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GEOPHYSICAL AND LITHOLOGIC LOGS OF 1979 COAL DRILLING IN THE WARRIOR COAL FIELD, TUSCALOOSA, FAYETTE, WALKER, AND MARION COUNTIES, ALABAMA

By

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U.S. Geological Survey,
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Geological Survey of Alabama

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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

Twenty-three coal test holes were cored between May 10, 1979 and November 19, 1979 in the Berry, Carbon Hill, Glen Allen, Howard, Hubbertville, Oakman, Berry SE, Lake Tuscaloosa North, Wiley and Windham Springs 7 1/2' quadrangles, Townships 12 through 19 S, Ranges 8 through 11 W, inclusive, in Tuscaloosa, Fayette, Walker, and Marion Counties, Ala. (Fig. 1).

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. 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 9000 square kilometers (km^2). This study is limited to the Pottsville Formation (Lower Pennsylvanian) in the western 5000 km^2 of this field. Total thickness of the Pottsville is in excess of 2,700 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.

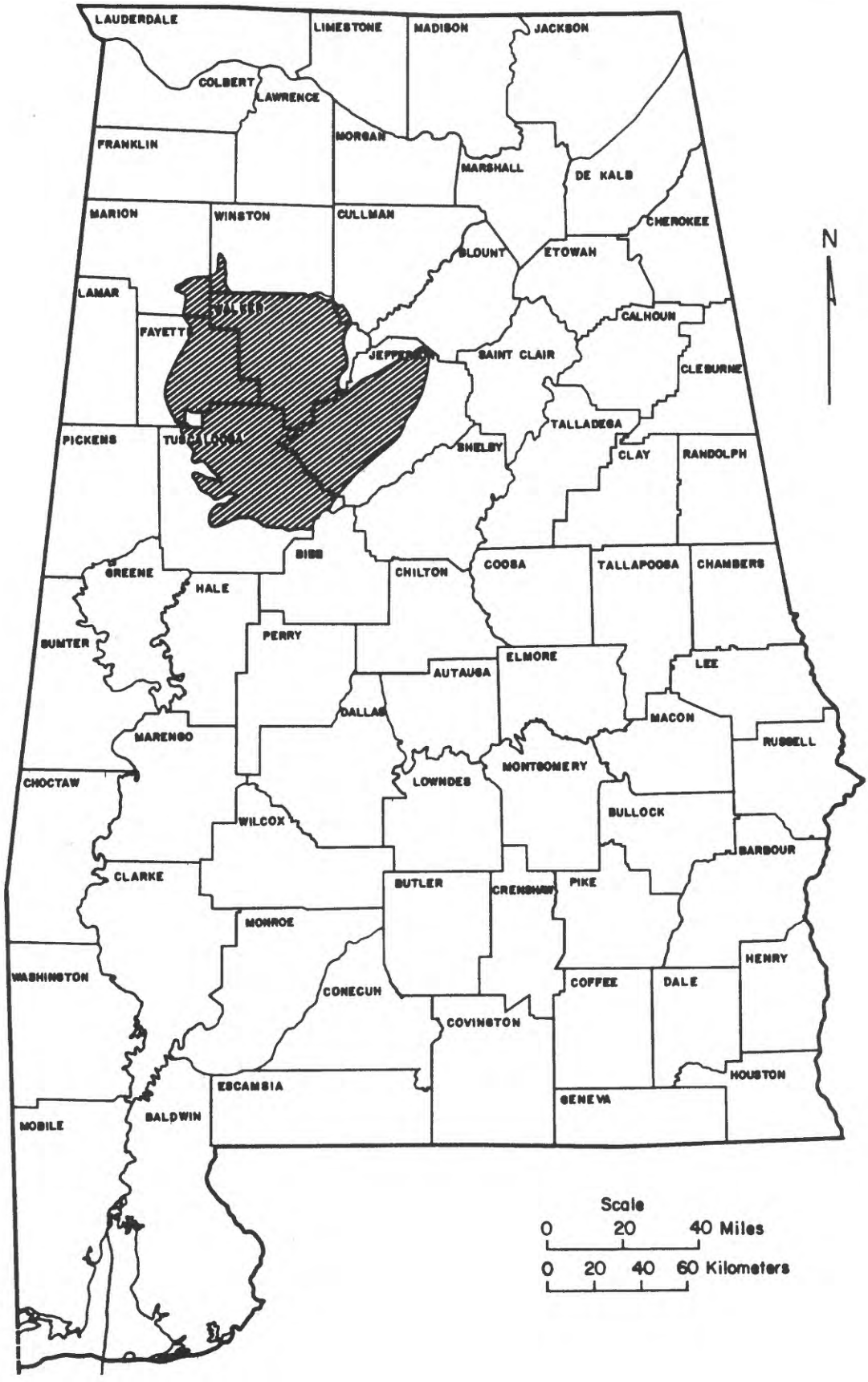


Figure 1.-- Index map of Alabama showing location of Warrior coal field.

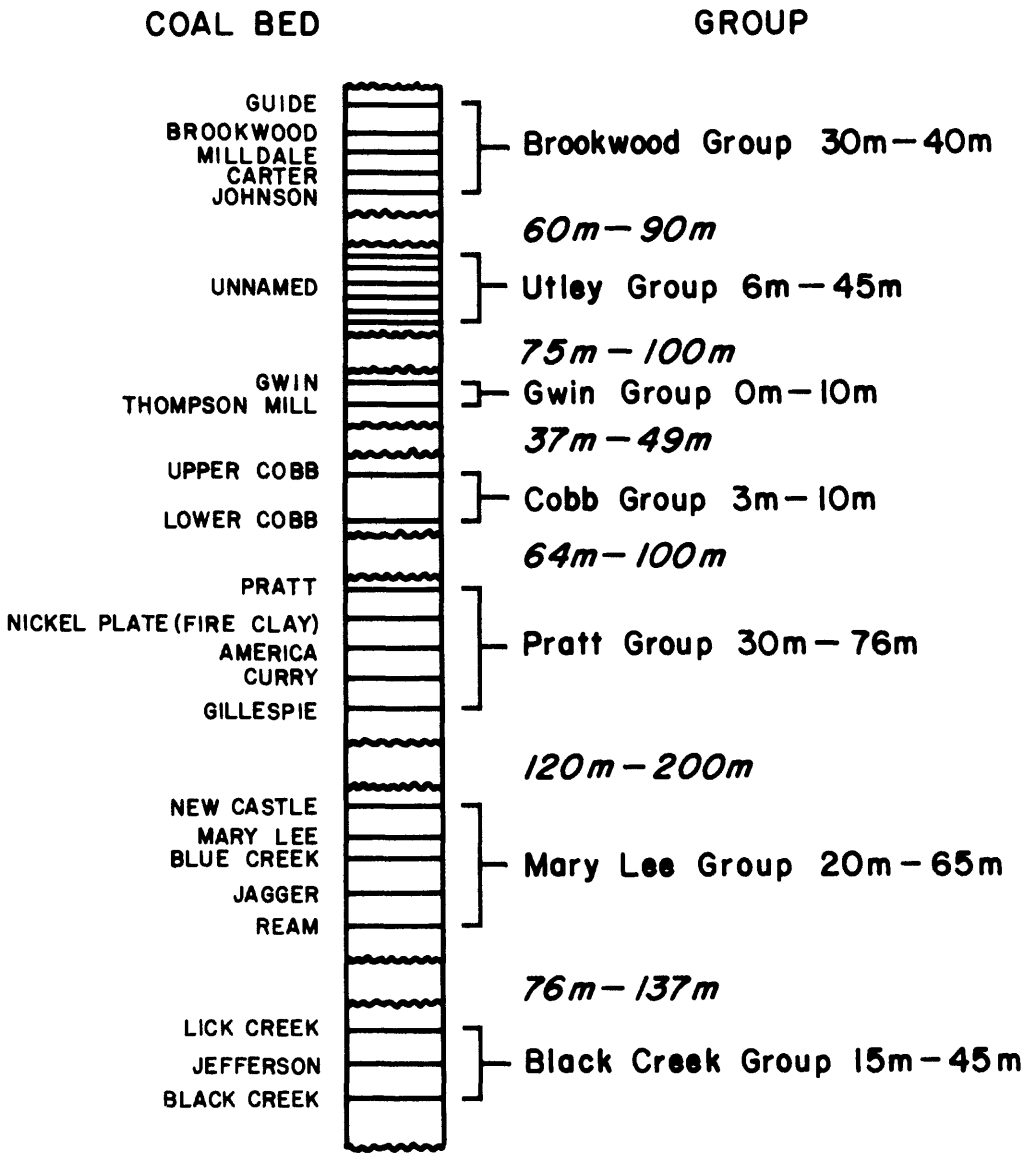


Figure 2. -- Generalized columnar section showing the coal-bearing beds in the upper part of the Pottsville Formation. No vertical scale intended.

In the 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. In the study area, the Tuscaloosa Group thickens southwestward from 0 to 152 meters, 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 usually 0.5 to 0.8 m thick but ranges up to 1.3 m. It is high volatile bituminous A coal in rank with low ash and sulfur content. The Jefferson coal bed ranges in thickness from 0 to 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 to 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 120-200 m above the Mary Lee group. Of the five coal beds -- the Gillespie, Curry, America, 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 to 1.5 m and contains moderate ash and low sulfur. The Nickel Plate (Fire Clay) coal bed is up to 1 m thick in eastern sections of the Warrior coal field, but it is much thinner and usually non-commercial elsewhere. The Pratt coal bed is 0.75 to 2.00 m thick. It is thickest in the eastern part of the Warrior coal field, where most of it has now been mined out.

(4) Cobb coal group - occurs 64-100 m above the Pratt group. It usually 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 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 - consist 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 Dy-Met Inc., of Birmingham, Alabama, under U.S. Geological Survey contract number 14-08-0001-16359. 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 Reese E. Mallette Associates, Inc., Birmingham, Alabama, provided natural gamma, spontaneous potential, gamma density, and resistivity records. A Well Reconnaissance Model 8903 Downhole Logger* was utilized for the geophysical logging. All logs were run at a logging speed of 4.57 m per minute (15 ft. per minute) and were recorded at a scale of 1 cm equals 2.4 m (1 in. equals 20 ft.). They were reduced to a scale of 1 cm equals 9 m (1 in. equals 75 ft.) for publication in this report. No horizontal scales are given for the geophysical logs; however, natural gamma and resistivity increase toward the right, while density increases toward the left.

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 (SEH) when requesting this data.

A total of 7935.7 m of 7.37 cm diameter rotary drilling was done, of which 7664.5 m was cored. Core recovery was close to 100%. The core was described lithologically by Ms. Catherine A. Horsey, geologist, of the Geologic Division, Geological Survey of Alabama.

* 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.

REFERENCES CITED

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.

ABBREVIATIONS USED IN LITHOLOGIC DESCRIPTIONS

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

Table 1 Summary of U.S. Geological Survey coal test drilling in the Warrior coal field in Tuscaloosa, Fayette, Walker, and Marion counties, Alabama, May 10-November 19, 1979

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 Completed (1979)	Surface Elev. (meters)	Total Depth Drilled (meters)	Interval Cored (meters)	Total Depth Logged (meters)	Final Casing Depth (meters)
1	Windham Springs	19 9 14 SE 1/4	10/15*	173.7	434.0	408.1	**	25.9
2	Windham Springs	18 9 35 SW 1/4	6/13*	196.0	282.0	248.4	**	33.6
3	Windham Springs	18 9 24 NE 1/4	10/13	189.0	588.8	586.0	588.6	12.8
4	Wiley	18 8 5 NE 1/4	8/18	122.8	488.6	460.2	488.6	3.8
5	Lake Tuscaloosa North	18 9 32 SW 1/4	7/28	162.2	642.1	615.4	639.2	34.7
6	Lake Tuscaloosa North	18 10 23 SE 1/4	6/30	157.0	596.8	575.0	**	21.9
7	Berry, SE	18 9 6 NW 1/4	6/5	137.5	495.0	485.5	495.0	9.8
8	Berry, SE	17 9 17 SW 1/4	11/6	188.4	491.9	465.2	491.9	26.7
9	Berry, SE	17 10 17 SE 1/4	10/11	189.9	465.8	458.7	448.7	6.1
10	Berry	16 10 22 SE 1/4	10/15	136.2	350.5	340.7	350.5	12.8
11	Berry, SE	16 9 32 NW 1/4	10/30	184.1	432.5	426.7	432.5	6.1
12	Wiley	16 9 35 SE 1/4	8/29	189.6	405.3	399.5	402.9	5.9
13	Oakman	16 9 17 NE 1/4	9/26	203.6	215.9	209.8	215.5	84.1
14	Berry	15 10 25 NW 1/4	9/26	189.3	334.8	328.8	334.4	5.9
15	Howard	15 10 9 SE 1/4	8/24	177.1	284.8	276.4	282.2	8.4
16	Howard	15 10 1 NW 1/4	7/25	208.5	245.7	242.8	243.5	3.0
17	Howard	14 10 13 SW 1/4	7/9	145.4	203.2	195.6	202.7	7.6
18	Howard	14 10 28 NW 1/4	7/13	173.4	215.3	209.3	214.9	6.1
19	Hubbertville	14 11 23 SW 1/4	8/1	188.4	137.5	128.5	124.4	33.5
20	Howard	14 10 5 SE 1/4	7/19	192.6	224.7	221.1	224.3	5.5
21	Hubbertville	13 11 33 SE 1/4	8/8	158.5	178.6	172.8	176.2	6.1
22	Glen Allen	12 11 36 SW 1/4	8/8	196.9	62.4	56.8	62.2	11.6
23	Carbon Hill	12 10 21 NW 1/4	8/7	219.8	160.5	153.2	159.7	7.3

* Due to unforeseen difficulties, these holes were not drilled to their projected depths.

** Due to unforeseen difficulties, geophysical logs were not run on these holes.

DRILL HOLE LOG

Hole #: 1

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

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

Surface Elev.: 173.7 m, Logged Depth: - m, Drilled Depth: 434.0 m, Core Int: 408.1 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	-	-	-
Logging Speed:	-	-	-

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-26.12	Cased in unconsolidated material			No Geophysical Log
26.12	Ss., m.lt.gy., m.gr., mica., carb.	10		
29.40	Clay. yw.-gy., sandy, plastic.			
30.74	Ss., sh. beds and intbds.; ss., lt.-m.gy., m.-v.f.gr., mica., carb., x-bds.; siderite: lams., pebbles, nodules; scarce fossil, calc., fracture zone; coal spar zone top portion; sh., lt.-dk.gy., silty, massive, sandy, siderite, calcite lams., calc.-filled structure; bk. sh. lams. near base.	20		
		30		
		40		
99.88	Coal, good, calc. streaks near top; grades into bk. sh.	50		
100.13	Fc., dk.gy., carb.	60		
100.26	Sh., m.dk.gy., sandy, carb., siderite filled rootlets.			
101.16	Sh., bk., coaly.	70		
101.33	Sh., dk.gy., ss. lams.; siderite: rootlets, bands, and nodules.	80		
105.55	Coal, banded, shaly; Utley group.			
105.58	Uc., bn.gy.-m.gy., rooted. Sh., ss. beds intbds.; sh., m.dk.gy., lam., siderite and silty lams. in lower portion; ss., m.lt.gy., f.gr., partly x-bdd.; m.gy. slst. bed.	90		
		100		
109.91	Coal; Utley group.	110		
109.94	Uc., m.dk.gy., rooted.			
110.19	Coal; Utley group.	120		
110.28	Uc., bn.gy.; sh., m.-dk.gy.; siderite lams.; 2.5 cm. of coal at 110.64 meters.			
111.40	Sh., ss. intbdd.; sh., m.gy., sandy; ss., m.gy., f.gr., mica., carb. zone, few siderite nodules.			
120.91	Coal; Utley group.			
121.22	Uc., m.dk.gy., siderite roots.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
121.62	Sh., bk., 1.3 cm. coal lams.			
121.80	Fc., m.gy., rooted; lt.-dk.gy. beds			
121.98	Sh., m.dk.gy., rooted; slst. lams., scarce bk. sh. lams.	130		
124.05	Coal, rare thin bk. sh. partings; Utley group.	140		
124.11	Sh., dk.gy., scarce siderite rootlets and lams.; grades to bk. sh.; 2.5 cm. coal band at base.	150		
124.63	Fc., bn.gy.,-m.gy., rooted.	160		
124.49	Ss., sh. intbdd.; ss., m.-m.dk.gy., f.gr., carb., rooted; sh., m.dk.gy., silty, carb., fossif. zone; calc.-filled structures; sh. grades to bk. at base.	170		
208.54	Coal, bony; Gwin horizon.	180		
208.61	Uc., m.gy.	190		
209.00	Ss., m.lt.gy., f.gr., x-bdd., sh. lams., siderite and sh. pebbles, coal spar; some bk. sh.	200		
223.88	Fc., m.-dk.gy., sandy, rooted.	210		
225.34	Ss., sh. beds and intbds.; ss., m.gy., mica.; sh., dk.gy.; fossif., siderite; f.gr., fossif. ls. at 227.78 meters.	220		
		230		
		240		
		250		
		260		
272.22	Coal; Upper Cobb bed.			
272.40	Fc., m.gy., sandy, carb.	270		
272.83	Ss., m.gy., f.gr., mica.			
280.63	Sh., dk.gy., abnt. siderite nodules.	280		
280.72	Ss., m.-lt.gy., m.gr.			
282.85	Coal; Lower Cobb horizon.			
282.88	Fc., siderite rootlets, plant debris.	290		
283.52	Sh., ss. intbdd.; sh., m.dk.gy.; ss., m.lt.gy., f.gr., siderite, fracture zone, flattened peloids, calc. vein and zone, scarce mica, coal spar; possible fault 298.22 - 299.01 meters.	300		
		310		
		320		
		330		
		340		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS		
				GAMMA	DENSITY	RES.
377.13	Coal, undescribed.					
377.31	Uc., fractured.					
377.56	Coal.					
377.62	Uc., fractured, coaly; grades to sh.					
378.65	Coal,					
378.84	Uc., m.gy.; grades to slst.					
379.02	Slst., ss. beds; slst., m.gy., lam., siderite lams.; ss., f.gr., mica.					
380.97	Coal, bright, banded, broken.					
381.24	Uc., m.gy., carb., slickensides.					
381.30	Coal, broken.					
381.55	Uc., m.dk.gy., carb., siderite roots.					
382.89	Sh., ss. intbdd.; sh., m.gy., silty, lam., rare siderite intbds.; x-bds.; coaly sh. band at 390.33 meters.					
392.67	Coal, bk.; undifferentiated; no pyrite or calc.					
392.86	Fc., soft; some coal spar.					
393.74	Coal, bk.; undifferentiated.					
394.26	Fc., m.dk.gy., plant debris, slickensides.					
396.51	Sh., dk.gy., sandy.					
396.91	Fc., dk.gy.					
398.53	Ss., sh. intbdd.; ss., m.lt.gy., mica., siderite, open vertical fractures; sh., m.gy., sandy, clayey, siderite lams.; 2 slst. beds; coal spars, siderite pebble conglomerate, fossil hash, scarce bk. sh.					
433.73	Total Depth.					

DRILL HOLE LOG

Hole #: 2

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

Map: Windham Springs, 7½' quad Location: SW¼ Sec. 35, T. 18S, R. 9W HPM

Surface Elev.: 196.0 m, Logged Depth: - m, Drilled Depth: 282.0 m, Core Int: 248.4 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	-	-	-
Logging Speed:	-	-	-

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-33.59	Cased in unconsolidated material.			No Geophysical Log
33.59	Clay, yw.gy., sandy.	10		
33.71	Sh., ss. beds and intlams.; sh., lt.-m.gy., sandy. bk. sh. lams.; ss., m.gy., f.gr.; mica., siderite, sand; coal spars and streaks, calc. zone; scarce slst. bed.	20		
		30		
102.47	Coal, cleated and banded; Utley group.			
102.57	Sh., dk.gy., siderite layers and nodules.	40		
102.75	Fc., dk.gy., broken.			
102.81	Sh., sandy, massive, rooted.			
103.02	Coal, banded, cleated; Utley group.	50		
103.27	Sh., dk.gy., coal lams.			
104.30	Coal, banded, sh. partings; Utley group.	60		
104.49	Fc., dk.gy.			
105.16	Sh., dk.gy., sandy, rooted.	70		
106.31	Ss., m.gy., occ. sh. lams., coal spar.			
108.20	Fc., m.dk.gy., rooted.			
109.00	Sh., bk., carb., coaly lam.	80		
109.18	Ss., sh. intbdd.; ss., lt.gy.; sh., dk.gy., sandy; mica., siderite; coal spars and bands.	90		
118.29	Coal, cleated, broken; Utley group.	100		
118.51	Sh., dk.gy., thin lams., clay band.			
119.82	Uc., carb. inclusions.	110		
119.94	Sh., dk.gy.			
120.24	Uc., carb. inclusions.			
120.40	Sh., ss. beds and intbds.; sh., dk.gy.-bk., partly sandy, roots; ss., m.gy.; clay lams.; 2.5 cm. coal beds, 123.38-123.66 meters.	120		
		130		
128.35	Coal, calc. lams. at top and bottom.			
128.38	Sh., ss. beds and intbds.; sh., dk.gy., sandy; ss., lt.gy., f.gr., mica.; siderite, x-bds., high angle slickensides, calc. band; few dk.gy. slst. beds.	140		
		150		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS		
				GAMMA	DENSITY	RES.
202.69	Sh., bk., carb., plant fossils; 5 cm. coal band at 203.03 meters; Gwin horizon.					
203.39	Fc., m.gy., sandy, rooted, plant fossils, slickensides.	160				
204.06	Ss., sh. beds and intbds.; ss., lt.gy., rooted, x-bds.; sh., dk.gy.; bl.gn. sh. pebbles, siderite, coal lams.	170				
216.04	Fc., dk.gy., rooted, slickensides.	180				
217.11	Sh., ss. intbdd.; sh., dk.gy., sandy; ss., lt.gy., f.gr., siderite, mica., scarce marine fossils, calc.; 5 cm. impure coal band at 264.87 meters; bk. sh. bed, rooted, clayey, part coaly.	190				
		200				
		210				
		220				
273.22	Coal, banded, shaly; Upper Cobb coal.					
273.34	Fc., dk.gy., carb., slickensides.	230				
275.33	Sh., ss. intbdd.; sh., dk.gy., sandy; ss., lt.gy., f.gr.; calc., fossif., sideritic ss. at base; coal spar.	240				
281.97	Total Depth.	250				
		260				
		270				
		280				
		290				

DRILL HOLE LOG

Hole #: 3

Geophysical Log Date: 10/17/79, County, State: Tuscaloosa, Alabama

Map: Windham Springs, 7½' quad. Location: NE¼ Sec. 24, T. 18S, R. 9W HPM

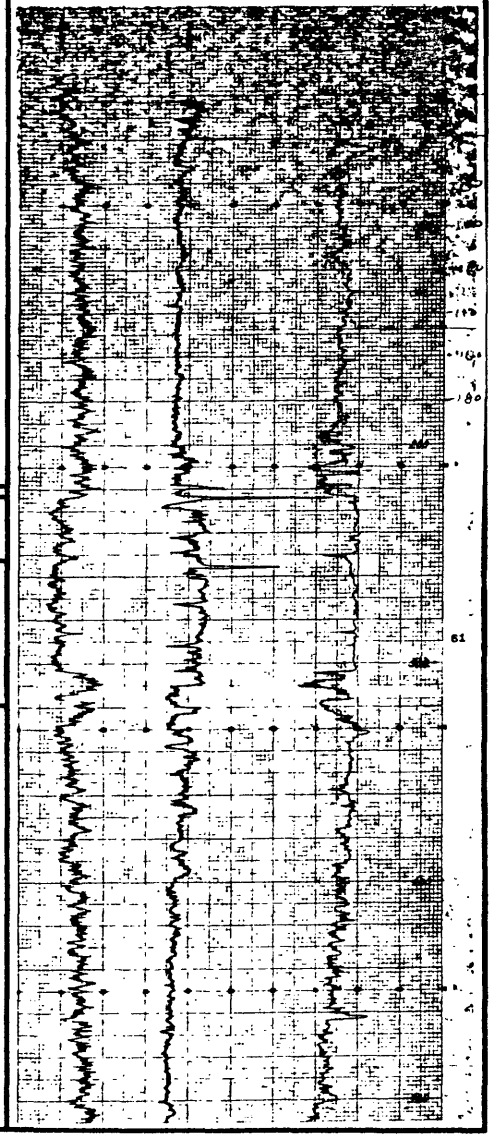
Surface Elev.: 189.0 m, Logged Depth: 588.6 m, Drilled Depth: 588.8 m, Core Int: 586.0 m,

