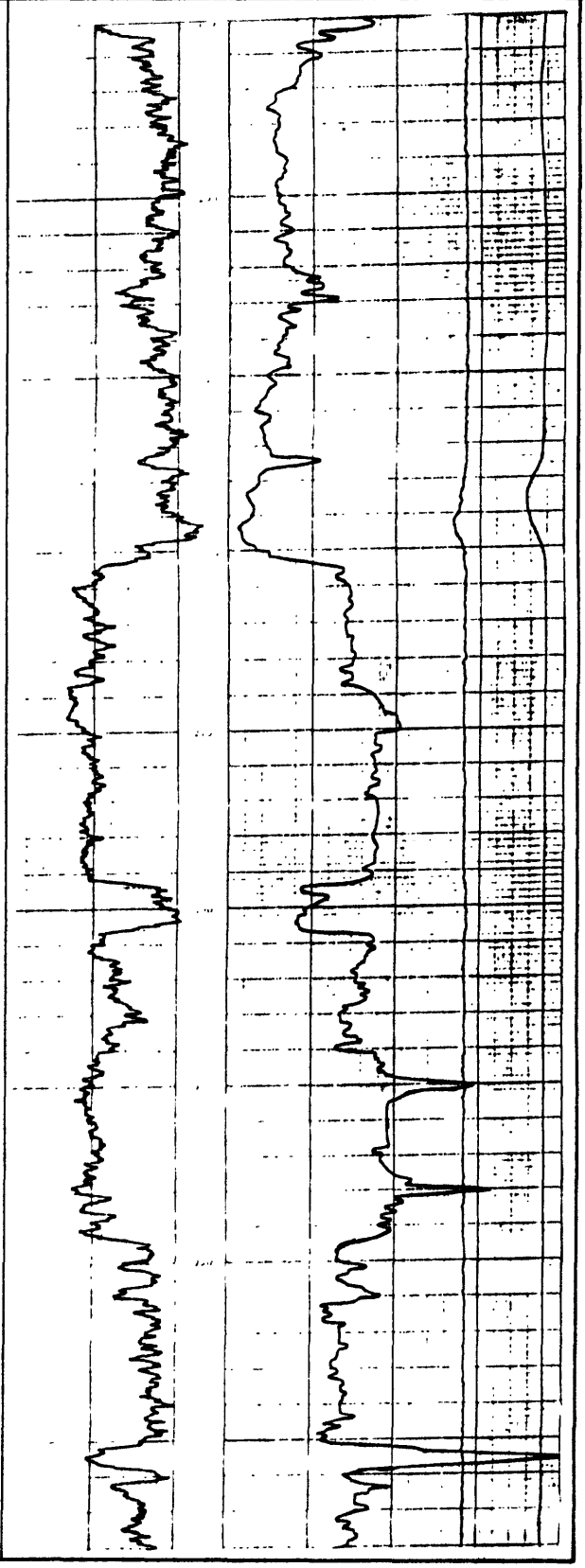
Map: Wiley, 7½' quad. Location: NE¼ Sec. 33, T. 17 S, R. 9 W HPM

Surface Elev.: 141.8 m, Logged Depth: 496.5 m, Drilled Depth: 501 m, Core Int: 493.4 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 7.62	Cased in unconsolidated material.			
7.62 - 75.43	Sh., ss. beds and intbds.; sh., gy., mica., massive, sandy; ss., gy., m.gr., massive, mica., calc. in part, carb., siderite bands and pebbles; rare plant fossils beginning 73.78 meters, burrowing, calc.-filled fractures.			

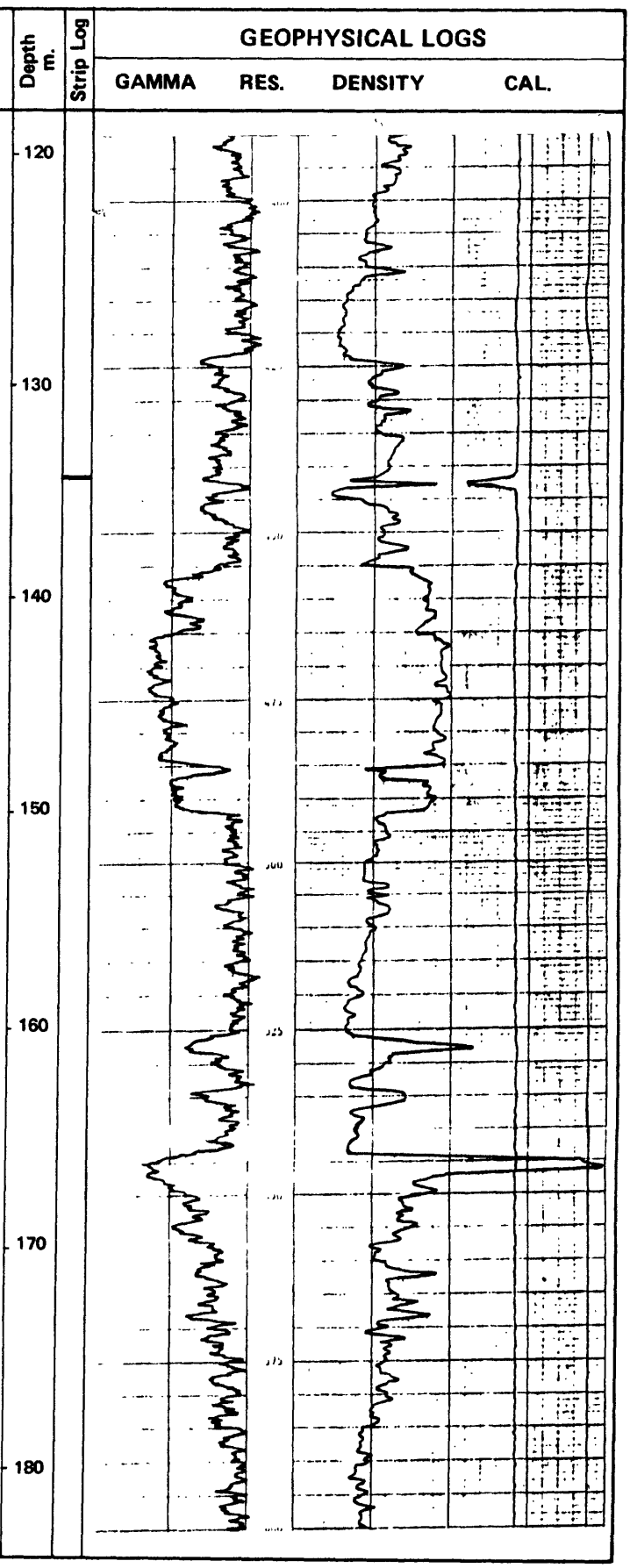


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
75.43 - 76.52	Fc., gy., massive, sandy, waxy in part, siderite stain.			GAMMA RES. DENSITY CAL.
76.52 - 135.46	Ss., sh. beds and intbds.; ss., gy., m.-f.gr., massive, mica., calc.; sh., gy., massive, mica., sandy, burrowed; coal spars and streaks, little siderite banding.			

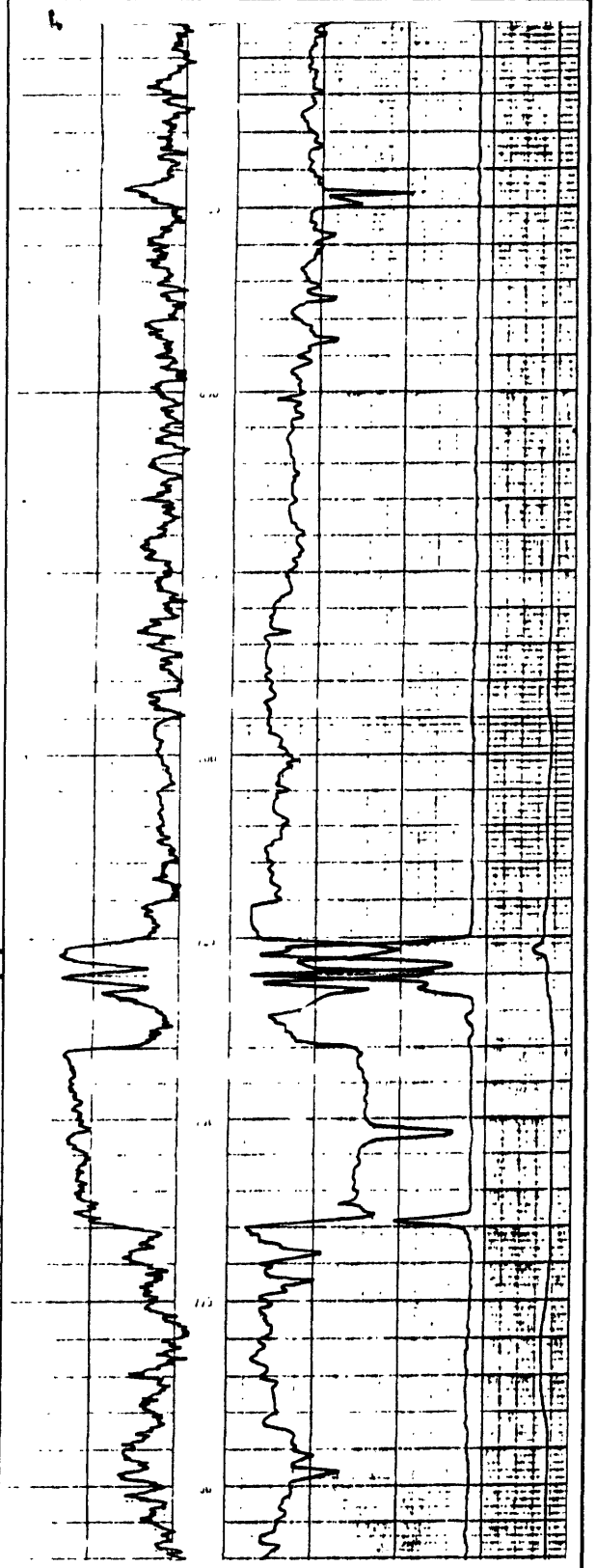


LITHOLOGY

135.46 - 135.55	Sh., bk., intbdd. coal.
135.55 - 135.69	COAL, hard, bright.
135.69 - 135.79	Sh., bk., intbdd. coal.
135.79 - 136.52	Fc., gy., massive, sandy, abnt. plant fossils.
136.52 - 222.13	Sh., ss. beds and intbds.; sh., m.-dk.gy., massive, mica., sandy, becoming silty near base; ss., gy., f.gr., mica., slightly calc.; flow zones, calc. in part, calc.-filled fractures, burrowed, rare plant fragments, little pyrite, thin coal bands at 196.76, 214.82, and 221.52 meters.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
222.13 - 224.24	COAL, bright, blocky, some pyrite and calc.; bk. sh. partings 222.96 - 223.23., and 223.75 - 223.99 meters; Pratt bed.			GAMMA RES. DENSITY CAL.
224.24 - 225.18	Ss., m.gy., f.gr., mica., coal streaks, some burrowing, few siderite nodules.			
225.18 - 225.37	Fc., dk.gy., thin coal layers.			
225.37 - 233.75	Ss., sh. beds; ss., gy., m.-c.gr., massive, mica.; sh., m.gy.; thin coal layers to 225.46; some plant fragments.	190		
233.75 - 233.93	COAL, bright, hard; American bed.			
233.93 - 234.79	Fc., dk.gy., massive, sandy, few coal streaks.			
234.79 - 263.29	Sh., ss. beds and intbds.; sh., gy., massive, mica., sandy; ss., gy., f.gr., massive, mica.; calc. near base, some siderite banding and pebbles, numerous plant fossils, scattered burrowing, calc.-filled fractures, little rooting; thin boney coal at 246.98 meters.	200		
		210		
		220		
		230		
		240		



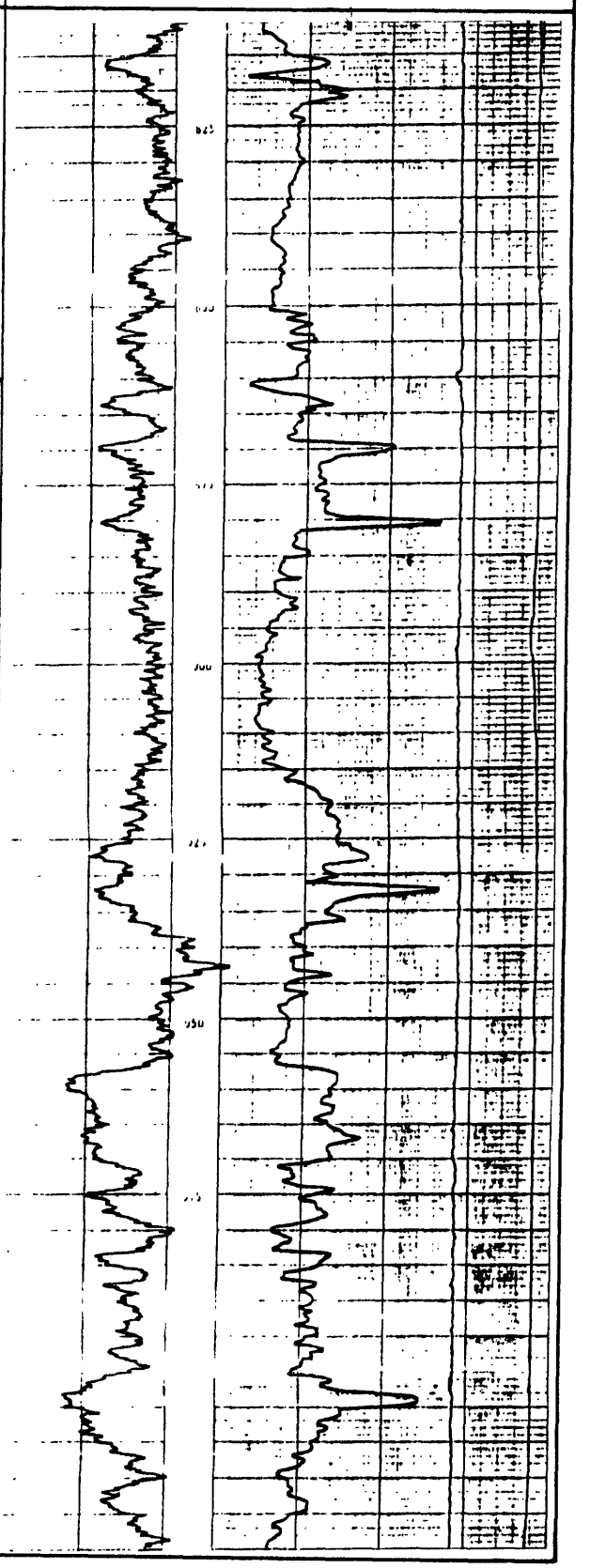
LITHOLOGY

263.29 - 263.38 COAL, boney, abnt. calc.
263.38 - 263.96 Fc., waxy, massive, sandy.
263.96 - 344.54 Sh., ss. beds and intbds.; sh., gy.-dk.gy., massive, mica., sandy; ss., gy., f.-m.gr., massive, mica., slightly calc., slightly churned; burrowed in part, fossif. in part, some siderite banding and nodules, calc.-filled fractures, some scattered rooting, some x-bdg. in upper part, few coal streaks, some flow zones, some v. small marine fossils near 336.89 meters.

Depth m.

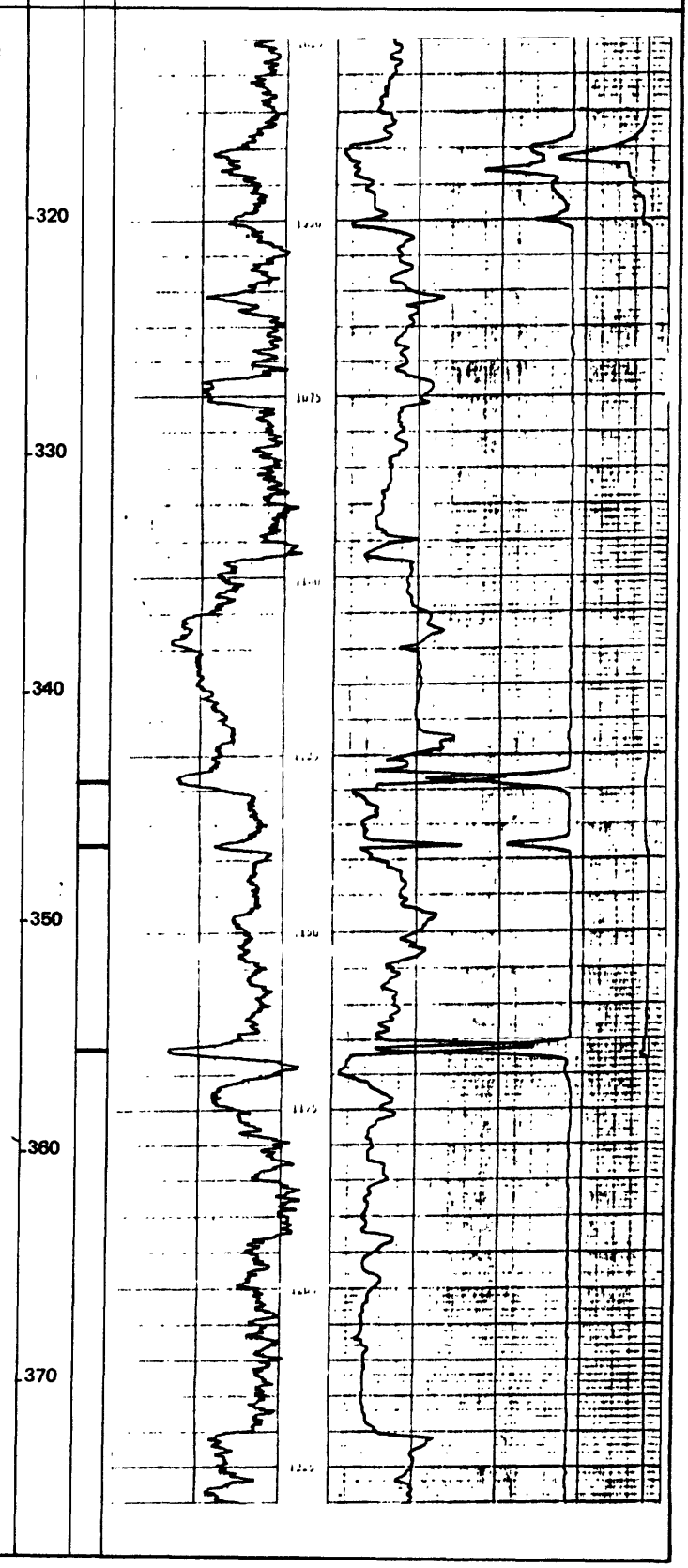
Strip Log

GEOPHYSICAL LOGS

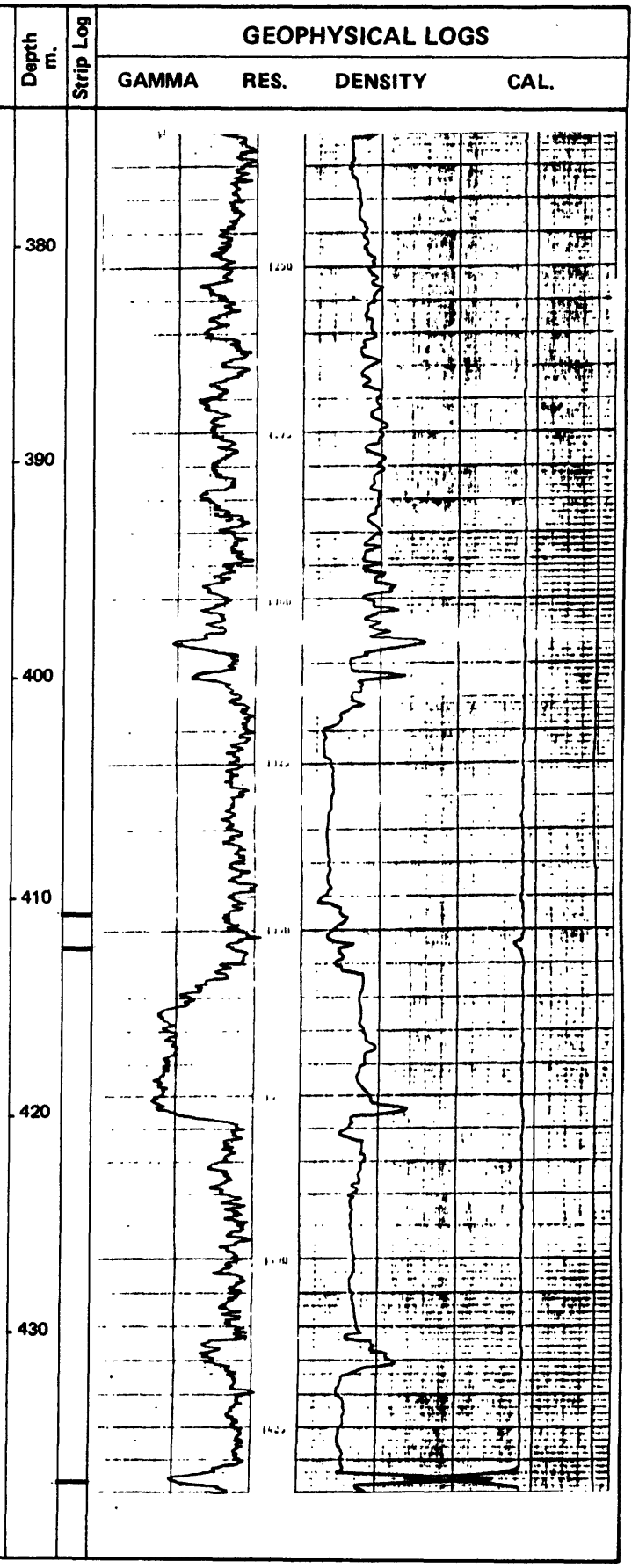


LITHOLOGY

344.54 - 345.29	COAL, banded, some thin bone end pyrite lams., gy. fc. parting 345.02 - 345.07 and 345.10 - 345.17 meters; Mary Lee group.
345.29 - 345.55	Fc., dk.gy., massive, waxy, numerous plant fossils.
345.55 - 347.58	Sh., dk.gy.-bk., carb. in part, ss. streaks, abnt. plant fossils, scattered pyrite lams.
347.58 - 347.90	COAL, banded, thin intbdd. bone top 2 cm.; Mary Lee group.
347.90 - 348.63	Fc., dk.gy., massive, waxy in part, numerous plant fossils.
348.63 - 356.13	Sh., ss. intbds.; sh., dk.gy., massive, sandy; ss., gy., f.gr.; scattered plant fragments, abnt. siderite nodules; coal spars 355.55 - 355.67 meters.
356.13 - 356.34	COAL, banded; Mary Lee group.
356.34 - 357.10	Fc., dk.gy., massive, waxy, abnt. plant fossil, rooted.
357.10 - 410.91	Sh., ss. beds and intbds.; sh., dk.gy., massive, sandy, mica., carb.; ss., gy., f.gr., slightly calc.; few sandy sh. mudflows, scattered burrowing, some siderite lams. end nodules.

