

STATE OF ARKANSAS
ARKANSAS GEOLOGICAL COMMISSION

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ARKANSAS LIGNITE
INVESTIGATIONS

Preliminary
Report

by

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1979

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ARKANSAS LIGNITE INVESTIGATIONS

INTRODUCTION

Lignite is the lowest rank coal with anthracite being the highest rank. Lignite is brown to black in color, has a high moisture and volatile content, and a heating value of less than 8300 Btu/lb on a moist, mineral matter free basis. The high volatile content makes it more readily converted into gas and liquid products than most of the higher grade coals. The high moisture content and its susceptibility to spontaneous combustion present problems in transportation and storage.

Arkansas lignite is a potentially valuable source of energy. Major energy companies have spent millions of dollars investigating lignite in Arkansas since 1973. These companies have leased about 200,000 acres of land for lignite, and have announced that they have over 2 billion tons of lignite in proven reserves. In addition to expenditures for exploration, these major energy companies have invested substantially in studies on mine planning, product research, surface and ground water, mine reclamation, and the environmental impact of mining.

The Arkansas General Assembly recognizing the significance of lignite as a potential energy source appropriated \$100,000 a year for the period 1975-1979 for Arkansas Geological Commission to investigate lignite. The Commission initiated these investigations in areas of the state where lignite could be expected to occur at depths of 150 feet or less. The program consists of core-drilling the more promising areas and analyzing the recovered lignite core samples. As an adjunct to this program, the U. S. Geological Survey Ground Water Branch has begun a program of monitoring the ground water in the lignite areas of south Arkansas to obtain a history of water quality and water levels in advance of mining. With the data that they collect before mining begins they will have a reliable basis for determining the effect of strip mining lignite.

Since 1973, interest in Arkansas lignite has increased steadily. Besides company and government interest, the news media and public are keenly interested in Arkansas lignite and in the possibility of extensive strip mining in lignite areas. Lignite is a major energy resource in Arkansas, and with orderly development can become a major economic asset.

ACKNOWLEDGMENTS

The proximate and ultimate analyses of lignite samples performed under the direction of Mr. Forrest E. Walker at the U. S. Bureau of Mines Laboratory

(currently a part of the U. S. Department of Energy) is greatly appreciated. The U. S. Geological Survey Laboratory, under the direction of Mr. Joseph R. Hatch, is presently performing trace element analysis on the lignite samples and this work adds much needed data on the characteristics of Arkansas lignite.

The Dow Chemical Company, General Crude Oil Company, Reynolds Metals Company, Carter Oil Company, and Phillips Petroleum Company supplied information on lignite and gave advice on drilling procedures. In addition, the Carter Oil Company furnished at no charge a Widco electric logger.

The cooperation of the Arkansas Highway Department and numerous county judges assisted the drilling program. The Geology Commission appreciates the attitude and warm reception of the many property owners in the areas of our drilling operations.

All of the members of the Arkansas Geological Commission staff have assisted with the lignite project; especially Mac Woodward and Dave Lumbert (presently with the State Energy Office), and Mike Howard and Pat Kelone of the Commission's staff who have devoted much time and hard work on the lignite project and deserve special recognition.

HISTORY

Lignite was mined and used in south Arkansas before the War Between the States. The lignite was first used for steam-boiler fuel and as fuel for small locomotives near the mines in Ouachita County. In 1907 a small oil-distilling plant was in operation in Camden and another distillery was operating in Lester. Both of these plants were producing oils distilled from canneloid lignite mined from the Camden coal field near Lester. White (1913) stated, "Such lignite is said to yield as high as 38 gallons of oil per ton, though the average oil production from the lignite as it is mined and distilled approximates 25 gallons per ton." There is no record as to the length of time that these plants remained in operation, nor of their production.

In 1938 a plant was constructed in El Dorado by the Arkansas Dye and Chemical Company to produce Vandyke brown dye from lignite. In 1943 the American Dyewood Company of New Jersey moved its plant to Malvern and produced Vandyke brown dye from lignite. The dye was used in labelling ammunition boxes during World War 2.

Although lignite has been produced sporadically in Arkansas for over a century, production figures are not available and total production was small.

STRATIGRAPHY

Lignite occurs in sedimentary rocks of Tertiary age in the Gulf Coastal Plain region of Arkansas. These rocks are divided into the Wilcox, Claiborne, and Jackson Groups. Jackson sediments have not been found to contain lignite beds more than a few inches thick in Arkansas. Lignite does occur in beds up to several feet thick in both the Wilcox and Claiborne strata.

The Wilcox and Claiborne Groups are composed of sediments deposited in non-marine and shallow marine environments. These environments of deposition varied from fluvial to deltaic.