Medium: water

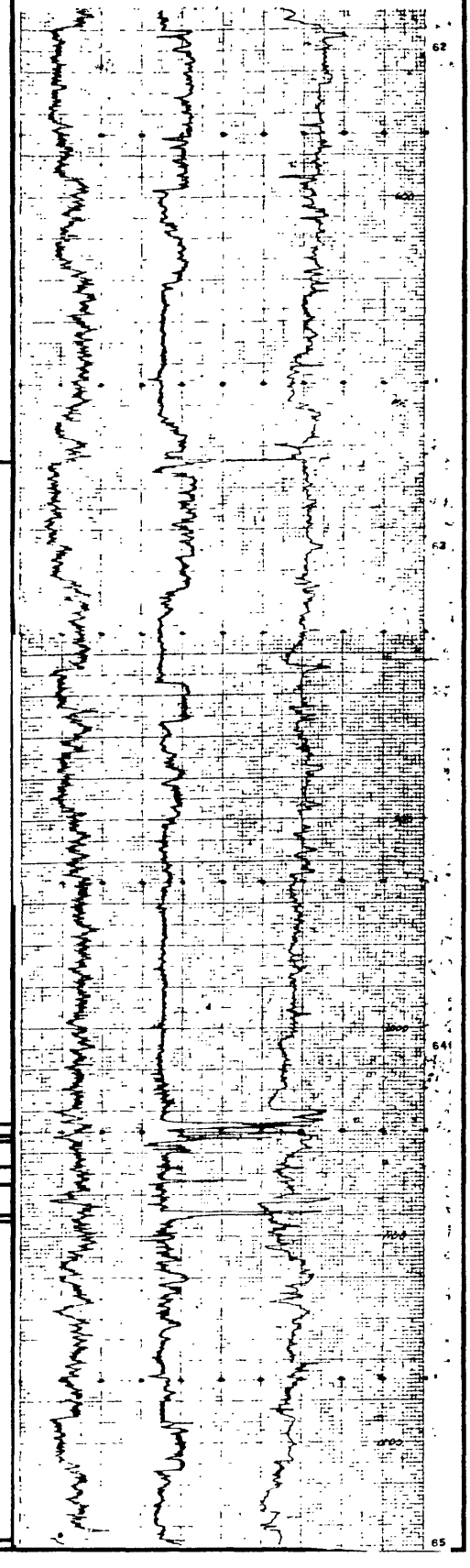
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-2.83	Cased in unconsolidated material.			
2.83	Ss., sh. intbdd.; ss., m.-f.gr., m.lt.gy., Fe-stain at top, mica., fracture zones, scarce coal spar; sh., m.dk.gy., clayey, siderite bands; occ. carb., v. weathered top; occ. slst. bed; core loss: 62.97-64.89 meters.	10 20 30		
66.17	Sh., with coal lam. and fc.			
66.48	Ss., lt.gy., f.gr., massive.	40		
66.75	Coal, blocky, broken; Utley group.			
66.87	Sh., bk., coal lam.; grades to fc.			
66.93	Sh., fc. intbdd.; sh., dk.gy.; fc., lt.-m.gy.	50		
68.24	Coal, blocky, impure; sh. partings and shaly coal; Utley.	60		
68.49	Sh., fc. intbdd.; sh., m.gy.; fc., m.lt.gy.	70		
68.92	Sh., fc. mixed; sh., m.gy.; some siderite.	80		
69.92	Ss., m.lt.gy., m.-f.gr., massive; few sh. intbds., coal intbds.; siderite conglomerate.	90		
77.88	Coal, bright, fine cleats, shaly; Utley group.	100		
78.09	Ss., m.lt.gy., m.-f.gr., mica., rooted, scarce coal spar, siderite; sh. intbd.	110		
94.43	Sh., m.dk.gy., coaly, ss. lams.; grades to bk., carb. sh.	120		
95.65	Coal, and bone.			
95.71	Sh., ss. intbdd.; sh., m.dk.gy., carb., massive, siderite; ss. m.lt.-m.dk.gy., f.gr., siderite; slst. beds, carb. bands, rare bk. sh.; fc., m.gy., sandy, rooted; sh. pebble conglomerate, mica., calc. veins, high angle fault.	130 140 150		



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
221.13	Coal, broken, bk. vitreous cleats, vertical calc. veins; Cobb coal.			
221.35	Sh., bk., bone, plant debris, roots.	160		
221.65	Fc., m.gy., sandy, mica., rooted.			
223.27	Ss., sh. beds and intbds.; ss., m.lt.gy., m.-f.gr., mica., carb., siderite, coal spar, feldspathic; sh., m.dk.gy., calc.; sh. pebble conglomerate; m.gy. slst.	170		
		180		
274.93	Sh., m.dk.gy., sandy, calc.; ss., slst., and siderite lams.	190		
318.67	Coal, bone and sh. partings; Pratt coal.	200		
319.55	Sh., m.dk.gy.; coal bed at 319.92 meters.			
320.07	Sh., bk., with dk.gy.	210		
320.13	Coal, shaly top; Pratt coal.			
320.47	Fc., dk.gy., carb., slickensides, shaly top; grades to coal.	220		
320.95	Coal, grades to sh.; Pratt coal.	230		
321.08	Fc., m.gy., silty, plant debris, rooted; shaly base.			
322.08	Ss., m.lt.gy., f.gr., mica., siderite.	240		
323.00	Slst., m.gy.; ss. intbds., x-lams.			
325.07	Sh., slumped.	250		
325.19	Coal, shaly; Pratt coal.			
325.25	Sh., m.dk.gy.; f.gr. ss. lams.; siderite nodules.	260		
327.05	Coal, Pratt coal.			
327.29	Sh., dk.gy., partly carb., coal lams., siderite nodules and intbds.	270		
331.68	Coal, undifferentiated; America coal.			
332.14	Coal, and bone.	280		
332.35	Uc., and sh.; dk.gy., sandy, siderite rootlets, scarce coal lams., plant debris.			
334.03	Slst., m.gy., abnt. siderite rootlets, rare coal spar.	290		
336.41	Sh., dk.gy.-bk., siderite nodules, coal lams., fracture fissile zone.			
338.57	Uc., dk.gy.-bk., roots, siderite.	300		
338.94	Slst., m.gy., sandy, siderite rootlets.			
340.52	Ss., sh. intbdd.; ss., m.-dk.gy., f.gr., slst. lams., siderite and coal lams.; sh., m.dk.gy., f.gr., 2.5 cm. coal bands at 344.85, 346.68 meters; fc., m.gy., mica., slickensides.	310		
		320		
		330		
		340		
378.99	Sh., bk.	350		
379.32	Coal; Gillespie Coal.			
379.38	Fc., dk.gy., rooted.	360		
379.84	Ss., sh. beds and intbds.; ss., m.gy., m.-f.gr., rooted, mica.; sh., dk.gy., sparce coal banding, calc., siderite.	370		



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
466.47	Coal, bright and dull banding, cleats; Mary Lee coal (?).			
466.80	Bone.	380		
466.92	Coal, f. cleats; Mary Lee coal.			
467.32	Bone.			
467.41	Uc., m.gy., rooted.			
467.96	Sh., ss. intbdd.; x-lams., scarce siderite intbds.	390		
475.61	Sh., m.gy., sandy.			
476.19	Coal, bright, banded, broken, vertical calc. veins, shaly base; Blue Creek coal.	400		
476.65	Bone, m.gy., coal lams.			
476.83	Fc., m.gy., bk, clay at base.			
476.98	Bone, bk.	410		
477.07	Coal, shaly; crackles with gas; Blue Creek coal.			
477.74	Uc., m.gy., broken.			
477.90	Fc., m.gy., sandy, slickensides, sh. lams.	420		
482.16	Sh., ss. intbdd.; sh., m.dk.gy., siderite; ss., f.gr., heavy mineral bands; high angle calc. veins, slickensides.			
537.33	Coal, lams., sandy sh. partings.	430		
537.39	Fc., m.dk.gy., sandy, siderite rootlets.			
538.55	Sh., ss. intbdd.; sh., m.gy., sandy; ss., lt.gy., f.gr., siderite rootlets and nodules.	440		
552.24	Sh., dk.gy.-bk., abnt. coalified plant fragments, pyrite.			
554.28	Coal, banded, vertical calc. veins, siderite lams.; Lick Creek coal.	450		
554.34	Fc., m.gy., sandy, siderite rootlets.			
554.89	Ss., m.lt.gy., f.gr., rooted top, coal spar, calc. zones, siderite bands; few sh. intbds.	460		
570.89	Coal, bk. shiny.			
571.10	Sh., m.dk.gy.; v.f.gr., m.lt.gy. ss. lams., siderite.	470		
572.29	Fc.; coal bands at 572.35, 572.48 meters; siderite rootlets.			
573.70	Sh., ss. intbdd.; sh., m.gy.; ss., lt.gy., v.f.gr.; clayey, mica., rooted.	480		
584.42	Coal, bright, cleats; Black Creek coal.			
585.31	Fc., m.lt.gy., v. sandy, rooted, coal lams.	490		
585.64	Sh., ss. intbdd.; rooted sandy, siderite, coal spar.			
588.84		500		
588.87	Total Depth.			
		510		
		520		
		530		
		540		
		550		
		560		
		570		
		580		
		590		

DRILL HOLE LOG

Hole #: 4

Geophysical Log Date: 8/28/79, County, State: Tuscaloosa, Alabama

Map: Wiley, 7½' quad. Location: NE¼ Sec. 5, T. 18S, R. 8W HPM

Surface Elev.: 122.8 m, Logged Depth: 488.6 m, Drilled Depth: 488.6 m, Core Int: 460.2 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

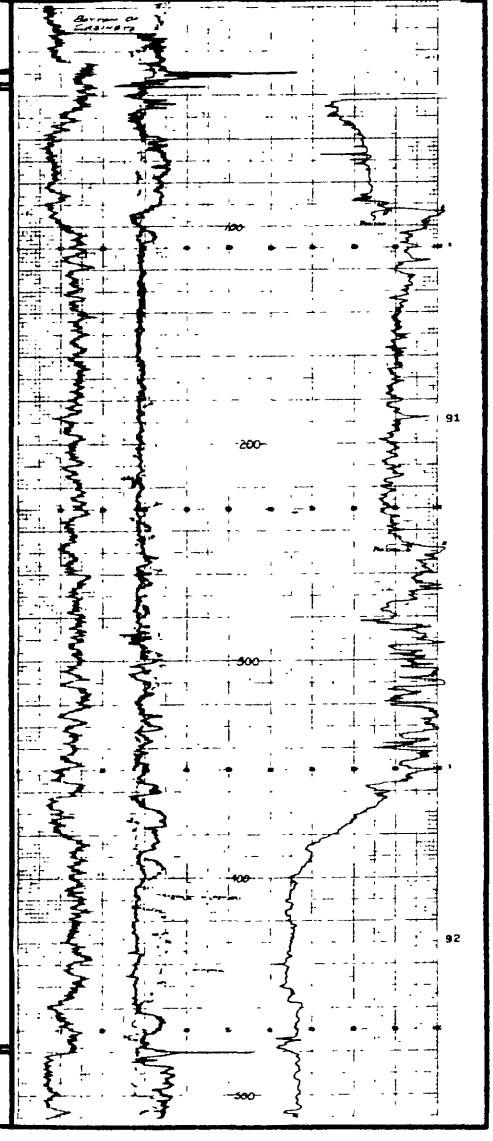
Depths in lithology column indicate the top of the described interval.

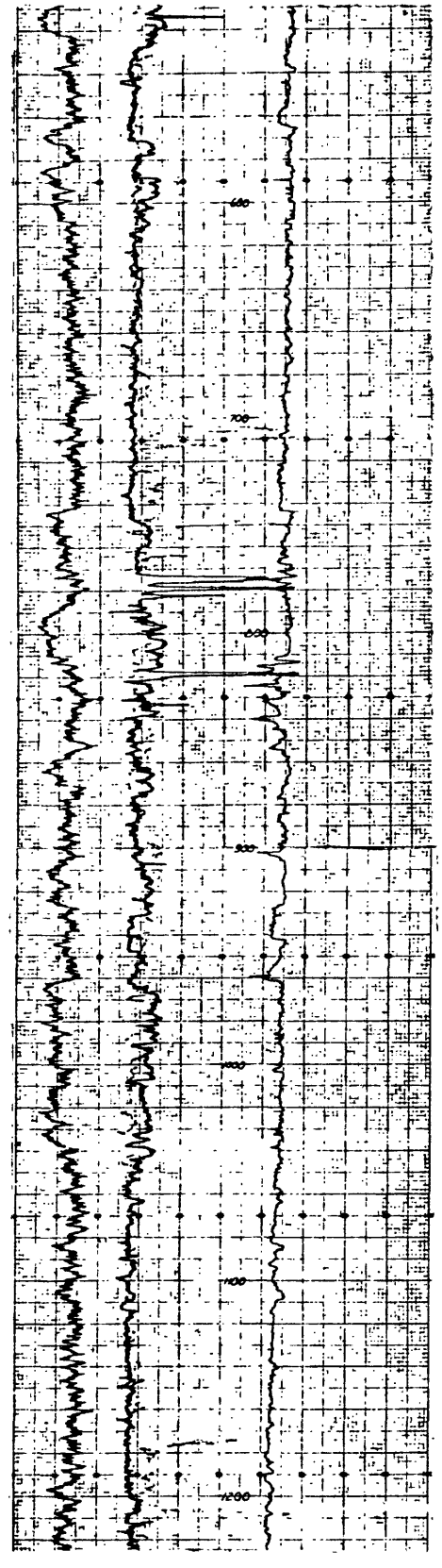
LITHOLOGY		Depth m.
0-3.78	Cased in unconsolidated material.	
3.78	Ss., sh. intbdd.; ss., m.lt.gy., mica., carb., x-bdd., massive, siderite nodules, few coal spars.	10
9.33	Coal; Utley coal.	20
9.39	Fc., weathered.	
11.46	Sh., dk.gy., roots, bone; ss. lams.; siderite, and clay intbds., coal bands near base.	30
12.71	Bone; coal bands near base.	40
13.14	Fc., several coal lams.	
13.50	Coal, shaly.	50
13.62	Bone, coal lams.	
13.75	Coal, shaly.	60
13.84	Bone, coal lams.	
13.96	Sh., m.-dk.gy., sandy, coal lam., clay intbds. at top.	70
14.23	Fc., m.gy., siderite rootlets; sandy at base.	80
15.39	Sh., ss. beds and intbds.; sh., m.dk.gy.; ss., m.gr., m.lt.gy., mica.; siderite lams., x-bds., fossif., calc., carb., high angle calc. veins; few dk.gy. slst. intbds.; occ. sandy fc., rootlets.	90
		100
146.00	Coal, banded, 1.59 cm. thick.	110
146.03	Fc., m.gy., rooted.	
146.24	Coal, banded, calc. coating on cleats; Upper Cobb coal.	120
146.43	Fc., gn.gy., bk. lams., siderite rootlets.	130
147.92	Sh., ss. intbdd.; sh., m.dk.gy., massive; ss., m.lt.gy.; coal clasts and spars; gy. sh. pebble conglomerate.	140
156.24	Fc., dk.gy., fissile.	150

STRIP LOG

GEOPHYSICAL LOGS

GAMMA DENSITY RES.



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
156.70	Coal, banded, cleated, bright; vertical calc. fractures; Lower Cobb coal.	160		
156.97	Ss., sh. intbdd.; ss., m.lt.gy., mica., carb.; sh., m.dk.gy.; occ. slst. bed; siderite nodules, calc.	170		
		180		
235.79	Coal, bk. sh. and fc. intbds.; Pratt coal.	190		
236.83	Fc., dk.gy., coal lams., rooted.	200		
237.32	Coal, fc. lams.; Pratt coal.			
237.80	Fc., v.dk.gy., siderite rootlets.			
238.51	Coal, sh. partings; Pratt coal.	210		
238.60	Fc., v.dk.gy., coal lams.			
239.02	Sh., ss. intbdd.; sh., m.dk.gy., sandy, rootlets, lams.; ss., m.lt.gy., f.gr., mica., carb., scarce coal lam.; or.bn. hematite cement at top.	220		
		230		
255.73	Fc., dk.gy., sandy, rooted.			
256.31	Sh., m.dk.gy., slst. and coal lams.	240		
259.35	Coal, well cleated.			
259.38	Sh., ss. intbdd.; sh., dk.gy.; ss., m.gy., v.f.gr., carb., rooted; sandy, siderite, shaly; calc. and clay intbds. at top; bn.gy. ls.; fossif. at 271.09 meters.	250		
		260		
276.61	Coal, blocky; Curry coal.	270		
276.64	Uc., m.dk.gy., rooted.			
277.49	Ss., sh. intbdd.; ss., m.lt.gy., f.gr., abnt. mica., calc.; sh., m.dk.gy.; occ. slst. and siderite intbds.	280		
293.67	Coal, broken; Gillespie coal.			
293.74	Fc., dk.gy.-bn.gy., root structures.	290		
294.38	Ss., sh. intbdd.; ss., m.lt.gy., f.gr., mica., carb.; sh., m.dk.gy., v.f.gr., siderite, x-bdd., calc. in part.	300		
		310		
		320		
		330		
377.65	Coal; Mary Lee coal.	340		
377.80	Sh., dk.gy., f.gr., ss. lams.			
377.95	Coal, intbdd. with bk. sh.; Mary Lee coal.	350		
378.53	Sh., m.dk.gy., ss. lams.			
378.84	Ss., m.lt.gy., f.gr., mica., carb.	360		
		370		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
384.66	Coal.			
384.72	Slst., m.gy., sh. lams.			
386.82	Coal, shattered.			
386.94	Uc., sh. intbdd.; dk.gy., carb., scattered.			
387.10	Coal, shattered; thickness and depth interval uncertian; Blue Creek coal.			
388.28	Uc., tan-bn.gy., sandy, roots.			
388.83	Uc. (?), m.gy., sandy, siderite rootlets.			
390.08	Slst., m.gy.; sandy, rooted uc. intbds. at top.			
391.12	Sh., ss. beds and intbds.; sh., m.dk.gy.; ss., m.lt.gy., f.gr., mica., x-lams., massive; occ. clay, and carb.; 1.22 meters core loss at 420.50 meters.			
451.04	Coal, banded; Lick Creek coal.			
451.10	Sh., ss. intbdd.; sh., m.dk.gy., sandy.			
456.38	Coal, banded, shaly; Jefferson coal.			
456.65	Sh., bk., coal lams.			
456.74	Fc., m.gy., rooted.			
457.50	Sh., m.dk.gy., some siderite; grades to dk.gy.			
458.45	Coal, and bone.			
458.48	Sh., m.dk.gy., rooted.			
459.00	Sh., ss. beds and intbds.; sh., rooted, carb.; siderite replacement, mica.; m.gy. fc., mica., carb., at 468.05 meters.			
478.41	Coal, dull and bright banded; Black Creek coal.			
479.30	Sh., ss. intbdd.; sh., dk.gy., carb.; ss., m.lt.gy., mica.; coal bands near top.			
488.62	Total Depth.			

DRILL HOLE LOG

Hole #: 5

Geophysical Log Date: 9/4/79, County, State: Tuscaloosa, Alabama

Map: Lake Tuscaloosa N., 7½' q. Location: SW¼ Sec. 32, T. 18S, R. 9W HPM

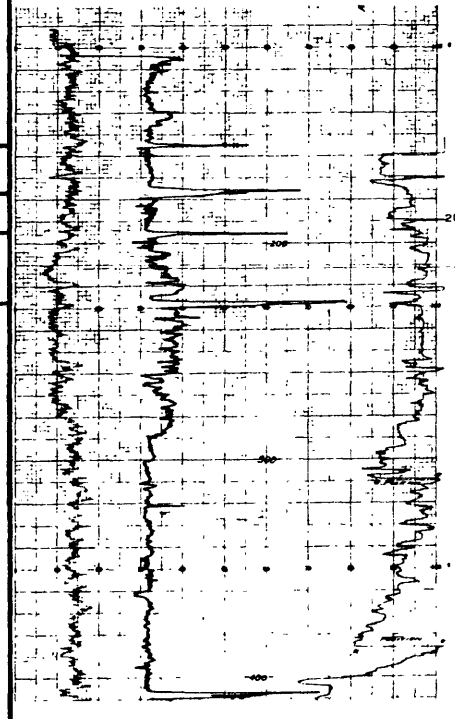
Surface Elev.: 162.2 m, Logged Depth: 639.2 m, Drilled Depth: 642.1 m, Core Int: 615.4 m,

Medium: water

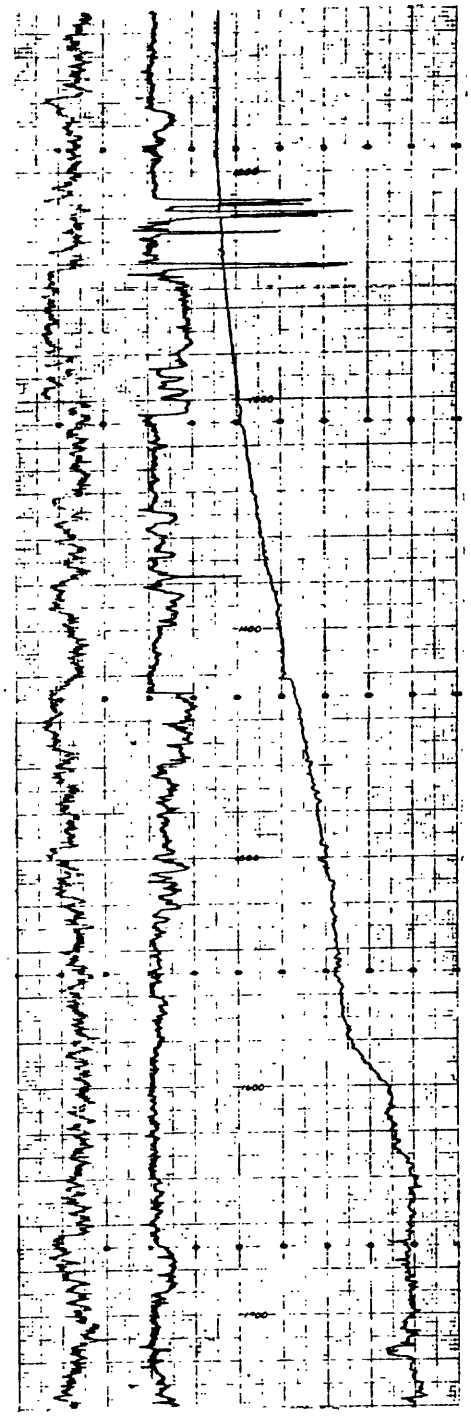
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

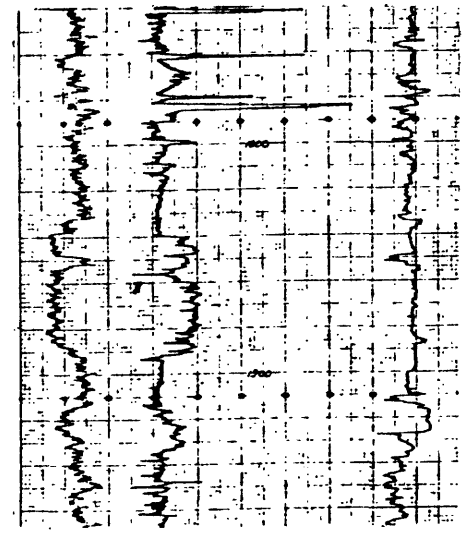
Depths in lithology column indicate the top of the described interval.

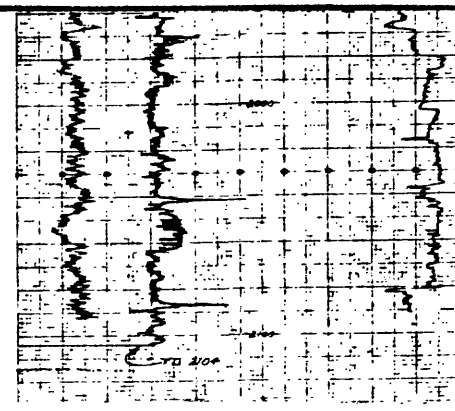
LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-26.67	Cased in unconsolidated material			
26.67	Ss., m.lt.gy., f.-v.f.gr.; m.dk.gy. clay intbds.	10		
26.97	Ss., sh. intbdd.; ss., lt.-m.gy., f.gr., mica., carb.; sh., m.dk.gy., clayey, calc. lams. and viens; clay intbds.; siderite intbds. and nodules.	20		
		30		
47.06	Coal, banded, calc. lams., 7.6 mm. pyrite layers, cleats with calc. sheets.	40		
47.30	Uc., gy., roots, slickensides, abnt. plant debris.			
47.46	Sh., m.dk.gy., abnt. plant debris, few ss. lams.; high angle normal faults, thin coal bands lower half.	50		
		60		
53.25	Coal, broken, cleated; Utley group; core loss between 53.31 and 53.49 meters.	70		
53.80	Sh., m.dk.gy.; v.f.gr. ss. lams.			
59.31	Coal, banded, cleated, thin calc. lams.; Utley group.	80		
59.65	Slst., ss. intbdd.; slst., m.gy., sandy, rooted, plant debris; ss., m.lt.gy., f.gr., mica., carb.	90		
68.21	Sh., m.gy., plant debris.	100		
68.92	Slst., m.gy., sandy, massive.			
69.13	Coal, banded, clay partings, calc. band at top; Utley group.	110		
69.74	Ss., m.gy., m.gr., coal spar.			
69.83	Fc., dk.gy., sandy, coal lams.	120		
70.29	Ss., sh. beds and intbds.; ss., m.gy., f.gr., mica., rooted, partly carb.; sh., m.gy.; high angle calc. fracture, coal spars, occ. slst. bed, pebble conglomerate, fossil zones, siderite; high and low angle fracture zone, normal faults, slickensides.			
124.18	Fc., m.gy., waxy, rooted.			