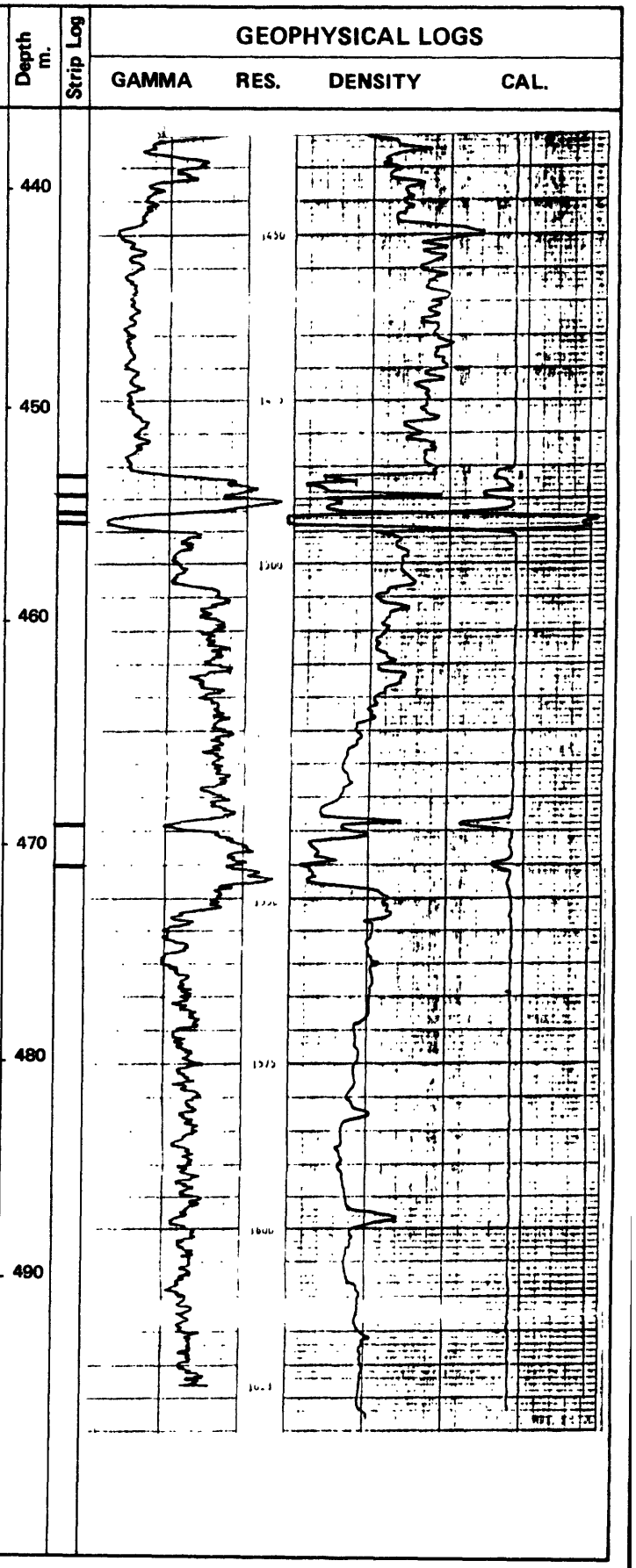


LITHOLOGY	
410.91 - 411.04	COAL, intbdd. with bone and dk.gy. sh.
411.04 - 411.46	Fc., dk.gy., waxy, abnt. plant fossils, rooted.
411.46 - 413.17	Sh., dk.gy., sandy, burrowed, siderite bands, plant fossils.
413.17 - 413.28	COAL, banded, v. little pyrite and calc., bone bottom 2 cm.
413.28 - 414.57	Fc., m.gy., massive, waxy, rooted, scattered plant fossils.
414.57 - 437.76	Sh., ss. beds; sh., dk.gy., sandy, carb.; ss., gy., f.-m.gr., burrowed; occ. siderite bands, occ. plant fossils.
437.76 - 438.20	COAL, bended, bone with coal streaks and pyrite lams. 437.76 - 437.82 meters, intbdd. bone and coal 437.82 - 437.91 meters, intbdd. bone and gy. sh. 438.05 - 438.06 meters; Black Creek group.
438.20 - 438.72	Fc., v.dk.gy., massive, waxy, rooted, plant fossils.



LITHOLOGY

438.72 - 454.21	Ss., gy., f.gr., sh. streaks.
454.21 - 454.34	COAL, banded; Jefferson bed.
454.34 - 455.87	Lost core.
455.87 - 456.10	Sh., bk., soft.
456.10 - 456.22	COAL, banded, bone bottom 2 cm.; Jefferson bed.
456.22 - 456.65	Fc., dk.gy., soft, plant fossils.
456.65 - 456.91	COAL, banded, bone intbd. 456.82 - 456.87 meters, little pyrite; Jefferson bed.
456.91 - 457.16	Sh., dk.gy.-bk.
457.16 - 457.81	COAL, banded; Jefferson bed.
457.81 - 457.93	Fc., intbdd. bk. sh., soft in part.
457.93 - 471.11	Ss., sh. beds and intbds.; ss., gy., f.gr.; sh., dk.gy., massive, sandy, carb.; few thin coal spars, occ. plant fossils, abnt. siderite bands.
471.11 - 471.19	COAL, banded.
471.19 - 472.56	Fc., dk.gy., massive, sandy, rooted, abnt. plant fossils.
472.56 - 472.80	COAL, banded, little bone at top, intbdd. bone and bk. sh. 472.59 - 472.68 meters; Black Creek bed.
472.80 - 500.98	Ss., sh. beds; ss., gy., f.gr., massive; sh., dk.gy., massive, sandy, occ. coal spars, occ. pyrite, occ. rooting and burrowing, few plant fossil fragments, churned in part.
500.98	Total depth.



DRILL HOLE LOG

Hole #: 43

Geophysical Log Date: 12-31-80, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½' quad. Location: NW¼ Sec. 22, T. 17 S, R. 9 W HPM

Surface Elev.: 182.9 m, Logged Depth: 36.3 m, Drilled Depth: 36.6 m, Core Int: 28.3 m,

LITHOLOGY

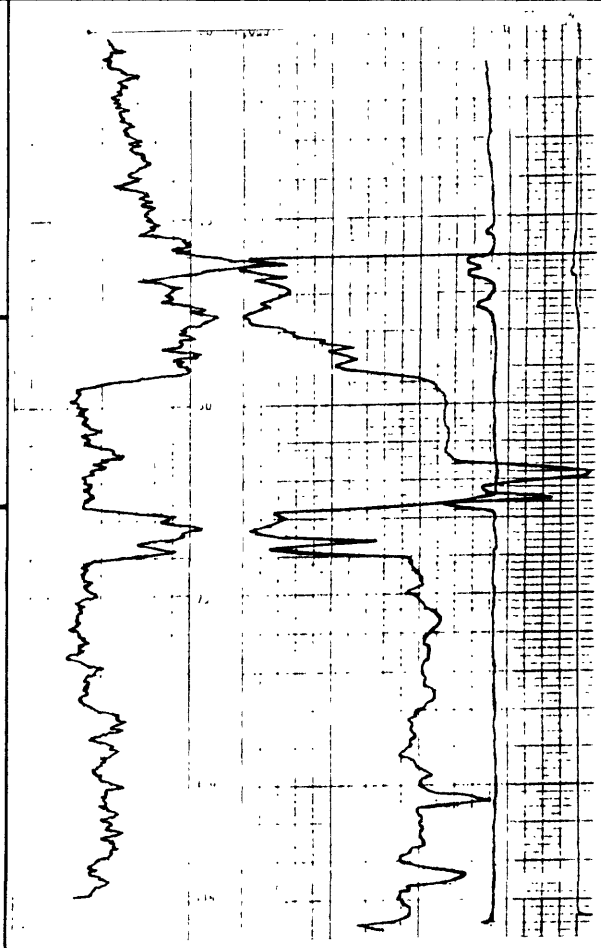
0 - 8.29	Cased in unconsolidated material.
8.29 - 11.68	Sh., gy., carb.; bk. sh. intbdd. 9.36 - 11.68 meters; plant fossils; coal lens 10.70 - 10.73 meters; some core loss.
11.68 - 12.07	COAL, layered with bone; grades to bk. sh. with boney coal streaks.
12.07 - 12.53	Fc., sandy; rare plant fossils.
12.53 - 19.60	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., massive; sh., gy., mica.; x-bdg.
19.60 - 19.76	COAL, banded; possible core loss; Utley group.
19.76 - 19.88	Core loss.
19.88 - 20.85	Fc., sandy; bk. sh. intbdd.; plant fossils; coal spars.
20.85 - 36.59	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica., massive; sh., gy., carb., plant fossils; x-bdg., coal lams. and spars throughout ss.
36.59	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

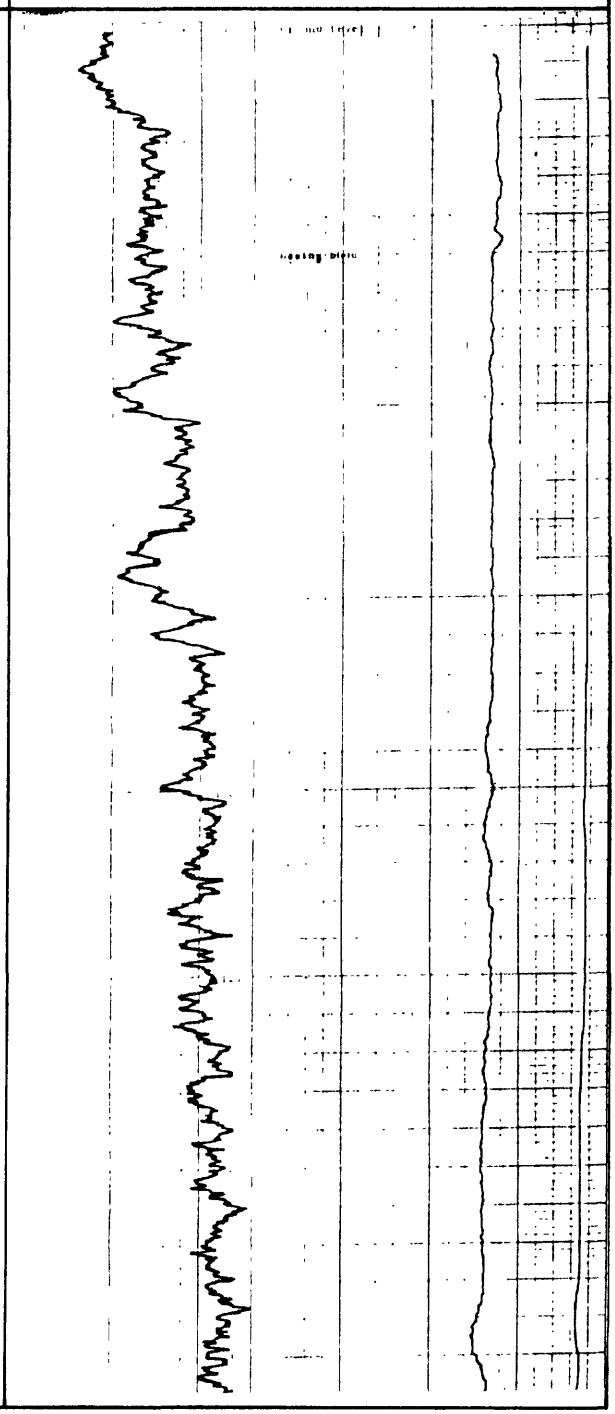
Hole #: 46

Geophysical Log Date: 3-28-81, County, State: Tuscaloosa, Alabama

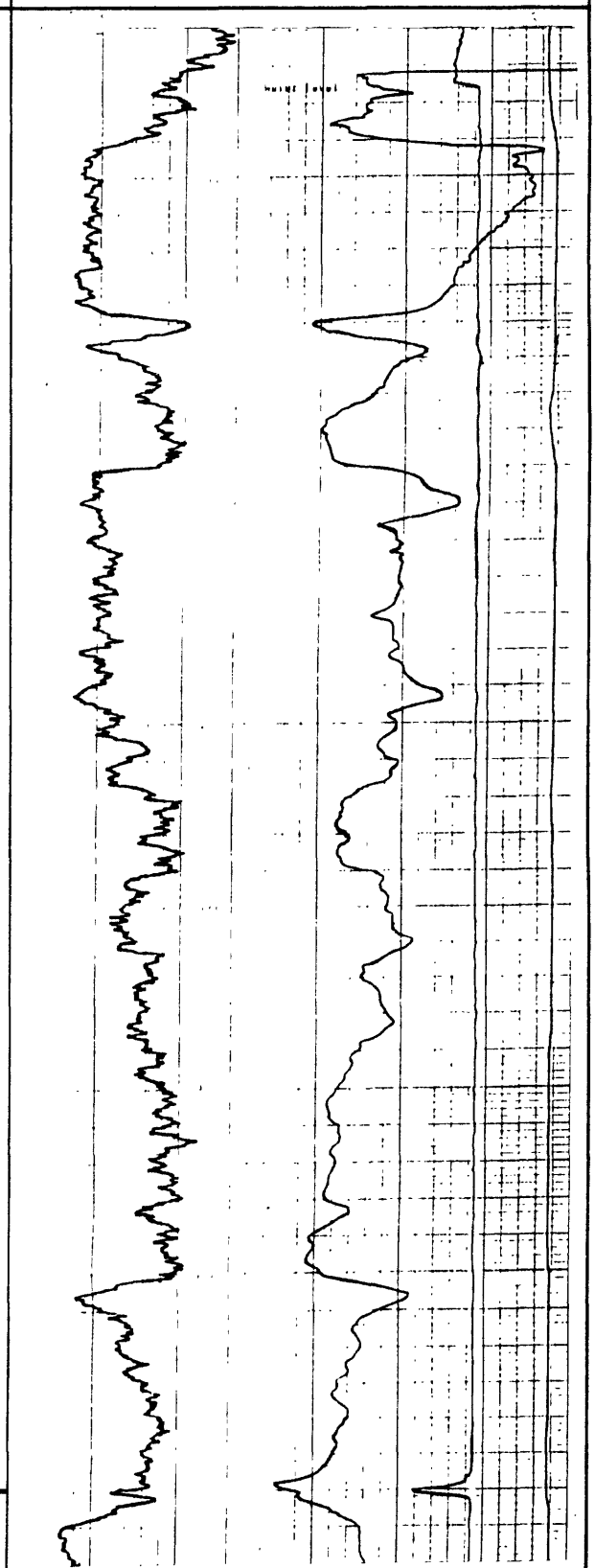
Map: Wiley, 7½' quad Location: SE¼ Sec. 12, T. 17 S, R. 9 W HPM

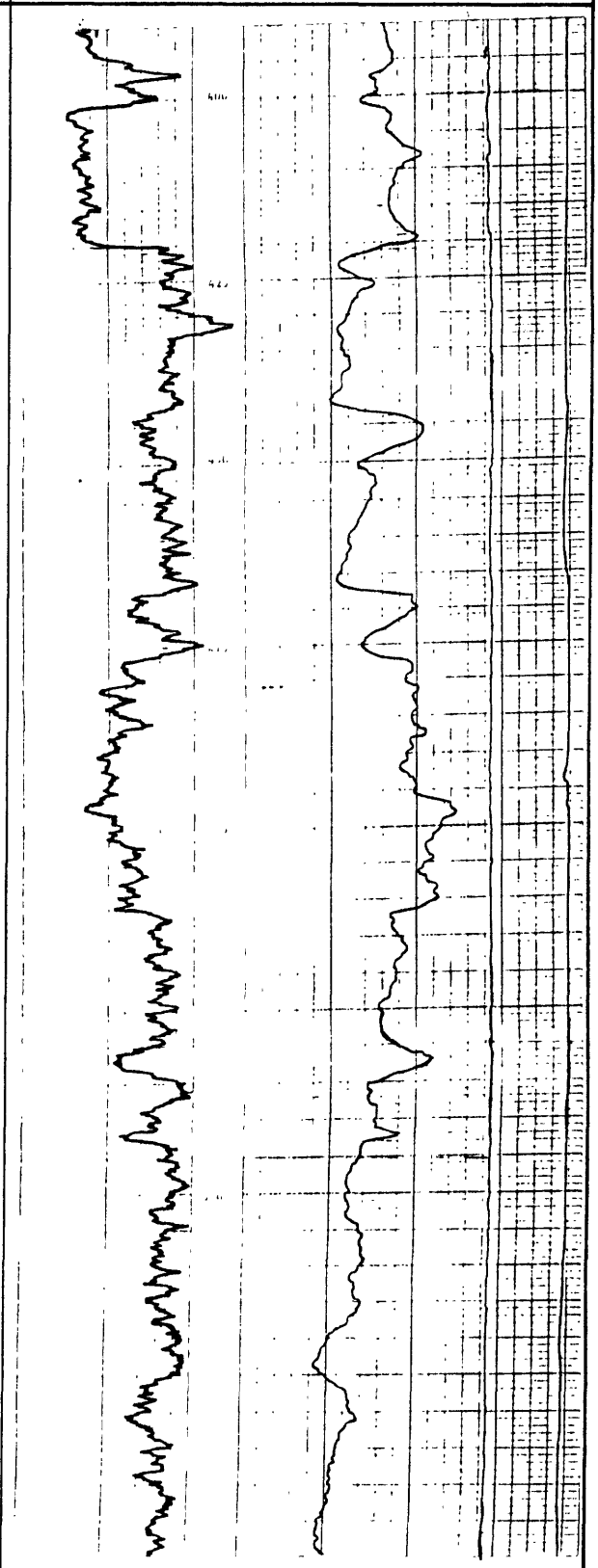
Surface Elev.: 164.6 m, Logged Depth: 502.8 m, Drilled Depth: 502.8 m, Core Int: 493.8 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 8.99	Cased in unconsolidated material.			GAMMA RES. DENSITY CAL.
8.99 - 58.63	Sh., ss. beds and intbds.; sh., lt.-dk.gy., massive, mica., siderite lams., scarce plant fragments; ss., gy., massive, f.gr., mica., roots, calc.; bk. sh. with marine fossils near bottom of section.	10 20 30 40 50		



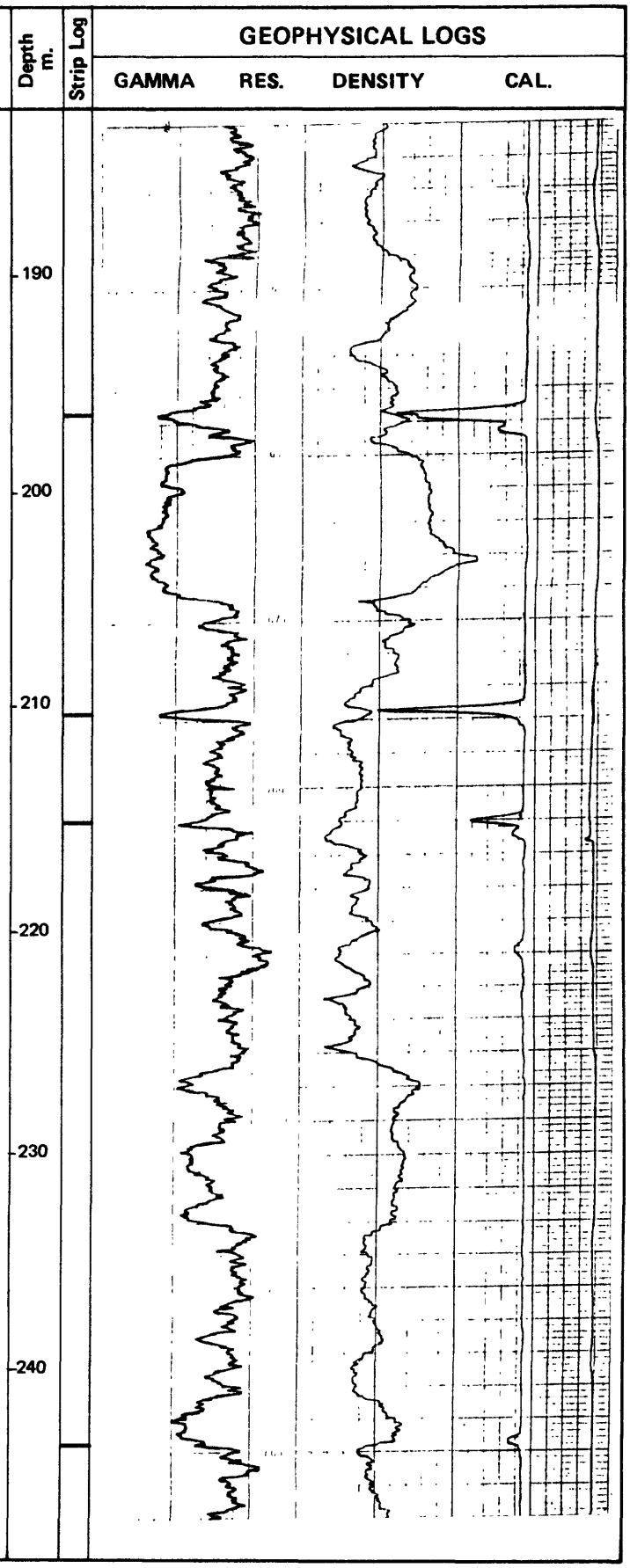
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
58.63 - 67.84	Fc., ss. intbds.; fc., gv., massive, waxy luster, rooted, plant fossils; ss., f.-m.gr., massive, mica.; thin coal streaks.			GAMMA RES. DENSITY CAL.
67.84 - 115.98	Sh., ss. beds and intbds.; sh., lt.-dk.gy., massive, sandy, mica., calc., siderite lams., rooting, plant fossils, marine fossils 107.01 - 107.71; ss., f.-m.gr., scattered conglomerate, mica., thin coal lams., scarce plant remains.	60		
115.98 - 116.22	COAL, bright, sh. streaks; Cobb bed.			
116.22 - 116.71	Fc., hard, sandy, abnt. plant remains.			
116.71 - 128.48	Ss., c.gr., intbdd. sh., conglomeratic, mica., calc., some siderite pebble conglomerates, coal streaks.	70		
		80		
		90		
		100		
		110		