EOCENE SERIES

Wilcox Group:

The Wilcox Group is exposed in outcrops trending southwest from northwestern Lonoke County through northern Miller County and along Crowley's Ridge in Craighead, Greene, and Clay Counties of northeastern Arkansas (Fig. 1). The Wilcox is as much as 850 feet thick in this area and has a maximum outcrop width of 21 miles in southern Hot Spring and northern Dallas Counties. This group is made up predominantly of fine to very-fine sands, silty sands, and clays. The sands are generally light gray when unweathered and alter to white, light brown, and red when weathered. The clays are generally light shades of gray or brown and contain varying amounts of fine sand. The sands and clays frequently contain enough carbonaceous material to make them dark brown to black. Lignite occurs as beds within this predominantly sand and clay sequence. In the course of the present investigation, beds of lignite over three feet thick were encountered at a depth of less than 150 feet in many of the drill holes. Indications are that the lignite beds are not restricted to a specific stratigraphic horizon in the Wilcox Group, but are dependent upon the depositional environment and history. In addition to lignite, commercial deposits of bauxite, clay, and to a lesser extent siderite are, or have been, mined from the Wilcox in Arkansas.

Claiborne Group:

The Wilcox Group in Arkansas is overlain by the sands, silts, and clays of the Claiborne Group. Outcrops of the Claiborne Group occur from eastern Saline through central Miller Counties, and from northern Jefferson through western Ashley Counties (Fig. 1). The Claiborne Group is also exposed in outcrops along Crowley's Ridge in St. Francis, Cross, Poinsett, and southern Craighead Counties in northeastern Arkansas. This group is as much as 1500 feet thick in Arkansas

and is made up predominantly of fine to very-fine sands, silts, and silty clays. The sands are generally light to dark gray when unweathered and alter to white, brown, and red when weathered. The silts are medium to dark gray and clayey. The clays are light to dark gray, blue-gray, and usually very silty or sandy. The sands, silts, and clays contain enough carbonaceous material at many places to make them dark brown to black. Several holes drilled during this investigation encountered beds of lignite three feet or more thick at depths less than 150 feet. The lignite beds in the Claiborne do not appear to be restricted to specific stratigraphic units, but are dependent upon the depositional environment and subsequent history.

QUATERNARY SYSTEM

Quaternary deposits overlay the Wilcox and Claiborne strata in much of southern and eastern Arkansas. The Quaternary is made up of Pleistocene terrace and loess deposits and Holocene alluvial deposits. The Pleistocene is composed primarily of deposits of river gravel, sand, silt, and clay that lie above the present flood plains. Loess deposits of Pleistocene age cap Crowley's Ridge from Poinsett through Phillips Counties. Holocene alluvial deposits occur along the streams and are made up of gravel, sand, silt, and clay. West of the Arkansas River and Bayou Bartholomew in southern Arkansas, the Quaternary deposits vary from 0 to 90 feet thick and are generally less than 30 feet thick. From Bayou Bartholomew northward and eastward the Quaternary deposits range from 0 to over 200 feet thick and, with the exception of Crowley's Ridge, the deposits are generally over 100 feet thick.

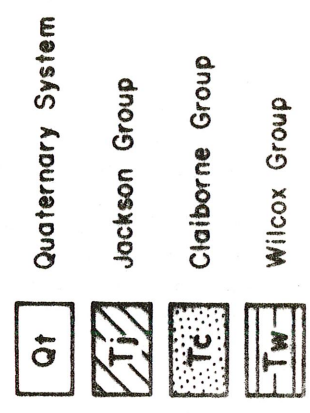
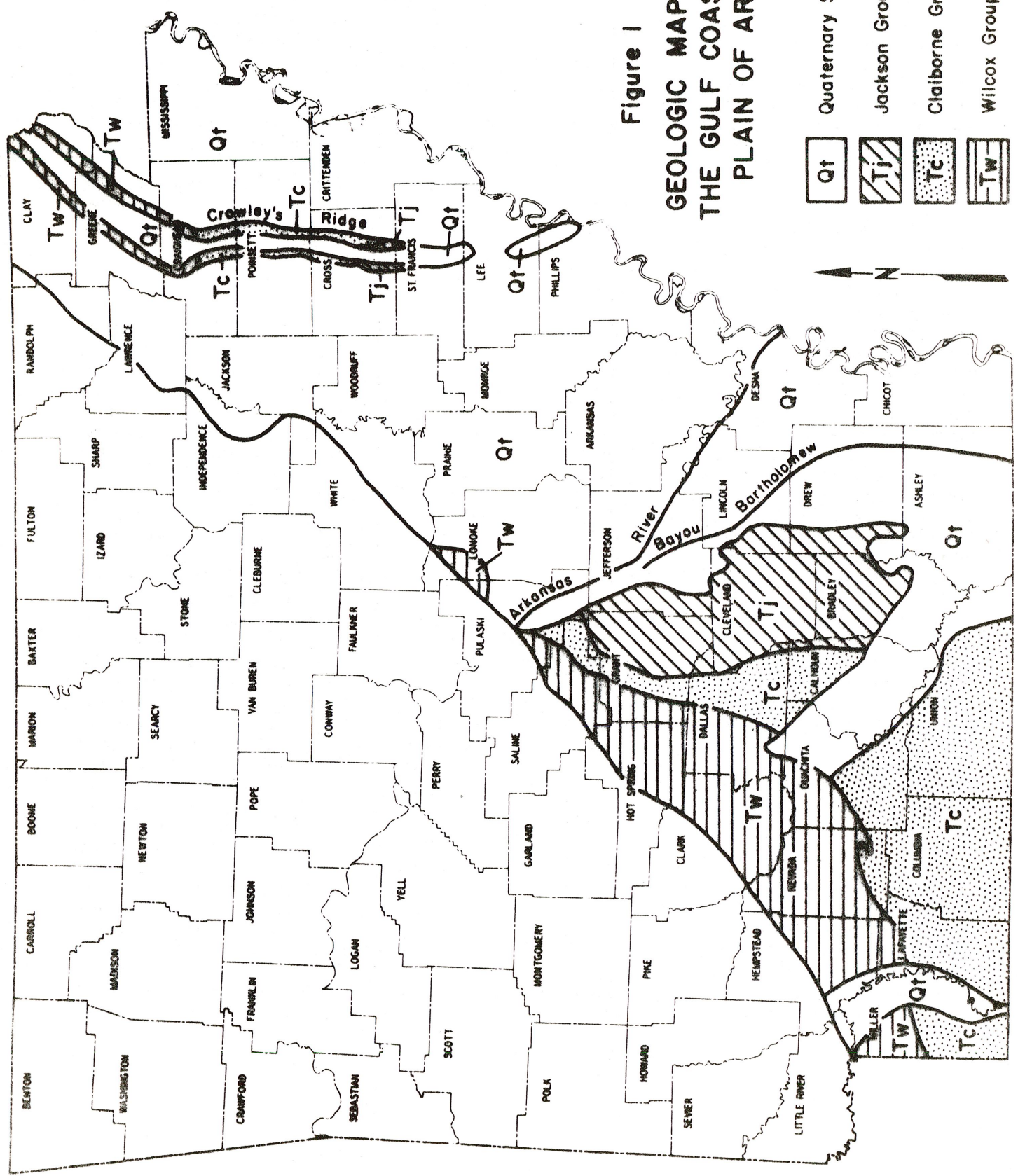
PRESENT INVESTIGATION