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
125.03	Slst., m.gy., sandy, mica., rooted; high angle normal faults.			
126.55	Ss., sh. beds and intbds.; ss., m.lt.gy., v.f.gr., mica.; sh., dk.gy. -bk., f.gr., mica., siderite, coal spar, some calc. and carb.; occ. slst. bed, m.gy., sandy.	130		
		140		
		150		
		160		
		170		
206.47	Sh., bk., coal lams.	180		
213.54	Coal; Gwin group.			
213.66	Fc., m.gy., rooted, sandy.	190		
214.46	Ss., m.lt.gy., f.gr., rooted, mica., sh. lams.			
215.65	Sh., m.dk.gy.-bk., silty top, coaly base; siderite, ss. and slst. lams.	200		
216.47	Fc., m.gy., sandy, siderite rootlets; grades to rooted, f.gr. ss.	210		
218.02	Sh., ss. beds and intbds.; sh., m.dk.gy., v.f.gr., some bk. sh. at top, rooted, siderite; ss., m.gy., v.f.gr., pyrite, mica.; occ., m.dk.gy., slst. bed; carb., siderite bands, coal layers, siderite rootlets.	220		
		230		
		240		
		250		
		260		
270.51	Sh., bk., v. carb., coal lams.			
270.69	Coal; Upper Cobb coal.	270		
271.15	Fc., m.dk.gy., rooted.			
271.27	Slst., m.dk.gy., sandy, massive, rooted.			
271.42	Ss., sh. beds and intbds.; ss., m.gy., m.-f.gr., mica., massive, occ. carb.; sh., m.dk.gy., sandy, massive, occ. calc.; sparse coal spar, bk. carb.	280		
		290		
		300		
		310		
		320		
		330		
		340		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
369.57	Coal, banded, cleats, calc. stringers; Pratt coal.	350		
369.81	Uc., dk.gy., bony.			
369.91	Coal, cleated, calc.			
369.97	Uc., m.gy.	360		
370.06	Coal, banded, sh. partings, pyrite, calc. fractures.			
370.27	Uc., m.gy., sandy, siderite bands and nodules near base; rooted.	370		
371.03	Coal, banded, calc. and pyrite fractures, sh. partings.	380		
371.76	Uc., m.gy., sandy, rare coal lams.			
373.26	Coal, banded.	390		
373.29	Sh., m.-dk.gy., plant fragments, abnt. siderite intbds.			
373.68	Coal, banded, cleated, calc. stringers; Pratt.	400		
373.90	Sh., m.-dk.gy., sandy, siderite nodules, calc. stringers, plant debris, ss. lams.; coal lams. near base.	410		
378.01	Bone.			
378.04	Coal, banded, cleated, pyrite nodules, siderite bands; America coal.	420		
378.53	Uc., m.gy., rooted, siderite nodules, coal spars.			
378.29	Fc., m.dk.gy., sandy, plant debris.	430		
379.45	Sh., dk.gy., ss. lams., plant debris.			
379.54	Fc., dk.gy., fissile.	440		
379.57	Sh., ss. beds and intbds.; sh., dk.gy., rooted, occ. coaly and carb.; coal, calc. and siderite lams.; ss., m.dk.gy., m.-f.gr., mica.; occ. carb. and calc., massive, x-bdd.; few m.dk.gy. slst. beds, massive siderite; angular sh. pebble conglomerate.	450		
419.74	Coal; possible core loss at this point.			
419.77	Uc., m.gy., v. sandy, rooted.	460		
420.75	Sh., ss. beds and intbds.; sh., m.gy., sandy, thin lams., siderite lams., some mica.; ss., m.lt.gy., f.gr., massive, mica.; thin carb. sh. at top.	470		
435.10	Coal, bright band; intbdd. sh. and pyrite.			
435.28	Ss., sh. beds and intbds.; ss., f.gr., sandy, massive, rare coal spar, mica.; siderite: pebbles, intbds., and nodules; sh., m.dk.gy., some sand, siderite zones; few slst. units; coal lams. near base.	480		
		490		
		500		
		510		
		520		
		530		
530.90	Ironstone and siderite nodules.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
531.05	Coal, banded, poor cleats, bone parting; New Castle coal.			
531.48	Uc., dk.gy., sandy, plant debris.	540		
531.66	Sh., m.-m.dk.gy., roots; ss. lams. and intbds.			
537.21	Coal, banded, cleated, siderite stringers; Mary Lee coal.	550		
537.39	Sh., dk.gy., sandy lams., plant debris.			
537.58	Coal, hard, bright; Mary Lee coal.	560		
537.61	Sh., dk.gy., sandy lams., siderite nodules, plant debris.			
538.19	Ss., sh. intbdd.; ss., m.-lt.gy., f.gr .; sh., dk.gy.; few clay and siderite lams., cleated coal spar lower portion.	570		
		580		
		590		
542.64	Coal, dull, banded at top, bright layer, sh. partings; Blue Creek coal (?).	600		
542.91	Uc., m.dk.gy., soft clay intbds.			
543.92	Coal, bony at top, well cleated, bone partings; total coal 1.5 cm.; Blue Creek coal.			
544.31	Coal, v. impure coaly sh.; Blue Creek coal.			
544.43	Uc., m.dk.gy., sandy, rooted siderite, coal spar.			
545.04	Ss., m.lt.gy., f.gr., rooted; lam., partly x-lams.			
546.05	Sh., m.gy., sandy, thin lams., partly rooted, calc., siderite lams.			
548.52	Coal, hard, bright, grades to coaly uc.; Jagger coal.			
548.55	Uc., dk.gy., part coaly, occ. rooted, coal lams.			
548.88	Sh., ss. beds and intbds.; sh., m.gy., sandy; ss., m.lt.gy., f.gr., occ. x-bdd.; siderite intbds., partly carb., massive.			
565.68	Sh., bk., clayey, silty, some sand.			
567.11	Sh., ss. beds and intbds.; as before; coal spars.			
584.45	Sh., bk., coal lams.			
584.51	Coal, reddish band at top (siderite?).			
584.55	Sh., dk.gy.			
585.31	Ss., sh. intbdd.; ss., m.lt.gy., f.gr.; sh., dk.gy., massive; roots, siderite lams., fossil zone, coal band.			
593.96	Coal, banded.			
594.02	Sh., dk.gy., siderite rootlets, clayey, coal spar.			
598.51	Coal, dull, pyrite lam.			
598.54	Sh.; as before.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
601.07	Coal, thin calc. lams.; Lick Creek coal (?).	610		
601.10	Fc., m.gy., sandy, rooted, siderite, fossils, slickensides.			
602.19	Slst., m.dk.gy., v. mica., rooted.	620		
603.81	Sh., ss. intbdd.; sh., m.-dk.gy., lam., silty, sandy; ss., m.gy., f.gr.; sh. varies to bk.	630		
622.74	Coal, bk. sh. lams., calc. stringers; Jefferson coal.	640		
623.01	Fc., dk.gy., plant fragments, coal lams., rooted.	650		
623.47	Sh., ss. intbdd.; Sh., dk.gy., sandy, massive, rooted; ss., m.lt.gy., f.-v.f.gr., carb.; slst. bed.			
636.27	Coal, hard, vitreous, banded; Black Creek coal.			
636.45	Fc., dk.gy., clayey, rooted, sandy at base.			
637.34	Sh., m.dk.gy., slst. lams., roots at top.			
640.66	Ss., m.lt.gy., f.gr.; sh. intbds. at top.			
642.06	Total Depth.			

DRILL HOLE LOG

Hole #: 6

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

Map: Lake Tuscaloosa N., 7½' Location: SE¼ Sec. 23, T. 18S, R. 10W HPM

Surface Elev.: 157.0 m, Logged Depth: - m, Drilled Depth: 596.8 m, Core Int: 575.0 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	-	-	-
Logging Speed:	-	-	-

Depths in lithology column indicate the top of the described interval.

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-21.85 Cased in unconsolidated material. 21.85 Ss., m.gy., v.f.gr., mica.; grades to slst.; sh. lams. 26.97 Fc., dk.gn.gy., hard, fractured. 27.25 Ss., m.gy., sh. and clay lams. 27.34 Fc., dk.gy. 27.83 Ss., sh. beds and intbds.; ss., m.gy., f.gr., massive to x-bdd., sh. lams. at top; sh., m.dk.gy.-bk., mica.; occ. calc., siderite, and sandy zones; calc. lams.; coal beds near base 76.29 Fc., m.dk.gy., lams., roots, slickensides; coal banding near base. 76.72 Coal, 2 calc. lams.; Utley group. 76.96 Fc., m.dk.gy., coal beds, siderite rootlets. 77.42 Coal; Utley group. 77.48 Sh., m.gy., sandy, mica., minor roots, coal lams. 81.14 Coal; Utley group. 81.35 Fc., m.gy., mica., carb., plant fragments, siderite rootlets. 81.56 Sh., ss. intbdd.; m.gy., mica., calc., siderite rootlets, coal spar. 82.72 Slst., lt.-m.gy., x-bds., siderite bands. 83.21 Ss., m.lt.gy., f.-v.f.gr., v. mica., sh. and siderite lams. 88.00 Coal, 2 sh. partings; Utley group. 88.36 Sh., ss. beds and intbds.; sh., m.gy., sandy, siderite rootlets; ss., m.lt.gy., m.-f.gr., v. mica., x-bds.; partly massive, siderite, few calc. spars; sh., and siderite conglomerate; calc., carb.	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150		No Geophysical Log

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
176.78	Coal, 3.8 cm.; grades to sh.; Thompson Mill coal.	160		
176.81	Sh., dk.gy., v.f.gr., silt and clay lams., siderite nodules.	170		
177.27	Coal, 7.6 cm., sh. partings; Thompson Mill coal.	180		
177.36	Sh., as above.			
177.52	Fc., silty, rooted; irregular siderite nodules.	190		
177.70	Ss., m.lt.gy., f.gr., mica.			
178.09	Sh., ss. beds and intbds.; sh., m.dk.gy., sandy, rooted; ss., m.lt.gy., v.f.gr., mica.; occ. slst., bn.gy.-m.dk.gy., occ. massive, sandy; occ. siderite, fossif., zones, calc., carb.; few bk. sh.; coal lams at base.	200		
		210		
		220		
226.13	Sh., bk., coaly, coal lams.			
226.16	Sh., m.dk.gy., mica., rooted top, slst. lams., rare siderite nodules.	230		
229.18	Coal, 4 sh. partings, calc. band; Upper Cobb coal.	240		
229.51	Fc., m.gy., mica., and carb. top, sandy base, rooted.	250		
231.95	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr.; sh., m.dk.gy., occ. clayey; rare calc. fracture, coal spar, mica., siderite, fossil-calc. zone; bk. sh. at 257.3-257.9 meters.	260		
		270		
320.74	Coal, undifferentiated, 76 cm. seam, smutty, broken; Pratt coal.	280		
321.50	Sh., m.gy., siderate bands.	290		
321.84	Coal, undifferentiated, 50 cm. seam, broken, smutty; Pratt coal.	300		
322.36	Fc., m.gy., sandy, coal spar, siderite rootlets.	310		
323.88	Ss., m.lt.gy., f.-v.f.gr., x-bdd., siderite granules, rare sh. lam.	320		
325.86	Sh., dk.gy.-bk., ss. and siderite lams.			
325.95	Ss., as before.			
326.17	Slst., m.gy., massive, ss. lam., rare siderite; grades to sh. with abnt. plant fragments.	330		
328.03	Coal, undifferentiated, 37 cm.; Nickel Plate coal (?).			
328.39	Sh., ss. intbdd.; sh., dk.gy. -v.dk.gy.; ss., m.lt.gy., f.gr.; siderite replacement of sh. near 333.09.			
334.34	Coal, relatively pure, calc. stringers; America coal.			
334.64	Bone.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS		
				GAMMA	DENSITY	RES.
334.67	Fc., m.gy., sandy, rooted, slickensides.					
335.43	Ss., sh. beds and intbds.; ss., m.-lt.gy., f.gr., mica., abnt. carb., x-bds.; sh., m.dk.gy., v.f.gr, siderite nodules and lams., calc. zones, occ. pyrite marine fossil hash zone; siderite and sh. pebble zone; massive bk. coaly sh. at 370.88; occ. slst. bed, bn.gy.-dk.gy.; rare Fc., m.gy., v. sandy, abnt. siderite rootlets.	340 350 360 370 380 390				
470.28	Coal, banded, horizontal calc. veinlets.	400				
470.34	Ss., sh. intbdd.; ss., m.lt.gy., mica.; sh., dk.gy., few coal spar, siderite.	410				
488.08	Coal, undifferentiated; Mary Lee.					
488.26	Sh., bk., carb., rare coal band, occ. siderite.	420				
488.90	Coal, undifferentiated; Mary Lee coal.	430				
489.17	Sh., dk.gy.-bk., few siderite intbds., ss. lams.; grades to dk.gy. sh. intbdd. with lt.gy. ss.	440				
495.64	Coal, banded; Blue Creek coal.					
495.73	Sh., dk.gy., clayey, abnt. plant fragments.	450				
496.00	Coal, banded; Blue Creek coal.	460				
496.06	Sh., as above					
496.09	Coal, carb. partings; Blue Creek coal.	470				
496.34	Coal, indurated, shaly.					
496.55	Sh., m.dk.gy., sandy, rooted, plant fragments.	480				
496.85	Ss., m.lt.gy., v.f.gr., rooted, sh. lams.	490				
497.56	Slst., dk.gy., sandy, siderite lams.					
498.77	Sh., dk.gy., sandy, siderite lams., rare bk. sh. lams.	500				
499.29	Ss., m.gy., f.gr., shaly, coal lam. and spar.	510				
499.57	Sh., m.dk.gy., silty, siderite lams., rare ss. lam.; 2.13 cm. coal band at 502.6 meters.					
505.72	Coal, banded, calc. stringers; Jagger coal.					
505.94	Sh., m.dk.gy., siderite, few ss. lams.; abnt. 1 cm. coal bands; washed out fc., 511.00; ss. intbds. from 512.77 and down.					
516.91	Core loss.					

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
517.00	Sh., fc. intbds.; sh., bk., abnt. coal lams., few gy. sh. lams.; fc., dk.gy., soft, abnt. coal fragments; sh. grades dk.gy.-bk.; coal occurrence stops after 518.13 meters.	520		
520.39	Sh., ss. intbdd.; sh., dk.gy-bk.; ss., lt.m.gy.; rooted, siderite, fossif.	530		
548.85	Coal, parting, dull layers, 12.7 cm. coal; Lick Creek coal.	540		
549.07	Uc., dk.gy., rooted.	550		
549.55	Sh., m.dk.gy., ss., m.lt.gy.; siderite, slst. lams.	560		
569.84	Coal, bk. sh. lams.; Jefferson coal.	570		
570.16	Fc., dk.gy., sandy.			
570.34	Ss., m.gy., v.f.gr., dk.gy. sh. lams., mica., v. carb., siderite, vertical fracture.	580		
579.21	Coal, bright, bony.	590		
579.39	Uc., m.-dk.gy., sandy, siderite rootlets.	600		
581.28	Ss., m.gy., f.gr., v. mica., x-lams.			
584.55	Ss., sh. intbds.; siderite sandy.			
589.18	Sh., bk.; with coal.			
589.70	Coal; Black Creek coal.			
590.58	Sh., m.dk.gy., coaly, carb., siderite; grades to ss. intbds.			
596.83	Total Depth.			

DRILL HOLE LOG

Hole #: 7

Geophysical Log Date: 6/7/79, County, State: Tuscaloosa, Alabama

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

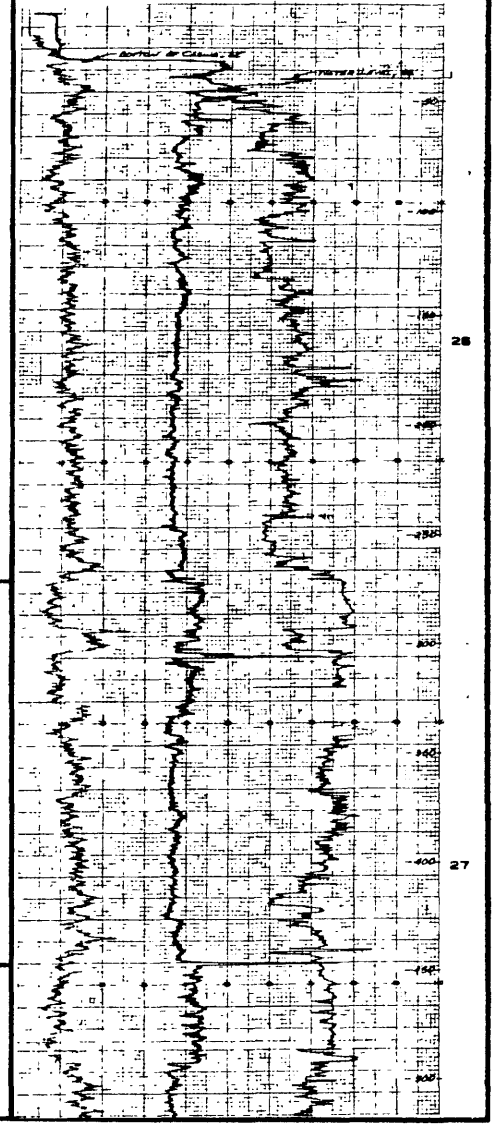
Surface Elev.: 137.5 m, Logged Depth: 495.0 m, Drilled Depth: 495.0 m, Core Int: 485.5 m,

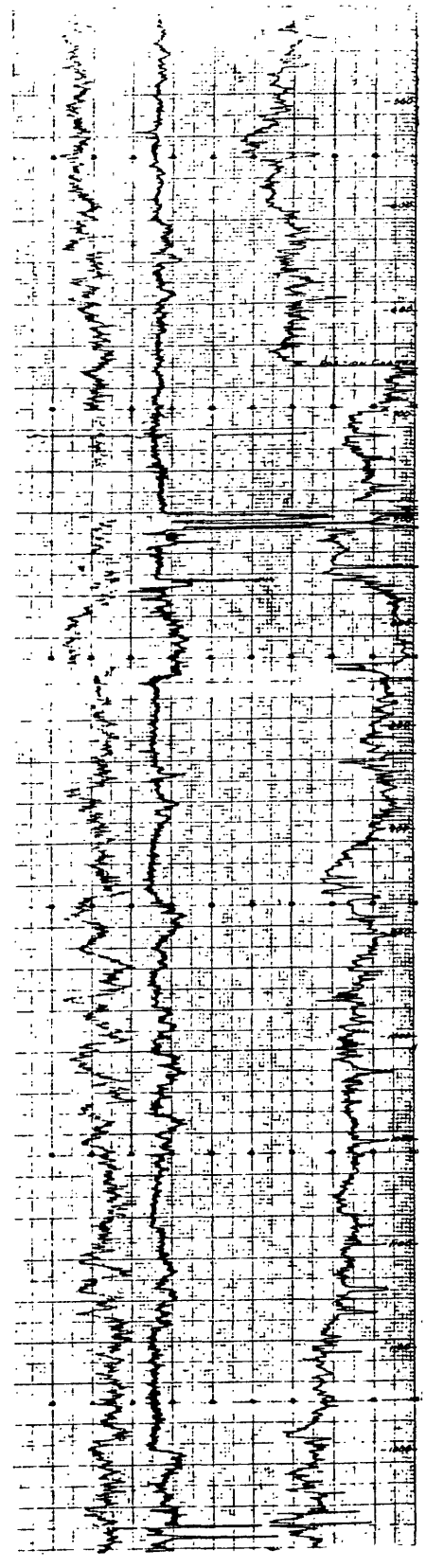
Medium: water

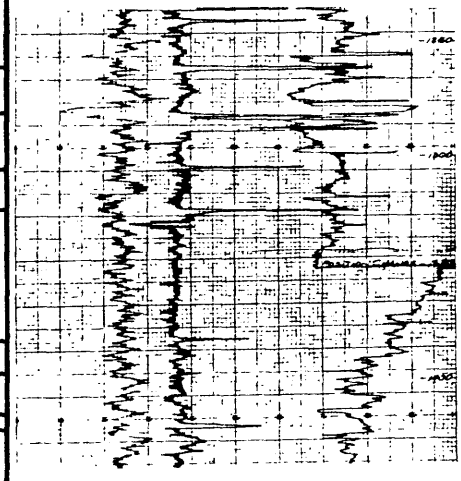
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

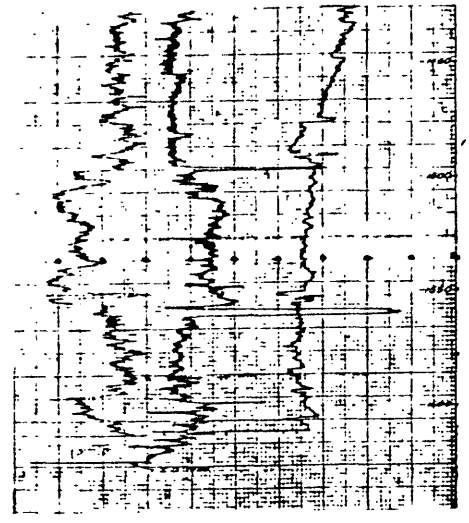
Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0–9.48	Cased in unconsolidated material.			
9.48	Conglomerate, gy. sh. pebbles; ss., m.gy., f.gr.; with sand size inclusions of sh., coal, muscovite, and siderite; thin carb. lams.	10		
9.63	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr., mica., occ. carb., massive, x-bdd., few siderite, pyrite; pebble zones; sh., m.dk.gy., occ. siderite carb., and fossif.; partly carb., rare bk. sh. lams.	20		
		30		
		40		
		50		
		60		
		70		
82.33	Sh., bk., coal, rootlets, plant fragments.	80		
82.45	Sh., dk.gy., massive, siderite nodules.			
82.84	Coal; Gwin coal.	90		
82.88	Sh., ss.; as before; rare calc., carb.; slst. layer.	100		
		110		
135.91	Coal, sh. layers; Upper Cobb coal.			
136.46	Ss., lt.-m.gy., f.gr., shaly, mica., rooted, siderite, few sh. layers and pebbles, few coal pebbles; 4 sh. and siderite pebble conglomerates.	120		
		130		
148.86	Ss., sh. intbds.; ss., lt.gy., f.gr,; sh., dk.gy., sandy; coal spars and lams.; occ. calc., carb., mica.; few slst. beds, bn.-m.gy., occ. calc. and clay; pyrite near base.	140		
		150		



LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
227.81 Coal, intbdd. with sh.; Pratt group. 230.03 Sh., m.dk.gy.-gn.gy., rooted, carb. zones, coal lams. 231.62 Fc., m.dk.gy., crumbly, swollen. 231.83 Slst., m.gy., massive. 232.20 Coal, wh. calc. lams. 232.38 Sh., m.dk.gy., ss. lams., uc. beds. 234.06 Uc., dk.gy., swollen. 234.18 Sh., m.dk.gy., rare ss. lams., siderite at base. 237.47 Coal, 29.2 cm. thick; America coal. 237.77 Fc., m.gy., sandy, rooted; swollen clay intbds. 238.69 Sh., ss., intbdd.; sh., m.-dk.gy.; ss., lt.gy., f.gr., mica., carb., siderite, sandy, silty; coal spars and lams.; fossif. zones. 266.21 Coal; Curry coal. 266.55 Slst., m.dk.gy., sandy, rooted, coal lams. 266.94 Sh., ss. intbdd.; as before; sh. grades to bk. at 284.99, 373.87 meters; pyrite; occ. m.gy. slst. beds. 376.76 Coal, banded, muddy bands; grades to dk.gy., and bk. sh.; New Castle coal. 376.95 Sh., bk. 376.98 Coal; grades to dk.gy. sh. 377.04 Sh., and ss.; sh., bk.; ss., m.gy.; siderite, sand, coal lams.; sh. fades to dk.gy. 378.41 Coal, graded from bk. sh.; banded, pyrite; regrades to bk. sh. 378.68 Sh., bk. 378.77 Fc., v.dk.gy., slickensides. 378.81 Sh., bk., m.lt.gy., ss. lams. 378.99 Sh., dk.gy., rippled ss. lams., siderite nodules, calc. fossif. inclusions; coal spar; abnt. plant fossils.	160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
382.13	Ss. mudflow, coal spar, calc.-filled cleat.			
382.40	Sh., m.dk.gy., abnt. plant fossils, coal spar; siderite.	380		
384.63	Coal, banded, cleated, flaky calc. cleat; Mary Lee coal.	390		
385.02	Fc., dk.gy., pyrite.			
385.24	Sh., ss. beds and intbds.; sh., m.-m.dk.gy., occ. calc.; ss., v.lt. -lt.gy., f.gr.; slst. lams. at top, root fragments, siderite beds and lams.; some off-set and distorted bedding.	400		
		410		
		420		
390.91	Coal, small sh. or clay bed at top; Blue Creek coal.			
391.21	Uc., m.dk.gy., thin lams., root fragments.	430		
391.52	Coal, pyrite layers, clay partings, vertical calc. fractures; Blue Creek coal.			
393.28	Sh., m.dk.gy., sandy, siderite, coal lams., massive base.			
398.04	Coal; Blue Creek coal (?).			
398.22	Sh., m.gy., rooted, coal spar at 399.33 meters, ss. lams., siderite beds, carb. sh. band.			
403.68	Coal, v. shaly lower portion.			
403.98	Fc., dk.gy., plant fragments, coal lams.; rooted.			
404.20	Slst., m.gy., sideritic rootlets, mica., slight siderite.			
405.51	Sh., siderite conglomerate, m.lt.gy.			
405.78	Sh., m.-dk.gy., siderite, and ss. lams., mica.; grades to bk. sh.			
421.17	Coal, sh. lams.; thin calc. layer at top.			
421.29	Sh., dk.gy., as above.			
421.36	Fc., dk.gy., rooted, coal lam.			
421.39	Sh., dk.gy., ss. lams., sideritic rootlets, sh. grades to bk.			
425.74	Coal, thin sh. lams.			
425.81	Sh., dk.gy., slightly sandy, siderite.			
430.41	Coal, sh. lam. at top, plant fragments.			
430.44	Sh., dk.gy., lam., silty, roots, partly mica., siderite nodules, ss. lams.			
432.72	Coal, sh. lam. at top.			
432.76	Uc., m.gy., siderite rootlets, abnt. plant fragments.			
434.43	Sh., m.gy., silty; f.gr. ss.; clay bands, mica., occ. siderite lams.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
436.14	Fc., m.gy., silty, coaly lam., carb., coal band, crushed zones.	440		
436.99	Sh., m.-dk.gy., m.gy. ss. lams., coal lam., siderite, mica., calc. layer.			
456.16	Coal, sh. partings; Lick Creek coal.	450		
456.47	Fc., m.-dk.gy., siderite lam. and rootlets, swollen clay.			
457.05	Sh., bk., ss. lam., rooted, siderite.	460		
458.27	Ss., lt.gy., f.gr., x-bdd., m.gy.-bk. sh. lams., carb. lams.; coal lams. and spars.	470		
474.85	Sh., bk., coaly, siderite lam.			
474.94	Coal, cleated; Jefferson coal.	480		
475.00	Sh., bk., siderite nodules.			
475.12	Fc., dk.gy., abnt. plant fossils.	490		
475.40	Coal, calc. specks, v. pure, one thin sh. parting, minor calc. cleat; Jefferson coal.	500		
476.34	Ss., bk., carb.; silty beds, and siderite near base.			
476.55	Sh., sh. intbdd.; ss., lt.gy., f.gr.; sh., dk.gy., occ. sandy, siderite, pyrite zone.			
487.77	Coal, bk., clayey, broken; Black Creek coal.			
487.83	Ss., m.dk.gy., f.gr., v. carb., rooted, abnt. plant fragments, occ. mica., x-bdd., coal spar; siderite pebble conglomerate lower portion.			
491.58	Sh., m.dk.gy., carb., slickensides.			
491.70	Fc., gn.gy., silty, rooted, abnt. plant fragments.			
491.95	Sh., m.dk.gy., mica., ss. lams.; plant fragments.			
495.00	Total Depth.			