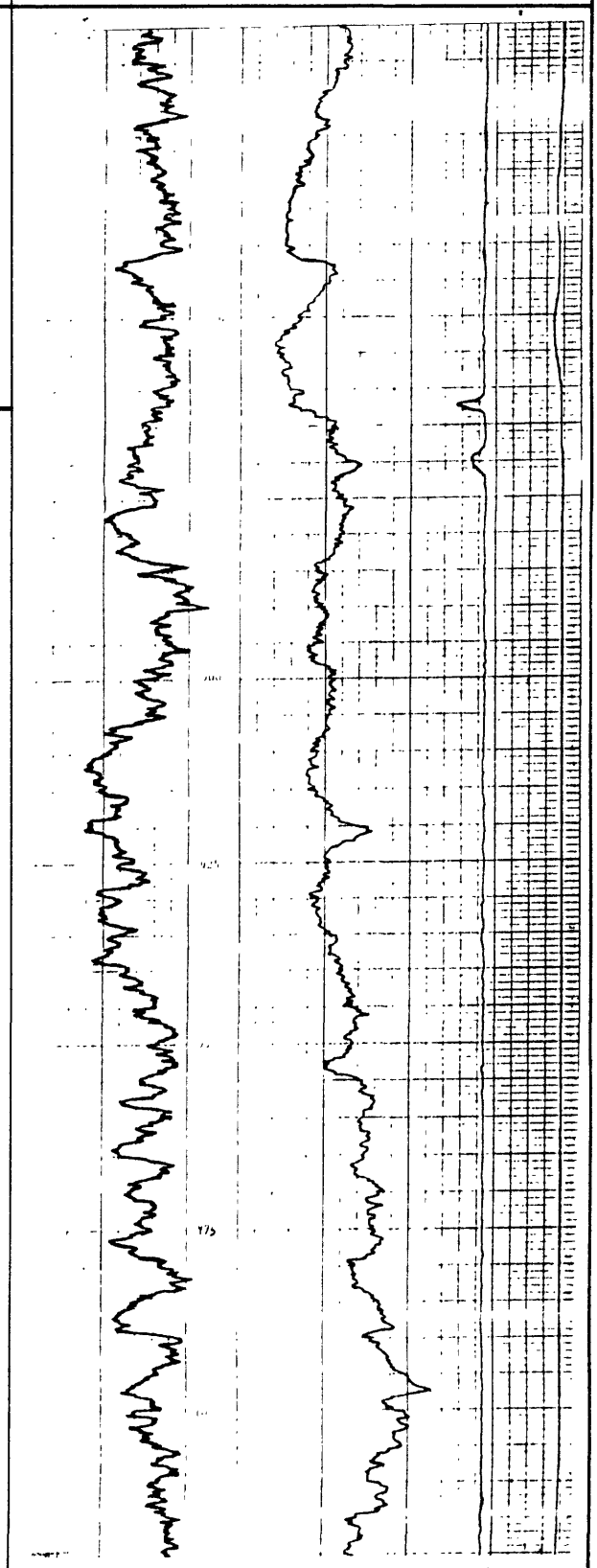
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
128.48 - 196.71	Sh., ss. beds and intbds.; sh., gy., massive, sandy, mica., calc., siderite intbdd., marine fossils, scattered plant remains, sand flows, x-bdg. in part; ss., gy., f.gr., mica., calc.	120 130 140 150 160 170 180					

LITHOLOGY

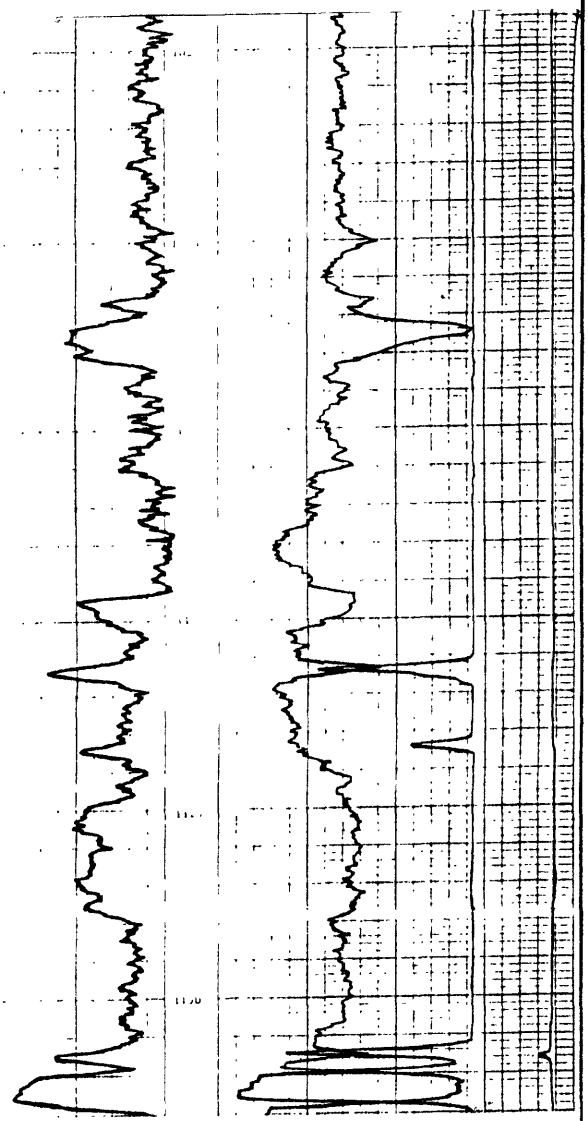
196.71 - 197.71	COAL, bright, blocky, calc., intbdd. sh. layers, some pyrite; Pratt bed.
197.71 - 198.17	Fc., massive, sandy.
198.17 - 210.27	Sh., ss. beds and intbds.; sh., gy., massive, sandy, mica., siderite bands; ss., f.-m.gr., mica., calc., coal streaks.
210.27 - 210.52	COAL, undifferentiated; Nickel Plate bed.
210.52 - 211.68	Fc., massive, sandy, plant impressions.
211.68 - 215.58	Sh., gy., massive, mica., sandy, plant fossils.
215.58 - 215.79	COAL, undifferantiated; American bed.
215.79 - 217.07	Fc., gy., soft, slightly sandy, some plant fossils.
217.07 - 244.63	Sh., gy., sandy, mica., calc., thin coal bands, plant fossils, scarce marine fossils, burrowed, some siderite nodulas.
244.63 - 244.70	COAL, hard, bright.
244.70 - 245.33	Fc., massive, sandy, mica.
245.33 - 264.00	Sh., lt.-dk.gy., massive, mica., sandy, calc., scarce siderita nodules, burrowed, some marine fossils, scattered plant fossils.



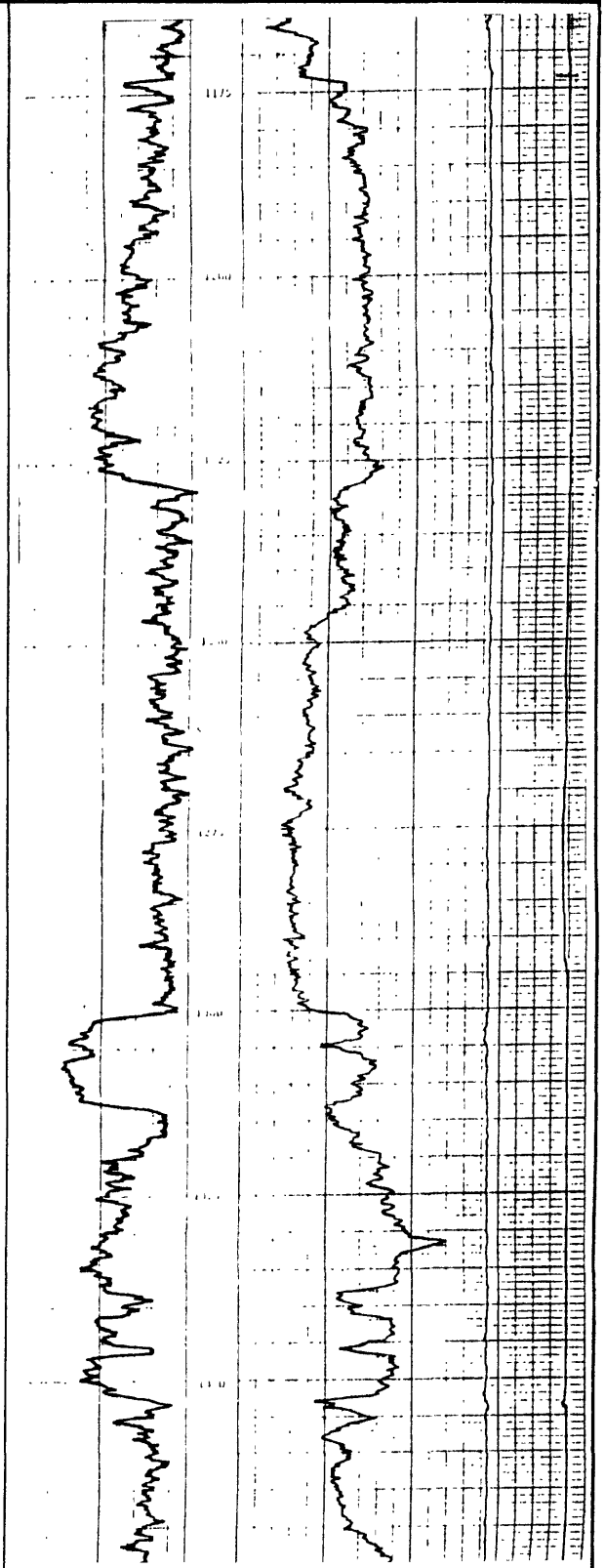
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
264.00 - 264.10	COAL, bright, hard, sh. streaks.						
264.10 - 264.75	Fc., dk.gy., v. sandy, mica., plant fossils.						
264.75 - 338.35	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., massive, mica., calc., scarce siderite pebbles, x-bdd.; sh., lt.-dk. gy., massive, sandy, mica., siderite intbdd., some carb. streaks.	250					
		260					
		270					
		280					
		290					
		300					
		310					



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
338.35 - 338.99	COAL, bright, sh. streaks and partings; New Castle bed.			GAMMA RES. DENSITY CAL.
338.99 - 339.24	Fc., gy., massive, sandy, mica., plant fossils.			
339.24 - 341.42	Sh., gy., massive, sandy, mica., plant fragments, thin coal streaks.			
341.42 - 341.69	COAL, hard, bright, rare thin shale streaks; Mary Lee bed.			
341.69 - 342.04	Fc., hard, sandy, mica., some siderite nodules, rare pyrite.			
342.04 -353.29	Sh., ss. beds and intbds.; sh., gy., massive, sandy, mica., calc.; ss. v.f.-f.gr., carb., coal streaks; plent fossils.	320		
353.29 - 353.75	COAL, undifferentiated; Blue Creek bed.			
353.75 - 353.96	Fc., dk.gy., sandy.			
353.96 - 355.41	COAL, very gassy, thin parting; Blue Creek bed.			
		330		
		340		
		350		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS			
				GAMMA	RES.	DENSITY	CAL.
355.41 - 356.65	Fc., rooted, some bony coal.						
356.65 - 438.24	Ss., sh. beds and intbds.; ss., lt.-m.gy., f.-c.gr., massive, mica., calc., coal spars, sidarite nodules and bands, some conglomerate; sh., lt.-dk.gy., massive, mica., calc., scattered siderite nodules, plant fossils.	360					
		370					
		380					
		390					
		400					
		410					

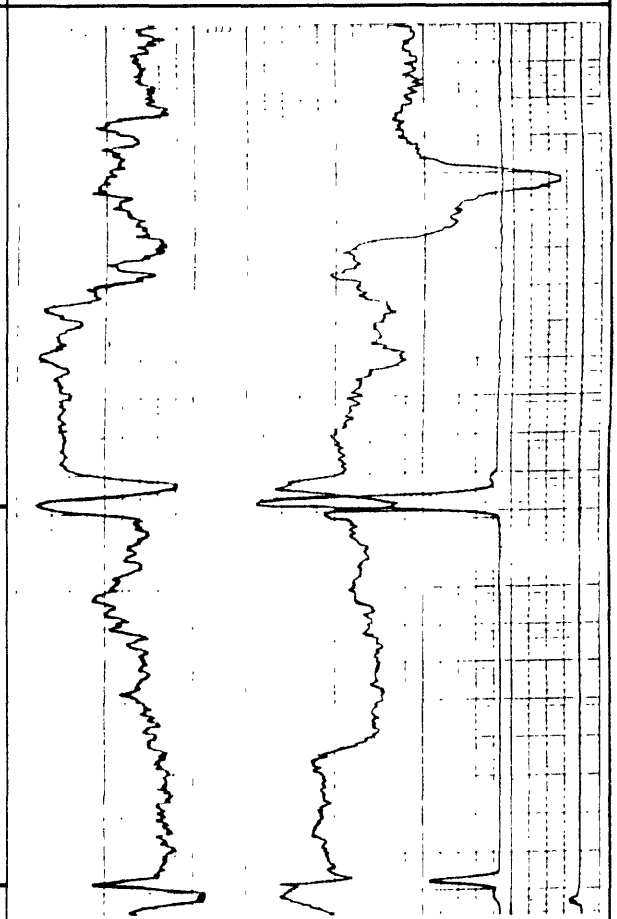


LITHOLOGY	
438.24 - 438.66	Clay, dk.gy., coal streaks.
438.66 - 439.42	COAL, bright; Jefferson bed.
439.42 - 439.57	Fc., dk.gy., waxy, coal streaks.
439.57 - 454.08	Ss., sh. beds and intbds.; ss., gy., f.gr., carb., plant remains; sh., lt.-dk.gy., sandy, mica., plant fossils.
454.08 - 454.34	COAL, bone and sh. intbds.; Black Creek bed.
454.34 - 455.61	Fc., m.gy., massive, waxy, sandy, rooted, plant fossils.

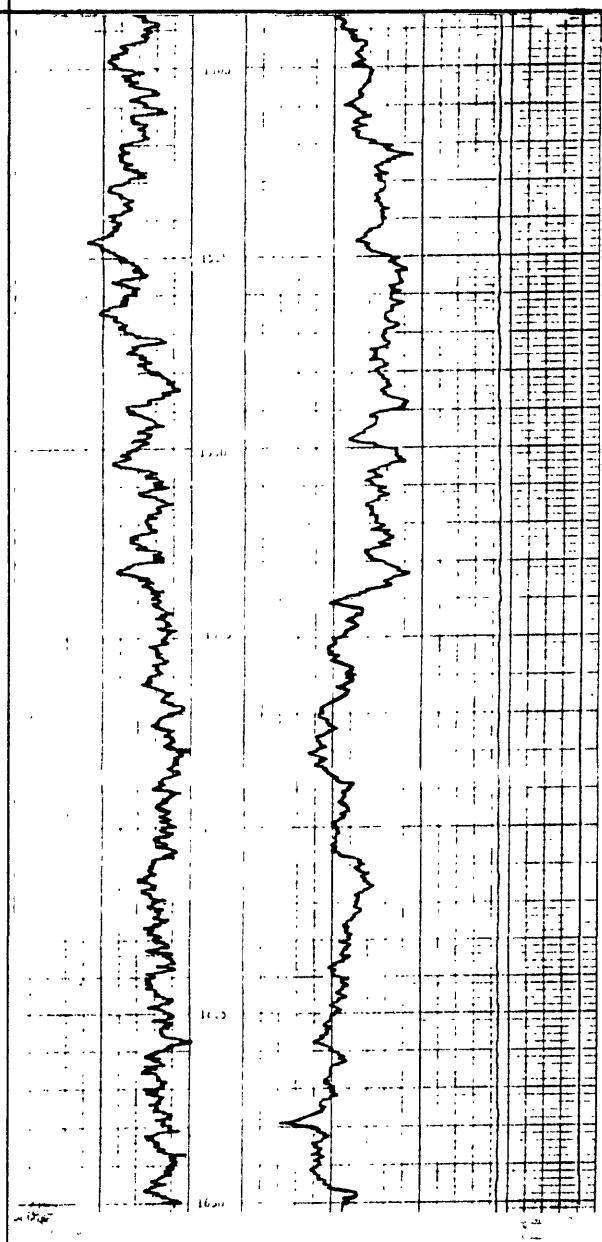
Depth m.

Strip Log

GEOPHYSICAL LOGS



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
455.61 - 502.84	Sh., ss. beds and intbds.; sh., lt.-dk.gy., sandy, mica., massive, scarce siderite bands; ss., gy., f.gr., mica., calc., carb.; scattered plant fossils.			GAMMA RES. DENSITY CAL.
502.84	Total depth.			



DRILL HOLE LOG

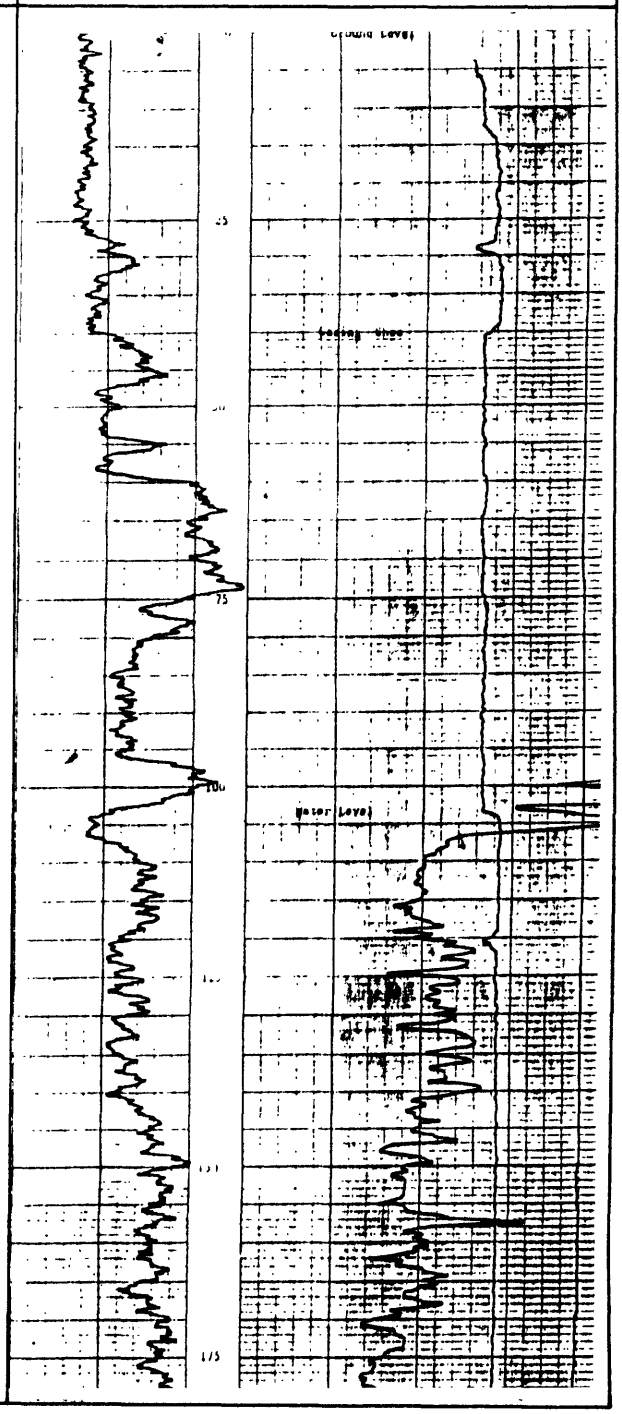
Hole #: 48

Geophysical Log Date: 4-10-81, County, State: Tuscaloosa, Alabama

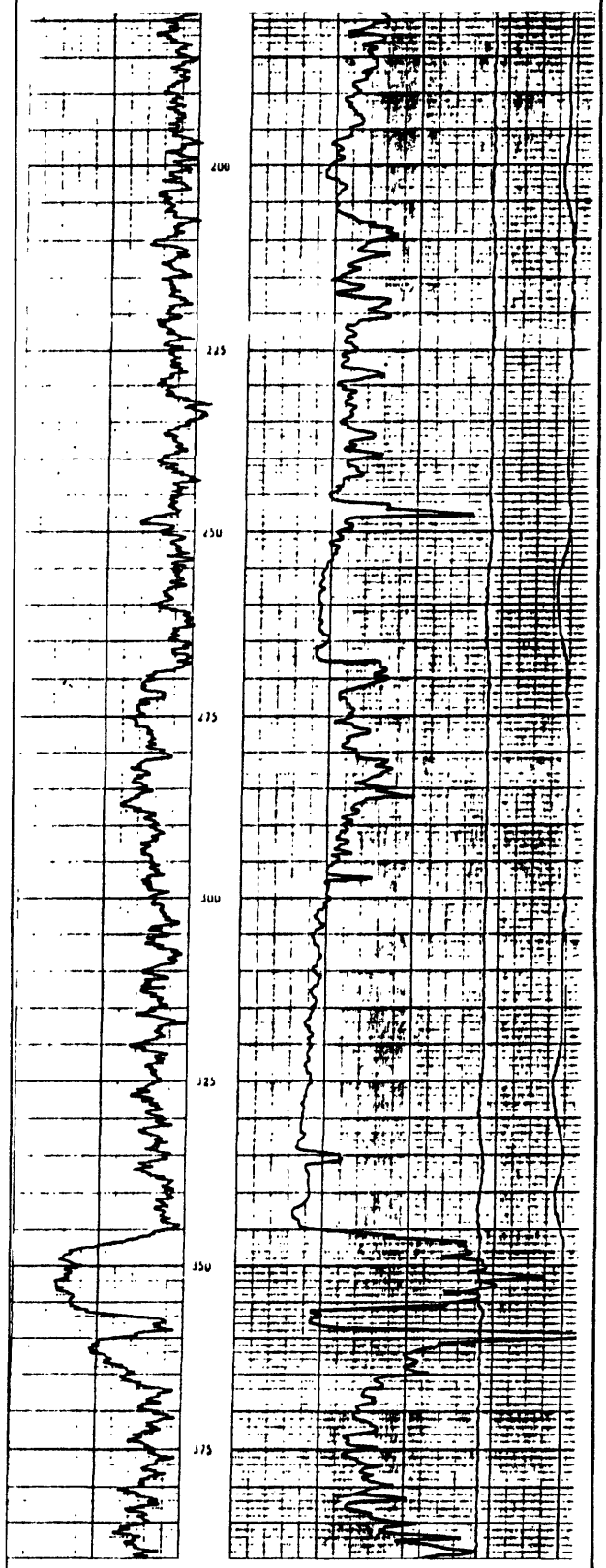
Map: Berry SE, 7½′ quad. Location: SW¼ Sec. 7, T. 17 S, R. 9 W HPM

Surface Elev.: 161.6 m, Logged Depth: 392.3 m, Drilled Depth: 394.6 m, Core Int: 381.2 m,