The Arkansas General Assembly recognized the importance of lignite as a major energy resource, and appropriated \$100,000 a year for the period 1975-1981 for the Arkansas Geological Commission lignite investigations. It was decided that these funds would be best used by gathering factual data in areas of the state where lignite could be expected to occur at depths of 150 feet or less.

Purpose:

The Commission's staff geologist decided that the primary purposes of this lignite investigation should be to: determine the geographical and geological distribution of lignite occurrences in Arkansas at minable depths; obtain heat and chemical analyses from the deposits encountered; obtain data relating to overburden and ground water; and calculate lignite resources in Arkansas.

Figure 1
**GEOLOGIC MAP OF
 THE GULF COASTAL
 PLAIN OF ARK.**



Methods:

The most practical method to achieve the project goals was with a drilling and coring program. It was decided to begin the drilling program in northeast Arkansas on Crowley's Ridge because in 1975 company exploration was concentrated in south Arkansas. Lignite was known to occur in the Tertiary sediments of Crowley's Ridge from outcrops and drill hole data.

Initially the core drilling was accomplished by a drilling contractor. A field geologist chose the drill site, logged the drill cuttings, picked the intervals to be cored, and described and sampled the cores and packaged them in airtight plastic to prevent loss of moisture. The geologist also operated an electric logging device after the drill hole was completed to record the electrical properties of the rocks. Periodically all information and samples were delivered to the project geologist. The project geologist shipped the lignite core samples to the United State Bureau of Mines laboratory in Pittsburgh, Pennsylvania for proximate and ultimate analyses and a split of the samples were then sent to the U. S. Geological Survey laboratory in Denver, Colorado for trace element analysis. The project geologist also reviewed and made a permanent record of the information and made suggestions for continued operations.

At most locations on Crowley's Ridge the drill encountered Quaternary gravels and coarse sands above the prospective Tertiary beds. In places the Quaternary deposits were as much as 100 feet thick and caused many drilling problems. Drill holes were spaced about one mile apart. When lignite was encountered in beds three feet or more thick, the crew would move the drill a few feet and core the lignite. Drilling and coring data from northeastern Arkansas appear in Appendix A, and analyses of lignite samples are in Appendix C of this report.

In the spring of 1976 the Arkansas Geological Commission purchased a Failing model 1500 drill. In August, 1976, the drill was delivered and the lignite investigation moved to south Arkansas. Much of the company activity at this time consisted of development drilling and did not conflict with the Commission's reconnaissance drilling program. In south Arkansas

holes were drilled along highway rights-of-way at about one mile spacings for the state project. Field and office procedures were essentially the same as for the northeast Arkansas part of the project. In the spring of 1977 another contract drilling company was employed for a few weeks to augment our own drilling. In the summer of 1977 a gamma-ray tool was purchased to be used as a part of our regular electric logging program. The gamma-ray tool records natural gamma radiation contained in the rocks and is used extensively in uranium exploration. Drilling and coring data from south Arkansas are compiled as Appendix B, and analyses of lignite samples are reported as Appendix C in this report.