DRILL HOLE LOG

Hole #: 8

Geophysical Log Date: 11/10/79, County, State: Tuscaloosa, Alabama

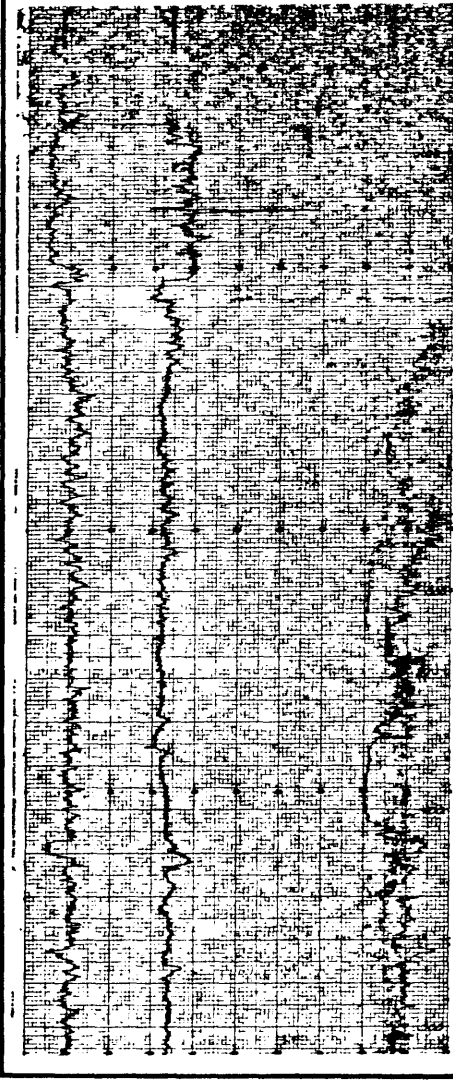
Map: Berry, SE, 7½' quad. Location: SW¼ Sec. 17, T. 17S, R. 9W HPM

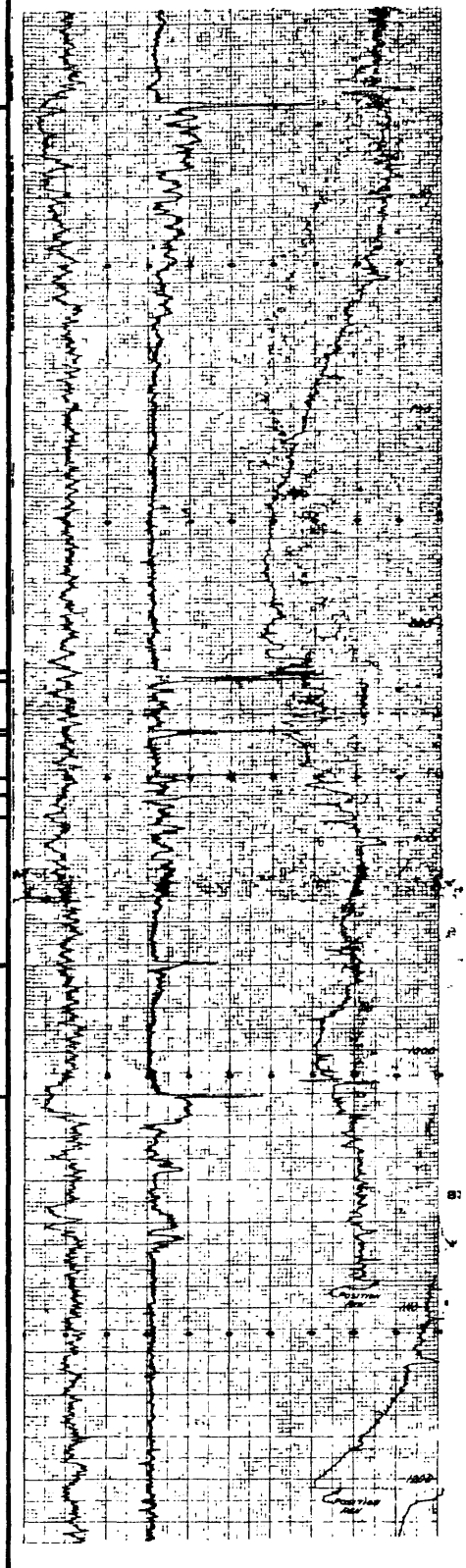
Surface Elev.: 188.4 m, Logged Depth: 491.9 m, Drilled Depth: 491.9 m, Core Int: 465.2 m,

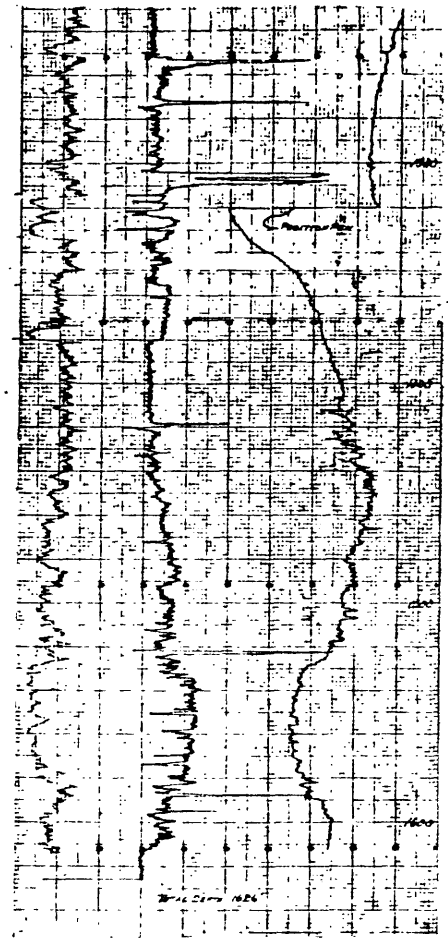
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-26.70	Cased in unconsolidated material.			
26.70	Sh., bk.; coal, and f.gr. ss. lams.			
26.79	Coal, undifferentiated; Utley group			
27.25	Sh., dk.gy.-bk., f.gr. ss. lam., minor coal lam.			
27.40	Fc., dk.gy.-bk.			
27.49	Sh., ss. intbdd.; sh., dk.gy.; ss., lt.gy., f.gr., minor coal lam.; clayey, sandy and carb. in part.			
38.89	Coal,			
39.20	Fc., m.gy., sandy, rooted.			
39.26	Sh., ss. intbdd.; sh., dk.gy.; ss., m.lt.gy., f.gr.; x-bdd., rare carb. lams., silty, roots, mica., carb., sparce fossils, siderite; sh. varies to bk., 114.3-128.3; siderite and sh. pebble conglomerate, with coal spars and lams. at 130.15; rare slst. bed.	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
169.79	Coal, several clay partings (bony); Upper Cobb coal.	160		
170.32	Fc., m.gy., rooted, abnt. plant fragments.	170		
170.66	Ss., sh. intbdd.; ss., m.lt.gy., m.-v.f.gr.; sh., dk.gy.; partly rooted, carb., sandy, silty, massive and x-bdd.; fossif., siderite, slst. zones; coal and siderite lams. near base.	180		
		190		
		200		
250.85	Coal, .67 meters, blocky, calc. lams., sparse sh.; Pratt coal.	210		
251.52	Sh., dk.gy., some clay at top, ss. lams. at base.	220		
251.76	Coal, 39.9 cm., blocky; Pratt coal.			
252.16	Fc., dk.gy., shaly; abnt. plant fragments	230		
252.22	Sh., ss. intbdd.; sh., m.dk.-dk.gy.; ss., m.lt.gy., f.gr.; siderite nodules, intbds.; sh. grades to bk. at base.	240		
259.11	Coal, 32.3 cm.; Nickel Plate coal (?).	250		
259.54	Sh., dk.gy., massive, coaly lams.			
259.60	Coal, 6.71 cm.; Nickel Plate coal (?).	260		
259.66	Sh., dk.gy.-bk., some clay, rooted, abnt. plant fragments; siderite, clay; coal lams. in lower portion.	270		
265.27	Coal, 24.7 cm., blocky; America coal.			
265.51	Sh., ss. intbdd.; carb., roots, abnt. plant debris.	280		
268.41	Coal, 12.2 cm., blocky.	290		
268.53	Ss., sh. intbdd.; carb., roots, sand.			
271.42	Coal, shaly in lower portion.	300		
271.45	Sh., ss. intbdd.; sh., m.-dk.gy.; ss., m.lt.gy., f.gr.; rooted, x-bdd.; sh. varies to bk. at base.	310		
292.39	Coal, block; Curry coal.			
292.49	Fc., m.gy., v. sandy, rooted, rippled sh. lam. in lower portion.	320		
293.40	Ss., sh. intbdd.; ss., m.lt.gy, f.gr.; sh., m.dk.gy.; silty and sandy in parts, calc.; fossif. and siderite zones.	330		
		340		
311.20	Coal, calc. lam. at top, bony mid-section, pyrite lam. and shaly at base; Gillespie coal.	350		
311.41	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, sandy, mica., siderite; bk. intbds. near base; ss., m.lt.gy., m.-f.gr., carb., mica., occ. massive; few slst. lams.	360		
		370		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
382.25 Coal, 27.1 cm.; New Castle coal. 382.65 Sh., ss. intbdd.; sandy, coal lams., roots, plant fragments; sh. varies to bk. at 383.44 meters. 388.07 Coal; Mary Lee coal. 388.44 Sh., ss. intbds.; minor siderite, coal lams., calc. lams., some bk. sh. lams. 397.73 Coal, 1.23 meters; Blue Creek coal. 399.28 Sh., ss. beds and intbds.; sh., dk.gy. -bk., sandy, silty; ss., m.lt.gy., f.gr.; clayey, roots, siderite beds; 2 m.gy. slst. beds, sandy, massive. 432.57 Coal, 8.2 cm., blocky; Ream coal. 432.63 Sh., bk.; intbdd. with fc. 433.06 Sh., dk.gy., thin lams., v.f.gr. ss. lam., rooted. 435.41 Sh., bk., carb., rare coal lams. 436.47 Coal, shaly. 436.53 Sh., bk., v.f.gr. ss. lams., rare coal lams. 437.36 Ss., sh. intbds.; ss., lt.gy., m.-f.gr.; sh., dk.gy.; carb., mica., rare coal spar and lam., sh. pebbles. 464.00 Conglomerate, gy. ironstone pebbles in a f.gr. ss. matrix. 464.12 Coal, blocky; Lick Creek coal. 464.55 Sh., ss. beds and intbds.; sh., dk.gy.; ss., lt.-m.gy., m.-f.gr., quartzose, x-bdd., carb., partly massive. 484.18 Coal, blocky; Jefferson coal. 484.36 Sh., dk.gy., clayey, rooted, coal spar and lam.; intbdd. fc. 486.22 Coal, shaly; Jefferson coal (?). 486.31 Sh., ss. beds and intbds.; sh., dk.gy., ironstone pebble zone; ss., lt.gy., v.f.gr., crystalized, quartzose, carb., carb. lams., partly massive. 491.86 Total Depth.	380 390 400 410 420 430 440 450 460 470 480 490 500		

DRILL HOLE LOG

Hole #: 9

Geophysical Log Date: 11/2/79, **County, State:** Tuscaloosa, Alabama

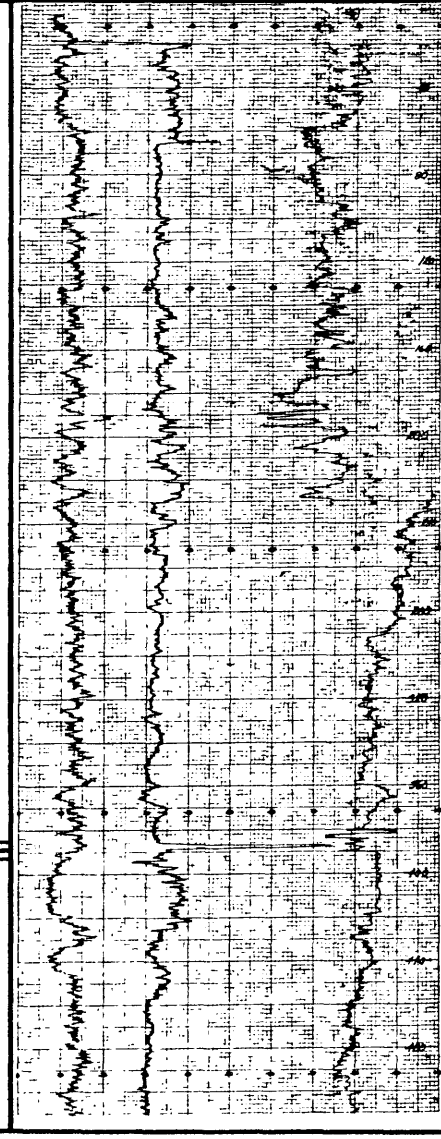
Map: Berry, SE, 7½' quad. **Location:** SE¼ **Sec.** 17, **T.** 17S, **R.** 10W **HPM**

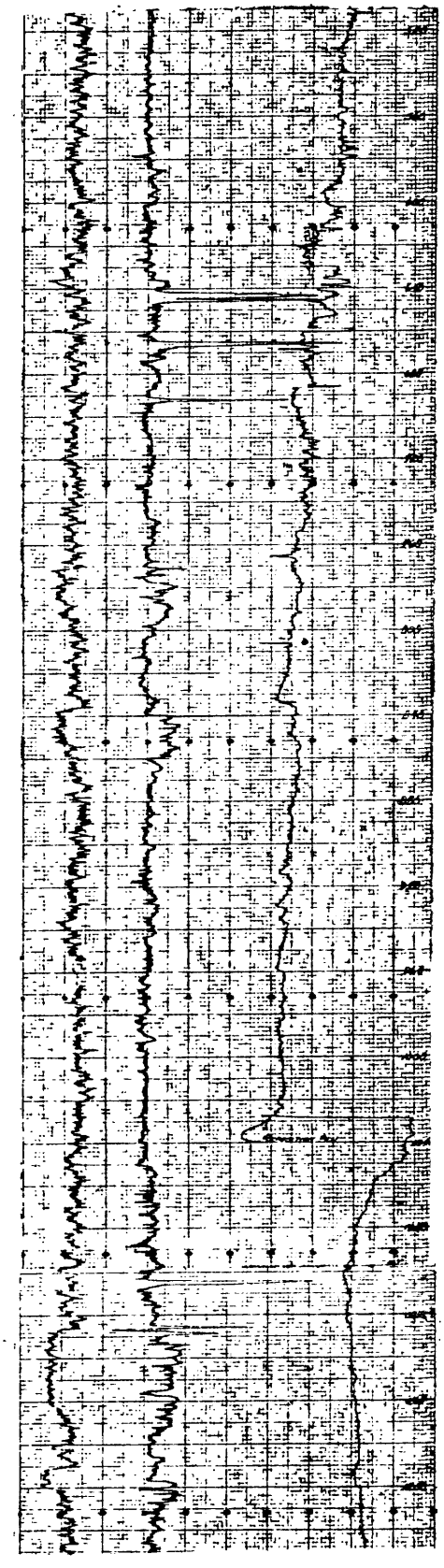
Surface Elev.: 189.9 m, **Logged Depth:** 448.7 m, **Drilled Depth:** 465.8 m, **Core Int:** 458.7 m,

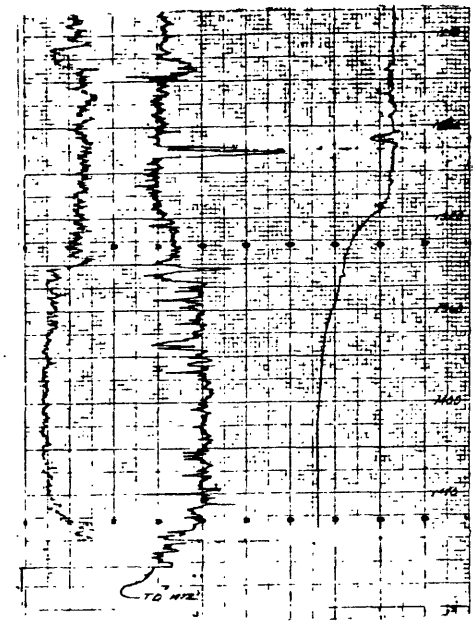
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-6.10	Cased in unconsolidated material.			
6.10	Ss., sh. beds and intbds.; ss., lt.-m.gy., f.gr.; sh., m.-dk.gy.; common sand. roots, siderite, mica., clay, sparse carb., calc., and pyrite, few coal partings, plant debris; fc., m.gy., sandy, siderite rootlets; slst., m.-m.dk.gy., mica., massive, borrowed ss. lams.; sh. varies to bk. after 110.34 meters.	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150		
118.14	Sh., bk., v. clayey, coal bands and lams.			
118.38	Coal, shiny, blocky, some sh.; Upper Cobb coal.			
118.81	Coal, sh. and bk. sh. layers, 2.13 cm. combined thickness.			
118.93	Fc., m.gy., rooted, shaly top.			
119.18	Coal, bone, shaly-clayey intbds.			
119.27	Sh., bk.			
119.36	Fc., m.gy., swollen, rooted.			
119.48	Sh., m.dk.gy., grades to slst., clay zones, rooted.			
121.01	Fc., shaly top.			
121.34	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr., mica.; sh., m.gy.-bk., sandy, silty; occ. siderite, scarce calc.-filled structures and lams., pyrite lams. near base; dk.gy. sh. and siderite pebble conglomerate.			

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
211.29 Coal, some siderite and calc. lams.; America coal. 211.53 Fc., m.gy., rooted. 211.65 Uc., m.gy., sandy, rooted. 212.60 Sh., m.dk.gy., clayey, rooted. 213.97 Sh., bk., lt.gy. ss. lam. 218.66 Ss., sh. beds and intbds.; ss., f.gr.; sh., dk.gy.-bk.; siderite burrows. 230.00 Slst., dk.gy. 231.01 Sh., m.dk.gy.-bk., sandy, calc., fossif., siderite burrows, f.gr. ss. lams. 234.24 Slst., m.gy., calc. fossils at base. 234.48 Ss., lt.gy., sh. ripples. 234.70 Sh., dk.gy., silty, mica., slst. lams. 235.31 Coal; Curry coal. 235.37 Uc., m.gy., v. sandy, rooted. 235.92 Sh., ss. beds and intbds.; sh., m.dk.-dk.gy., scarce siderite, slst. lams.; ss., lt.-m.lt.gy., f.-v.f.gr.; bk. calc. sh., 252.50 - 252.68. 256.34 Coal, sh. partings; 7.6 cm. of coal; Gillespie coal. 256.41 Sh., dk.gy., intbdd. with bk. clay or poorly consolidated sh. 256.61 Uc., dk.gy., rooted, slightly sandy. 257.46 Ss., sh. beds and intbds.; ss., lt.-m.lt.gy., f.-v.f.gr., occ. quartzose, mica.; sh., dk.gy., siderite zones, sparce pyrite; coal-pyrite lenses at 329.40; silt, plant fragments; coal lam. at base. 336.70 Sh., bn.-bk., coal lams.; grades to coal and bone a 337.11 meters. 337.19 Coal, very bony; Mary Lee coal (?). 337.21 Fc., dk.gy., coaly plant debris; rooted. 337.51 Sh., dk.gy., sandy, massive; coaly, and plant debris zones. 343.57 Coal, with bone; Blue Creek coal (?). 343.78 Fc., m.gy., roots, plant fragments. 344.73 Slst., m.gy., v.f.gr. ss. lams., rooted top. 345.34 Ss., sh. beds and intbds.; ss. lt.-m.lt.gy., m.-f.gr., mica., carb., siderite, coal lams. and spars; sh., m.dk.-v.dk.gy., coal lams.	160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS
			GAMMA DENSITY RES.
393.34 Coal, blocky, banded, some pyrite. 393.44 Sh., dk.gy., coal lam. 393.68 Fc., m.gy., carb. 394.87 Sh., dk.gy.-bk., f.gr., ss. lams., vertical calc. fractures at top; sand, and siderite burrows at middle; blackens, with siderite and coal lams., at base. 409.53 Coal, sh. layers; Lick Creek coal. 409.83 Sh., ss. beds and intbeds.; sh., m.dk.-dk.gy., coal lams. at top; ss., lt.-m.lt.gy., f.-v.f.gr., quartzose, carb., mica., siderite, x-bdd., massive, few coal spars; coal intbd. at 440.98. 446.04 Coal, bright, blocky; Black Creek coal. 446.17 Fc., m.gy., shaly, coal lams. near top. 446.62 Sh., ss. beds and intbds.; sh., m.-dk.gy., sandy, rooted, clayey, few coal lams.; ss., lt.-m.gy., m.-f.gr., mica., carb., siderite. 465.73 Total Depth	380 390 400 410 420 430 440 450 460 470		

DRILL HOLE LOG

Hole #: 10

Geophysical Log Date: 11/8/79, **County, State:** Fayette, Alabama

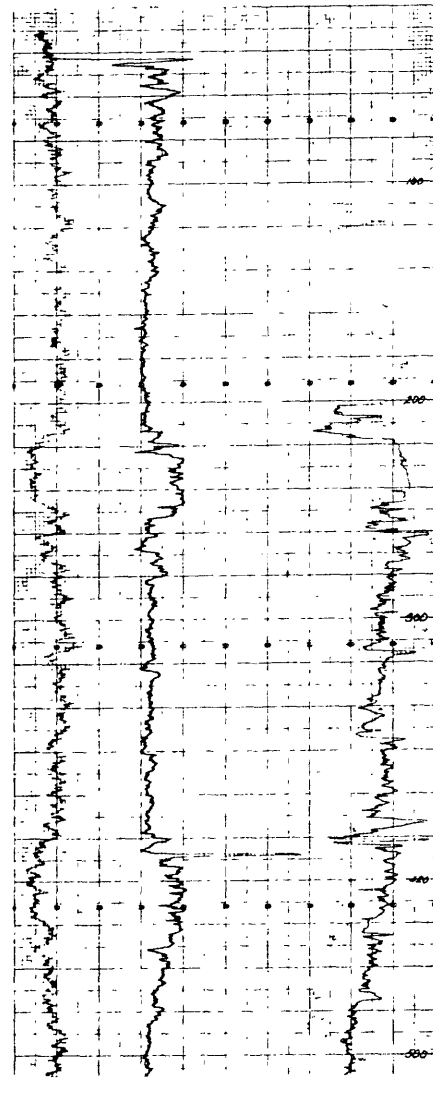
Map: Berry, 7½' quad. **Location:** SE¼ **Sec.** 22, **T.** 16S, **R.** 10W **HPM**

Surface Elev.: 136.2 m, **Logged Depth:** 350.5 m, **Drilled Depth:** 350.5 m, **Core Int:** 340.7 m,