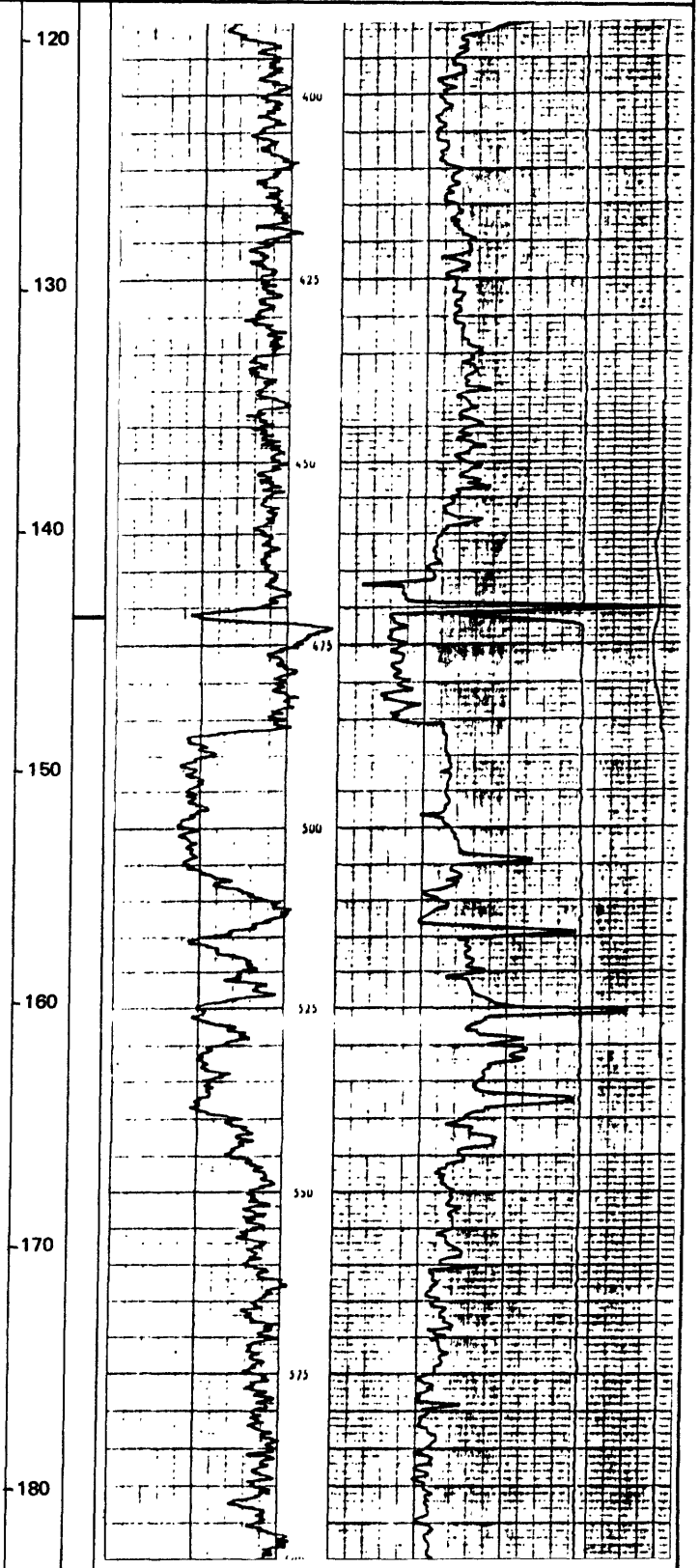
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA	RES.	DENSITY	CAL.
0 - 13.41	Cased in unconsolidated material.						
13.41 - 54.80	Sh., ss. beds and intbds.; sh., gy.-bk., sandy, abnt. mud flows; ss., gy., f.-c.gr., calc.; massive, carb., mica., occ. coal streaks and spars, occ. rooting and burrowing, occ. marine and plant fossils, occ. conglomerates, siderite beds.	10 20 30 40 50					



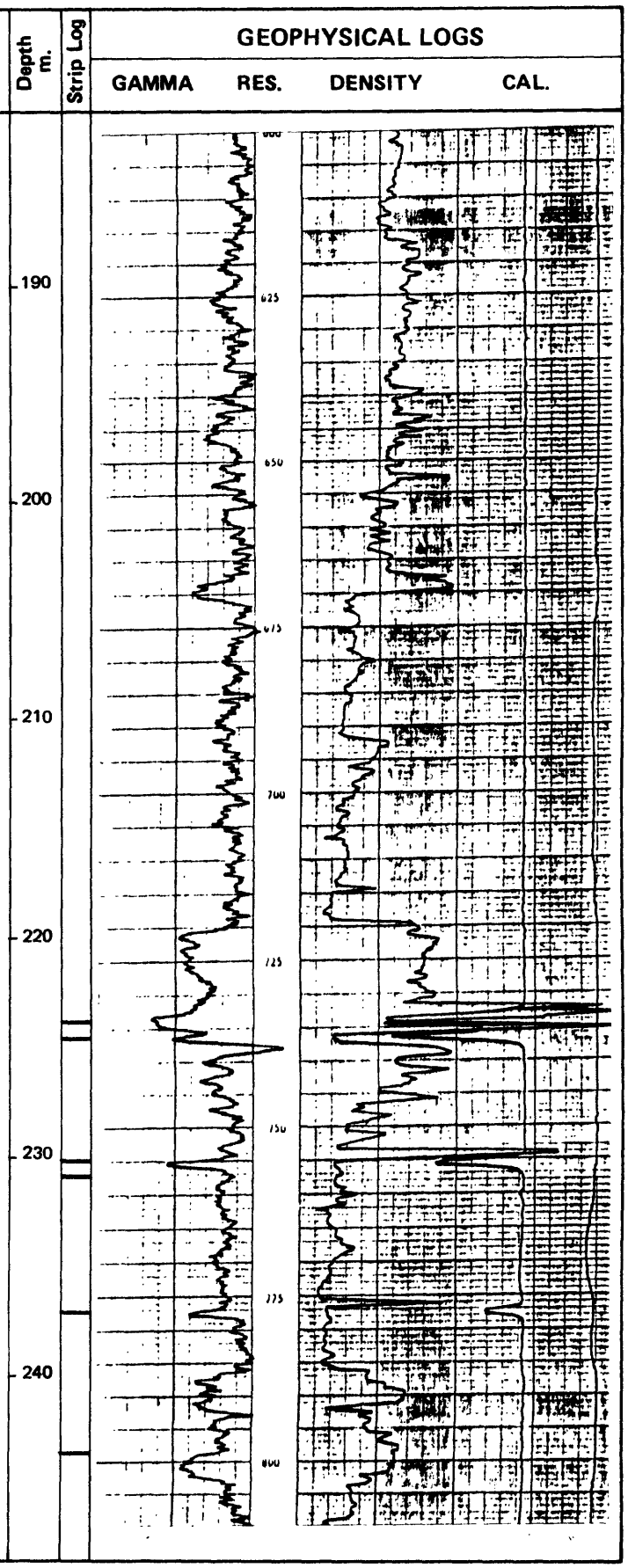
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
54.80 - 145.18	Sh., ss. beds and intbds.: sh., gy.-bk., sandy, abnt. mud flows; ss., gy., f.-c.gr., calc.; massive, carb., mica., occ. coal streaks and spars, occ. rooting and burrowing, occ. marine and plant fossils, occ. conglomerates, siderite beds.	60 70 80 90 100 110		GAMMA RES. DENSITY CAL.



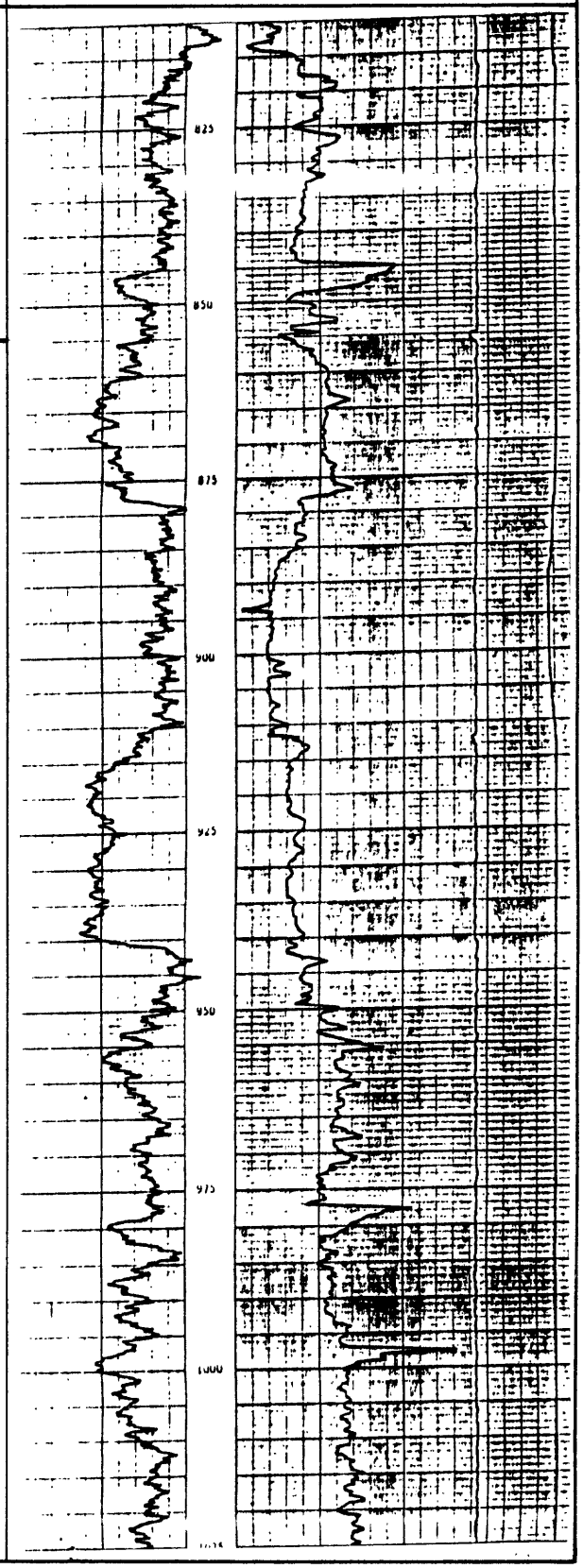
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
145.18 - 145.67	COAL, boney, some gy. sh., calc., and pyrite lems.; Cobb group.			
145.67 - 150.00	Fc., waxy, abnt. plant fossils, intbdd. gy. end bk. sh.			
150.00 - 225.48	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy in part, carb. in part; ss., gy., f.-m.gr., x-bdg.; massive in part, burrowed in part, some flow structure, scattered pyrite, occ. calc.-filled structures, scattered siderite, mica., plant fossils, scattered coal lams. and coalified plant fossils 163.11 - 166. 16 meters, few marine fossils, little slumping.			



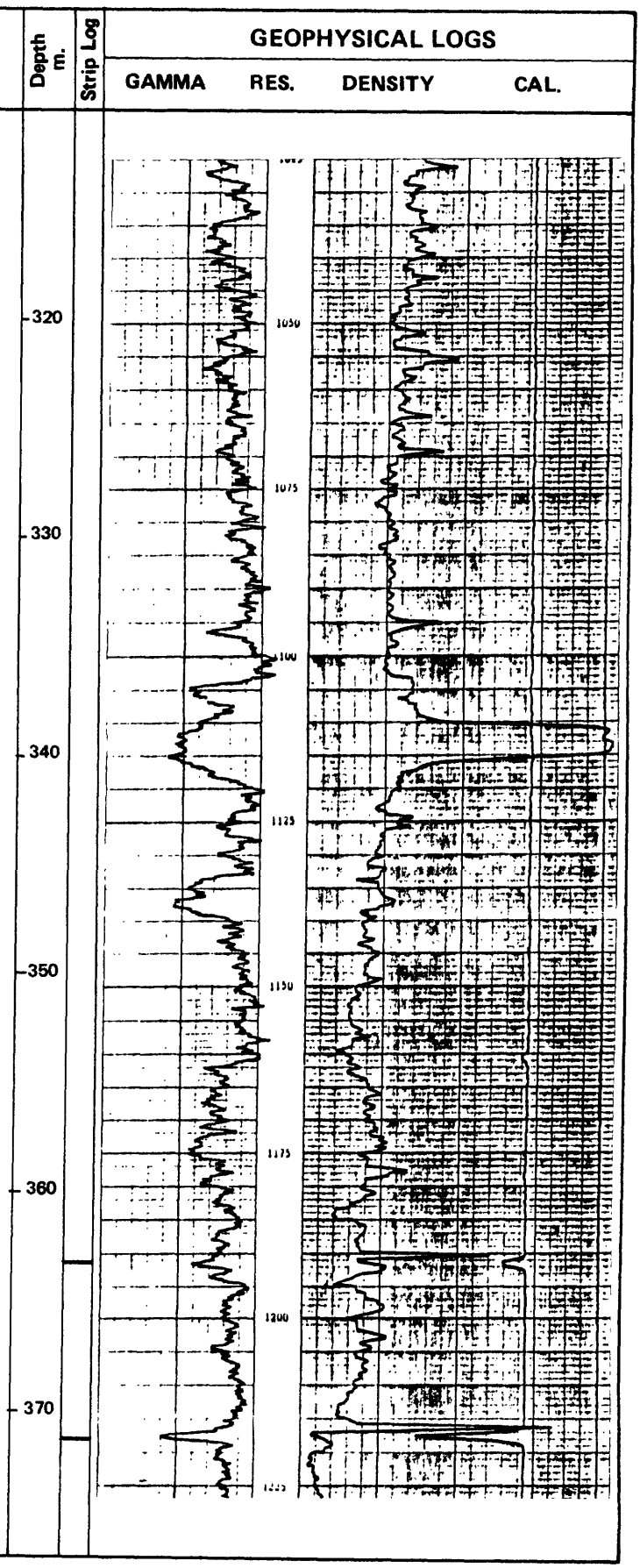
LITHOLOGY	
225.48 - 227.06	COAL, undifferentiated, fc. 226.19 - 226.37 meters, intbdd. coal, bone, and sh. 226.68 - 227.06 meters; Pratt bed.
227.06 - 227.18	Fc., dk.gy., abnt. plant fossils.
227.18 - 232.24	Sh., ss. beds and intbds.; sh., dk.gy., clayey, occ. siderite; ss., dk.gy., f.gr., mica.
232.24 - 232.59	COAL, blocky, banded; Nickel Plate bed.
232.59 - 232.65	Fc., gy., churned, abnt. plant fossils.
232.65 - 232.71	COAL, banded, calc.-filled fractures.
232.71 - 233.93	Fc., gy., churned, abnt. plant fossils, occ. lt.gy. ss. lams., occ. coal and bone bands, calc.-filled structures, occ. siderite.
233.93 - 238.99	Sh., gy.-bk., soft, churned, finely mica., abnt. plant fossils, occ. sidarite and coal spars.
238.99 - 239.24	COAL, banded, hard, little intbdd. bone; American bed.
239.24 - 241.16	Fc., dk.gy.-bk., massive, rooted, waxy, abnt. plant fossils.
241.16 - 242.10	Ss., sh. intbds.; ss., gy., f.-m.gr.; sh., mica., occ. plant fossils, flow structure.
242.10 - 242.50	Fc., dk.gy., massive, waxy, occ. plant fossils and rooting.
242.50 - 242.68	Ss., gy., f.gr., mica., sh. lams.
242.68 - 243.02	Fc., sandy, massive, waxy in part, rooted, few plant fossils.
243.02 - 243.32	Ss., f.gr., few pyrite nodules, carb., sh. lams.
243.32 - 243.69	COAL, bone, and sh., intbdd.
243.69 - 243.90	Fc., waxy, massive, rooted in part, abnt. plant fossils.
243.90 - 262.62	Sh., ss. beds and intbds.; sh., m.gy.-bk., massive, churned, sandy, burrowed in part, calc. in part, carb. in part, scattered plant fossils and coal lams.; ss., gy., f.gr.; mica., pyrite in part, occ. siderite nodules and lams., marine fossils.

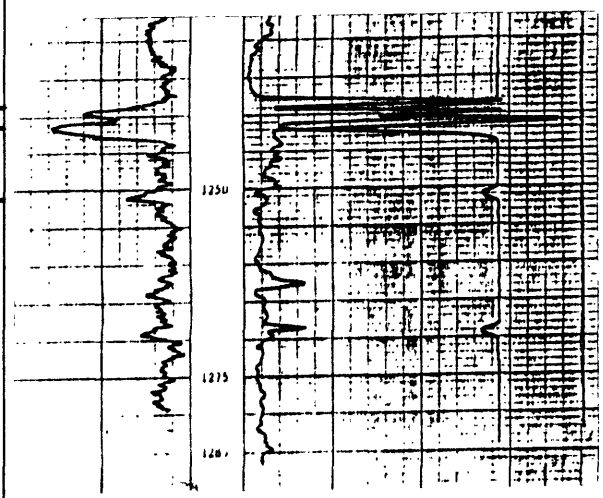


LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
262.62 - 262.71	COAL, banded.			GAMMA RES. DENSITY CAL.
262.71 - 263.41	Fc., lt.gy.-gn., rooted, abnt. plant fossils.	250		
263.41 - 276.89	Sh., ss. beds and intbds.; sh., gy.-dk.gy., carb., few siderite nodules, rare plant fossils; ss., gy.			
276.89 - 281.16	Core lost.			
281.16 - 356.48	Sh., ss. beds and intbds.; sh., lt.-dk.gy., sandy, slumped in part, churned in part, rooted in part, carb. in part, occ. plant and marine fossils; ss., lt.gy., f.-c.gr., calc.; occ. flow structures, burrowed in part, massive in part, occ. siderite bands and nodules, few coal bands.	260		
		270		
		280		
		290		
		300		
		310		



LITHOLOGY	
356.48 - 356.71	Sh., bk., intbdd. coal.
356.71 - 356.77	Fc., dk.gy., massive, waxy, plant fossils.
356.77 - 365.63	Sh., ss. beds and intbds.; sh., dk.gy., sandy, burrowed in part, carb. in part, occ. coal spars and siderite bands.
365.63 - 365.92	COAL, banded, intbdd. dk.gy. fc.
365.92 - 366.13	Fc., sandy, abnt. plant fossils.
366.13 - 373.87	Sh., gy.-dk.gy., sandy, churned, abnt. plant fossils, occ. siderite bands, occ. ss. bands.
373.87 - 374.22	COAL, banded, occ. thin pyrite lams.; New Castle bed.
374.22 - 374.39	Fc., dk.gy.-bk., waxy, massive, occ. coal spars, abnt. plant fossils.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
374.39 - 380.62	Sh., ss. beds and intbds.; sh., dk.gy., occ. plant fossils; ss., dk.gy.-v.dk.gy.; carb. in part.			
380.62 - 381.77	COAL, banded, intbdd. bone 380.62 - 380.70, 380.94 - 380.98, and 381.55 - 381.77 meters; Mary Lee bed.			
381.77 - 382.62	Fc., dk.gy.-v.dk.gy., waxy, massive, abnt. plant fossils.			
382.62 - 384.15	Sh., gy.-bk., abnt. plant fossils, scattered siderite and pyrite nodules, some coal spars and bands.	380		
384.15 - 384.28	COAL, banded, some pyrite lams.			
384.28 - 384.76	Fc., dk.gy., waxy, massive, abnt. plant fossils, scattered pyrite nodules.			
384.76 - 394.60	Sh., ss. beds and intbds.; sh., dk.gy.-bk., abnt. plant fossils and coal spars; ss., dk.gy.-v.dk.gy., f.gr.; occ. siderite bands and nodules.			
394.60	Total depth.	390		

DRILL HOLE LOG

Hole #: 49

Geophysical Log Date: 2-21-81, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½′ quad. Location: SW¼ Sec. 4, T. 17 S, R. 9 W HPM

Surface Elev.: 204.3 m, Logged Depth: 404.6 m, Drilled Depth: 407.2 m, Core Int: 384.6 m,

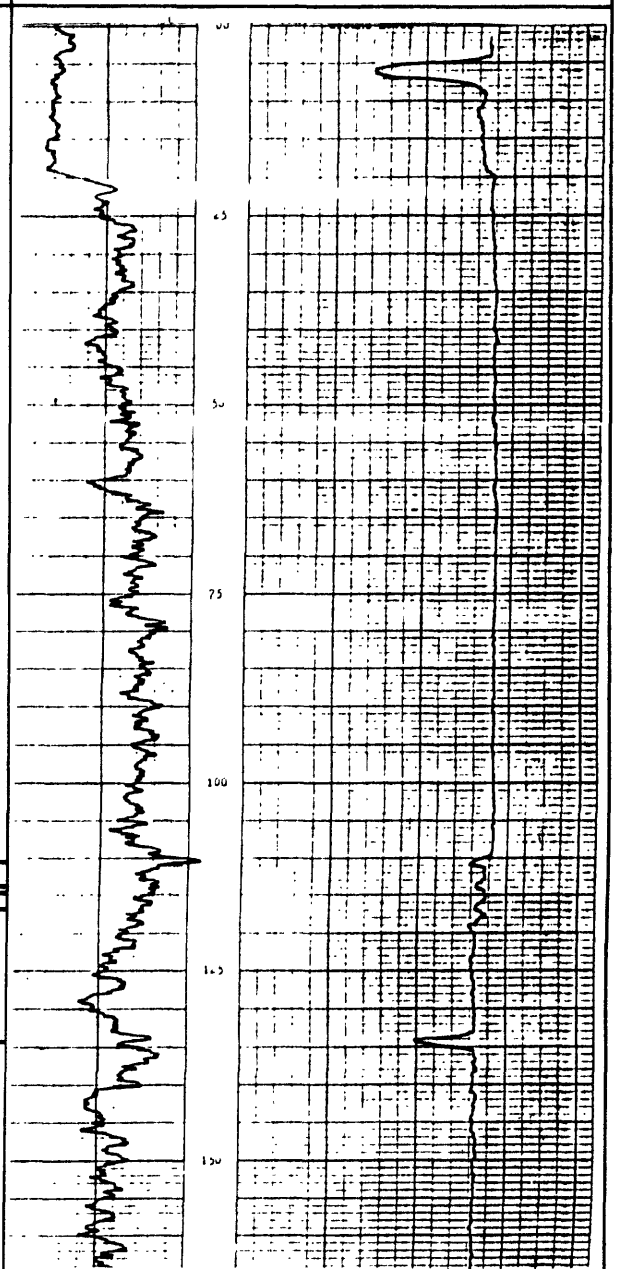
LITHOLOGY

0 - 22.56	Cased in unconsolidated material.
22.56 - 33.78	Sh., gy.-dk.gy., mica., sandy, carb. in part, some siderite.
33.78 - 33.95	COAL, banded, calc. lams. at top; Utley group.
33.95 - 34.43	Fc., dk.gy., waxy, meny plent fossils.
34.43 - 34.57	Sh., bk., many plant fossils, few coal layers.
34.57 - 34.74	COAL, some intbdd. bone; Utley group.
34.74 - 34.77	Sh., bk., some coel layers.
34.77 - 34.82	Fc., some intbdd. coal.
34.82 - 34.86	COAL, banded; Utley group.
34.86 - 35.43	Sh., intbdd. bk. and gy., many plant fossils.
35.43 - 35.53	COAL, intbdd. bone and bk. sh.; Utley group.
35.53 - 36.10	Fc., dk.gy., sandy, rooted, many plent fossils.
36.10 - 40.99	Ss., sh. beds; ss., gy., f.-m.gr., messive; sh., bk., coal layers.
40.99 - 41.14	COAL, banded, scattered pyrite lams; Utley group.
41.14 - 41.71	Fc., sandy, rooted, many plant fossils.
41.71 - 49.94	Ss., gy., f.-c.gr., mica., x-bds., scattered siderite nodules; scattered coel spars 44.27 - 49.94 meters.
49.94 - 50.15	Fc., gy.-gn., messive, waxy, few plant fossils.