Results:

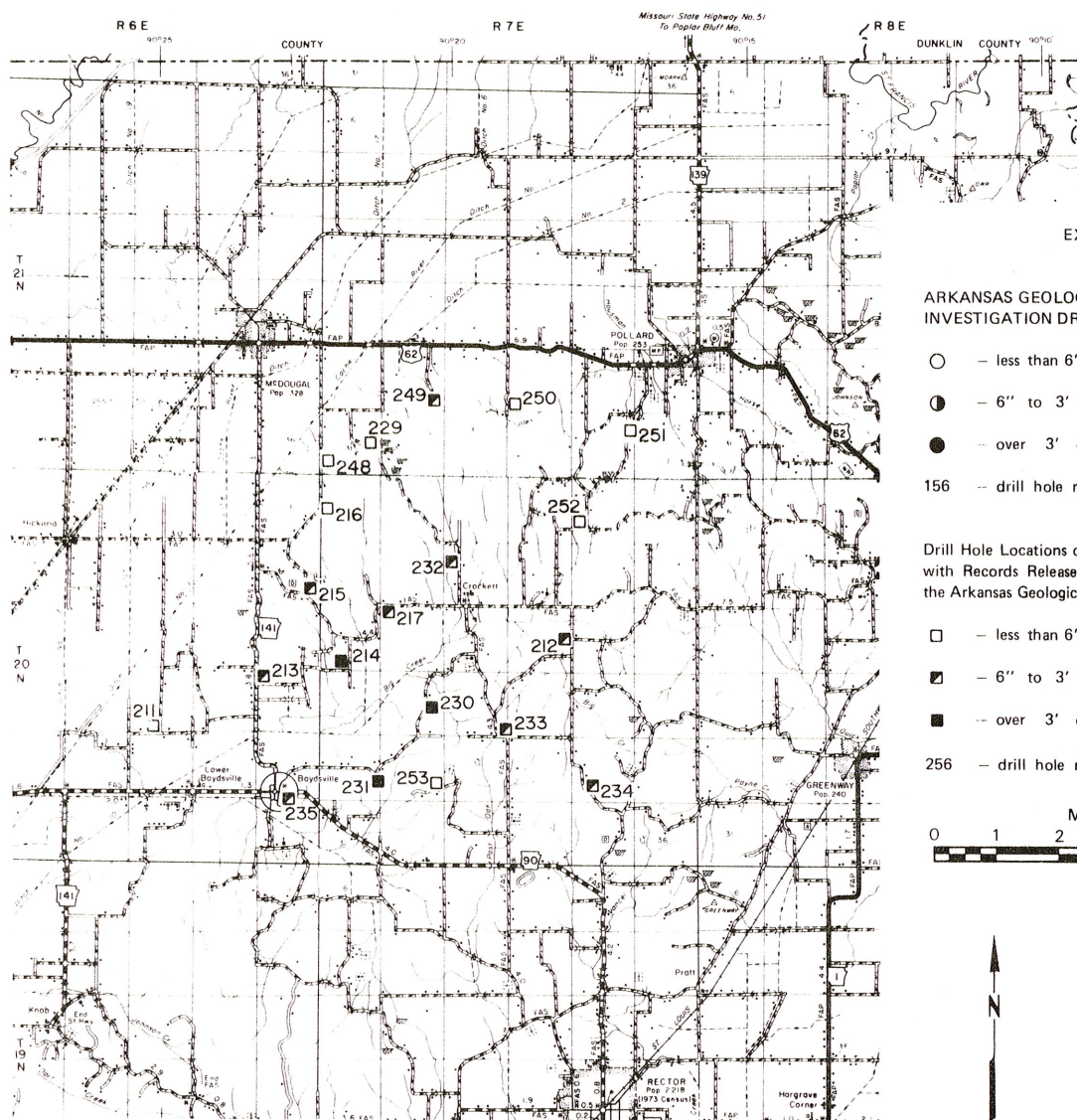
The Arkansas Geological Commission is publishing this preliminary report to distribute the information gained thus far although this project will not be completed before June 30, 1981. Incomplete results indicate that potentially economic deposits of lignite may occur throughout the Wilcox and Claiborne Groups rather than restricted to certain horizons. Prior to January, 1978, 55 lignite samples were taken from 47 core holes and sent to the U. S. Bureau of Mines for proximate and ultimate analyses. The average of the 55 analyses is as follows: on an as received basis, moisture 38%, ash 17%, sulphur 0.6% and 5500 Btu/lb; on a moisture free basis, ash 27%, sulphur 1.0%, and 9000 Btu/lb; on a moisture and ash free basis, sulphur 1.4%, and 12,300 Btu/lb. Sixteen of the samples had an ash content on an as received basis greater than 20%. When these 16 samples are disregarded, the average of the remaining 39 analyses is as follows: on an as received basis, moisture 41%, ash 12%, sulphur 0.6%, and 6000 Btu/lb; on a moisture free basis, ash 20%, sulphur 1.0% and 10,000 Btu/lb; on a moisture and ash free basis, sulphur 1.3% and 12,300 Btu/lb. The moisture content of the lignite samples ranged from 19.4% to 47.9%. On a moisture free basis the sulphur ranged from 0.3% to 5.4% with 40 of the 55 samples containing less than 1% sulphur. The heat value of the lignite on a moisture free basis ranged from 3,115 Btu/lb on a sample with high ash content to 11,874 Btu/lb on a sample with low ash content. Chemical analyses and overburden data are reported in the appendices. Beds of lignite account for 0.8% of all Tertiary age rocks drilled for this project. A resource figure based on this percentage and calculated for an overburden of 150 feet or less is 13.5 billion tons.