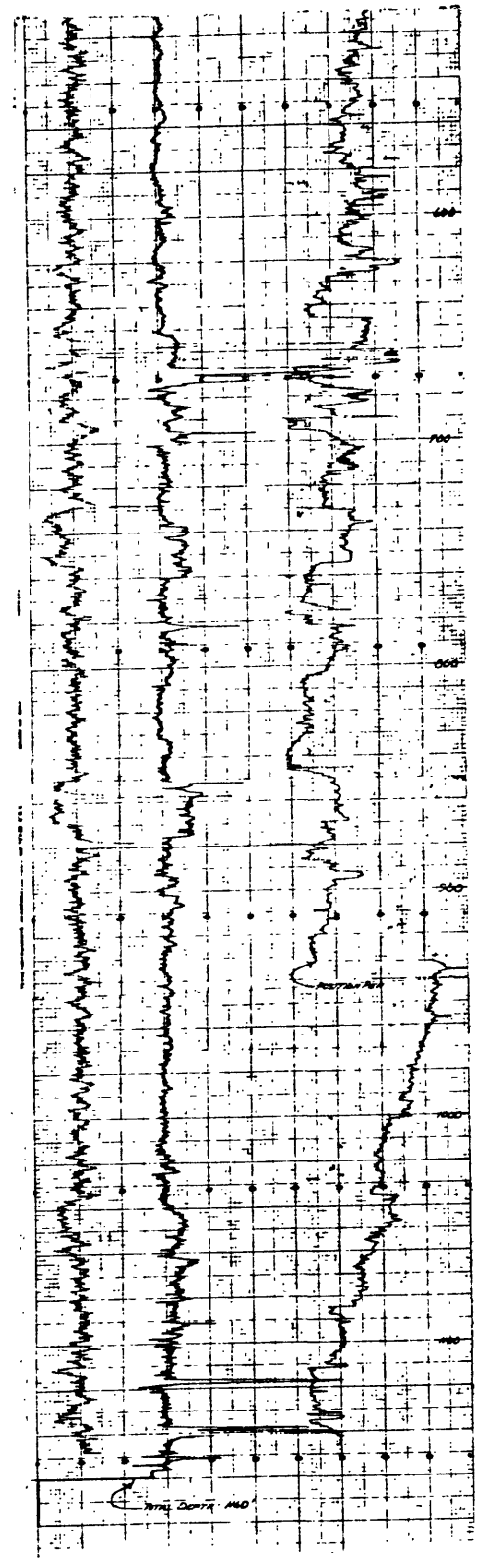
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-9.75 Cased in unconsolidated material. 9.75 Sh., ss. beds and intbds.; sh., m.-dk.gy., clayey, sandy, mica.; pyrite cubes at top; sh. grades to bk. at bottom; ss., lt.-m.lt.gy., mica., carb., carb. bk. sh. lams., fossils, calc. fractures; plant fragments, siderite; fc. bed, m.dk.gy., sandy, rooted; slst. bed, m.gy., sandy, mica.; coal spar near base. 124.24 Coal, shiny, blocky, good recovery; Upper Cobb coal. 124.57 Sh., bk., grades to dk.gy. 124.63 Ss., sh. intbdd.; ss., lt.-m.lt.gy., m.-v.f.gr., mica., carb., x-bdd., massive, roots, siderite, calc.; sh., m.-dk.gy., sandy, massive, pyrite zone, mica., calc.; siderite and fossil zones, scarce calc. veins and lams., coal spar at top, coal lam. at base.	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
203.52	Coal; Pratt coal.			
203.99	Clay, bk., sandy, unconsolidated.			
204.00	Coal; Pratt coal.	160		
204.31	Fc., bk., v. pyritiferous.			
204.61	Clay, bk., v. soft.			
204.70	Coal; Pratt coal.	170		
205.31	Fc., m.dk.gy., rooted.			
206.50	Sh., ss. intbdd.; sh., dk.gy.; ss., lt.gy., v.f.gr.; siderite, bk. lams.; coal bands at 207.08 meters.	180		
212.32	Coal, thin sh. lams., calc. lams.; America coal (?).	190		
212.54	Sh., dk.gy., clayey, rooted.	200		
212.57	Fc., m.gy., sandy, clay sh. intbds., slickensides, rooted; sandier near base.	210		
214.64	Sh., ss. intbdd.; sh., m.dk.gy., x-lams., calc., siderite; ss., lt.gy., v.f.gr., massive, scarce coaly plant debris; mica.	220		
238.38	Coal, thin calc. lam. at top and bottom, calc. cleat, siderite; Curry coal.	230		
238.51	Uc., dk.gy., fissile, rooted.	240		
238.57	Fc., m.gy., rooted, ss. lams.			
240.40	Ss., sh. intbdd.; ss., m.lt.gy., f.gr.; sh., m.dk.gy., sandy; siderite, sparce marine fossils.	250		
259.63	Coal, bk., clayey, banded, vitreous; Gillespie coal.	260		
259.78	Bone.	270		
257.81	Sh., m.-m.dk.gy., sandy, clayey, rooted.	280		
260.06	Fc., sandy, slickensides.			
260.45	Ss., sh. intbdd.; ss., lt.-m.lt.gy., f.gr.; sh., m.-m.dk.gy., sandy in part; roots, mica., sand, siderite, scattered fossil fragments, few scour marks; slickensides, coal spars, and coal lams. near base.	290		
332.66	Coal, thin lams., siderite lams; New Castle coal.	300		
332.69	Sh., m.dk.gy.-bk., f.gr. ss. lams. siderite nodules and intbds.	310		
340.68	Coal, banded, scarce pyrite lams., shaly top; Mary Lee coal.	320		
340.92	Sh., ss. intbdd.; sh., m.dk.gy.; ss., f.gr., x-bds.; rooted top.	330		
346.89	Coal, bright, banded; Blue Creek coal.	340		
347.20	Bone, coaly, shaly.	350		
347.41	Coal, shaly top; Blue Creek coal.			
348.02	Uc., m.gy., abnt. plant debris, calc. veinlets, sandy.			
350.46	Total Depth.			



DRILL HOLE LOG

Hole #: 11

Geophysical Log Date: 10/31/79, County, State: Fayette, Alabama

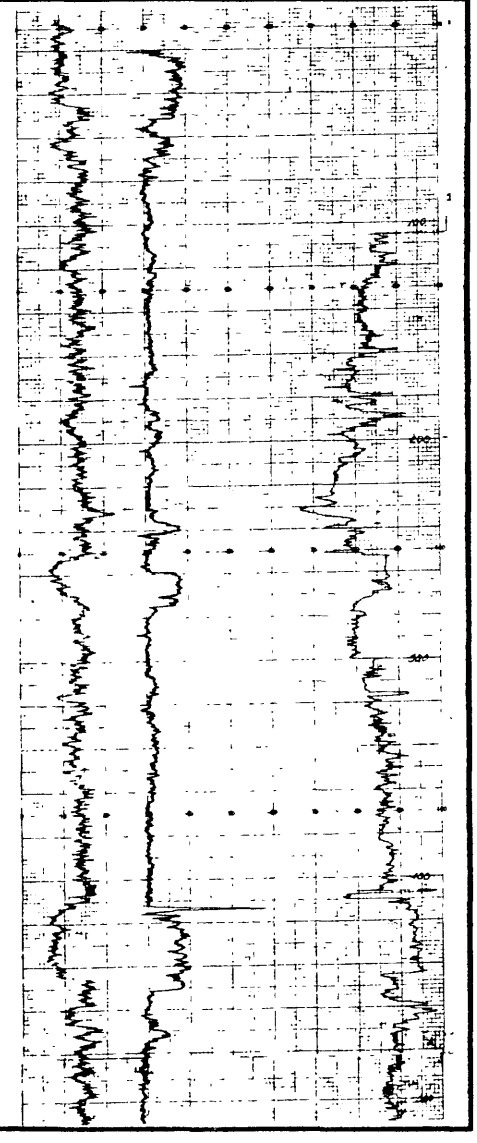
Map: Berry, SE, 7½' quad. Location: NW¼ Sec. 32, T. 16S, R. 9W HPM

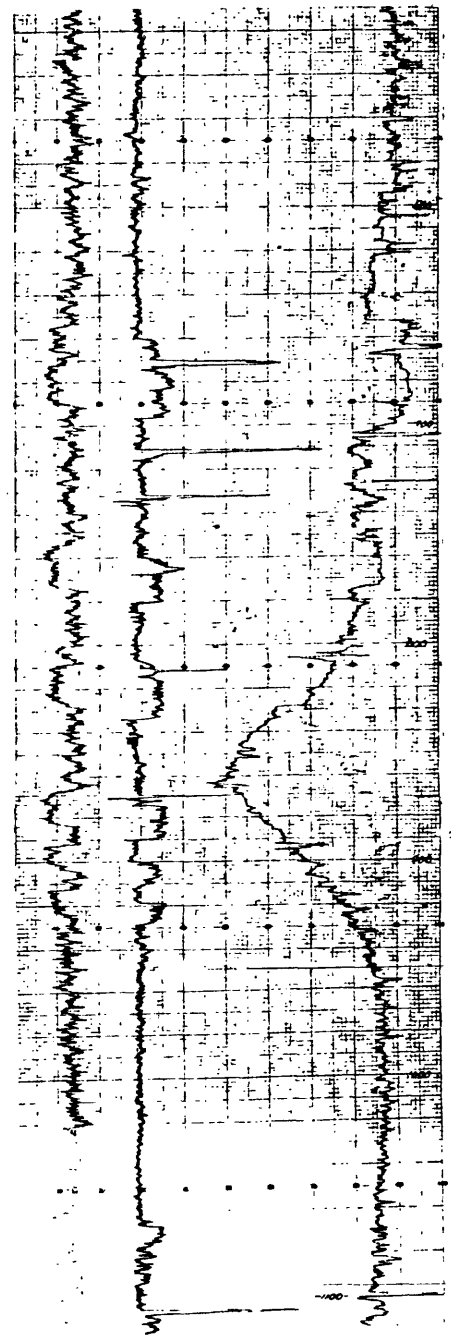
Surface Elev.: 184.1 m, Logged Depth: 432.5 m, Drilled Depth: 432.5 m, Core Int: 426.7 m,

Medium: water

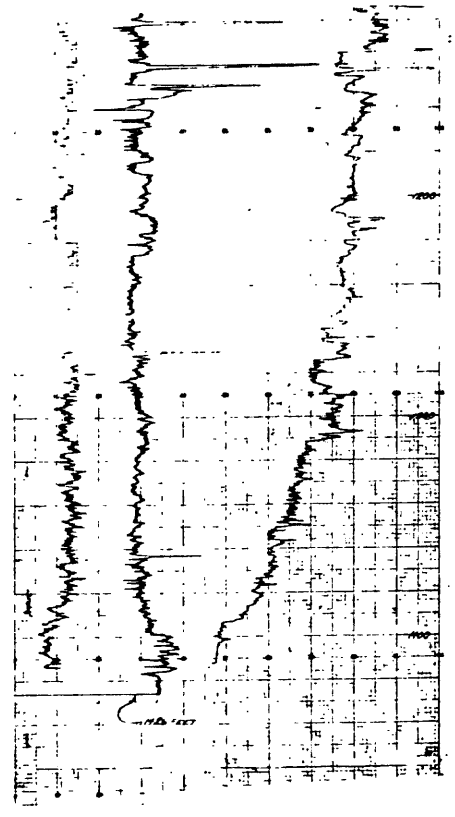
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-5.76 Cased in unconsolidated material. 5.76 Ss., sh. beds and intbds.; ss., lt.-m.gy., f.-m.gr., abnt. mica. and siderite, silt zones; calc. flakes, lams. and veins; scattered coal lams. and spars; slst. and fc. beds; v. weathered top. 125.27 Sh., bk., sandy, siderite pebbles. 125.30 Fc., m.dk.gy., coal lams., pyrite, calc. 125.33 Coal, pyrite, calc. 125.67 Fc., m.dk.gy., coal;. pyrite, some calc., rooted. 126.49 Ss., sh., slst. beds and intbds.; ss., lt.m.lt.gy., mica., carb., siderite; sh., m.gy.-bk., silty, sandy, pyrite, siderite, mica. zones, plant debris; slst., mica., rare pyrite nodules, calc. lams., few plant fragments.	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
203.97 Coal, blocky, well cleated, banded; bone and pyrite lams.; calc. horizon and vertical fractures. 204.64 Fc., m.gy., sandy, rooted, pyrite and siderite nodules, abnt. plant debris; coal lams. and partings. 205.37 Ss., m.lt.gy., f.gr., mica., rooted top, sh. pebbles, x-bdd. 212.17 Sh., bk., clayey, siderite and coal lams. 212.57 Sh., m.dk.gy., silty, ss. lams., and intbds., mica., plant debris, siderite lams. 216.53 Coal, blocky, cleated, calc. fractures; pyrite: disseminated, lams., fractures; 5-cm. sh. parting . 216.99 Fc., dk.gy., rooted, plant debris. 217.11 Sh., m.gy.-bk., silty, roots, abnt. plant debris, siderite, ss. lams., coal lams. 222.96 Coal, one thin pyrite lens. 223.21 Fc., dk.gy., sandy zones, large siderite roots. 224.00 Sh., ss. beds and intbds.; sh., dk.gy., fossif. zones, sandy, silty, siderite intbds. and nodules; ss., lt.gy., v.f.gr., carb. fragments; mica., rare coal spar. 247.25 Coal, block, well cleated, vertical pyrite fractures; grades to bk. carb. clay or sh., with wh. calc. lams. at base. 247.38 Fc., m.gy., sandy, mica., rooted, carb. 247.86 Sh., ss. intbdd.; sh., m.dk.gy., silty, mica., siderite lams., calc. zones, fossif. zones; ss., lt.gy., f.gr., mica., carb.; coal lams. near base. 265.33 Coal, thin calc. lam. 265.39 Fc., m.-dk.gy., slickensides, siderite rootlets; 1.3 cm. coal lam. 266.46 Ss., sh. beds and intbds.; ss., lt.-m.lt.gy., f.gr.; sh., m.dk.gy.; abnt. mica. and siderite, calc., fossif., sandy, scattered pyrite and carb.; coal spars and lams. towards base; m.dk.gy. slst. 336.96 Coal, banded, thin pyrite lams. 337.35 Sh., ss. intbdd.; fc. intbdd. at top; pyrite, roots, mica., siderite and plant debris throughout; clay partings and lams., coal fractures and spars near base.	160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS
			GAMMA DENSITY RES.
341.53 Coal, banded, cleated, calc. cleats; sh. and carb. clay partings; possible fault at top.			
341.83 Fc., and sh.; dk.gy., carb., rooted.			
341.92 Sh., ss. beds and intbds.; clay and slst. at top; carb., roots; siderite: beds, nodules, lams.; 2 coal spars, coalified plant debris.	340		
347.56 Coal, bright, banded.	350		
347.93 Fc., dk.gy., rooted, slickensides, siderite roots.	360		
348.66 Sh., dk.gy.; f.gr. ss. lams., coal lams. near base.	370		
350.28 Coal, dull banded at top, clay partings, bright bands at bottom.	380		
350.55 Sh., ss. intbdd.; ss., m.lt.-m.dk.gy.; sh., dk.gy., v. carb. roots, slickensides, siderite nodules and lams.; mica., bk. sh. chip zone, disseminated pyrite zone; coal spars near base.	390		
	400		
	410		
387.68 Coal, vitreous, some banding, calc. cleats, clay lam.; pyritized and carb. plant fragment.	420		
387.77 Fc., m.dk.gy., sandy, siderite rootlets and nodules.	430		
388.32 Ss., sh., fc. intbdd.; ss., lt.gy., v.f.gr., mica.; sh., dk.gy.; fc., dk.gy., silty; siderite: rootlets, nodules.	440		
388.56 Ss., sh. intbdd.; siderite zones, roots, coal partings, calc. lams., coal spars, mica.			
415.87 Coal, poor cleat, bone lam.			
415.96 Fc., dk.gy., shaly, coal spar.			
416.57 Sh., ss. intbdd.; sh., dk.gy., mica., siderite intbds.; ss., lt.gy., f.gr.; bk. sh., and calc. bk. sh. ripples after 426.72 meters.			
432.48 Total Depth.			



DRILL HOLE LOG

Hole #: 12

Geophysical Log Date: 8/30/79, County, State: Fayette, Alabama

Map: Wiley, 7½' quad. Location: SE¼ Sec. 35, T. 16S, R. 9W HPM

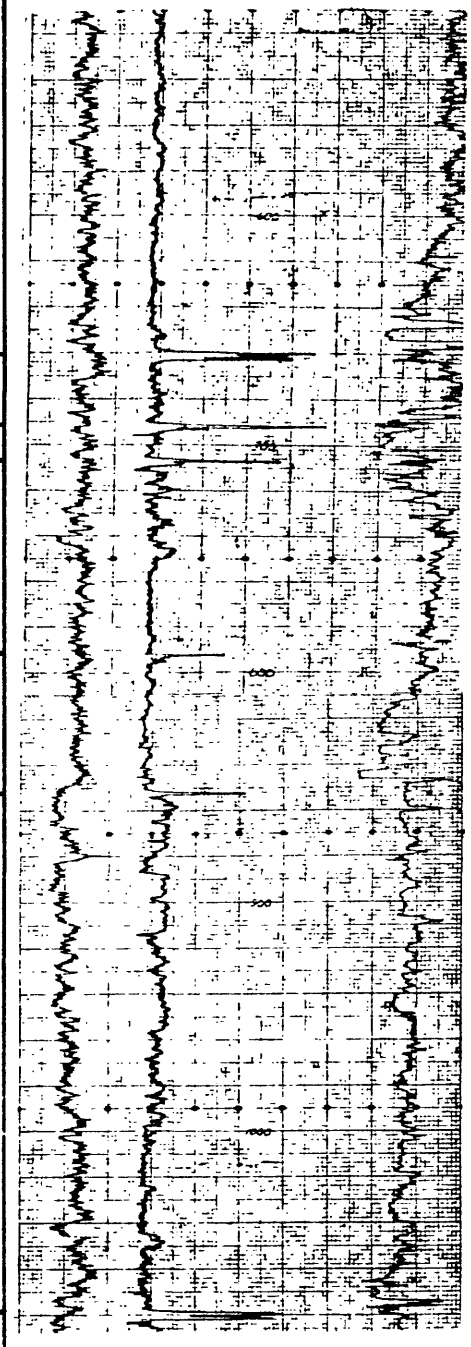
Surface Elev.: 189.6 m, Logged Depth: 402.9 m, Drilled Depth: 405.3 m, Core Int: 399.5 m,

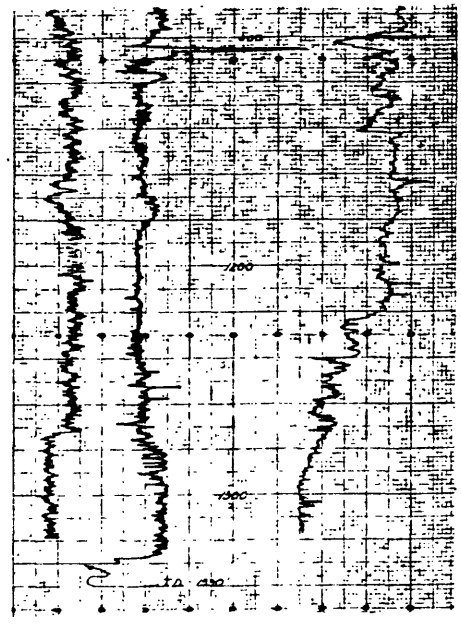
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-5.88	Cased in unconsolidated material.			
5.88	Sh., ss. beds and intbds.; sh., m.-dk.gy., clayey, silty, sandy, carb. and calc. zones; ss., m.lt.gy., v.f.gr., mica., carb., occ. massive; siderite, coal spar; high angle fracture at 48.77; slickensides and coal lams. at 69.89; few slst. beds with calc. fractures; m.gy. uc.	10 20 30 40 50		
72.88	Sh., bk., carb., coal lams.; Cobb coal horizon.	60		
73.15	Uc., m.gy., rooted, sandy, mica.			
74.10	Ss., sh. beds and intbds.; ss., lt.gy., v.f.gr., calc. and mica. zone with few fossils; sh., m.dk.gy., silty, massive, occ. slst. lams., some sand; sh. grades to bk. near base; sparce slst. intbds.	70 80 90		
119.21	Coal, bk., vitreous.	100		
119.51	Sh., bk., massive; abnt. plant debris.			
119.73	Coal, bk., banded.			
119.97	Fc., m.dk.gy., carb., clayey, rooted.	110		
120.67	Ss., sh. beds and intbds.; ss., m.gy., v.f.gr., rooted, mica., carb., massive, coal spar; sh., m.dk.gy., sandy.	120		
139.17	Slst., m.gy., ss. intbds.	130		
142.34	Sh. mudflow, sandy, contorted bedding; coal stringers.	140		
142.95	Slst., lt.-m.gy., massive; sand and ss. lams.	150		

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
156.06	Sh., ss. beds and intbds.; sh., m.lt.-v.dk.gy., sandy, silty, some mica; ss., lt.-m.lt.gy., bk. sh. ripples.	160		
200.99	Coal, blocky, good cleat, sh. partings, calc. filled fractures; Pratt coal.	170		
203.33	Sh., dk.gy., rooted, sand; ss. lams. near base.	180		
203.79	Sh., bk., rare coal lams.			
203.88	Sh., ss. beds and intbds.; sh., dk.gy., silty; ss., m.-m.lt.gy., mica., carb.; siderite.	190		
211.01	Coal, bk. sh. intbds.; coal is 35.6 cm.	200		
211.41	Uc., dk.gy., rooted, plant fossils			
212.38	Sh., m.gy., lt.gy. slst. lams.	210		
214.49	Sh., bk.; carb. plant imprints.			
215.74	Coal, banded; 15.2 cm. thick.	220		
215.92	Sh., bk			
216.04	Uc., m.gy., rooted.			
216.77	Ss., sh. beds and intbds.; ss., m.-m.lt.gy., f.gr., shaly, occ. massive, mica. and carb. zone; sh., dk.gy., silty; rooted, siderite, coal lams., bk. sh. lams.; 3.8 cm. coal at 224.82 meters; m.dk.gy. fc. with siderite and coal lams. at 219.91 meters.	230		
		240		
		250		
		260		
241.77	Coal, lams.			
241.89	Uc., m.gy., sandy, siderite rootlets, sandy bottom, bone.	270		
242.71	Ss., sh. beds and intbds.; ss., m.lt.gy., v.f.gr., mica., carb., rooted; sh., m.-dk.gy., silty, massive, sandy, siderite, fossif.; fossil-hash zone with siderite burrows; coalified plant fragments; fractured clay at base.	280		
		290		
		300		
259.93	Coal, dull banded top, bright banded base; massive, thin calc. stringers; resinous luster layer at 260.27; 260.21 is sh. with coal layers.	310		
		320		
260.24	Fc., m.gy., sandy, rooted; rare coal spar.			
260.45	Sh., ss. beds and intbds.; sh., m.dk.gy., some silt and sand; ss., m.-m.lt.gy., f.gr., mica., carb., partly massive, x-bds., calc. and bk. sh. lam. zone; siderite, roots.			
329.15	Coal, scarce pyrite nodules, calc. fractures, blocky, vitreous and dull layers; few clay partings.			

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS
			GAMMA DENSITY RES.
330.16 Fc., m.gy., abnt. plant fragments. 330.43 Sh., ss. beds and intbds.; sh., m.dk.gy.-bk.; ss., m.lt.gy., v.f.gr., mica., carb.; siderite bands, scarce coal lams. 337.20 Coal, banded, vitreous, calc. cleat. 337.66 Fc., m.dk.gy., v. carb., roots, abnt. plant fragments. 339.50 Ss., sh. beds and intbds.; ss., m.gy., carb.; sh., m.gy.-bk., silty; siderite lams. 343.05 Sh., bk.; f.gr. ss. lams.; common siderite intbds. 345.46 Sh., ss. beds and intbds., sh., m.-dk.gy., v. sandy, mica., silty, partly massive, some calc.; ss., m.lt.gy., v.f.gr., mica., carb.; siderite intbds.; m.gy., calc. slst. bed.	330 340 350 360 370 380 390 400 410		
380.02 Coal, dull, shaly. 380.06 Fc., dk.gy., unevenly fractured, slickensides, rooted. 381.30 Sh., dk.gy., silty, lams. 382.04 Coal, banded, bright; no pyrite evident. 382.10 Fc., dk.gy., fractures unevenly, slickensides, rooted. 382.49 Sh., dk.gy., abnt. plant debris. 383.50 Coal, banded. 383.53 Sh., dk.gy., silty, lams. 387.22 Coal, banded. 387.25 Sh., dk.gy., silty; rare coal lams. 388.19 Slst., m.lt.gy., rooted (and/or slumped). 388.80 Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, fc. intbds.; ss., m.gy.-bn.lt.gy., f.-v.f.gr., mica., calc., carb., massive to x-bdd., coal spar; siderite. 405.38 Total Depth.			