Depth m.

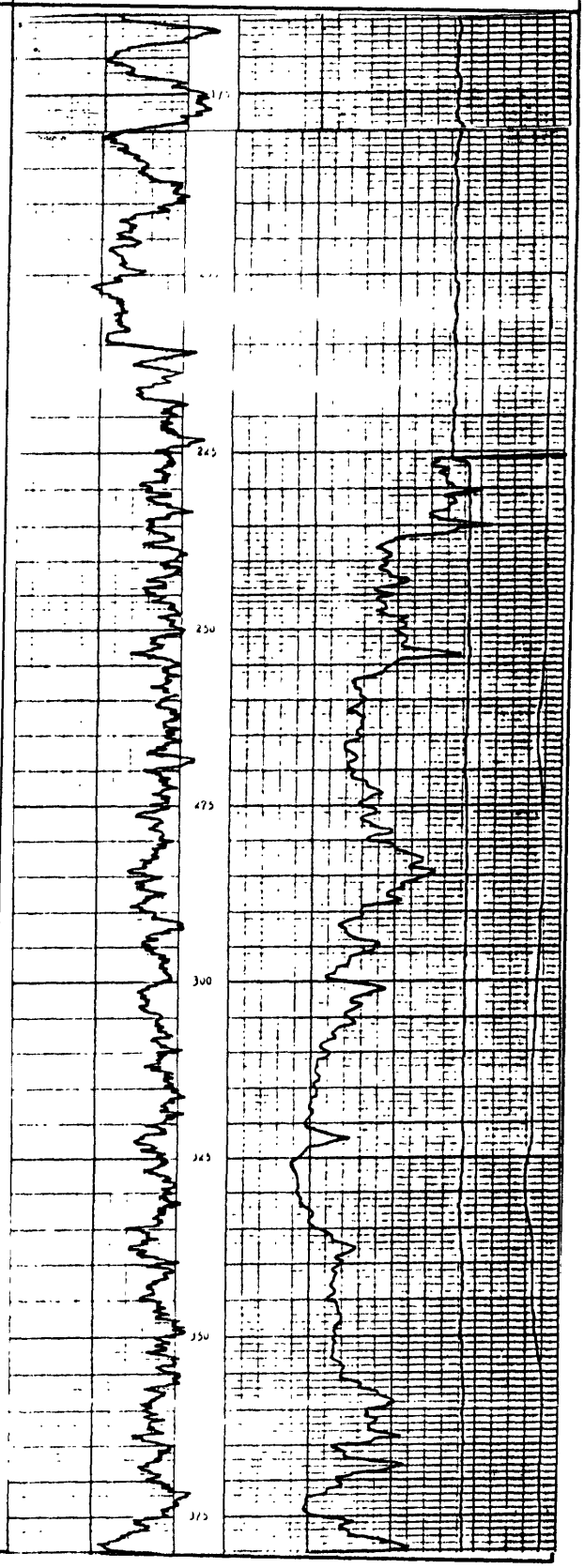
Strip Log

GEOPHYSICAL LOGS



LITHOLOGY		Depth m.	Strip Log
50.15 - 115.04	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy, mica., carb. in part, burrowed in part; ss., gy., f.-c.gr., x-bds., rooted in part, calc. in part; some flow structure; scattered siderite nodules and lams.; some plant fossils; few marine fossils; scattered coal spars 51.25 - 52.13 meters, coal lems. 52.80 - 53.11 meters.		
115.04 - 115.26	Bone, intbdd. coal; Gwin group horizon.		
115.26 - 115.81	Fc., dk.gy., waxy, coal spars.		
115.81 - 115.87	Bone, intbdd. coal; Gwin group horizon.		
115.87 - 116.04	Fc., dk.gy., sandy, rooted.		

GEOPHYSICAL LOGS



LITHOLOGY

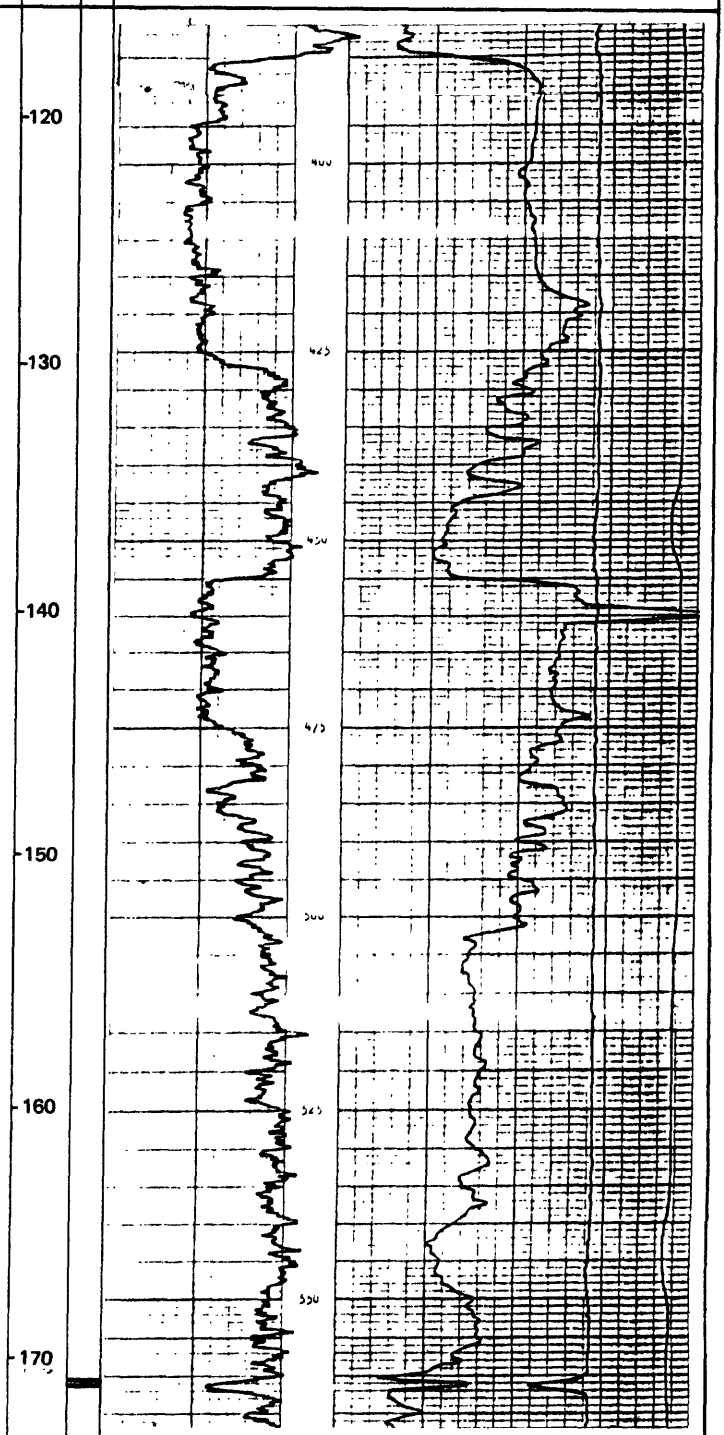
116.04 - 169.50	Sh., ss. beds and intbds.; sh., gy.-dk.gy., sandy, mica., carb. in part; burrowed in part; ss., gy., f.-m.gr., calc. in part, x-bds., rooted in part; some flow structure and conglomerate beds; scattered plant fossils; scattered siderite; some intbdd. bk. sh. near base; coal spars 123.05 - 124.82, 126.46 - 127.07; coal lams. 128.54 - 128.87, 142.53 - 143.47 meters.
169.50 - 169.51	COAL, undifferentiated; Cobb group.
169.51 - 169.58	Sh., bk., plant fossils.
169.58 - 169.65	Bone, intbdd. coal.
169.65 - 169.94	COAL, banded, scattered thin bone lams.; Cobb group.
169.94 - 170.76	Fc., dk.gy., waxy, massive, few coal spars.
170.76 - 171.07	Ss., gn.-gy., f.gr., rooted.
171.07 - 172.85	Fc., lt.gy., sandy, scattered coal spars, intbdd. bone and little coal near base.

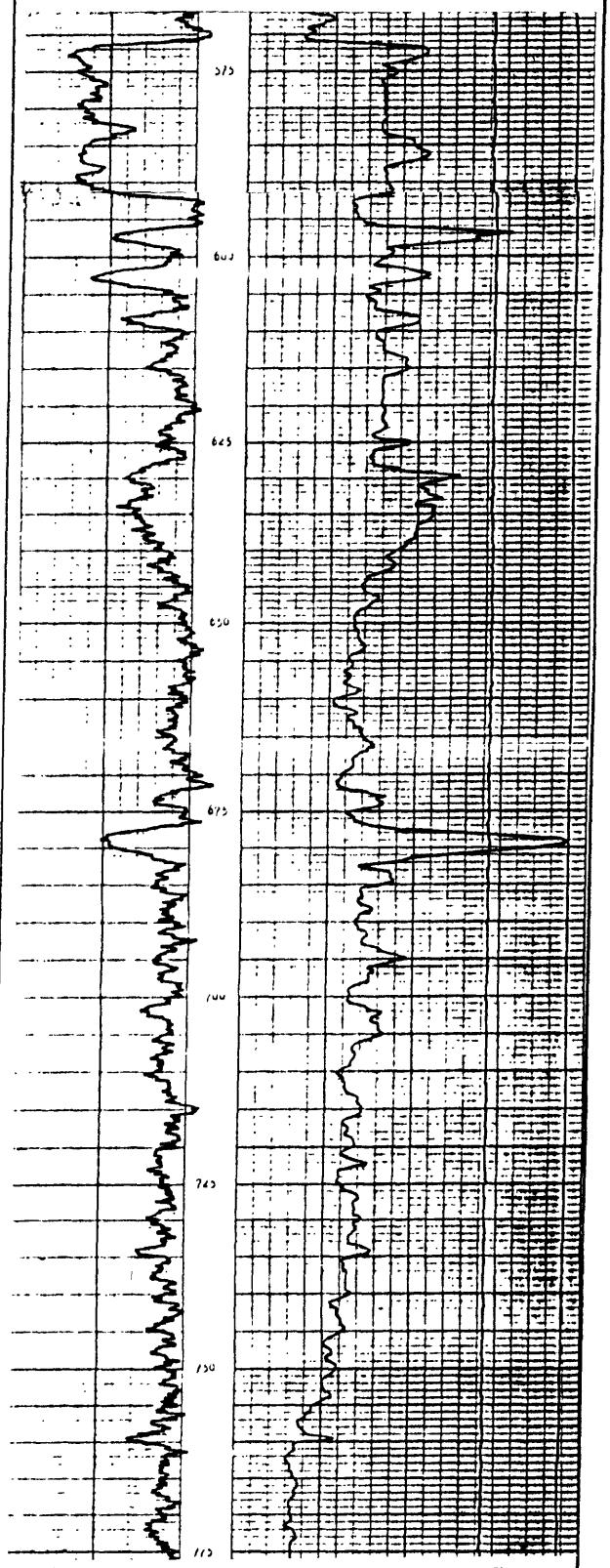
Depth m.

Strip Log

GEOPHYSICAL LOGS

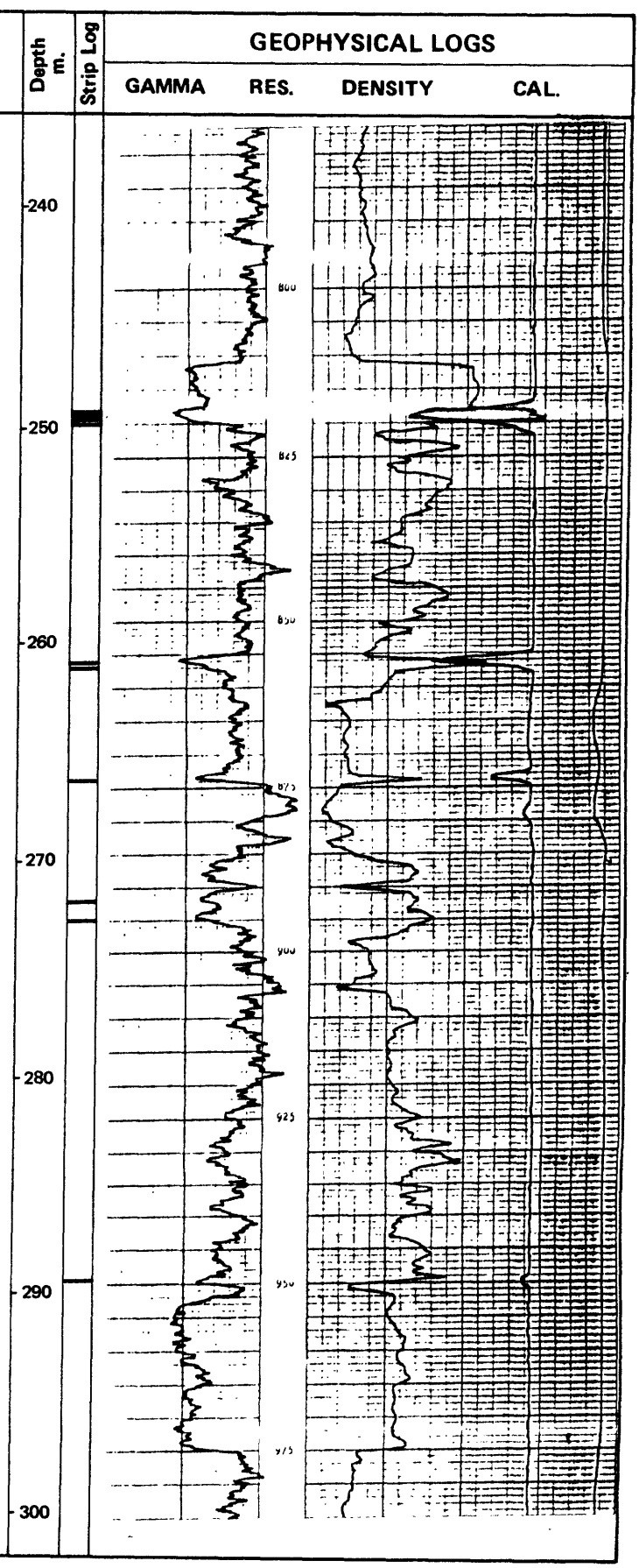
GAMMA RES. DENSITY CAL.



LITHOLOGY	Depth m.	Strip Log	GEOPHYSICAL LOGS
			GAMMA RES. DENSITY CAL.
172.85 - 248.02 Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy in part, churned in part, some plant fossils; ss., gy., f.-c.gr., mica., calc. in part; carb. in part; burrowed in part; some flow structure; few marine fossils; little sidarite and pyrite; coal spars and lams. 172.85 - 179.18 maters.	180 190 200 210 220 230		

LITHOLOGY

248.02 - 248.18	COAL, banded, little pyrite at top; Pratt bed.
248.18 - 248.25	Bone, some coal streaks.
248.25 - 248.52	COAL, banded, some bone streaks; Pratt bed.
248.52 - 248.54	Sh., gy.
248.54 - 248.73	COAL, banded, some bone streaks; Pratt bed.
248.73 - 248.93	Fc., dk.gy., massive, rooted, few coal streaks.
248.93 - 249.11	COAL, banded; Pratt bed.
249.11 - 249.69	Fc., dk.gy., massive, rooted, scattered thin coal layers.
249.69 - 259.47	Sh., ss. beds; sh., gy., some intbdd. bk. sh., carb. in part, calc. in part; ss., gy., f.gr., some rooting; scattered coal bands 250.30 - 252.71 meters.
259.47 - 259.60	Bone, some intbdd. bk. sh.
259.60 - 260.21	COAL, banded, little thin intbdd. bone and fc.; American bed.
260.21 - 261.58	Sh., dk.gy., sandy, burrowed, many plant fossils.
261.58 - 261.60	COAL, banded; Pratt group.
261.60 - 265.08	Sh., dk.gy.-bk., many plant fossils, scattered coal spars.
265.08 - 265.40	COAL, banded, calc. lams. at top, scattered pyrite; Curry bed.
265.40 - 266.61	Sh., fc. intbdd.; sh., bk.; many plant fossils.
266.61 - 268.75	Fc., dk.gy., massive, rooted, waxy, coal and bone lams. 268.23 - 268.63 meters.
268.75 - 270.00	Ss., sh. intbds.; ss., gy., f.-m.gr., massive; sh., gy., carb., plant fossils common.
270.00 - 270.06	COAL, bone intbdd.; Pratt group.
270.06 - 270.30	Fc., dk.gy., waxy, plant fossils, scattered thin coal bands.
270.30 - 272.48	Sh., ss. intbds.; sh., gy., sandy, carb., churned in part; ss., gy., f.-m.gr.; plant fossils.
272.48 - 272.53	COAL, fc. intbdd.; Pratt group.
272.53 - 275.18	Fc., dk.gy., sandy, massive, rooted, many plant fossils.
275.18 - 288.47	Ss., sh. intbdd.; ss., gy., f.-m.gr.; sh., gy.; burrowed in part; calc. in part.
288.47 - 288.57	COAL, banded; Pratt group.
288.57 - 289.08	Fc., dk.gy., massive, rooted.
289.08 - 296.07	Ss., gy., f.-m.gr., massive in part, rooted in part, scattered thin coal bands 289.69 - 293.11 meters.
296.07 - 304.74	Sh., gy.-dk.gy., some sand, scattered siderite nodules, marine fossils 301.68 - 302.59 meters, burrowed in part, few plant fossils.



LITHOLOGY

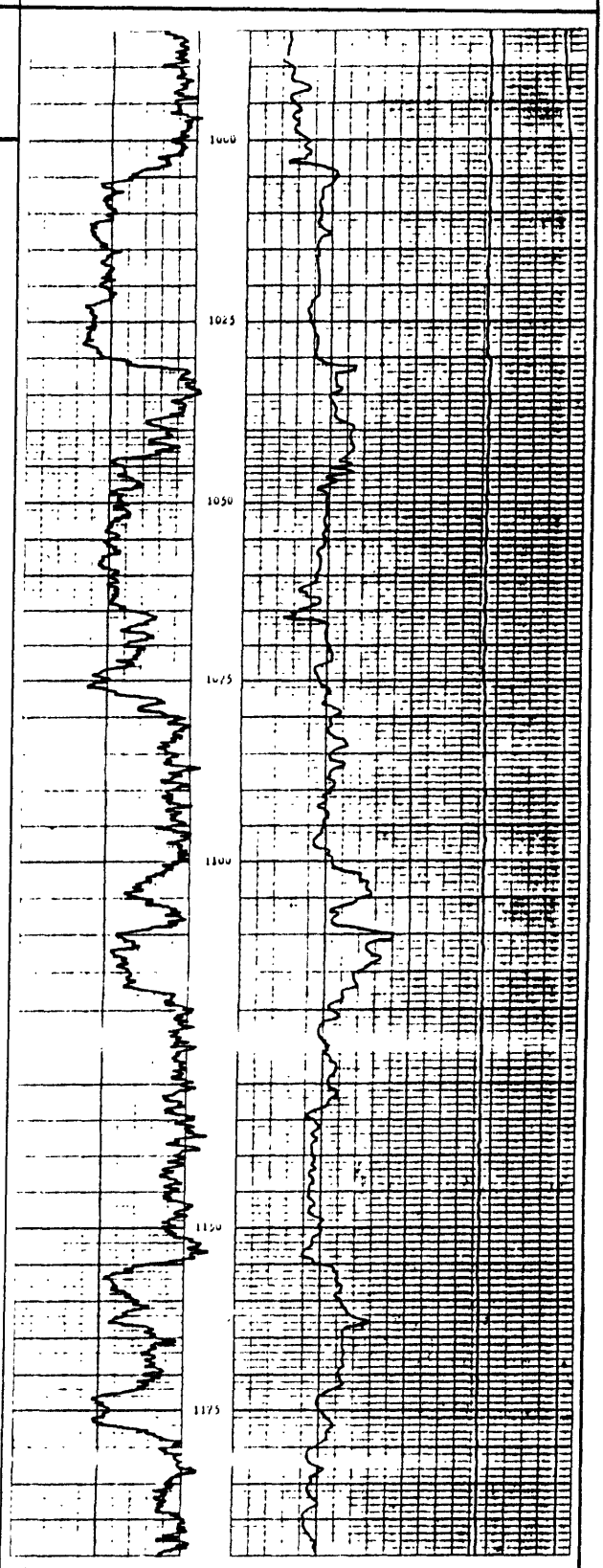
304.74 - 304.77 COAL, banded; Pratt group.
304.77 - 305.00 Fc., dk.gy., sandy, rooted.
305.00 - 382.15 Sh., ss. beds and intbds.; sh., gy.-dk.gy., some sand, carb. in part, some siderite, little pyrite; ss., gy., f.-c.gr., mica., rooted in part; some flow structure, burrowed in part, scattered coal lams. 311.28 - 313.41 meters.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