APPENDIX A

County location maps and drill logs of northeastern Arkansas

Arkansas Lignite Investigations

Clay County



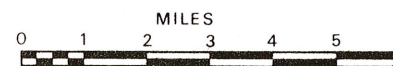
EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- ◐ — 6" to 3' of lignite
- — over 3' of lignite
- 156 — drill hole reference number

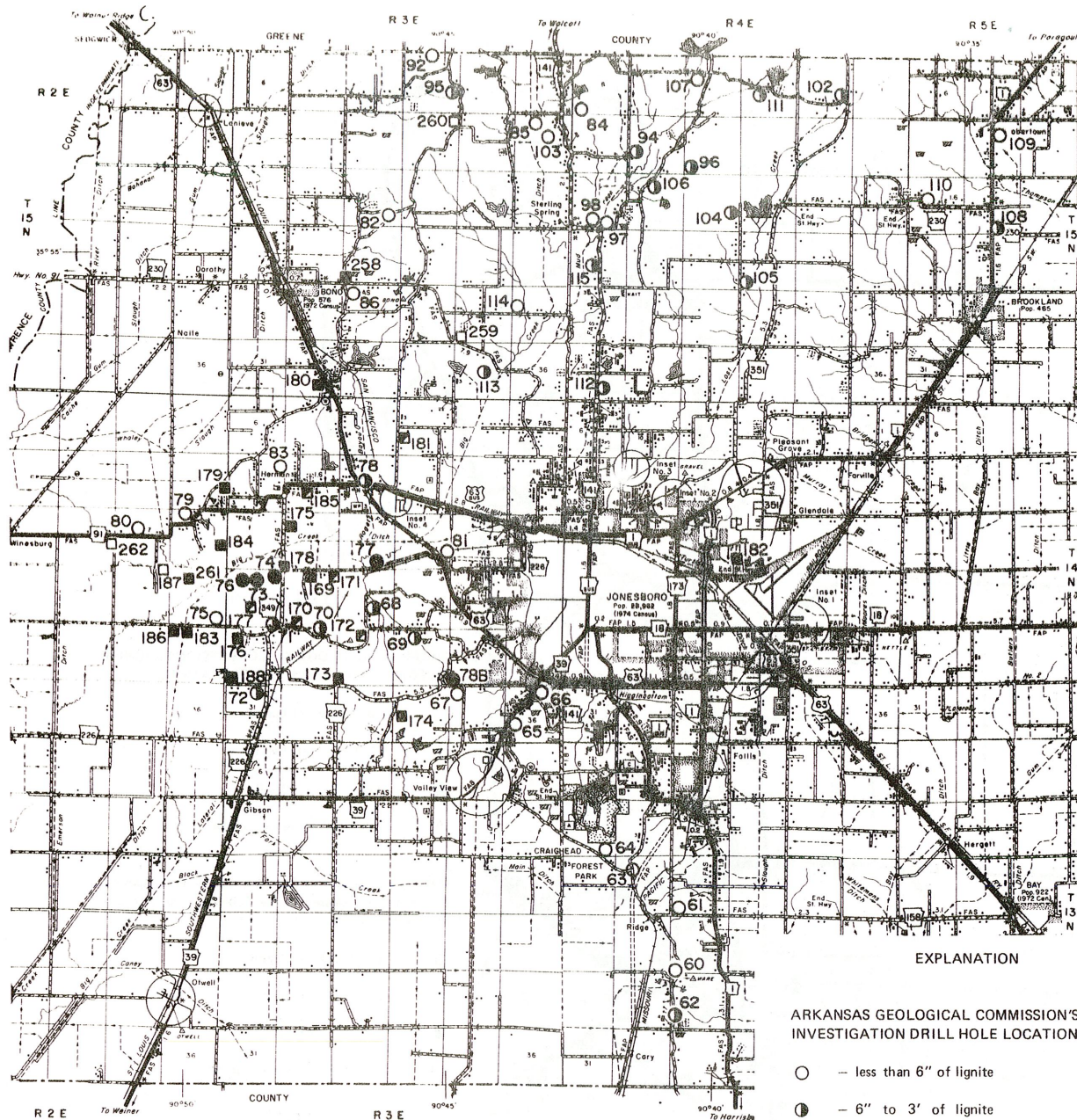
Drill Hole Locations of Company Lignite Investigations, with Records Released to the Public and on File with the Arkansas Geological Commission:

- — less than 6" of lignite
- ◐ — 6" to 3' of lignite
- — over 3' of lignite
- 256 — drill hole reference number