DRILL HOLE LOG

Hole #: 13

Geophysical Log Date: 11/3/79, **County, State:** Fayette, Alabama

Map: Oakman, 7½' quad. **Location:** NE¼ **Sec.** 17, **T.** 16S, **R.** 9W **HPM**

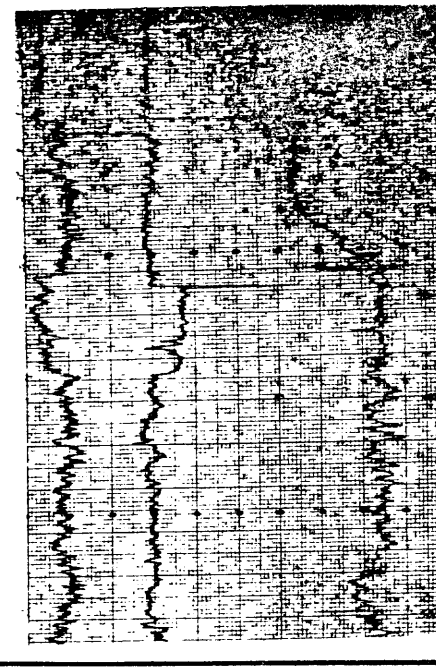
Surface Elev.: 203.6 m, **Logged Depth:** 215.5 m, **Drilled Depth:** 215.9 m, **Core Int:** 209.8 m,

Medium: water

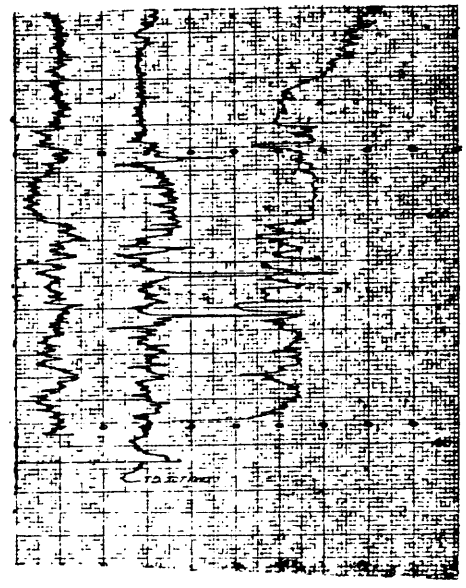
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-6.10	Cased in unconsolidated material.	10		
6.10	Ss., m.gy., shaly, mica., m.gy. sh. lams.; fractured.	20		
9.24	Fc., m.gy., v. clayey, rooted.	30		
10.00	Sh., ss. beds and intbds.; sh., m.gy.-bk., v. sandy, mica., partly carb., silty, occ. massive; ss., m.lt.-dk.gy., gn.gy., shaly, mica., f.-v.f.gr., clayey, rooted, carb. lams., vertical fracture; abnt. siderite, high angle calc. fractures; possible fault 36.58; bk. sh. at 68.88; coal spar.	40		
		50		
		60		
		70		
105.58	Coal, bright, blocky, scattered siderite; Cobb (?).	80		
105.89	Ss., sh. beds and intbds.; ss., lt.-dk.gy., f.-v.f.gr., carb., mica., roots, massive, bk.sh. lam. zones.; sh., m.-dk.gy., silty, calc., sandy, occ. massive, calc. fracture, vertical fracture, calc. ss. lam. zones; coal spars, bands; siderite and sh. pebble conglomerate with calc. ss. matrix at 118.23 m.	90		
		100		
		110		
		120		
		130		
		140		
		150		



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
174.92	Coal, good, blocky.			
175.02	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, massive, rooted, sandy; ss., lt.-m.lt.gy., f.gr., mica., x-bdd.; siderite, coal lams.; bk. sh. at 129.94.; coal lam. and spar.	160 170		
195.89	Coal, bright, blocky, no partings.			
196.08	Sh., bk.-dk.gy., rooted; grades to fc.	180		
196.32	Fc., m.gy., v. shaly, siderite rootlets; sandier near base.	190		
197.88	Sh., m.-m.dk.gy., sandy, silty; f.gr., ss. lams.; 3. meters thick coal at top.	200		
199.74	Coal, impure, dull, broken.			
199.77	Sh., ss. beds and intbds.; sh., lt.-dk.gy., sandy, silty; occ. massive; ss., lt.gy.lt.bn.gy., f.-v.f.gr., mica., some calc.; siderite; calc. crystals formed along fault plane; slickensides and 2 possible faults at 209.00 meters.	210 220		
215.92	Total Depth.			



DRILL HOLE LOG

Hole #: 14

Geophysical Log Date: 9/28/79, County, State: Fayette, Alabama

Map: Berry, 7½' quad. Location: NW¼ Sec. 25, T. 15S, R. 10W HPM

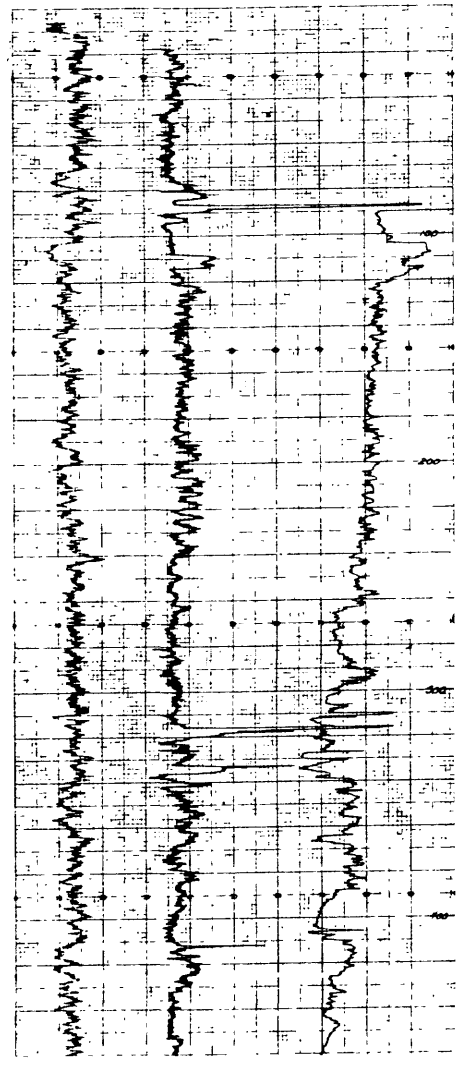
Surface Elev.: 189.3 m, Logged Depth: 334.4 m, Drilled Depth: 334.8 m, Core Int: 328.8 m,

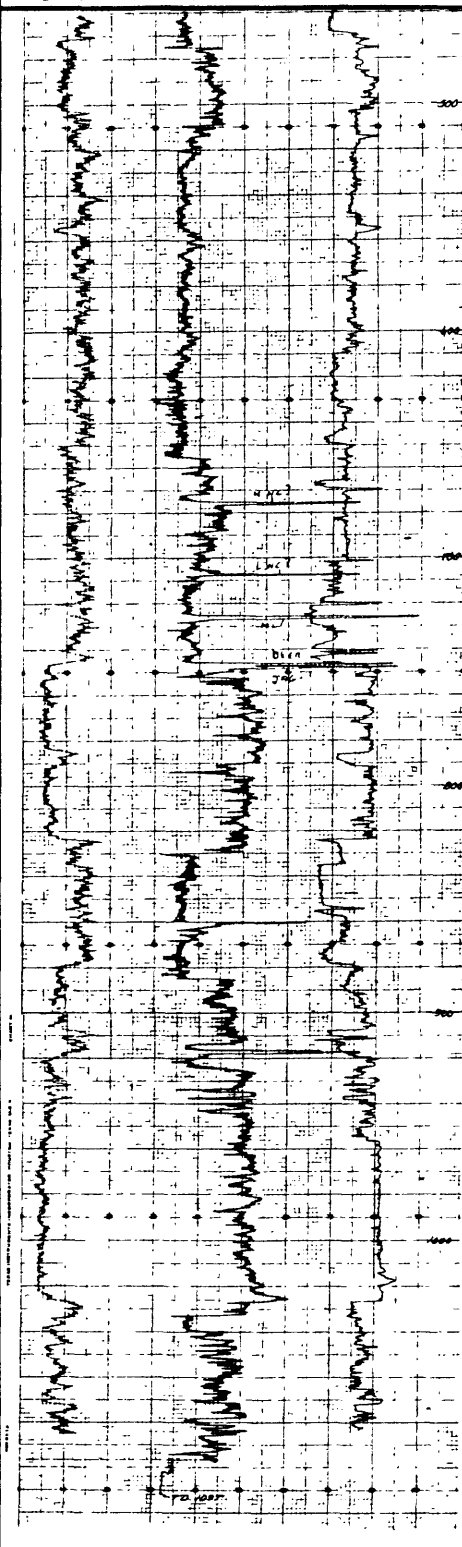
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-5.91	Cased in unconsolidated material.			
5.91	Sh., ss. beds and intbds.; sh., dk.gy.; ss., lt.gy., f.gr.; few calc., siderite, and mica.; marine fossils lower portion; coal spars at base.	10		
		20		
27.04	Coal, banded, some cleats.			
27.40	Fc., dk.gy., sandy, rooted.	30		
28.56	Sh., ss. beds and intbds.; sh., dk.gy.; ss., lt.gy.; root zone, siderite chips, coal spars, bk. clayey shale, calc. fossil hash.	40		
		50		
96.65	Sh., bk., clayey, carb.	60		
97.17	Coal, banded, some pyrite; 64 cm. sh. partings.			
97.23	Sh., bk.; and dk.gy. fc.	70		
97.66	Sh., bk., carb., siderite, clay partings, coal bands.	80		
101.86	Coal, undefined.			
101.99	Clay, dk.gy., carb. fragments, siderite nodules.	90		
102.50	Fc., lt.gy.-gn.gy.			
102.96	Sh., gn. and gy. intbdd.; sandy, slickensides.	100		
		110		
113.14	Ss., sh. beds and intbds.; ss., m.gy.; sh., bk.; siderite, coal streaks; calc. cemented sand at base.	120		
		130		
125.91	Coal, vertical calc. veins.			
126.03	Fc., dk.gy., sandy, coal inclusions.			
126.46	Sh., ss. intbdd.; sh., gn.gy.; ss., lt.gy., v.f.gr.; scarce siderite, mica., coal streaks, x-bdd.	140		



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
155.63	Sh., ss. intbdd.; sh., gy. and bk.; ss., m.gy.; rare siderite, calc. veins, deformed bedding.	150		
205.80	Bone.			
205.83	Coal, banded; 2 gn. sh. partings.	160		
206.23	Sh., ss. intbdd.; sh., dk.gy., mica., carb.; ss., f.gr., m.gy.; siderite nodules at top.	170		
215.68	Coal, bone, banded; grades to bone with coal lams.	180		
215.83	Sh., m.gy., clay rich, carb., coalified plant debris; ss. streaks in lower portion.	190		
220.55	Sh., bk., carb., siderite; coal spars near base.	200		
221.81	Coal, blocky, cleated.	210		
221.00	Sh., fc. beds; sh., dk.gy.; few siderite, coal spars.			
222.47	Sh., ss.; sh., bk.; ss., lt.gy.; sh. fades to gy. with depth; coal spars at base.	220		
227.50	Coal, dull, blocky.	230		
227.78	Sh., bk., v. carb., abnt. coal bands.			
228.05	Coal, dull, blocky.	240		
228.17	Fc., m.gy., sandy, rooted, swollen clay beds; ss. band at top.	250		
229.39	Ss., sh. beds and intbds.; ss., lt.gy., f.gr.; sh., dk.gy.; siderite nodules and beds, carb. lams., x-bdg., sandy lams., few mica.; bk. sh. lams; trace vertical fractures.	260		
262.13	Coal, banded, calc. fractures and lams., disseminated pyrite; Lick Creek coal.	270		
262.25	Fc., m.gy., plant debris, siderite nodules.	280		
263.01	Slst., m.gy., clayey, mica., massive, siderite nodules, bk. sh. fragments, coal fragments; ss. lams. near base.	290		
264.41	Sh., ss. beds and intbds.; sh., dk.gy., mica.; ss., yw.gy.-lt.gy., mica., x-bds.; siderite: bands, nodules, fragments; pebble conglomerate.	300		
279.23	Coal, calc. cleats, pyrite lam. at top; Jefferson.	310		
279.68	Fc., dk.gy., carb., slickensides.	320		
279.84	Ss., sh. beds and intbd.; ss., lt.gy., f.gr., mica., massive, dk.gy. mineral zones, partly quartzose, crystalline; sh., m.-dk.gy., mica., silty; siderite, x-bds.	330		
334.76	Total Depth.	340		

DRILL HOLE LOG

Hole #: 15

Geophysical Log Date: 9/6/79, County, State: Fayette, Alabama

Map: Howard, 7½' quad. Location: SE¼ Sec. 9, T. 15S, R. 10W HPM

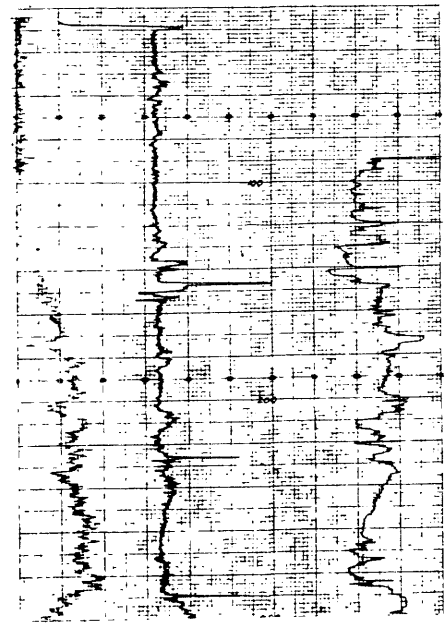
Surface Elev.: 177.1 m, Logged Depth: 282.2 m, Drilled Depth: 284.8 m, Core Int: 276.4 m,

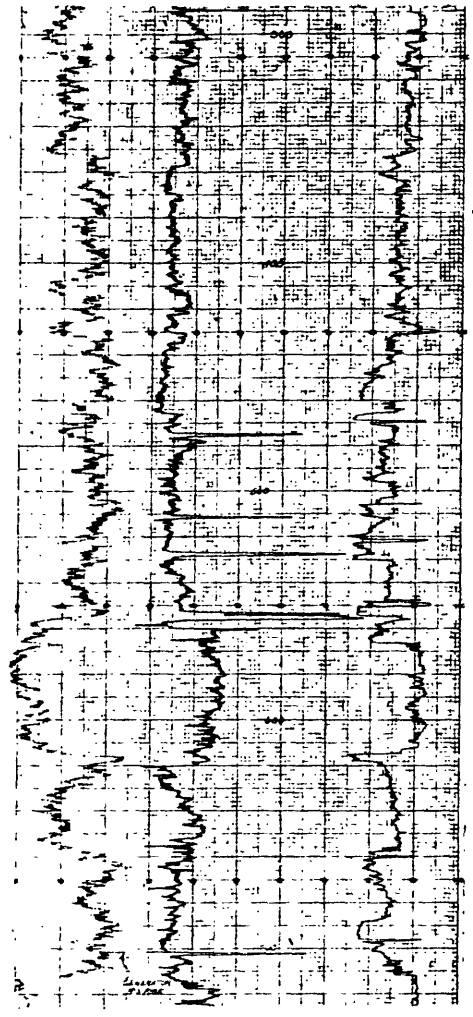
Medium: water

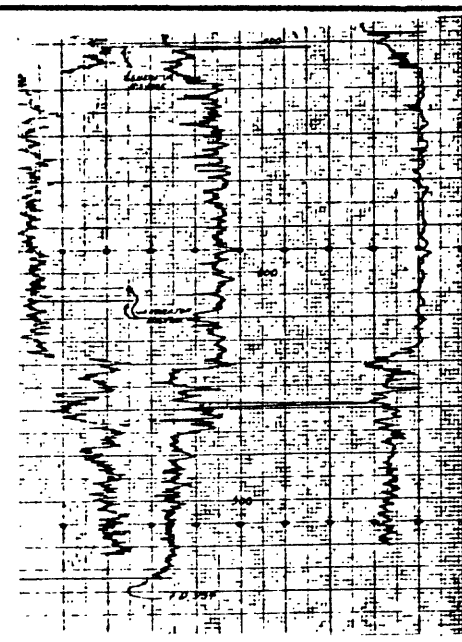
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. 20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-8.41	Cased in unconsolidated material.			
8.41	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, sandy zones, few clay zones, scarce calc. stringers; ss., m.-m.lt.gy., f.gr.; little siderite.	10		
		20		
		30		
41.36	Sh., bk., lam.; coaly near base.			
41.48	Fc., m.gy., silty, rooted, rare coal lam.; 3.1 cm. coal bed at 42.61 meters.	40		
42.92	Sh., m.dk.gy., sandy lams., abnt. plant debris; rooted top.	50		
44.50	Coal, banded, with pyrite.			
44.59	Fc., m.gy., v. clayey, rooted, slickensides.	60		
46.21	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, sand and calc., sand lams., slst. lams.; ss., lt.gy.-yw.gy., v.f.gr., partly calc., few clay lams., coal spar; siderite lams., intbds., and nodules; scarce mica flakes, roots, marine fossils.	70		
		80		
83.12	Sh., bk., lams., scarce marine fossils.			
83.97	Sh., dk.gy., v.f.gr., ss. lams., siderite intbds. and nodules; clay lams.			
87.87	Coal, bright, banded, thin calc. lam.; pyrite.			
88.00	Fc., dk.gy., rooted.			



LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
88.27 Sh., ss. beds and intbds.; sh., m.-dk.gy., sandy, silty, rooted, carb., slst. and siderite lams., clay zone, coal lam.; ss., lt.-m.gy., f.gr., rooted, mica., carb. lams. and ripples, x-lams., occ. massive, calc.; abnt. siderite; bk. sh. at 112.78, and 123.44 meters.	90		
144.29 Coal, banded, no partings; well cleated, calc. fractures, trace pyrite.	100		
144.54 Fc., dk.gy., coaly, plant fragments, rooted.	110		
144.93 Ss., sh. intbdd.; ss., lt.-m.gy., v.f.gr.; sh., m.dk.-dk.gy., silty; abnt. siderite; abnt. coal spars and lams.; coal bed at 143.56 meters; grades to dk.gy. clay at base.	120		
155.36 Coal, banded, pyrite lam., calc. cleat filling.	130		
155.54 Fc., m.gy., siderite root fillings, plant debris.	140		
155.72 Sh., dk.gy., sandy lams., siderite rootlets and lams., coal lams.	150		
160.14 Coal, bone partings at top; calc. cleats.	160		
160.54 Fc., dk.gy., siderite rootlets; 2.54 cm. coal bed at base, abnt. plant debris.	170		
161.00 Sh., ss. intbdd.; sh., m.-dk.gy., clayey, sandy, massive, siderite nodules; ss., lt.gy., v.f.gr.; coal spar.	180		
168.10 Coal, pyrite lams.	190		
168.34 Fc., and clay sh., bk. with coal lams.	200		
168.52 Coal, banded, calc. cleats, pyrite crystals.	210		
168.98 Fc., dk.gy., plant debris; slickensides.			
169.19 Sh., bk., clayey, bk. clay zones; siderite rootlets and intbds.			
170.11 Fc., dk.gy., siderite roots, coal lams.			
170.38 Ss., sh. beds and intbds.; ss., m.lt.-dk.gy., f.-v.f.gr., mica., carb., rooted, massive in parts, x-bds.; sh., bn.lt.gy.-m.dk.gy.-bk., sandy, massive, silty, slst. lams.; abnt. siderite, coal spars and lams.			
213.54 Coal, blocky, good cleat, siderite at top, bk.sh. and siderite at base; Jefferson coal seam(?).			
213.76 Sh., bk., coaly, some siderite; grades to fc.			

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
213.82 Fc., m.gy., sandy, sh. lam., rooted. 214.55 Sh., ss. beds and intbds.; sh., dk.gy., sandy; ss., v.lt.-m.gy., v.f.gr., quartzose and massive in part, scarce mineral banding; coal spars and lams.; siderite clasts, intbds. and nodules; bk.sh. appears between 257.56 meters and base. 261.06 Coal, blocky, pure, good cleat; shaly layer; Jefferson coal (?). 261.43 Fc., m.gy.; v. sandy, rooted, small amount bk. sh at top. 263.50 Ss., lt.gy., f.-v.f.gr., siderite intbds., massive, roots, sh. lams.; coal lam. near top. 264.96 Sh., dk.gy.-bk., ss. lams. 268.29 Ss., sh. beds and intbds.; f.-v.f.gr. ss.; sh., m.dk.-dk.gy., silty; thin coal lam., siderite intbds. 284.84 Total Depth.	220 230 240 250 260 270 280 290		

DRILL HOLE LOG

Hole #: 16

Geophysical Log Date: 8/24/79, **County, State:** Fayette, Alabama

Map: Howard, 7½' quad. **Location:** NW¼ **Sec.** 1, **T.** 15S, **R.** 10W **HPM**

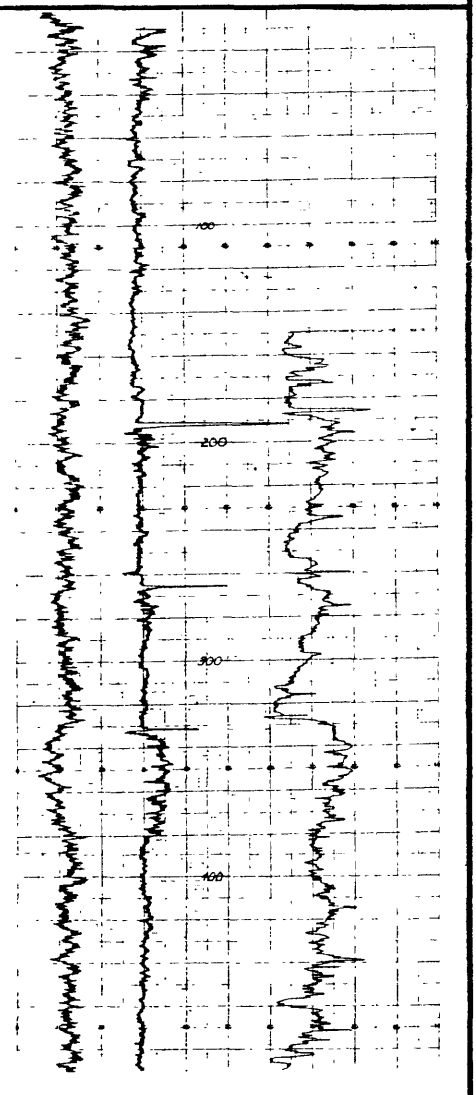
Surface Elev.: 208.5 m, **Logged Depth:** 243.5 m, **Drilled Depth:** 245.7 m, **Core Int:** 242.8 m,

Medium: water

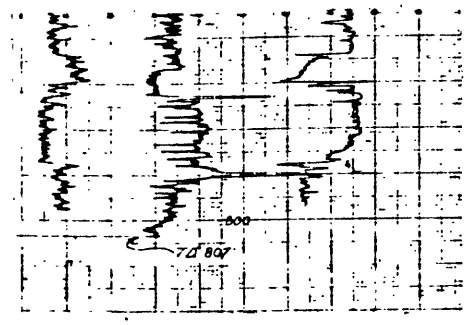
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0–2.83	Cased in unconsolidated material.			
2.83	Ss., sh. beds and intbds.; ss., m.lt.gy., v.f.gr., mica., calc., carb., occ. massive; sh., m.lt.-m.dk.gy., sandy, silty; clayey and slickensides near base.	10		
		20		
58.28	Sh., bk., massive, coal lams.	30		
58.40	Coal, pearly luster, minor pyrite; Pratt coal (?).			
58.73	Slst., m.gy., sandy, rooted; abnt. plant debris.	40		
59.89	Sh., ss. beds and intbds.; sh., m.-m.dk.gy., silty, sandy; ss., m.lt.gy., f.gr.; siderite intbds.; calc. lams.; marine fossil bed with siderite, sh. matrix at 78.88 meters.	50		
		60		
80.62	Sh., bk., coaly, scarce calc. cleats.	70		
80.74	Coal, bright banded; no noticeable cleats; horizontal calc. veinlets at top; America coal (?).	80		
80.86	Uc., m.gy., silty, siderite rootlets, sandy towards base.	90		
82.24	Sh., ss. beds and intbds.; sh., m.-v.dk.gy., silty, sparse marine fossils, mica., and slickensides at base; ss., m.gy., v.f.gr., mica., calc.; siderite throughout.	100		
		110		
100.98	Coal, cleated; sh. lam. at top.	120		
101.07	Fc., mottled gy. and bn., partly rooted.			
101.50	Slst., m.gy., sandy, v. mica., rooted base.	130		
102.14	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, mica., sandy, calc.; ss., lt.-m.lt.gy., f.gr.-silty, mica., massive, carb.; siderite throughout.	140		



LITHOLOGY	Depth m.	Strip Log	GEOPHYSICAL LOGS GAMMA DENSITY RES.
155.78 Coal, shiny, blocky; calc. lams. 156.15 Sh., ss. beds and intbds.; sh., dk.gy., rooted, coaly lams.; ss., v.lt.gy., v.f.gr., mica., x-bdd.; siderite nodules, rare coal lams. 165.51 Coal, bright, banded. 165.66 Sh., dk.gy., carb., rooted, coal lam., massive; f.gr. ss. lams. lower 2/3. 169.87 Coal, sh. partings, banded. 170.20 Sh., ss. beds and intbds.; sh., dk.bn.gy.-dk.gy., silty, coal lams., siderite lams.; ss., v.lt.gy., v.f.gr., x-lams. 174.96 Coal, banded, shaly. 175.47 Sh., v.dk.gy., massive, bone. 175.66 Fc., m.gy., rooted; abnt. plant debris. 176.02 Ss., lt.-m.gy., v.f.gr., quartzose, mica., massive, roots, siderite clasts, sh. clasts; bk. sh. intbds. and lams. near 196.57 meters; coal spars at 195.25. 198.79 Sh., v.dk.gy., massive, siderite nodules, sandy, marine fossils. 201.17 Coal, impure, shaly, poor cleats. 201.20 Sh., ss. intbds.; sh., m.dk.gy., silty, coal lams. near base; ss., lt.gy., v.f.gr.; rare siderite. 205.59 Coal, shaly top; grades to good, hard, shiny coal; no visible cleats; possible Lick Creek coal of Black Creek group. 205.68 Uc., m.gy., sand, roots. 205.92 Slst., m.gn.gy., sandy, rooted, abnt. siderite. 207.02 Ss., sh. intbdd.; ss., m.lt.gy., f.gr., mica.; sh., m.dk.gy., sandy; scarce siderite burrows. 207.69 Sh., bk., coal lams. 207.72 Sh., ss. beds and intbds.; sh., m.dk.-dk.gy., few bk. sh. lams.; ss., lt.gy., f.gr., massive, scattered coal spars and bands, x-bdd., carb.; siderite throughout; slst. bed; siderite and sh. conglomerates with ss. matrix.	150 160 170 180 190 200 210		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS
			GAMMA DENSITY RES.
227.35 Coal, shiny, pure, well cleated; Jefferson coal (?).	220		
227.72 Sh., m.-m.dk.gy., rooted, sandy, rare coal lam.			
227.99 Ss., lt.gy., f.gr., quartzose, rooted, partly massive, x-bdd.	230		
237.68 Coal, vitreous, banded, few pyrite lams.; Black Creek coal.	240		
238.23 Sh., dk.gy.-bk., few coal lams., sandy.			
238.87 Ss., v.lt.gy., v.f.gr., quartzose, coal lams.	250		
245.67 Total Depth.			