LITHOLOGY

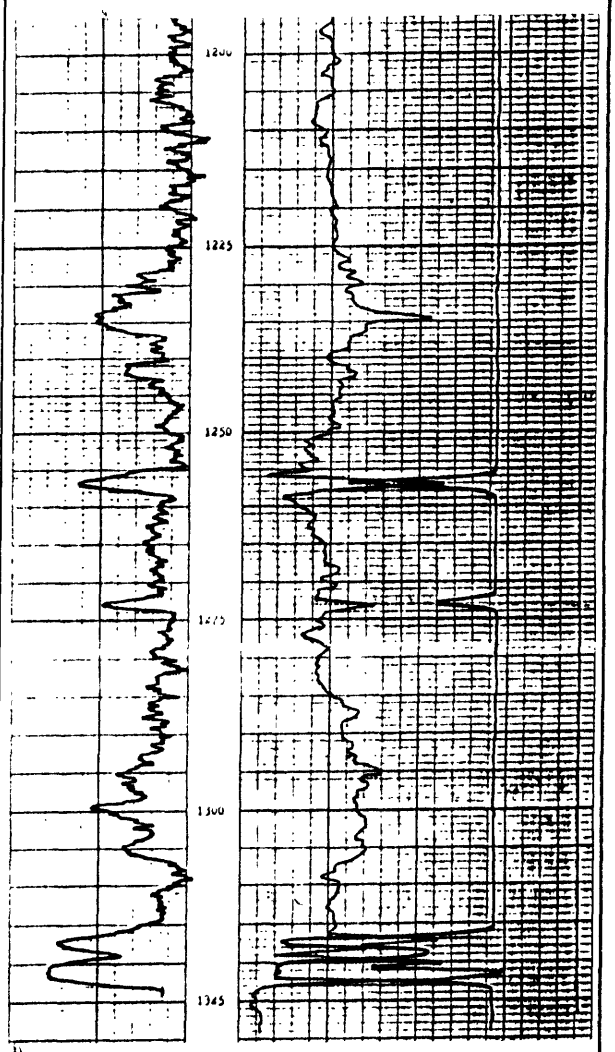
382.15 - 382.74	COAL, undifferentiated, 6 cm. sh. at 382.56; New Castle bed.
382.74 - 383.05	Fc., some sand, plent fossils.
383.05 - 387.13	Sh., ss. intbdd.; sh., dk.gy., sandy, burrowed.
387.13 - 387.44	COAL, undifferentiated; Mery Lee bed.
387.44 - 387.74	Fc.
387.74 - 400.18	Sh., ss. beds; sh., dk.gy., sandy, some siderite; ss., gy., f.gr., mica.; scattered coal spars and bands 393.38 - 399.42 meters.
400.18 - 402.22	COAL, undifferentiated, 16 cm. sh. parting at 400.91 meters; Blue Creek bed.
402.22 - 402.74	Fc., dk.gy., waxy, few coal lams.
402.74 - 406.25	Sh., intbdd. gy. and bk., many plent fossils, few coal bands.
406.25 - 406.41	COAL, undifferentieted; Jagger bed.
406.41 - 407.18	Fc., dk.gy., waxy, massive, many plant fossils.
407.18	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

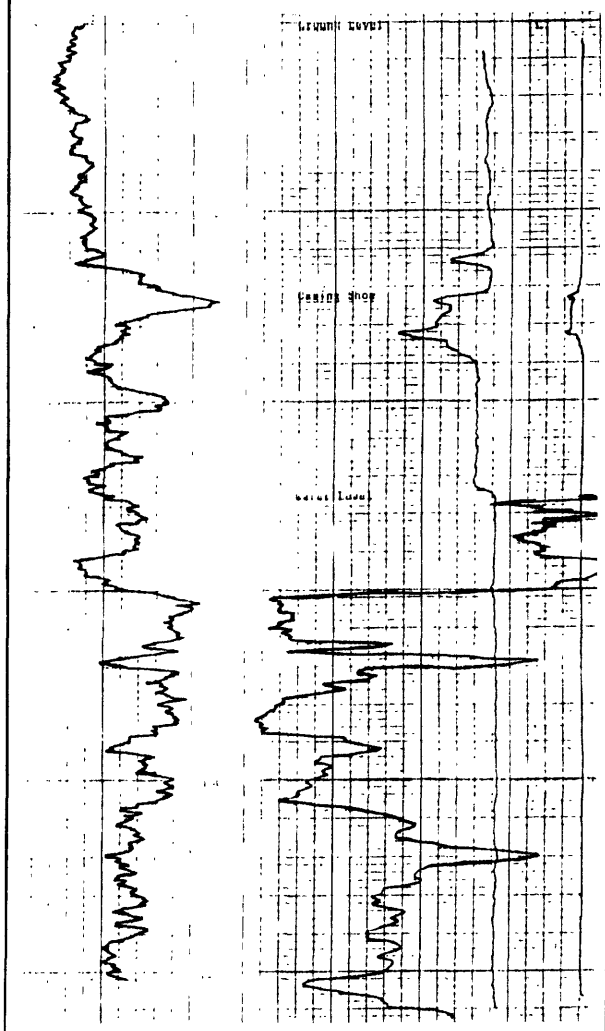
Hole #: 52

Geophysical Log Date: 12-15-80, County, State: Fayette, Alabama

Map: Berry SE, 7½' quad. Location: SW¼ Sec. 31, T. 16 S, R. 9 W HPM

Surface Elev.: 190.5 m, Logged Depth: 39.3 m, Drilled Depth: 39.3 m, Core Int: 28.2 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA, RES., DENSITY, CAL.
0 - 11.05	Cased in unconsolidated material.			
11.05 - 39.27	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica., massive in part, x-bds.; sh., gy., mica., sandy, carb. in part; some siderite, scattered plant fossils, few marine fossils, little pyrite, rare flow structure, rare conglomerate beds.			
39.27	Total depth.			



DRILL HOLE LOG

Hole #: 53

Geophysical Log Date: 12-31-80, County, State: Fayette, Alabama

Map: Berry SE, 7½' quad. Location: NE¼ Sec. 31, T. 16 S, R. 9 W HPM

Surface Elev.: 190.5 m, Logged Depth: 33.4 m, Drilled Depth: 33.4 m, Core Int: 22.1 m,

LITHOLOGY

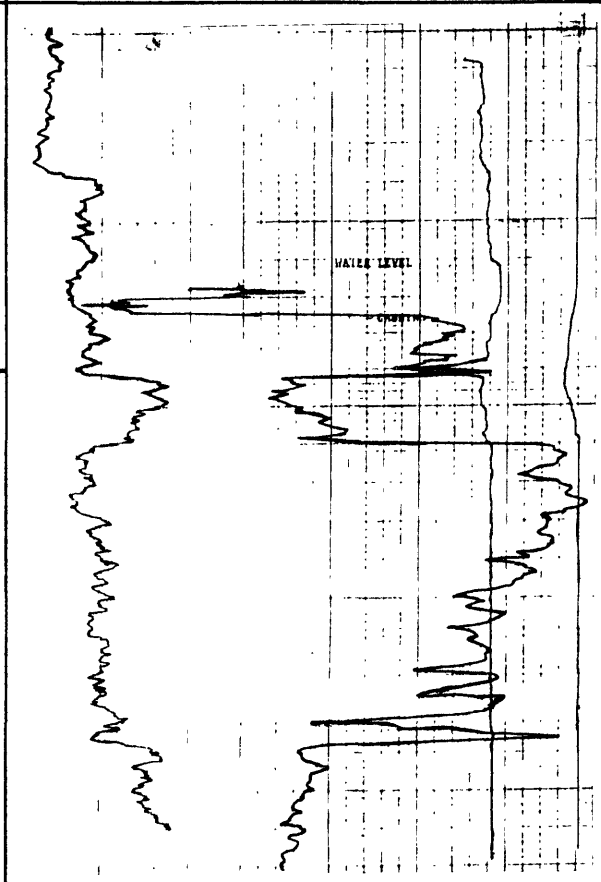
0 - 11.25	Cased in unconsolidated material.
11.25 - 13.51	Ss., sh. beds; ss., m.-c.gr.
13.51 - 13.81	COAL, 3 cm. broken coal recovered.
13.81 - 14.63	Fc., abnt. plant fossils.
14.63 - 33.35	Ss., sh. beds and intbds.; ss., f.-c.gr., mica.; sh., gy., rare fossil plants; rare flow structure.
33.35	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 54

Geophysical Log Date: 12-31-80, County, State: Walker, Alabama

Map: Oakman, 7½' quad. Location: NE¼ Sec. 29, T. 16 S, R. 9 W HPM

Surface Elev.: 208.8 m, Logged Depth: 34.3 m, Drilled Depth: 34.3 m, Core Int: 23.1 m,

LITHOLOGY

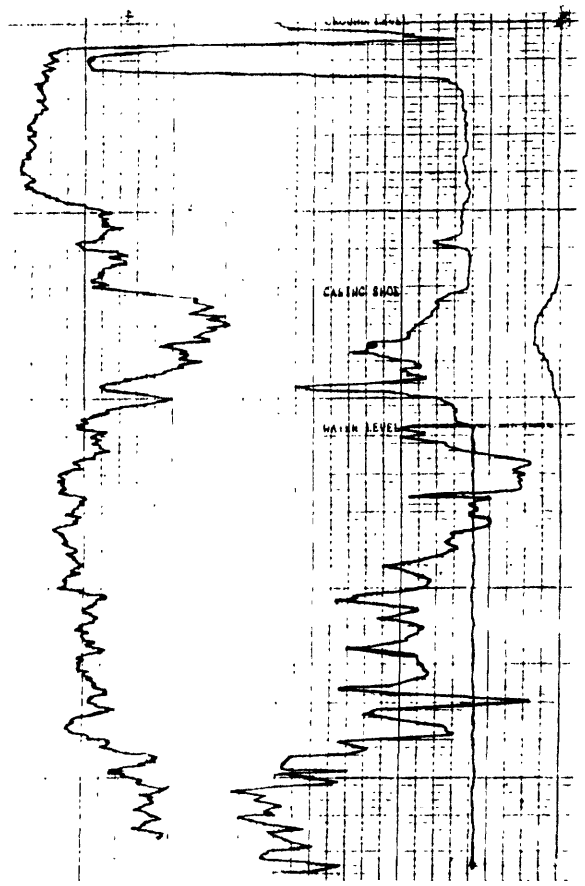
0 - 11.19	Cased in unconsolidated material.
11.19 - 14.57	Ss., clay intbds.; clay, yw.gy.-gy., sandy; weathered.
14.57 - 14.91	COAL, banded, scattered thin pyrite lams.; Utley group.
14.91 - 15.30	Fc., soft, some plant fossils.
15.30 - 34.33	Ss., sh. beds and intbds.; ss., gy., f.-c.gr., mica., x-bds., calc. in part, burrowed in part; sh., gy., mica., sandy, carb. in part; scattered plant fossils; little siderite; conglomerate beds; scattered thin coal spars and lams. 23.17 - 23.32 and 26.89 - 29.30 meters.
34.33	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 55

Geophysical Log Date: 12-9-80, County, State: Fayette, Alabama

Map: Berry, 7½' quad. Location: SE¼ Sec. 23, T. 15 S, R. 10 W HPM

Surface Elev.: 208.8 m, Logged Depth: 45.7 m, Drilled Depth: 45.7 m, Core Int: 37.2 m,

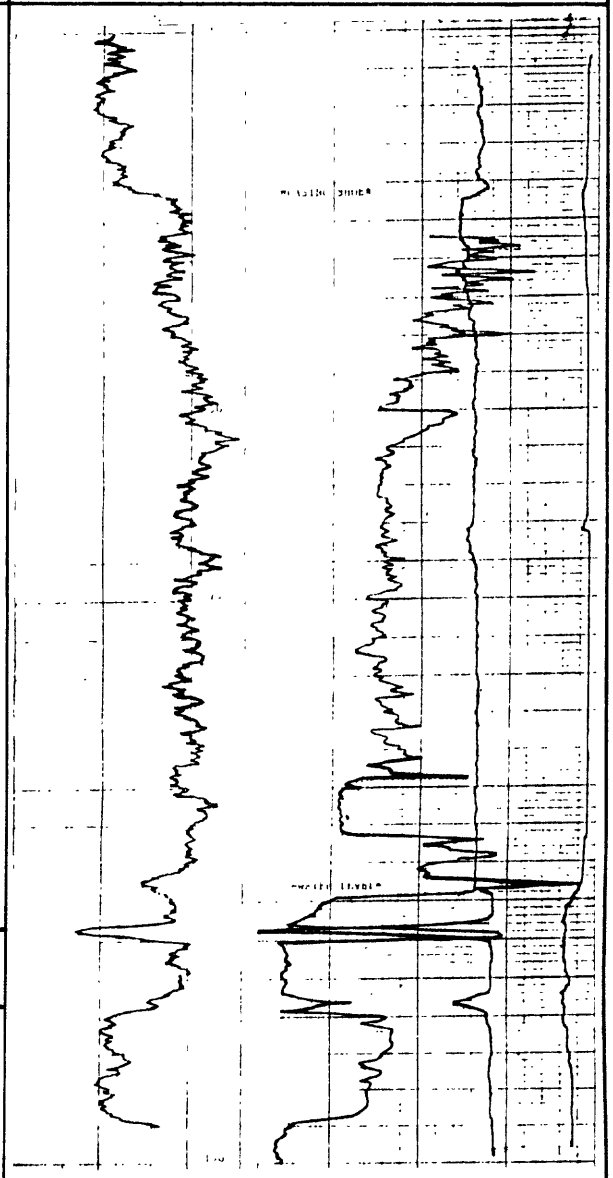
LITHOLOGY

0 - 8.53	Cased in unconsolidated material.
8.53 - 36.16	Sh., ss. beds and intbds.; sh., gy., mica., some sand, some scattered marine fossils, some siderite; ss., f.-m. gr., mica.; some weathering.
36.16 - 36.59	COAL, banded, little pyrite; upper Cobb bed.
36.59 - 37.62	Fc., massive, many plant fossils.
37.62 - 38.93	Sh., gy., many plant fossil fragments.
38.93 - 39.38	COAL, intbdd. gy. sh.; 17 cm. intbdd. bone and bk. sh. with coal spars at base; lower Cobb bed.
39.38 - 39.46	Sh., bk., some coal spars, some intbdd. fc.
39.46 - 43.84	Ss., m.-c.gr., massive, mica.
43.84 - 45.67	Sh., gy., meny siderite bands.
45.67	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS



DRILL HOLE LOG

Hole #: 56

Geophysical Log Date: 11-14-80, County, State: Walker, Alabama

Map: Howard, 7½' quad. Location: SE¼ Sec. 7, T. 15 S, R. 9 W HPM

Surface Elev.: 236.3 m, Logged Depth: 49.7 m, Drilled Depth: 49.7 m, Core Int: 36.7 m,

LITHOLOGY

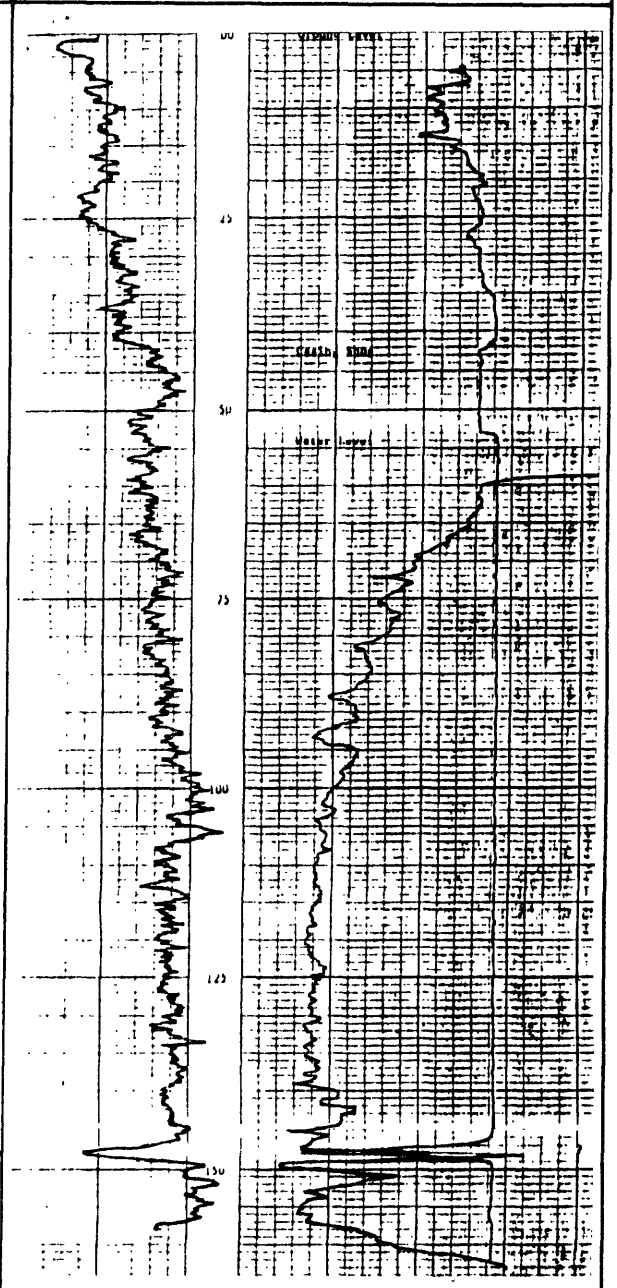
0 - 12.96	Cased in unconsolidated material.
12.96 - 44.89	Sh., gy., sandy, mica., churned in part, little siderite, some plent fossils.
44.89 - 45.18	COAL, banded; Cobb group.
45.18 - 48.35	Fc., fossil plent fragments, 6 cm. ss. bed at 45.67 meters.
48.35 - 49.70	Ss., f.gr., mica., few plent fossil fragments.
49.70	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



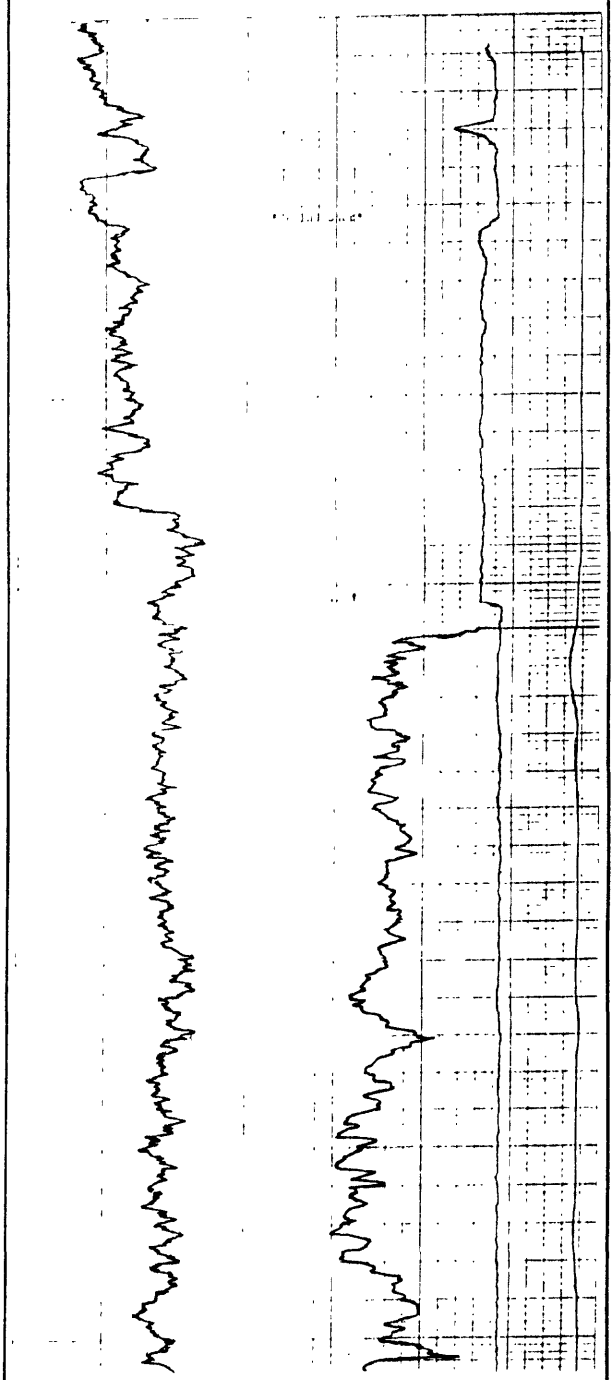
DRILL HOLE LOG

Hole #: 57

Geophysical Log Date: 11-5-80, County, State: Walker, Alabama

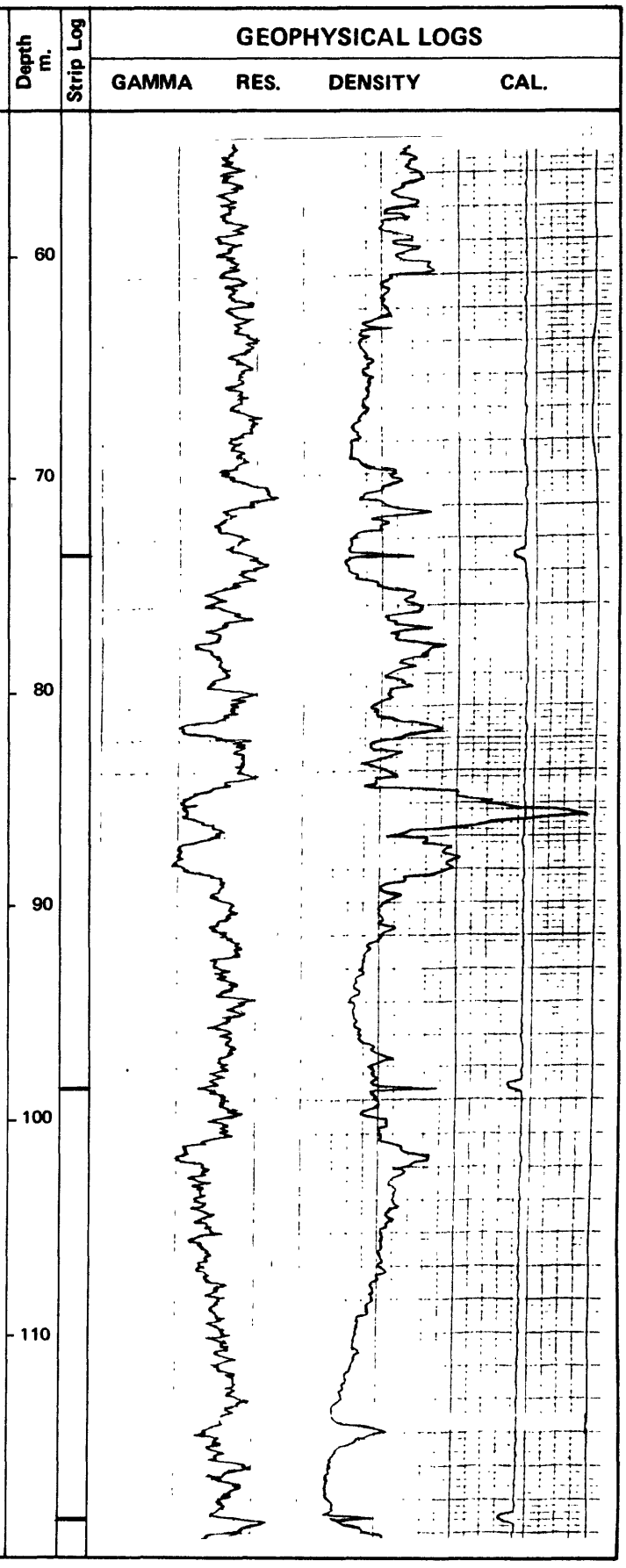
Map: Howard, 7½' quad. Location: SW¼ Sec. 19, T. 14 S, R. 9 W HPM

Surface Elev.: 222.6 m, Logged Depth: 190.9 m, Drilled Depth: 193.0 m, Core Int: 184.8 m,