Arkansas Lignite Investigations

Craighead County



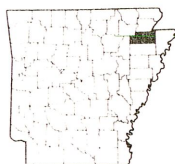
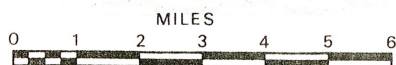
EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite
- 156 — drill hole reference number

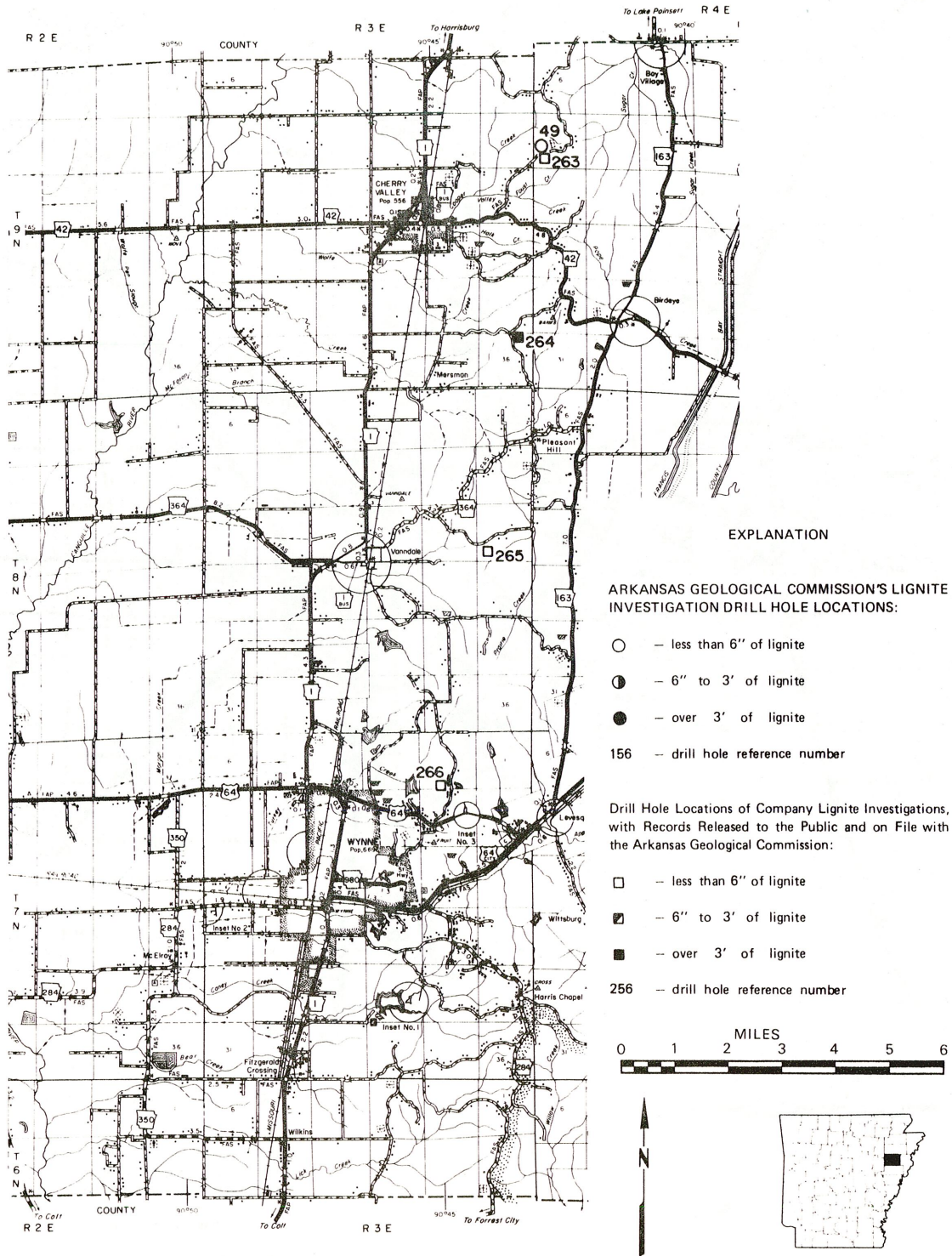
Drill Hole Locations of Company Lignite Investigations, with Records Released to the Public and on File with the Arkansas Geological Commission:

- — less than 6" of lignite
- ▣ — 6" to 3' of lignite
- — over 3' of lignite
- 256 — drill hole reference number