DRILL HOLE LOG

Hole #: 17

Geophysical Log Date: 8/24/79, **County, State:** Fayette, Alabama

Map: Howard, 7½' quad. **Location:** SW¼ **Sec.** 13, **T.** 14S, **R.** 10W **HPM**

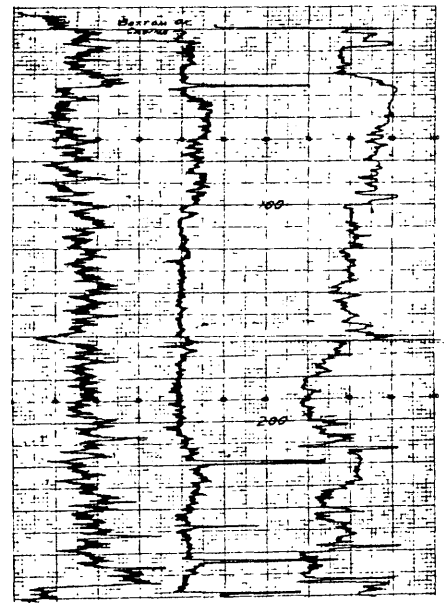
Surface Elev.: 145.4 m, **Logged Depth:** 202.7 m, **Drilled Depth:** 203.2 m, **Core Int:** 195.6 m,

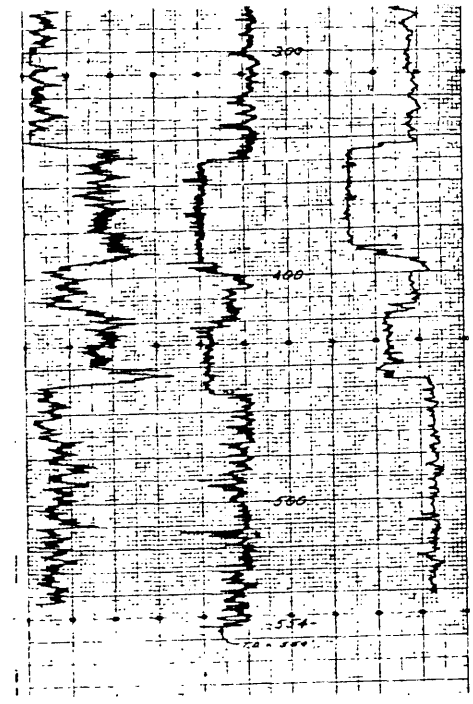
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-7.59	Cased in unconsolidated material.			
7.59	Sh., m.dk.gy., v. sandy, siderite nodules and lams., marine fossils; f.gr. ss. lams.	10		
13.93	Coal, banded, sh. partings.	20		
14.02	Fc., m.gy., sandy, rooted.			
14.33	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, sandy, occ. massive, scarce roots; ss., lt.-m.lt.gy., f.gr., mica., carb., scarce coal spar and calc.; siderite, x-bdg.	30		
		40		
		50		
66.66	Coal, banded, calc. cleats; oozes methane.	60		
67.03	Fc., m.gy., sandy, rooted.			
67.30	Ss., sh. intbdd.; ss., m.lt.gy., v.f.gr.; sh., m.-dk.gy.; abnt. coal spars at top, carb. plant debris, siderite nodules.	70		
		80		
75.65	Coal, banded, well cleated.			
75.74	Fc., m.dk.gy., rooted; flecks of coal.			
75.96	Sh., m.dk.-dk.gy., rooted, plant debris, ss. lams., siderite nodules and lams.			
80.35	Coal, banded, well cleated; lt.gy. sh. partings 5.8 cm. from top.			
80.68	Fc., m.gy., sandy, siderite rootlets.			
81.23	Sh., m.dk.gy., massive, siderite bands; 3 thin coal beds at base.			
81.93	Fc., gy., sandy, massive, rooted, siderite lams.			
82.42	Sh., dk.gy.-bk., ss. and coal lams., siderite nodules.			
84.95	Coal, banded, fractured.			
85.16	Sh., bk., carb., grades to bone at base.			



LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
85.56 Ss., sh. beds and intbds.; ss., lt.gy.-bn.gy., f.gr., quartzose, mica., x-bdd. and massive zones, carb. lams.; sh., dk.gy., silty, massive.	90 100 110 120 130 140 150 160 170 180 190 200 210		
138.14 Coal, sh. layers.			
138.20 Ss., sh. bed and intbds.; ss., lt.gy., f.gr., quartzose, x-bdd.; sh., dk.gy., rarely carb., silty; siderite pebbles and lams., some coal spar and bk. sh. ripples.			
176.39 Coal, pure, good cleat, clayey sh. lam.; minor fault, minor calc. cleat; Jefferson of Black Creek coal group.			
176.91 Fc., m.dk.gy., sandy, fairly hard; siderite.			
177.12 Slst., m.gy., v. sandy.			
177.39 Ss., sh. beds and intbds.; ss., m.lt.gy., m.-f.gr., mica., carb., massive, x-bdd.; sh., m.dk.gy.-bk., lams.			
203.18 Total Depth			

DRILL HOLE LOG

Hole #: 18

Geophysical Log Date: 7/17/79, **County, State:** Fayette, Alabama

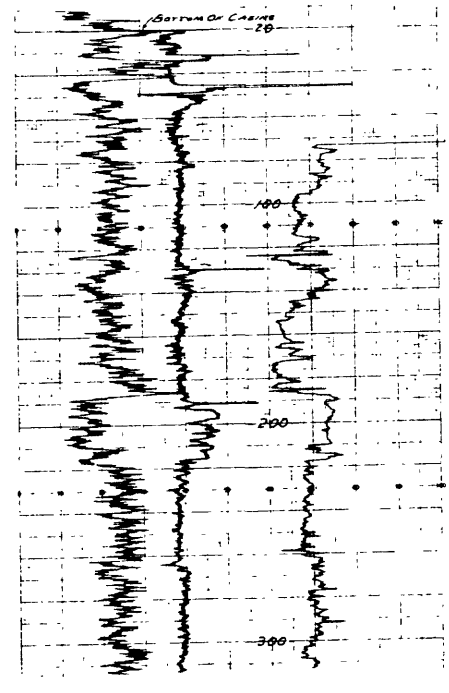
Map: Howard, 7½' quad. **Location:** NW¼ **Sec.** 28, **T.** 14S, **R.** 10W **HPM**

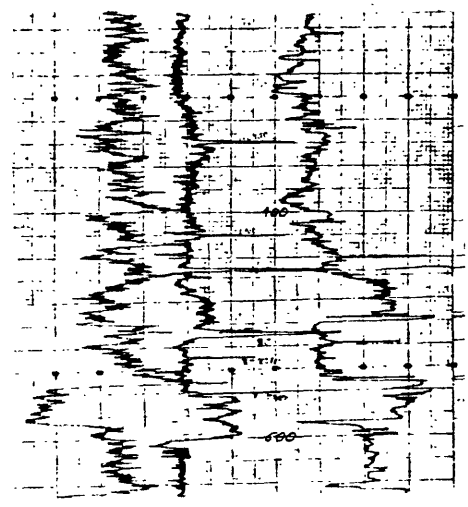
Surface Elev.: 173.4 m, **Logged Depth:** 214.9 m, **Drilled Depth:** 215.3 m, **Core Int.:** 209.3 m,

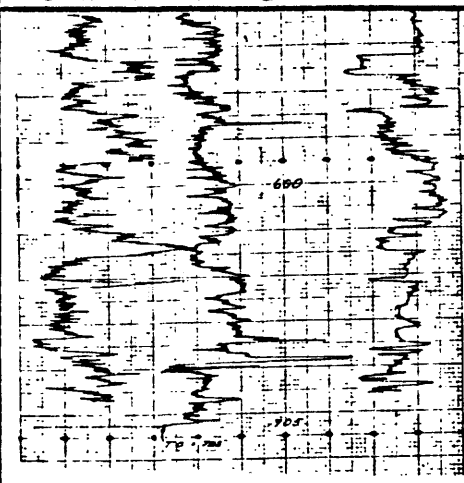
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-6.07	Cased in unconsolidated material.			
6.07	Sh., m.-dk.gy., silty, massive, siderite nodules and rootlets, calc. lams.	10		
9.33	Coal, bright banded, well cleated.			
9.42	Sh., dk.gy., carb., massive.	20		
9.69	Fc., m.gy., sandy.			
11.03	Sh., m.dk.gy., lam. to massive.	30		
13.69	Fc., dk.gy., similar to sh. above.			
13.87	Coal, bright, well cleated, trace pyrite.	40		
14.11	Sh., bk., massive.			
14.20	Slst., bn.-gy., sandy, rooted, clay bands.	50		
15.21	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr., mica., carb.; sh., m.dk.-dk.gy., few mica., sandy, and silty zones; abnt. siderite, plant debris, rippled lams.; coal spar at base.	60		
		70		
		80		
39.35	Coal, banded, shaly at top; calc. cleat filling.	90		
39.49	Fc., m.gy., partly sandy, completely rooted, siderite roots.			
40.81	Ss., sh. beds and intbds.; ss., m.lt.gy., v.f.gr., mica., calc., carb.; sh., m.-dk.gy., silty, sandy lams., calc. marine fossil zone, mica., calc. intbds., abnt. siderite; coal lams., spars, and debris at base.			
58.09	Coal, undifferentiated; clay lens; grades to bk. sh.			
58.52	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr., mica., carb., massive; sh., m.lt.-dk.gy., sandy, massive, siderite, calc. lams. and cement.			

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
112.56 Coal, bony, calc. cleat, few pyrite; siderite or sh. lenses. 112.81 Uc., m.gy., silty, coaly lam., rooted. 113.26 Ss., sh. beds and intbds.; ss., lt.gy., v.f.gr., quartzose, x-lams., rooted top, mica., carb.; sh., m.dk-dk.gy., sandy; siderite intbds., nodules, bands; coal lams. and spars. 125.15 Coal, banded; badly fractured top. 125.24 Uc., dk.gy., sandy, rooted. 125.94 Sh., m.dk.-dk.gy., sandy, shaly twards base, ss. lams., siderite nodules and bands, rare coal lam. 125.66 Coal, banded, calc. fractures, some pyrite. 130.00 Sh., ss. intbdd.; sh. m.dk.gy., silty, rooted top, sandy base; ss., m.lt-lt.gy., f.-v.f.gr., mica.; 1.52 meters coal at 130.97 meters; siderite. 138.17 Coal, banded bony. 138.35 Sh., coal lams.; siderite layers. 138.59 Coal, banded, calc. filled cleat. 139.05 Sh., dk.gy., massive, siderite, roots, scarce coal lams. 141.76 Coal, shaly top, siderite lams., hard and banded last 6.10 cm. 141.88 Uc., m.lt.gy., rooted, coaly lam.; plant debris. 142.65 Sh., m.lt.-dk.gy., silty, siderite intbds. and nodules, calc. cleat; coal lams. 146.58 Coal, bright, banded; little pyrite. 146.67 Sh., ss. beds and intbds.; sh.; m.dk.gy.-dk.gn.gy., rooted, sandy, silty, clayey; ss., lt.-m.lt.gy., f.gr., quartzose, massive, mica., carb., rare bk.sh.; siderite; zones of siderite pebble conglomerate; coal spars, beds and coaly fragments.	100 110 120 130 140 150 160		

LITHOLOGY	Depth m.	STRIP LOG	GEOPHYSICAL LOGS
			GAMMA DENSITY RES.
174.86 Coal, banded, pyrite lenses. 175.14 Fc., m.gy., sandy, carb. roots. 175.78 Sh., ss. beds and intbds.; sh., m.-dk.gy., sandy, silty, x-lams., partly massive; ss., v.lt.-m.gy., v.f.gr., quartzose, massive in part; bk. sh. ripples; coal bands, spars and ripples; carb. fragments, siderite. 204.03 Coal, undifferentiated. 204.19 Ss., as above; massive. 206.29 Coal, v. bright banded, bony, dull and bright twards base; ss. and clay lams.; Black Creek coal. 206.75 Sh., ss. beds; sh., m.dk.gy., mica., few slst. intbds.; ss., lt.-m.lt.gy., m.-f.gr., carb. and coal lams., coaly plant debris; bone layer with thin cleated coal lam.; bk. sh. bed with bone and coal lam., 206.90 meters. 215.34 Total Depth.	170 180 190 200 210 220		

DRILL HOLE LOG

Hole #: 19

Geophysical Log Date: 11/12/79, **County, State:** Fayette, Alabama

Map: Hubbertville, 7½' quad. **Location:** SW¼ **Sec.** 23, **T.** 14S, **R.** 11W **HPM**

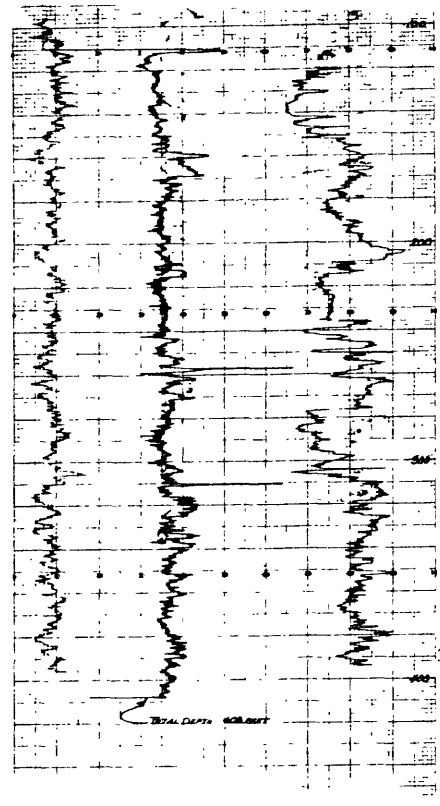
Surface Elev.: 188.4 m, **Logged Depth:** 124.4 m, **Drilled Depth:** 137.5 m, **Core Int.:** 128.5 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-8.99	Cased in unconsolidated material.			
8.99	Clay, m.gy., v. silty, mica.; quartz pebbles at top.	10		
20.12	Sh., ss. beds and intbds.; sh., m.lt.gy.-v.dk.gy., sandy; ss., m.lt.gy., v.f.gr., mica.; rooted, siderite, few calc. and carb. lams., occ. coal lam.; coalified plant debris near base; uc., m.gy., sandy, rooted, 46.39-49.50 meters.	20 30 40 50		
77.75	Coal, banded, sh. partings, calc. lams. in top 5.1 cm.	60		
77.88	Ss., sh. beds and intbds.; ss., m.lt.gy., mica.; sh., m.dk.-dk.gy., sand and silt zones; x-bds., scarce fossils, siderite rootlets at top, siderite intbds. and nodules at base.	70 80		
94.06	Coal, banded, dull, calc. lams. at top; Mary Lee coal (?).	90		
94.18	Sh., ss. beds and intbds.; sh., m.dk.gy., occ. sand; ss., m.lt.gy., v.f.gr., occ. mica. and carb.; pyrite at top, few roots, siderite, x-bds.; scattered coal lams.	100 110 120		
137.46	Total Depth.	130 140		



DRILL HOLE LOG

Hole #: 20

Geophysical Log Date: 7/20/79, County, State: Fayette, Alabama

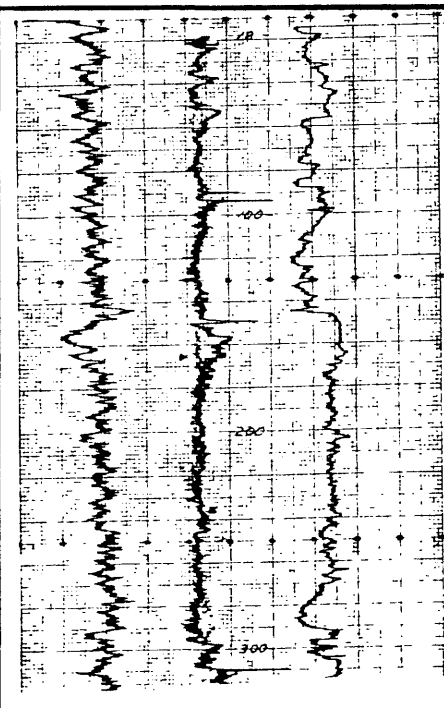
Map: Howard, 7½' quad. Location: SE¼ Sec. 5, T. 14S, R. 10W HPM

Surface Elev.: 192.6 m, Logged Depth: 224.3 m, Drilled Depth: 224.7 m, Core Int: 221.1 m,

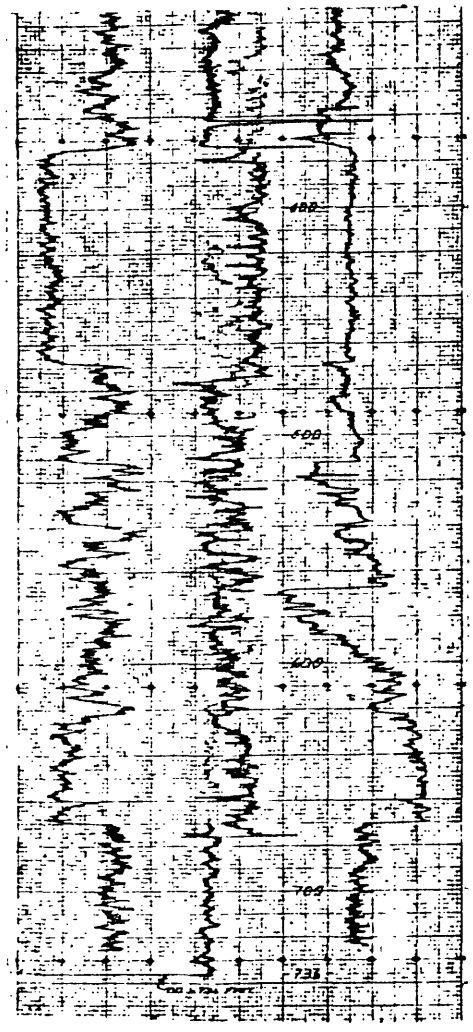
Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-3.60	Cased in unconsolidated material.			
3.60	Ss., sh. beds and intbds.; ss., lt.-m.lt.gy., f.-v.f.gr., mica.; sh., m.dk.gy., silty, siderite lams. and nodules, marine fossil zone; high angle fracture, and Fe-stain at top.	10		
26.15	Slst., m.gy., mica., massive, silty.	20		
27.49	Coal, bright banded, well cleated, calc. lam. at top.	30		
27.58	Fc., m.dk.gy., silty, siderite rootlets.	40		
28.74	Coal, shaly, fractured.			
28.77	Uc., m.gy., rooted, abnt. plant fragments.	50		
28.80	Ss., sh. beds and intbds.; ss., lt.-m.lt.gy., f.-v.f.gr., mica., x-lams.; sh., m.dk.gy., lams., silty, sandy, massive, marine fossil zone, calc. fractures; siderite, partly calc.; coal lams. near base.	60		
45.54	Coal, banded.	70		
45.60	Fc., v.dk.gy., coal lams.	80		
45.75	Sh., ss. beds and intbds.; sh., m.-dk.gy., silty, roots at top, carb.; ss., lt.-m.gy., f.gr., carb. plant fragments, bk. sh. lams. and intbds., coalified plant debris, mica., carb., siderite, calc. lined fracture; high angle fracture at 88.09 meters.	90		
94.40	Coal, bright banded, bone in upper portion.			
94.52	Fc., m.gy., coal lams., plant debris.			
94.88	Ss., sh. beds and intbds.; ss., lt.gy., v.f.gr., mica., roots; sh., dk.gy.; coal spar, bk. sh. rip-up clasts, carb. material, siderite.			

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
110.40	Coal; Mary Lee coal.			
110.61	Sh., m.-dk.gy., silty, massive, rooted; ss. lams.	100		
113.81	Coal; Blue Creek coal (?).	110		
113.93	Fc., m.-dk.gy., sandy, rooted; ss. lams. lower portion.			
115.64	Ss., lt.gy., f.gr., massive, carb. lams., x-bds., high angle fractures.	120		
144.66	Coal, banded, pyrite lenses.	130		
144.69	Fc., m.gy., sandy, siderite rootlets, carb. lams.	140		
145.60	Sh., ss. beds and intbds.; sh., m.dk.gy., silty; ss., lt.gy., f.gr., mica., carb. clasts; x-lams., siderite burrows, coal spar; faulting and high angle fracture.	150		
157.92	Uc., m.gy., with thin lt.gy. clay zones; grades to rooted bk. sh.	160		
159.53	Coal, abnt. sh. at top, clay throughout; grades to uc.	170		
159.75	Uc., m.gy., rooted.	180		
160.28	Sh., ss. beds and intbds.; sh., m.-dk.gy., sandy, rooted; ss., lt.gy., v.f.gr., occ. massive, bk. sh. lams., carb. sh. lams.; coal lams., high angle calc. fracture, fracture zones, siderite, squeezed coal zones.	190		
206.04	Coal, bright, banded.	200		
206.11	Ss., sh. beds and intbds.; ss., m.gy., poorly sorted, siderite, coal spar; sh., m.dk.gy.; high angle calc. fracture, coal lams.	210		
224.79	Total Depth.	220		
		230		



DRILL HOLE LOG

Hole #: 21

Geophysical Log Date: 8/27/79, **County, State:** Fayette, Alabama

Map: Hubbertville, 7½' quad. **Location:** SE¼ **Sec.** 33, **T.** 13S, **R.** 11W **HPM**

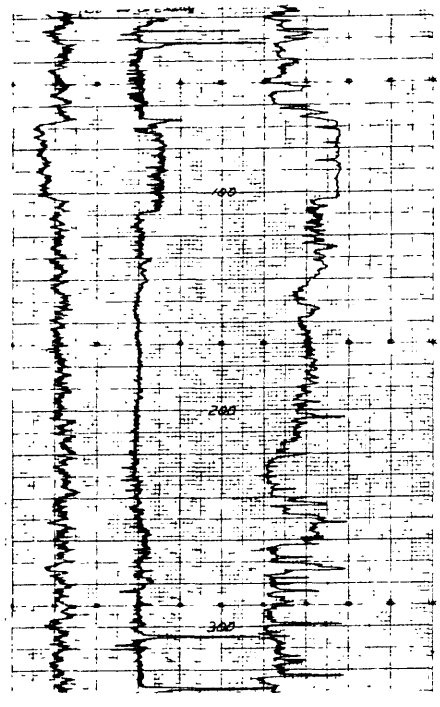
Surface Elev.: 158.5 m, **Logged Depth:** 176.2 m, **Drilled Depth:** 178.6 m, **Core Int:** 172.8 m,

Medium: water

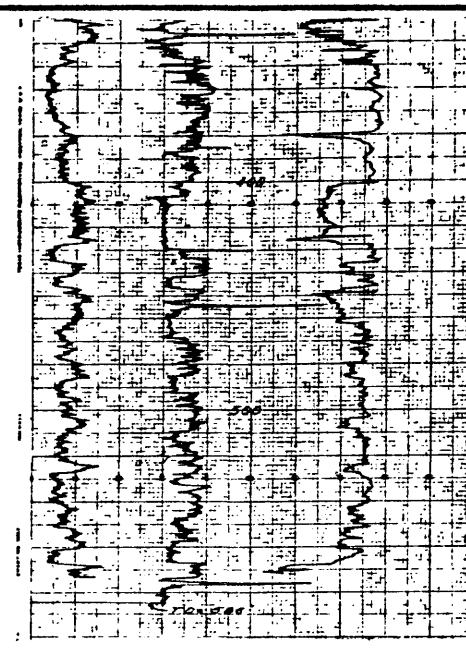
GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-5.79	Cased in unconsolidated material.			
5.79	Sh., m.gy., silty, siderite bands, plant debris, ss. lams.	10		
9.48	Coal, bright, banded, blocky, pyrite; Pratt group.	20		
9.60	Fc., m.gy., sandy, rooted, shaly at top.	30		
9.88	Sh., m.-m.dk.gy., silty, massive, siderite, fossif. zones, bk. clay zones; calc. lam. near base.	40		
19.99	Coal, impure, blocky, shaly bands, calc. lams.	50		
20.18	Fc., m.gy., rooted, plant debris, sh. band at top.	60		
20.42	Ss., sh. beds and intbds.; ss., m.lt.gy., f.gr., mica., rooted, clay lams.; sh., m.lt.-m.dk.gy., silty, sandy, calc. zones, trace calc. stringers; occ. slst. bed; fossif., siderite.	70		
		80		
		90		
92.55	Coal, bony.			
92.56	Fc., m.gy.			
92.57	Coal, bony, calc. stringers.	100		
92.60	Fc., m.gy.			
92.63	Coal, few sh. lams.; New Castle coal.			
92.81	Uc., m.gy., rooted, slickensides.			
93.70	Sh., m.dk.gy., silty, siderite nodules and intbds., ss. ripples.			
99.79	Coal, shiny, cleated.			
100.07	Sh., bk., few clay partings.			
100.28	Fc., m.gy., swollen, roots, sh. partings.			
100.68	Sh., m.gy., silty, massive, coal lams., roots, siderite, abnt. plant debris; ss. lams. lower half.			



LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
102.35	Coal, shiny, calc. lam.; Mary Lee group.			
102.50	Sh., v.dk.gy., massive, siderite, coal lams.	110		
102.72	Fc., m.lt.gy., partly sandy, rooted.			
103.51	Sh., ss. beds and intbds.; sh., gn.gy., silty; ss., lt.gy., m.-f.gr., quartzose, partly massive, siderite zones; dk.gy. sh. intbds.	120		
117.23	Coal, bright, banded; bony bottom portion.	130		
117.32	Fc., m.gy., v. sandy, rooted, coal spar.	140		
117.65	Ss., m.lt.gy., mica., carb., roots, x-lams.; siderite, bk. sh. lams., and coal spar near base.	150		
123.84	Conglomerate, sh. and siderite pebbles, ss. matrix.	160		
123.87	Sh., m.dk.gy., ss. lams., some siderite.	170		
130.85	Coal, blocky, well cleated; Jagger coal (?).	180		
131.00	Fc., dk.gy., rooted, shaly top, sandy base.			
131.95	Ss., sh. beds and intbds.; ss., lt.gy., f.gr., quartzose, mica., rooted and massive zones, sh., and bk. sh. lams.; sh., dk.gy.-bk.			
138.14	Sh., bk.			
138.29	Coal, blocky, well cleated; Ream coal (?).			
138.50	Sh., bk., bony.			
138.53	Fc., m.gy., rooted, sandy in lower portion.			
139.63	Sh., ss. beds and intbds.; sh., dk.gy., siderite nodules, coaly lams., pyritized and coalified plant fragments all near base; ss., lt.gy., f.gr., quartzose, mica., coal spar and siderite zones; intermittent bk. sh.			
175.47	Bone, coal lams.			
175.53	Coal, banded, well cleated, sh. partings; Jefferson coal (?).			
175.75	Sh., dk.gy., carb. at top, sand and roots at base.			
175.99	Ss., m.lt.gy., v.f.gr., rooted.			
176.20	Sh., m.dk.gy., siderite intbds., slst. lams.			
178.49	Total Depth.			



DRILL HOLE LOG

Hole #: 22

Geophysical Log Date: 8/24/79, County, State: Marian, Alabama

Map: Glen Allen, 7½' quad. Location: SW¼ Sec. 36, T. 12S, R. 11W HPM

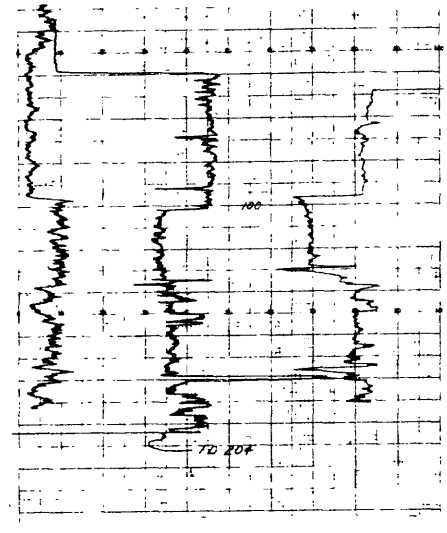
Surface Elev.: 196.9 m, Logged Depth: 62.2 m, Drilled Depth: 62.4 m, Core Int: 56.8 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-5.61	Cased in unconsolidated material.			
5.61	Sh., m.gy., clayey, mica.; coal lams.			
6.00	Coal, bright, banded, well cleated.	10		
6.13	Fc., m.gy., lams., siderite rootlets.			
7.16	No recovery.	20		
11.95	Ss., lt.gy., f.gr., massive, quartzose, mica., x-bds., coal ripple zone, partly carb.	30		
31.12	Sh., m.dk.gy., lam., ss. lams.	40		
40.84	Siderite pebble conglomerate, f.gr. ss. matrix.	50		
40.90	Sh., bk., abnt. calc. stringers.			
40.93	Coal, banded, shaly, broken.	60		
41.03	Uc., m.gy., v. clayey, rooted, coal spar; sandy base.	70		
41.76	Sh., ss. intbds.; sh., m.-dk.gy., sandy at top; ss., m.lt.gy., m.-f.gr., quartzose, mica.; x-lams.			
54.35	Coal, bright, banded, well cleated, pyrite lam. at top.			
54.89	Uc., m.dk.gy., rooted.			
55.63	Ss., sh. beds and intbds.; ss., lt.gy., f.gr., mica., partly carb., some siderite and roots; sh., dk.gy.; few x-lams., scarce coal spar and lam.			
62.63	Total Depth.			



DRILL HOLE LOG

Hole #: 23

Geophysical Log Date: 8/24/79, **County, State:** Walker, Alabama

Map: Carbon Hill, 7½' quad. **Location:** NW¼ **Sec.** 21, **T.** 12S, **R.** 10W **HPM**

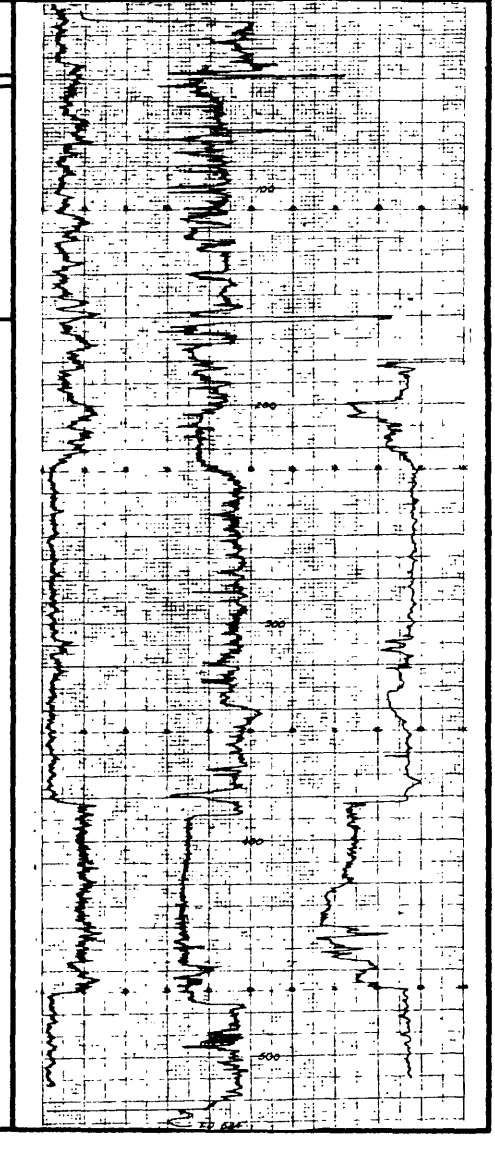
Surface Elev.: 219.8 m, **Logged Depth:** 159.7 m, **Drilled Depth:** 160.5 m, **Core Int:** 153.2 m,

Medium: water

GEOPHYSICAL	Resistivity	Gamma	Density
Original Scale:	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)	2.40 mpcm. (20 fpi.)
Logging Speed:	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)	4.57 mpm. (15 fpm.)

Depths in lithology column indicate the top of the described interval.

LITHOLOGY		Depth m.	STRIP LOG	GEOPHYSICAL LOGS GAMMA DENSITY RES.
0-7.28	Cased in unconsolidated material.			
7.28	Ss., pink, orange and lt.gy., f.gr., mottled, banded, massive to x-bdd., weathered, high angle fractures, coal spars and lams.	10		
13.02	Coal, impure, well cleated, yw. siderite lams., dull and bright banded.	20		
13.08	Ss., lt.gy., f.gr., massive, weathered.	30		
13.20	Coal, impure, some cleat.			
13.24	Ss., fc. beds; ss., lt.-m.lt.gy., f.gr., massive, mica., carb., clayey, x-bds., roots, pyrite, sh. lams. and chips, coal spars and lams.; fc., lt.-m.gy., plastic, rooted, sandy; bk. sh. lams. near base; siderite throughout.	40		
		50		
		60		
48.22	Sh., m.dk.gy., lams. and intbds. of lt.gy. ss., siderite intbds.	70		
48.83	Sh., bk., carb., massive.			
49.01	Coal, well cleated, bright and dull banded, pyritized zone; Jefferson coal (?).	80		
49.69	Fc., m.gy., rooted, plant debris; grades to sh.	90		
50.37	Sh., ss. beds and intbds.; sh., m.gy.-bk., massive, rooted, clayey, carb., sandy, silty, trace pyrite, siderite replacement zone, slickensides, and coalified plant debris; ss., lt.-m.gy., f.-v.f.gr., mica., x-lams., quartzose, roots, carb., Fe-stain; coal spars and lams., and siderite throughout; bk. sh. appears at 58.83, and 100.03 meters; occ. fc. beds, and quartz pebble conglomerate beds.	100		
		110		
		120		
		130		
		140		
		150		
160.51	Total Depth.			



COAL DATA ERRATA FROM OPEN-FILE REPORT 81-312, LITHOLOGIC AND GEOPHYSICAL LOGS OF 1979 COAL DRILLING IN THE WARRIOR COAL FIELD, TUSCALOOSA, FAYETTE, WALKER, AND MARION COUNTIES, ALABAMA.

HOLE 1 COAL DATA

DEPTH TO COAL SEAMS		COAL SEAM	SAMPLE	EDIT
TOP	BOTTOM	THICKNESS	NUMBER	CODE
99.88	100.13	0.25	W208400	-
105.55	105.76	0.21	W208243	2
109.91	109.94	0.03	-	-
110.19	110.28	0.09	-	-
120.91	121.22	0.31	W208244	-
124.05	124.11	0.06	-	-
208.54	208.61	0.07	-	-
272.22	272.40	0.18	W208245	-
282.85	282.88	0.03	-	-
377.13	377.31	0.18	W208246	-
377.56	377.93	0.37	W200247	2
378.65	378.84	0.19	W208248	-
380.97	381.24	0.27	-	1
381.30	381.55	0.25	W208401	-
392.67	392.86	0.19	W208249	-
393.74	394.26	0.52	W208250	-

HOLE 2 COAL DATA

DEPTH TO COAL SEAMS		COAL SEAM	SAMPLE	EDIT
TOP	BOTTOM	THICKNESS	NUMBER	CODE
102.47	102.57	0.10	-	-
103.02	103.57	0.25	W207344	-
104.30	104.49	0.19	W207345	-
118.29	118.51	0.22	W207346	-
128.35	128.38	0.03	-	-
273.22	273.34	0.12	-	-

ERRATA CONTINUED

HOLE 3 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
66.75	66.87	0.12	-	-
68.24	68.49	0.25	W208226	5
77.88	78.09	0.21	W208227	-
95.65	95.71	0.06	-	-
221.13	221.35	0.22	W208228	-
318.67	319.55	0.88	W208229	5
320.13	320.47	0.34	W208230	-
320.95	321.08	0.13	-	-
325.19	325.25	0.06	-	-
327.05	327.29	0.24	W208231	-
331.68	332.14	0.46	W208232	-
332.14	332.35	0.21	-	1
379.32	379.38	0.06	-	-
466.47	466.80	0.33	W208233	-
466.92	467.32	0.40	W208234	-
476.19	476.65	0.46	W208235	-
477.07	477.74	0.67	W209498	-
537.33	537.39	0.06	-	-
554.28	554.34	0.06	-	-
570.89	570.97	0.08	-	2
584.42	585.31	0.89	W208236	-

HOLE 4 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
9.33	9.39	0.06	-	-
13.50	13.62	0.12	-	-
13.75	13.84	0.09	-	-
146.24	146.43	0.19	W207854	-
156.70	156.97	0.27	W207855	-
235.79	236.83	1.04	W207823	-
237.32	237.80	0.48	W207856	-
238.51	238.60	0.09	W207857	-
249.54	249.94	0.40	W207858	3
259.35	259.38	0.03	-	-
276.61	276.64	0.03	-	-
293.67	293.74	0.07	-	-
377.65	377.80	0.15	-	-
377.95	378.53	0.58	W207859	-
384.66	384.72	0.06	-	-
386.82	386.94	0.12	-	-
387.10	388.28	1.18	W207824	5
451.04	451.10	0.06	-	-
456.38	456.65	0.27	W207825	-
458.45	458.48	0.03	-	-
478.41	479.30	0.89	W207826	-

ERRATA CONTINUED

HOLE 5 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
47.06	47.30	0.24	W207070	-
53.25	53.80	0.55	W207071	-
59.31	59.65	0.34	W207072	-
69.13	69.74	0.61	W207073	-
213.54	213.66	0.12	-	-
270.69	271.15	0.46	W207074	-
369.57	369.81	0.24	W207384	4
369.91	369.97	0.06	W207384	4
370.06	370.27	0.21	W207384	4
371.03	371.76	0.73	W207385	5
373.26	373.29	0.03	-	-
373.68	373.90	0.22	W207386	-
378.04	378.53	0.49	W207387	-
419.74	419.77	0.03	-	-
435.10	435.28	0.18	-	1
531.05	531.48	0.43	W207388	-
537.21	537.39	0.18	-	1
537.58	537.61	0.03	-	-
542.64	542.91	0.27	W207354	-
543.92	544.31	0.39	W207389	4
544.31	544.43	0.12	W207389	4
548.52	548.55	0.03	-	-
584.51	584.55	0.04	-	-
593.96	594.02	0.06	-	-
598.51	598.54	0.03	-	-
601.07	601.10	0.03	-	-
622.74	623.01	0.27	W207390	-
636.27	636.45	0.18	W207355	-

ERRATA CONTINUED

HOLE 6 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
76.72	76.96	0.24	W206913	-
77.42	77.48	0.06	-	-
81.14	81.35	0.21	-	1
88.00	88.36	0.36	W206914	-
176.78	176.81	0.03	-	-
177.27	177.36	0.09	-	-
229.18	229.51	0.33	W206915	5
320.74	321.50	0.76	-	1
321.84	322.36	0.52	W206916	-
328.03	328.39	0.36	W206917	-
334.34	334.64	0.30	W207335	-
470.28	470.34	0.06	-	-
488.08	488.26	0.18	W207336	-
488.90	489.17	0.27	W207337	-
495.64	495.73	0.09	-	-
496.00	496.06	0.06	-	-
496.09	496.34	0.25	-	1
496.34	496.55	0.21	W207338	-
505.72	505.94	0.22	W207339	-
548.85	549.07	0.22	W207340	-
569.84	570.16	0.32	W207341	5
579.21	579.39	0.18	W207342	-
589.70	590.58	0.88	W207343	-

ERRATA CONTINUED

HOLE 7 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
82.84	82.88	0.04	-	-
135.91	136.46	0.55	W206859	-
227.81	230.03	2.22	W206860	5
232.20	232.38	0.18	-	1
237.47	237.77	0.30	W206857	-
266.28	266.31	0.03	-	2
376.76	376.95	0.19	W206856	-
376.98	377.04	0.06	-	-
378.41	378.68	0.27	W206858	-
384.63	385.02	0.39	W206882	-
390.91	391.21	0.30	-	1
391.52	393.28	1.76	W206883	-
398.04	398.22	0.18	-	1
403.68	403.98	0.30	-	1
421.17	421.29	0.12	-	-
425.74	425.81	0.07	-	-
430.41	430.44	0.03	-	-
432.72	432.76	0.04	-	-
456.16	456.47	0.31	W206884	-
474.94	475.00	0.06	-	-
475.40	476.34	0.94	W206885	-
487.77	487.83	0.06	-	-

HOLE 8 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
26.81	26.86	0.05	-	2
27.20	27.26	0.06	-	3
38.89	39.20	0.31	W208412	-
169.79	170.32	0.53	W208413	5
250.85	251.52	0.67	W208414	4
251.76	252.16	0.40	W208414	4
259.11	259.54	0.43	W208415	-
259.60	259.66	0.06	-	-
265.27	265.51	0.24	W208416	-
268.41	268.53	0.12	-	-
271.42	271.45	0.03	-	-
292.39	292.49	0.10	-	-
311.20	311.41	0.21	W208417	-
382.25	382.65	0.40	W208418	-
388.07	388.44	0.37	W208419	5
397.73	399.28	1.55	W208420	5
432.57	432.63	0.06	-	-
436.47	436.53	0.06	-	-
464.12	464.55	0.43	W208421	-
484.18	484.36	0.18	W208422	-
486.22	486.31	0.09	-	-

ERRATA CONTINUED

HOLE 9 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
118.38	118.81	0.43	W208036	4
118.81	118.93	0.12	W208036	4
119.18	119.27	0.09	-	-
196.22	196.90	0.68	W208037	3
197.07	197.33	0.26	W208038	3.5
203.66	203.11	0.55	W208039	3
211.29	211.53	0.24	W208040	-
235.31	235.37	0.06	-	-
256.34	256.41	0.07	-	-
337.19	337.29	0.10	-	2
343.57	343.78	0.21	W208410	-
393.34	393.44	0.10	-	-
409.53	409.83	0.30	-	1
446.04	446.17	0.13	W208411	-

HOLE 10 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
124.24	124.57	0.33	W208237	-
203.52	203.99	0.47	W208398	4
204.00	204.31	0.31	W208398	4
204.70	205.31	0.61	W208399	-
212.32	212.54	0.22	W208238	-
238.38	238.51	0.13	-	-
259.63	259.78	0.15	W208239	-
332.66	332.69	0.03	-	-
340.68	341.03	0.35	W208240	2
346.89	347.20	0.31	W208241	-
347.41	348.02	0.61	W208242	-

ERRATA CONTINUED

HOLE 11 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
125.33	125.67	0.34	W208402	-
203.97	204.64	0.67	W208403	5
216.53	216.99	0.46	W208404	-
222.96	223.21	0.25	W208405	-
247.25	247.38	0.13	-	-
265.33	265.39	0.06	-	-
336.96	337.35	0.39	W208406	-
341.53	341.83	0.30	W208407	-
347.56	347.93	0.37	W208408	-
350.28	350.55	0.27	W208409	-
387.68	387.77	0.09	-	-
415.87	415.96	0.09	-	-

HOLE 12 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
119.21	119.51	0.30	W207827	-
200.99	202.33	1.34	W207902	2,5
211.01	211.41	0.40	W207828	-
215.74	215.92	0.18	W207829	-
241.77	241.89	0.12	-	-
259.93	260.24	0.31	W207903	-
329.15	330.16	1.01	W208068	5
337.20	337.66	0.46	W207904	-
380.02	380.06	0.04	-	-
382.04	382.10	0.06	-	-
383.50	383.53	0.03	-	-
387.22	387.25	0.03	-	-

HOLE 13 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
105.58	105.89	0.31	W208070	-
174.92	175.02	0.10	-	-
186.84	186.91	0.07	-	3
190.36	190.82	0.47	W208069	3
195.89	196.08	0.19	W208071	-
199.74	199.77	0.03	-	-

ERRATA CONTINUED

HOLE 14 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
27.04	27.40	0.36	W208072	-
97.17	97.55	0.38	W208073	2
101.86	101.99	0.13	-	-
125.91	126.03	0.12	-	-
205.83	206.23	0.40	-	1
215.68	215.83	0.15	-	-
221.34	221.73	0.39	W208074	2
227.50	227.78	0.28	W208075	4,5
228.05	228.17	0.12	W208075	4,5
262.13	262.25	0.12	-	-
279.23	279.68	0.45	W208076	-

ERRATA CONTINUED

HOLE 15 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
41.37	41.49	0.12	-	3
44.50	44.59	0.09	-	-
68.54	68.72	0.18	W207905	3
87.87	88.00	0.13	-	-
144.29	144.54	0.25	W207906	-
155.36	155.54	0.18	W208041	-
160.14	160.54	0.40	W207907	-
168.10	168.34	0.24	W207908	4
168.52	168.98	0.46	W207908	4
170.26	170.43	0.17	-	3
213.54	213.76	0.22	W208042	2
261.06	261.43	0.37	W207909	-

HOLE 16 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
58.40	58.73	0.33	W207347	-
80.74	80.86	0.12	-	-
100.98	101.07	0.09	-	-
155.78	156.15	0.37	W207348	-
165.51	165.66	0.15	W207349	-
169.87	170.20	0.33	W207350	-
175.30	175.47	0.17	W207351	2
201.17	201.20	0.03	-	-
205.59	205.68	0.09	-	-
227.35	227.72	0.37	W207352	-
237.68	238.23	0.55	W207353	-

HOLE 17 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
13.93	14.02	0.09	-	-
56.63	56.66	0.03	-	3
66.66	67.03	0.37	W207075	-
75.65	75.74	0.09	-	-
80.35	80.68	0.33	W207076	-
84.95	85.16	0.21	W207077	-
138.14	138.20	0.06	-	-
176.39	176.91	0.52	W208043	-

ERRATA CONTINUED

HOLE 18 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
9.33	9.42	0.09	-	-
13.87	14.11	0.24	W207096	-
39.35	39.49	0.14	W207097	-
58.09	58.42	0.33	W207098	2
112.56	112.81	0.25	W207099	-
125.15	125.24	0.09	-	-
129.66	130.00	0.34	W207100	2
138.17	138.35	0.18	W207101	-
138.59	139.05	0.46	-	1
141.76	141.88	0.12	W207102	-
146.58	146.67	0.09	-	-
174.86	175.14	0.28	W207103	-
204.03	204.19	0.16	W207104	-
206.29	206.75	0.46	W207105	-
207.32	207.40	0.08	-	3

HOLE 19 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
77.75	77.88	0.13	W207860	-
94.06	94.18	0.12	-	-

HOLE 20 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
27.49	27.58	0.09	-	-
28.74	28.77	0.03	-	-
45.54	45.60	0.06	-	-
94.40	94.52	0.12	-	-
110.40	110.61	0.21	W207830	-
113.81	113.93	0.12	W207831	-
144.66	144.69	0.03	-	-
159.53	159.75	0.22	W207832	-
206.04	206.11	0.07	-	-

ERRATA CONTINUED

HOLE 21 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
9.48	9.60	0.12	-	-
19.99	20.18	0.19	-	1
92.55	92.56	0.01	-	-
92.57	92.60	0.03	-	-
92.63	92.81	0.18	W207378	-
99.79	100.07	0.28	W207379	-
102.35	102.50	0.15	W207380	-
117.23	117.32	0.09	-	-
130.85	131.00	0.15	W207381	-
138.29	138.50	0.21	W207382	-
175.53	175.75	0.22	W207383	5

HOLE 22 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
6.00	6.13	0.13	-	-
40.93	41.03	0.10	-	-
54.35	54.89	0.54	-	1

HOLE 23 COAL DATA

DEPTH TO COAL SEAMS TOP	BOTTOM	COAL SEAM THICKNESS	SAMPLE NUMBER	EDIT CODE
13.02	13.08	0.06	-	-
13.20	13.24	0.04	-	-
49.01	49.69	0.68	W207861	-

ERRATA CONTINUED

EDIT CODES:

1. COAL ANALYSES NOT PERFORMED

2. DEPTHS TO TOP AND BOTTOM OF COAL SEAM IN THIS OPEN FILE REPORT ARE CORRECTE DEPTHS ERRONEOUSLY PRESENTED IN OPEN-FILE REPORT 81-312.

3. COAL SEAMS DEPTHS (TOP AND BOTTOM) IN THIS OPEN-FILE REPORT THAT WERE NOT IDENTIFIED IN OPEN-FILE REPORT 81-312.

4. COAL ANALYSIS OBTAINED FROM COMPOSITE SAMPLE OF 2 OR MORE SEAMS.

5. COAL SEAM THICKNESS INCLUDES PARTINGS; HOWEVER, PARTING REMOVED FROM SAMPLE PRIOR TO ANALYSIS. THE FOLLOWING TABLE SHOWS THE COAL SEAM THICKNESS REPORTED AND THE THICKNESS OF COAL SEAMS ACTUALLY SAMPLED FOR ANALYSIS.

(SEE TABLE BELOW)

SAMPLE NUMBER	DEPTH TO COAL SEAM TOP	DEPTH TO COAL SEAM BOTTOM	COAL SEAM THICKNESS	THICKNESS OF COAL SEAM SAMPLED
W208226	68.24	68.49	0.25	0.21
W208229	318.67	319.55	0.88	0.73
W207824	387.10	388.28	1.18	0.95
W207385	371.03	371.76	0.73	0.68
W206915	229.18	229.51	0.33	0.23
W207341	569.84	570.16	0.32	0.23
W206860	227.81	230.03	2.22	1.60
W208413	169.79	170.32	0.53	0.43
W208419	388.07	388.44	0.37	0.30
W208420	397.73	399.28	1.55	1.23
W208038	197.07	197.33	0.26	0.16
W208403	203.97	204.64	0.67	0.62
W207902	200.99	202.33	1.34	1.19
W208068	329.15	330.16	1.01	0.90
W208075	227.50	228.17	0.40	0.37
W207383	175.53	175.75	0.22	0.21

ALL DEPTHS AND THICKNESS ARE IN METERS. THE CONVERSION FACTORS ARE AS FOLLOWS:

1 METER IS EQUAL TO 3.28 FEET

1 METER IS EQUAL TO 39.36 INCHES

1 METER IS EQUAL TO 100 CENTIMETERS