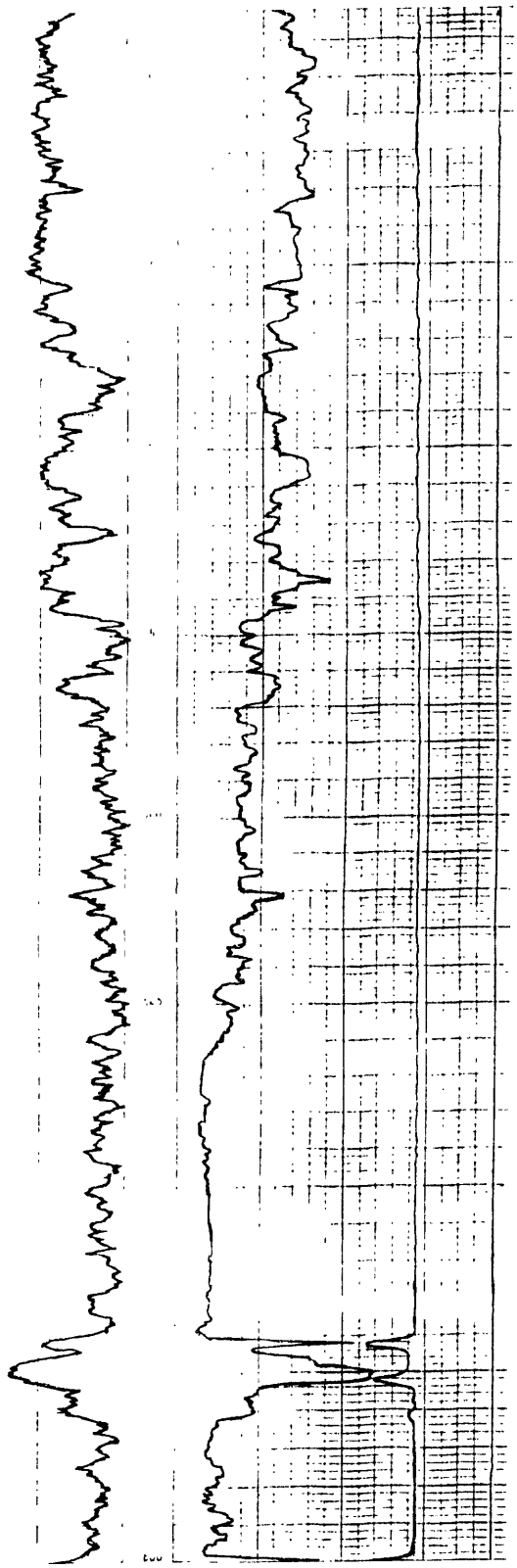
LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
0 - 8.23	Cased in unconsolidated material.			GAMMA RES. DENSITY CAL.
8.23 - 72.96	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, some pyrite, scattered plant fossils and fragments, few calc. lams.; ss., gy., f.-c.gr., mica., scattered siderite nodules; carb. in part, rare marine fossil fragments, scattered coal bands 11.52 - 11.86 and 38.78 - 40.12 meters.	10 20 30 40 50		

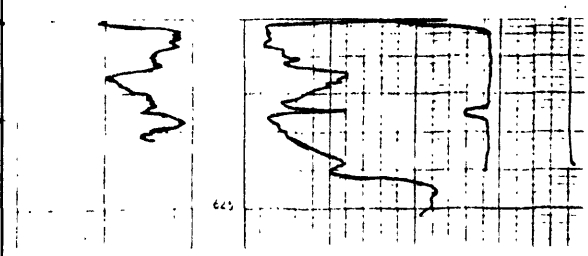
LITHOLOGY

72.96 - 73.96	Sh., dk.gy.-bk.
73.96 - 74.04	COAL, banded, scattered thin pyrite and calc. lams.
74.04 - 74.15	Bone, few coal streaks.
74.15 - 75.55	Fc., gy., massive.
75.55 - 98.54	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., burrowed in part, some siderite, few plant fossils and fregments, marine fossil bed; ss., gy., v.f.-m.gr., mica; carb. in part.
98.54 - 98.66	COAL, banded, thin calc. lams.
98.66 - 99.79	Fc., gy., sandy, massive.
99.79 - 118.54	Sh., ss. intbds.; sh., gy.-dk.gy., mica., sandy, carb., burrowed in part, some siderite, few plant fossil fragments, marine fossil beds; ss., gy., f.-m.gr., mica.
118.54 - 118.67	Sh., bk., carb.
118.67 - 119.09	COAL, banded, intbdd. bone 118.99 - 119.09 meters.
119.09 - 119.51	Fc., gy., sandy, massive, scattered plant fossils.



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
119.51 - 174.33	Sh., ss. beds and intbds.; sh., gy-dk.gy., mica., sandy, few small pyrite nodules; ss., gy., f.-c.gr., mica.; carb. in part, scattered siderite bends and nodules, few plant fossil fragments; scattered thin coal bands 131.34 - 133..75 and 136.34 - 138.08 meters.	120		
174.33 - 174.79	Sh., bk., mica., thin f.gr. ss. lams., scattered pyrite.			
174.79 - 175.04	COAL, banded; New Castle bed.			
175.04 - 175.11	Sh., bk., thin coal bands.			
175.11 - 175.38	Fc., gy., sandy, massive, scattered plant fossils and coal spars.			
175.38 - 175.44	COAL, intbdd. bone.			
175.44 - 176.29	Ss., gy., f.gr., many thick coal spars.	130		
176.29 - 176.65	COAL, banded, thin ss. beds mostly near top, plant fossils; Mary Lee bed.			
176.65 - 177.56	Ss., sh. intbdd.; ss., f.-m.gr.; sh., dk.gy.; slightly burrowed; scattered coal spars.			
177.56 - 177.62	COAL, banded.			
177.62 - 177.88	Sh., gy., thin ss. lams., plant fossils.			
177.88 - 179.94	Fc., gy., sandy, massive, many plant fossils, scattered siderite nodules.			
179.94 - 183.47	Sh., ss. intbds.; sh., gy.-dk.gy., mica., thin ss. lams., scattered siderite nodules; ss., f.-m.gr.; plant fossils.	140		
		150		
		160		
		170		
		180		



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
183.47 - 183.66	Fc., gy., massive, some thick coal spars.			
183.66 - 184.02	COAL, banded, intbdd. bone at top, some pyrite lams.; Blue Creek bed.			
184.02 - 185.09	Sh., bk., carb., plant fossils, some thin coal bands.			
185.09 - 187.44	Sh., ss. intbds.; sh., dk.-gy.; ss., f.-m.gr.; plant fossils.			
187.44 - 187.62	COAL, banded, little intbdd. bone at top; Jagger bed.			
187.62 - 189.33	Fc., gy., sandy, massive, plant fossils.			
189.33 - 192.99	Ss., gy., f.-c.gr., mica., few thin sh. lams.	190		
192.99	Total depth.			

DRILL HOLE LOG

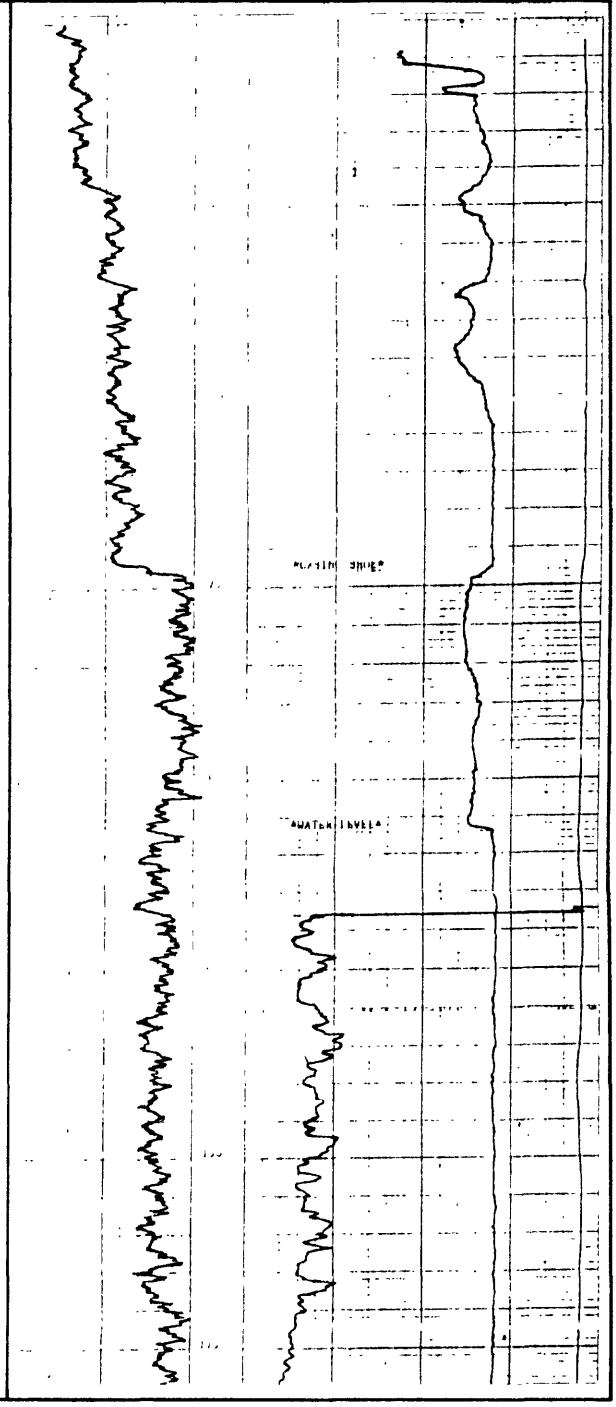
Hole #: 58

Geophysical Log Date: 12-9-80, County, State: Walker, Alabama

Map: Townley, 7½' quad. Location: SE¼ Sec. 21, T. 14 S, R. 9 W HPM

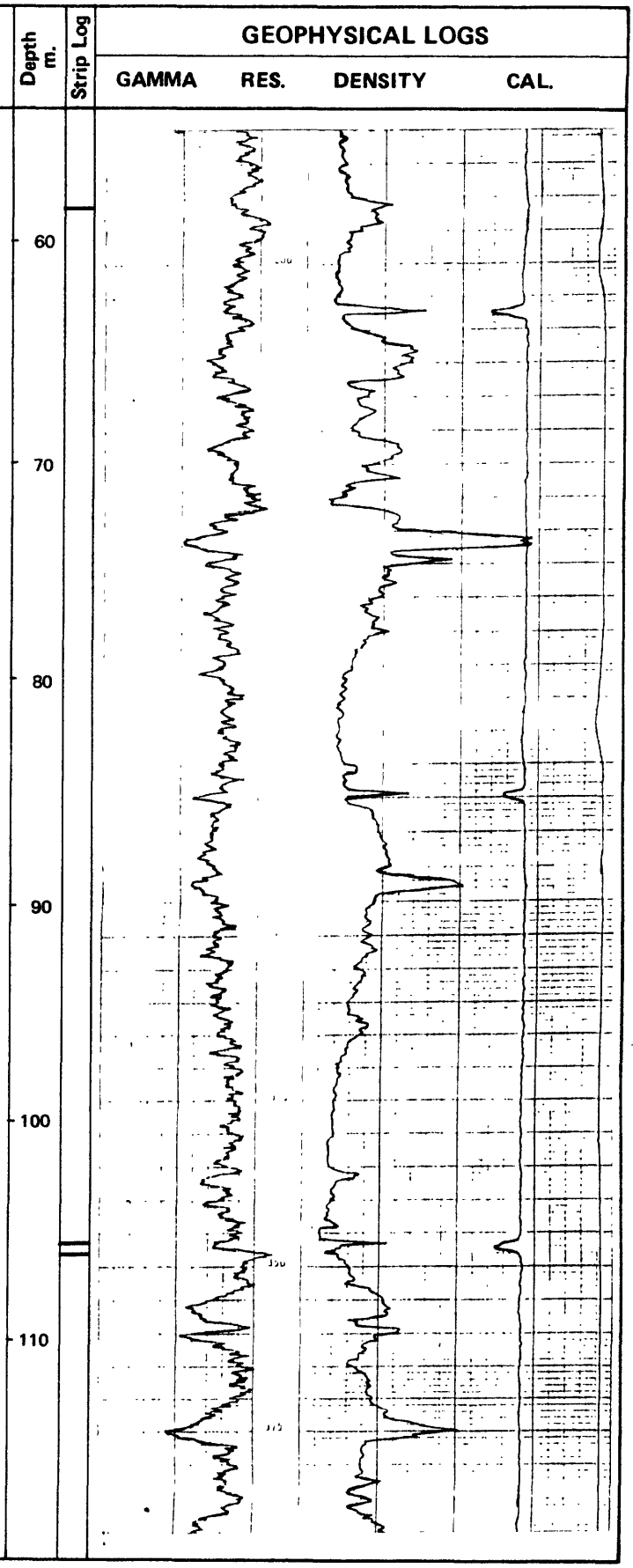
Surface Elev.: 213.4 m, Logged Depth: 176.2 m, Drilled Depth: 177.4 m, Core Int: 154.8 m,

LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS: GAMMA, RES., DENSITY, CAL.
0 - 22.56	Cased in unconsolidated materiel.			
22.56 - 57.87	Sh., ss. intbds.; sh., gy.-dk.gy., mica., sandy, thin ss. lams., scattered plant fossils; ss., gy., f.gr., mica.; few thin marine fossil beds.			



LITHOLOGY

57.87 - 58.46	Fc., dk.gy., sandy, massive, plant fossils.
58.46 - 58.81	COAL, banded to 58.60, intbdd. with bone below; Pratt bed.
58.81 - 75.46	Sh., ss. intbds.; sh., gy.-dk.gy., mica., sandy, plant fossils; ss., gy., f.gr., mica.; burrowed in part, scattered siderite bands end nodules; bk. sh. intbdd. with coal spars and calc. lems. 74.70 - 75.46 meters.
75.46 - 75.82	Fc., dk.gy., plant fossils.
75.82 - 76.10	Ss., sh. intbdd.; ss., gy., f.gr., mica.; sh., gy.; burrowed, plant fossils.
76.10 - 76.19	Bone, intbdd. coal.
76.19 - 105.52	Sh., ss. intbdd.; sh., gy.-dk.gy., mica., sandy, carb. in pert, thin ss. lems.; ss., gy., f.gr., mica., rooted in pert; scattered siderite bands and nodules, burrowed in part, faw plant fossils.
105.52 - 105.56	COAL, banded.
105.56 - 105.62	Fc., dk.gy., plant fossils.
105.62 - 106.04	Sh., bk., abnt. plant fossils.
106.04 - 106.16	Fc., dk.gy., messive, abnt. plant fossils.
106.16 - 106.22	COAL, banded.
106.22 - 106.91	Fc., dk.gy., abnt. plant fossils; coal spars and intbdd. bk. sh. to 106.3; gy., f.gr. ss. bed 106.83 - 106.89 meters.
106.91 - 156.01	Sh., ss. beds end intbds.; sh., gy.-dk.gy., mica., sandy, carb. in part, thin ss. lems.; ss., f.-m.gr., mica., thin sh. lams.; siderite bands and nodules, plant fossils, scattered pyrite nodulas 137.93 - 154.94 metars.



LITHOLOGY

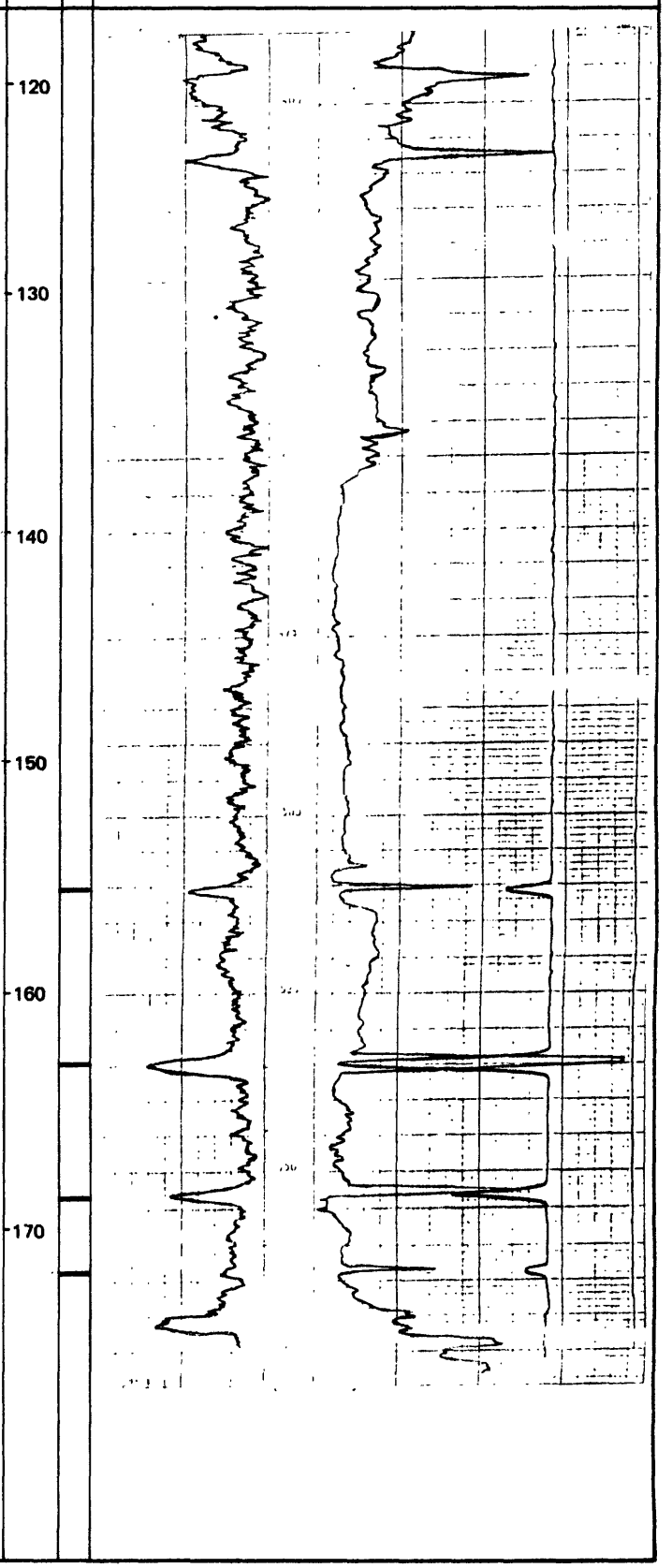
156.01 - 156.26	COAL, banded; thin sh., calc., and bone lams. near top; some pyrite and bone near bottom; New Castle bed.
156.26 - 157.04	Fc., dk.gy., massive, abnt. plant fossils.
157.04 - 163.23	Sh., gy., mica., thin ss. lams.; intbdd. bk. sh. 162.87 - 162.23 meters; scattered plant fossils; some siderite nodules.
163.23 - 163.92	COAL, banded; intbdd. bone near top; few thin pyrite lams.; Mary Lee bed.
163.92 - 164.45	Fc., dk.gy., massive, abnt. plant fossils; few coal spars.
164.45 - 168.93	Sh., ss. intbds.; sh., gy.-dk.gy., mica., carb. in part; ss., gy., f.gr., mica.; abnt. plant fossils in upper portion.
168.93 - 169.30	COAL, banded; Blue Creek bed.
169.30 - 170.21	Fc., dk.gy.-bk., abnt. plant fossils, few coal spars.
170.21 - 172.26	Sh., bk., abnt. plant fossils.
172.26 - 172.40	COAL, banded, scattered pyrite nodules.
172.40 - 173.72	Fc., dk.gy., sandy, plant fossils common.
173.72 - 177.38	Ss., gy., m.gr., thin sh. lams.
177.38	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 60

Geophysical Log Date: 11-14-80, County, State: Walker, Alabama

Map: Howard, 7½' quad. Location: NE¼ Sec. 17, T. 14 S, R. 9 W HPM

Surface Elev.: 152.4 m, Logged Depth: 103.7 m, Drilled Depth: 104.5 m, Core Int: 92.5 m,

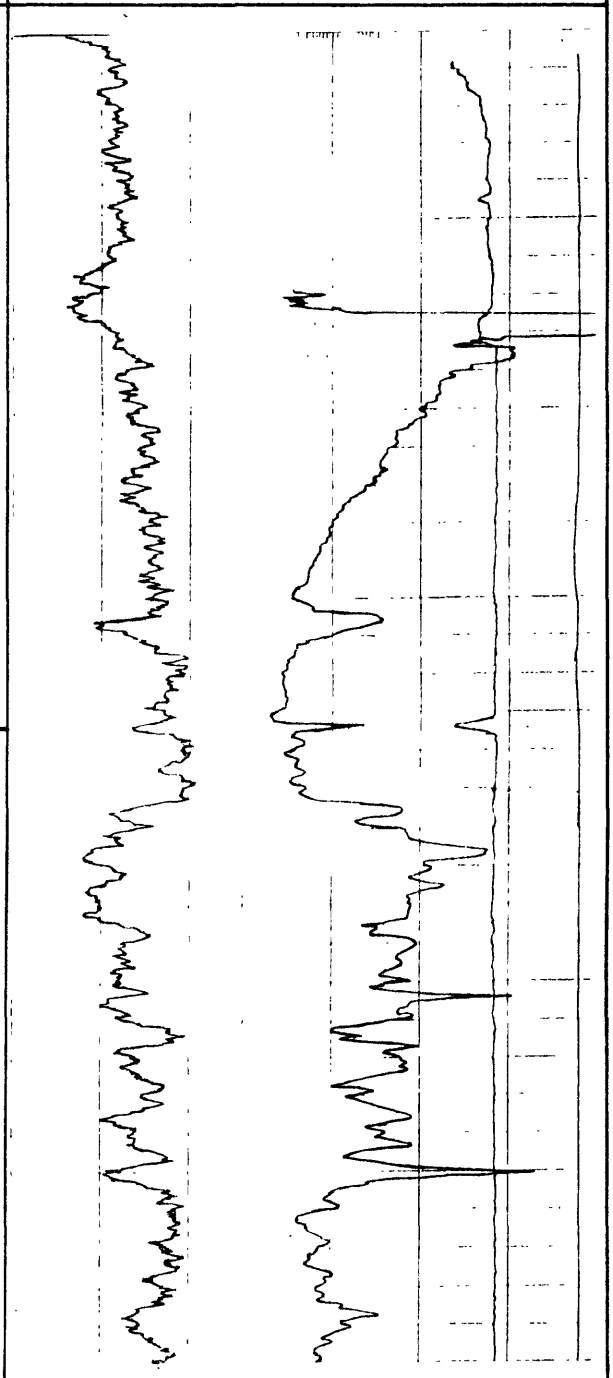
LITHOLOGY

0 - 12.04	Cased in unconsolidated material.
12.04 - 28.61	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., carb. in part; ss., gy., f.-m.gr., mica.; burrowed in part, siderite bands and nodules, scattered plant fragments.
28.61 - 28.69	COAL, banded.
28.69 - 29.27	Fc., gy., massive, many plant fossils.
29.27 - 87.00	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, carb. in part, thin ss. lams., few pyrite nodules; ss., gy., f.-c.gr., mica., thin sh. lams., little rooting; some plant fossils, scattered siderite bands and nodules.