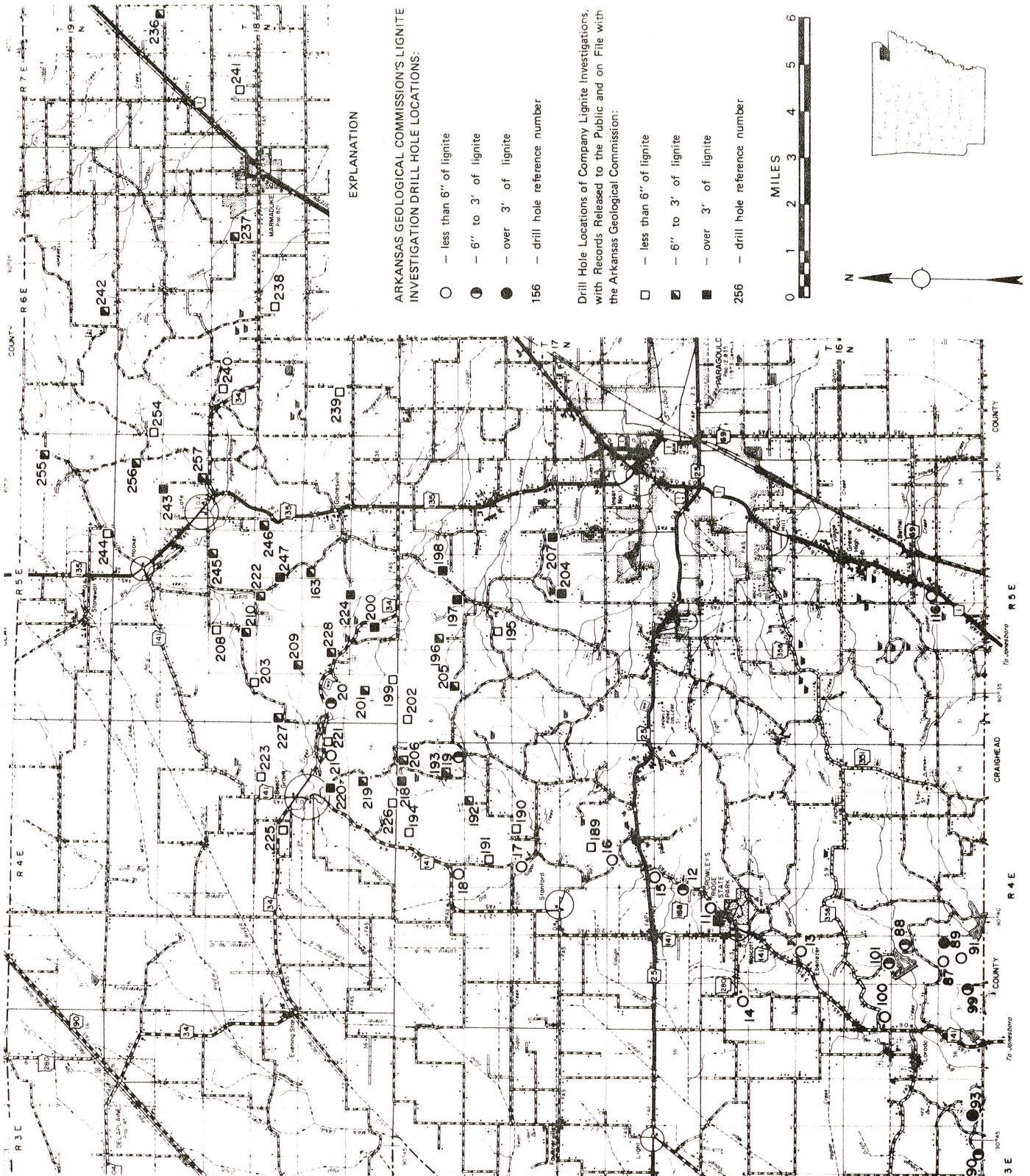
Arkansas Lignite Investigations

Cross County



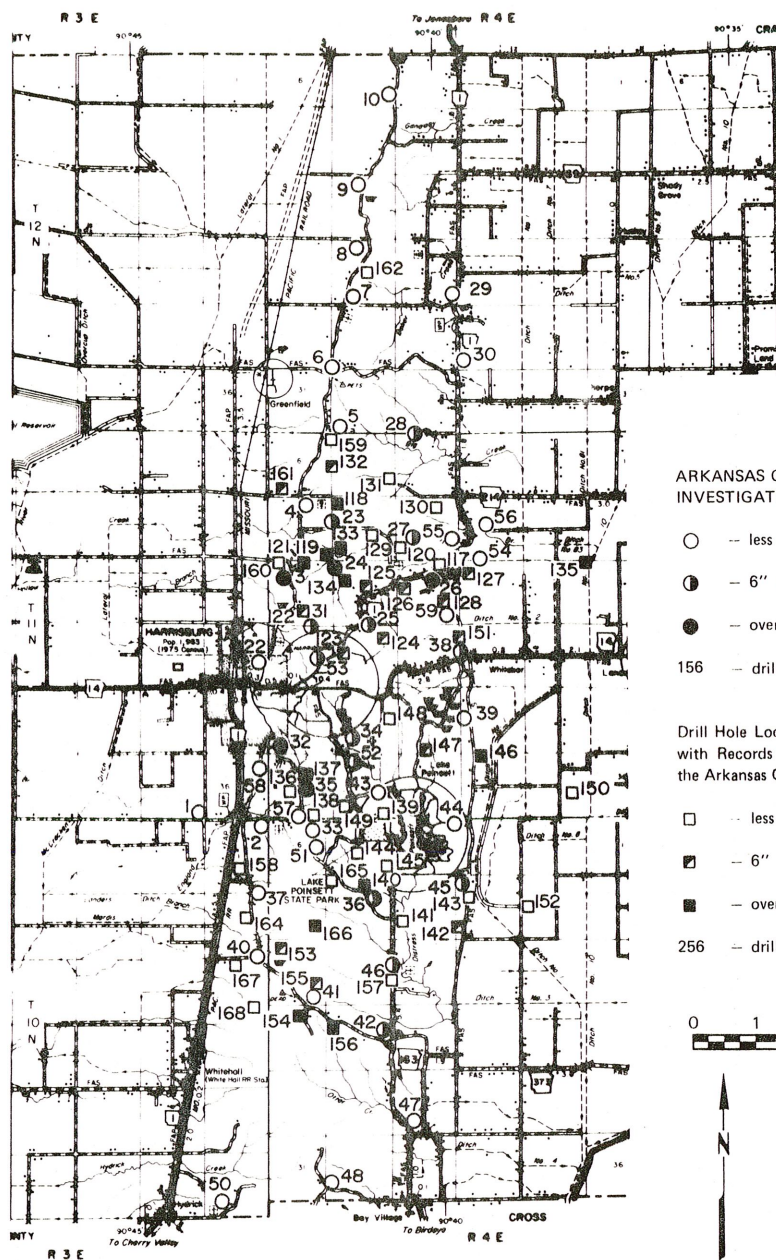
Arkansas Lignite Investigations

Greene County



Arkansas Lignite Investigations

Poinsett County



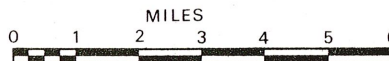
EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- -- less than 6" of lignite
- ① -- 6" to 3' of lignite
- -- over 3' of lignite
- 156 -- drill hole reference number

Drill Hole Locations of Company Lignite Investigations, with Records Released to the Public and on File with the Arkansas Geological Commission:

- -- less than 6" of lignite
- ▣ -- 6" to 3' of lignite
- -- over 3' of lignite
- 256 -- drill hole reference number



ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 1. Elevation 272'
Location: SE¼, Sec. 35, T. 11 N., R. 3 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 25' Clay, brown, silty, with gravel
25'- 40' Clay, brown, sandy, with gravel
40'- 72' Clay, brown, sandy, with some shale fragments
72'- 78' Clay, brown to light-tan, with very fine-grain sand
78'- 90' Clay, brown to light-tan, with coarse sand
90'-115' Sand, fine to medium-grained, with iron staining
115'-126' Sand, very coarse up to 2mm with well-rounded characteristics
126'-136' Clay, light-tan, with sand and chert pebbles
136'-138' Clay, tan
138'-160' Sand, coarse, with chert and with iron staining
160'-190' Sand, coarse, with thin layers of light-gray clay
190'-210' Sand, coarse, with thin layers of light-gray clay
210'-220' Clay, gray and tan, with traces of lignite
T. D.: 220'

Drill Hole No. 2. Elevation 302'
Location: NE¼, Sec. 1, T. 10 N., R. 3 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 7' Clay, light-tan, sandy with iron staining