Depth m.

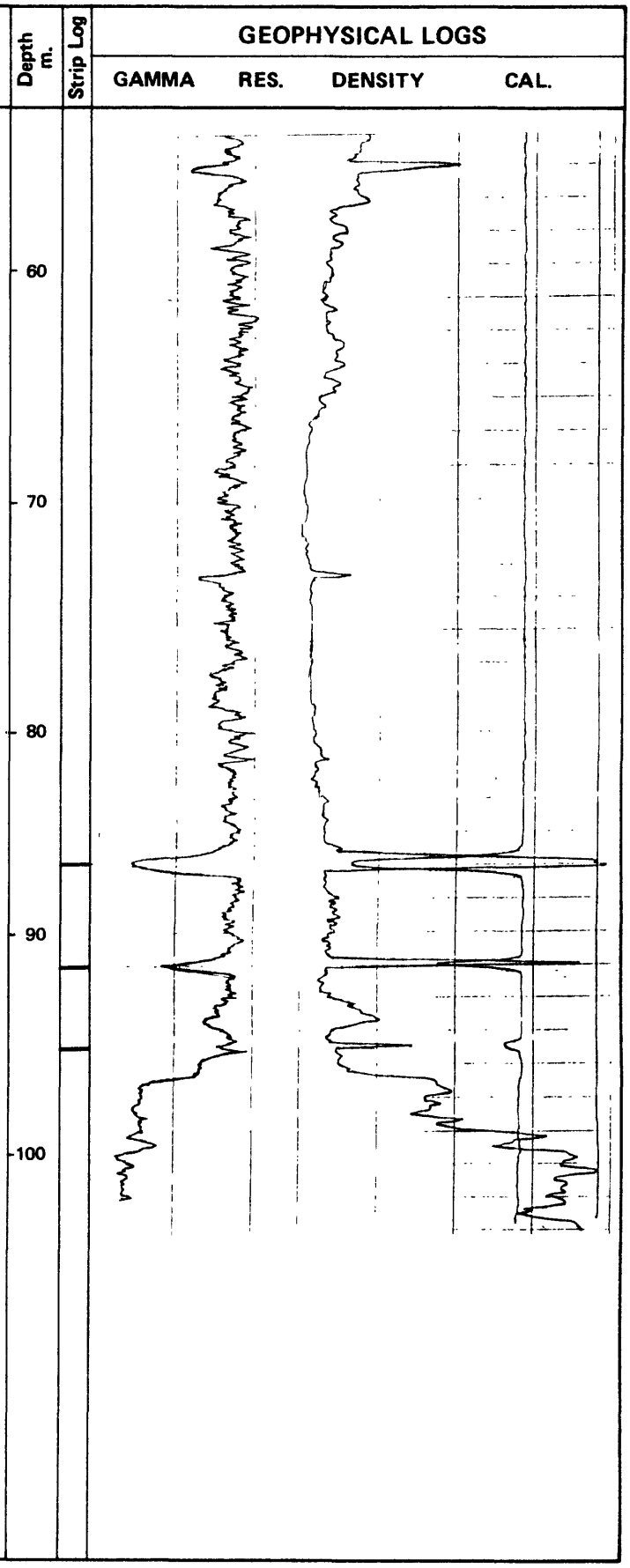
Strip Log

GEOPHYSICAL LOGS



LITHOLOGY

87.00 - 88.00	COAL, banded to 87 02 meters; dk.gy. sh. and coal intbdd. 87.02 - 87.19 meters; soft, dull coal with many plant fossils 87.19 - 87.52 meters; banded coal with few thin bone lams. 87.52 - 88.00 meters; Mary Lee/Blue Creek bed.
88.00 - 88.57	Fc., dk.gy., massive, coal spars to 88.11 meters.
88.57 - 92.00	Ss., sh. beds and intbds.; ss., gy., f.-m.gr., mica.; sh., gy.-dk.gy., few plant fossils.
92.00 - 92.35	COAL, bone intbdd. to 92.07 meters; banded coal below; Jagger bed.
92.35 - 93.96	Fc., dk.gy., massive, many plant fossils.
93.96 - 95.76	Sh., dk.gy., many plant fossils, some thin ss. lams., scattered siderite nodules.
95.76 - 95.90	COAL, bone intbdd. to 95.81 meters; banded below.
95.90 - 95.99	Sh., bk., many plant fossils.
95.99 - 97.26	Fc., dk.gy., many plant fossils.
97.26 - 104.48	Ss., gy., m.-c.gr., mica., x-bds.
104.48	Total depth.



DRILL HOLE LOG

Hole #: 61

Geophysical Log Date: 11-5-80, County, State: Walker, Alabama

Map: Howard, 7½' quad. Location: NE¼ Sec. 7, T. 14 S, R. 9 W HPM

Surface Elev.: 198.2 m, Logged Depth: 112.4 m, Drilled Depth: 112.4 m, Core Int: 100.5 m,

LITHOLOGY

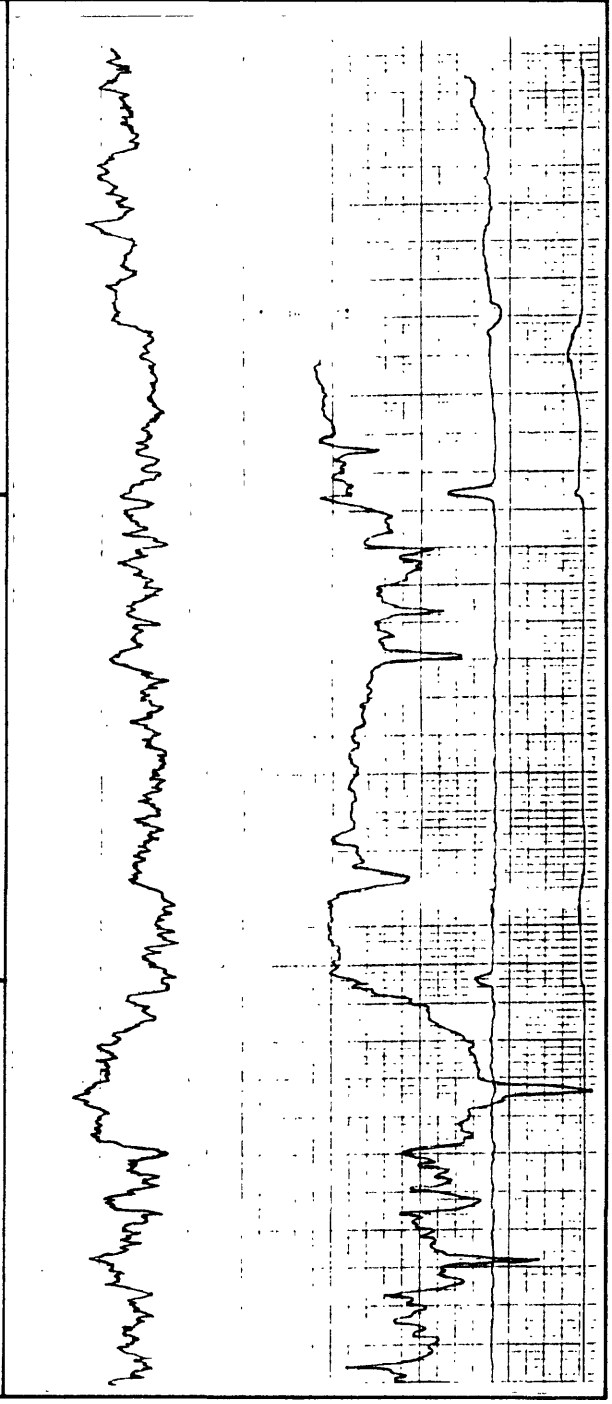
0 - 11.89	Cased in unconsolidated material.
11.89 - 18.76	Sh., ss. intbds.; sh., gy., mica., carb., few plant fossils; ss., f.-m.gr.
18.76 - 18.85	COAL, banded.
18.85 - 19.27	Fc., gy., sandy, massive, rare plant fossils.
19.27 - 38.52	Sh., ss. beds and intbds.; sh., gy.-dk.gy., mica., sandy, carb., burrowed in part, few scattered plant fossils, marine fossil beds; ss., gy., f.-m.gr., mica.,; coal spars 38.29 - 38.52 meters.
38.52 - 38.62	COAL, intbdd. bone.
38.62 - 38.90	Fc., gy., sandy, massive, abnt. plant fossils.
38.90 - 97.87	Sh., ss. beds and intbds.; sh., gy.-v.dk.gy., mica., sandy, carb. in part, scattered plant fossils, few marine fossil fragments; ss., gy., f.-m.gr., mica., v. thin coal bands 43.60 - 45.21 meters; burrowed in part; bk. sh. with few thin ss. lams. 67.41 - 68.96 meters.

Depth m.

Strip Log

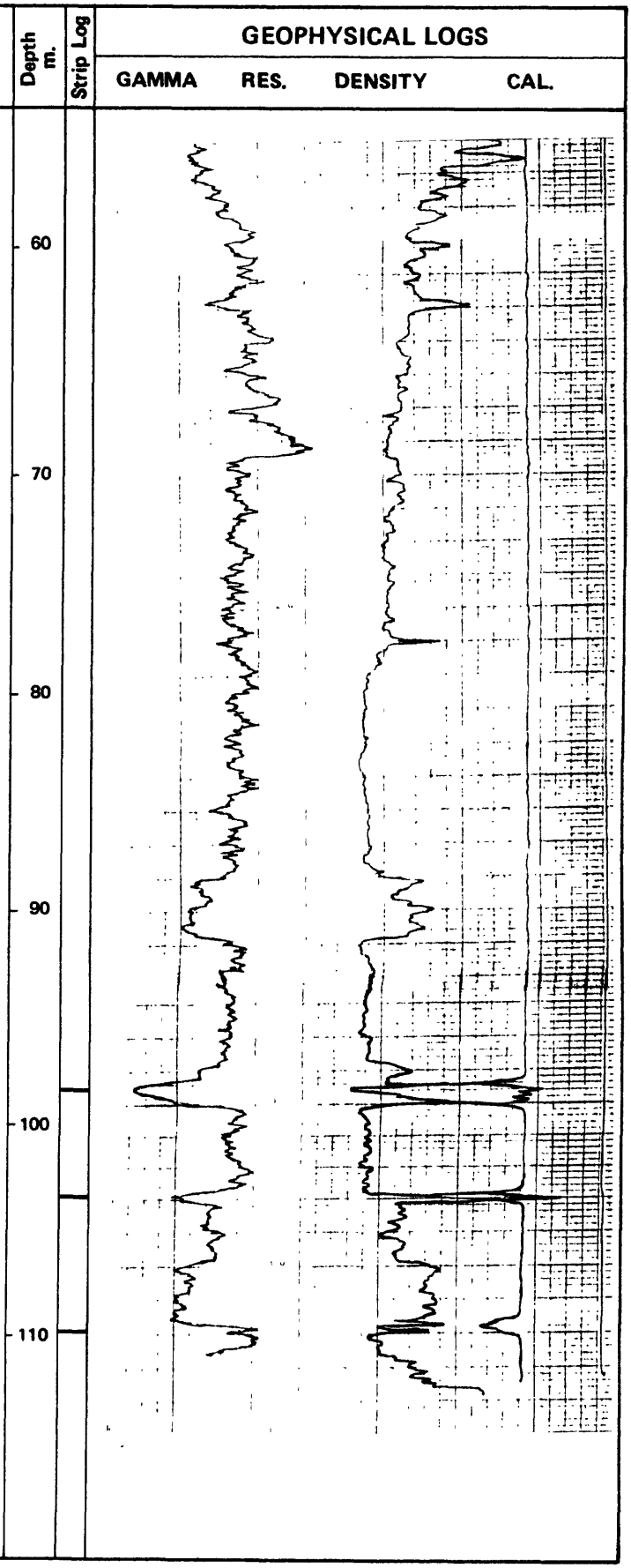
GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



LITHOLOGY

97.87 - 97.91	Sh., bk., abnt. plant fossils.
97.91 - 98.93	COAL, banded, scattered thin pyrite lams. to 98.66; 2 cm. gy. sh. at 98.66; Mary Lee/Blue Creek bed.
98.93 - 99.08	Sh., bk., thin coal bands, abnt. plant fossils.
99.08 - 99.76	Fc., dk.gy.-bk., abnt. plant fossils.
99.76 - 103.22	Sh., dk.gy., many siderite nodules, some plent fossils, few thin ss. lams. in upper part.
103.22 - 103.48	COAL, banded; Jagger bed.
103.48 - 103.54	Sh., bk., abnt. plant fossils.
103.54 - 108.87	Ss., sh. intbdd.; ss., f.-m.gr., mica.; sh., gy.; burrowed in part, pabble conglomerates.
108.87 - 109.04	Sh., bk., abnt. plant fossils, thin coal bands.
109.04 - 109.24	COAL, banded, 2 cm. bone at top; fc. bed 109.07 - 109.12 meters.
109.24 - 110.18	Fc., sandy, massive.
110.18 - 112.38	Ss., sh. intbdd.; ss., gy., f.-c.gr.; sh., gy.
112.38	Total depth.



DRILL HOLE LOG

Hole #: 62

Geophysical Log Date: 11-5-80, County, State: Walker, Alabama

Map: Carbon Hill, 7½' quad. Location: NW¼ Sec. 32, T. 13 S, R. 10 W HPM

Surface Elev.: 225.6 m, Logged Depth: 36.3 m, Drilled Depth: 36.3 m, Core Int: 25.5 m,

LITHOLOGY

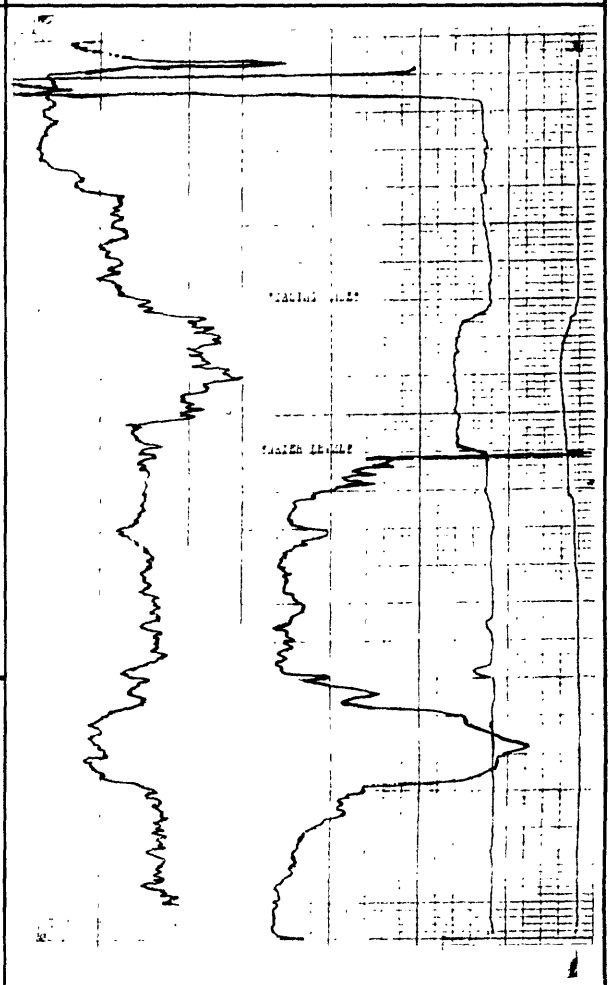
0 - 10.75	Cased in unconsolidated material.
10.75 - 22.74	Sh., gy.-dk.gy., mica., carb. in part, sandy, plant fossils scattered, weathered.
22.74 - 22.96	Sh., bk., thin intbdd. bone and coal; some core loss.
22.96 - 23.66	Fc., gy.-dk.gy., carb., plant fossils, weathered.
23.66 - 24.63	Sh., gy., carb., sandy, weathered.
24.63 - 25.00	COAL, core loss.
25.00 - 26.22	Fc., some f.gr. sand, massive.
26.22 - 36.28	Sh., ss. intbds.; sh., gy.-dk.gy., carb., mica., burrowed in part, scattered siderite nodules; ss., gy., f.-m.gr., mica.; marine fossil bed 35.82 - 36.28 meters.
36.28	Total depth.

Depth m.

Strip Log

GEOPHYSICAL LOGS

GAMMA RES. DENSITY CAL.



DRILL HOLE LOG

Hole #: 63

Geophysical Log Date: 11-5-80, County, State: Walker, Alabama

Map: Carbon Hill, 7½' quad. Location: SE¼ Sec. 30, T. 12 S, R. 10 W HPM

Surface Elev.: 230.2 m, Logged Depth: 75.3 m, Drilled Depth: 76.4 m, Core Int: 70.9 m,

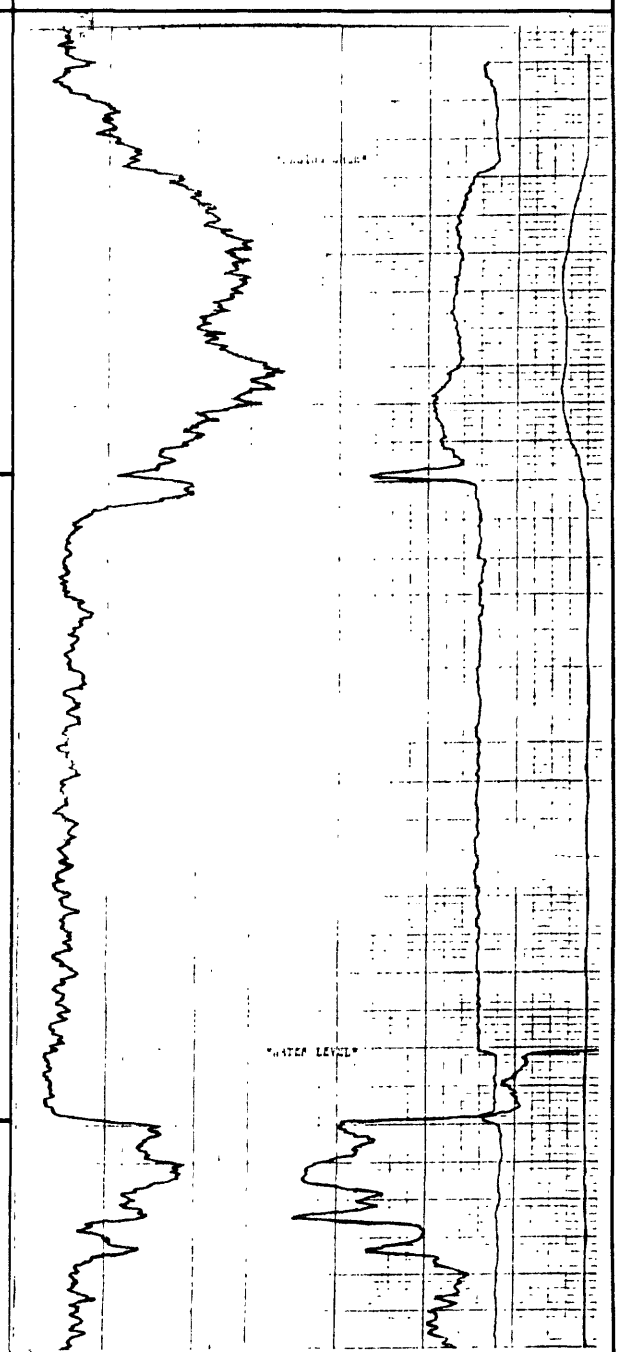
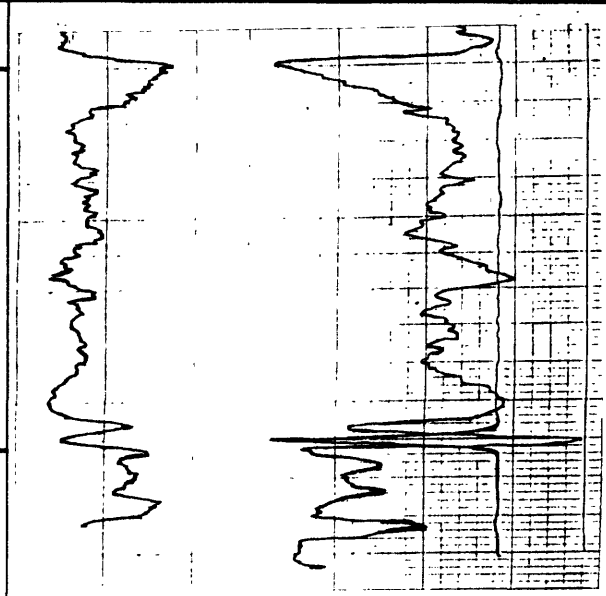
LITHOLOGY

0 - 5.52	Cased in unconsolidated material.
5.52 - 9.18	Ss., lt.gy., f.gr., some gy. clay, chert pebbles at top, weathered.
9.18 - 17.65	Clay, v. sandy, carb.; weathered shale.
17.65 - 18.26	COAL, banded, some pyrite lams., 6 cm. carb. fc. at 17.99 meters; Jagger bed.
18.26 - 18.90	Fc., lt.gy., plant fossil fragment.
18.90 - 44.30	Ss., lt.gy., f.-m.gr., mica., much x-bdg., some iron stain, scattered coal bands 42.53 - 43.29 meters.
44.30 - 44.42	COAL, banded.
44.42 - 46.01	Fc., lt.gy., sandy, massive, plant fossil fragments, some engular siderite nodules.
46.01 - 54.89	Ss., sh. beds and intbds.; ss., lt.gy.-gy., f.-m.gr., mica.; sh., gy., sandy, mica.; massive in part, carb. in part, some plant fossils; bk. sh. with coal bands 48.11 - 48.26 meters.

Depth m.

Strip Log

GEOPHYSICAL LOGS



LITHOLOGY		Depth m.	Strip Log	GEOPHYSICAL LOGS
				GAMMA RES. DENSITY CAL.
54.89 - 54.93	COAL, undifferentiated.			
54.93 - 55.79	Fc., gy., massive, waxy, some plant fossils.			
55.79 - 70.39	Ss., sh. intbds.; ss., gy., f.-m.gr., mica., x-bds., carb. in part; sh., gy., mica., sandy.			
70.39 - 70.94	COAL, banded, scattered pyrite; Jefferson bed.			
70.94 - 71.07	Fc., intbdd. gy. and bk., thin coal bands.			
71.07 - 76.43	Ss., sh. intbdd.; ss., gy., f.-m.gr., burrowed in part; sh., sandy; carb., mica., some plant fossils.	60		
76.43	Total depth.	70