7'- 12' Clay, light-tan, sandy with iron staining
12'- 17' Clay, light-tan, sandy with iron staining
17'- 21' Sand, small gravel
21'- 24' Sand, light-tan clay, with decrease in gravel
24'- 28' Clay, tan, with large rounded chert
28'- 30' Clay, gray
30'- 35' Clay, gray, with sand (fine)
35'- 40' Clay, gray, with decrease in sand
40'- 50' Clay, gray and tan
50'- 54' Clay, tan and gray, with sand
54'- 58' Clay, tan and gray, with decrease in sand
58'- 74' Clay, tan and gray, silty
74'- 80' Clay, gray, with trace of iron stain
80'- 90' Clay, gray, with iron stain, with trace of lignite
90'- 94' Clay, gray, with increase in sand
94'-100' Clay, sandy, with iron stain
100'-135' Clay, sandy, with iron stain
135'-142' Clay, tan and gray, with sand, with trace of lignite
142'-175' Sand, clay, tan, with layers
175'-190' Clay, gray and tan, with increase of sand, with trace of lignite
190'-200' Clay, gray and tan, with increase of sand, with trace of lignite
200'-205' Clay, tan and gray, with silt
205'-230' Clay, tan and gray, with silt, and a trace of lignite
230'-238' Clay, tan and gray, with approximately 3 inch siltstone layer at 235'
T. D.: 238'

Drill Hole No. 3. Elevation 352'
Location: NW¼, Sec. 18, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 8' Clay, red, gravel, with sand
8'- 12' Clay, tan, with gravel

12'- 14' Clay, tan and gray, with gravels
14'- 16' Clay, tan and gray, with a decrease in sand
16'- 22' Clay, tan and gray, with sand
22'- 40' Clay, tan and gray, with iron staining
40'- 50' Clay, tan and gray, with iron staining
50'- 58' Clay, tan and gray, with iron staining and a trace of lignite
58'- 66' Clay, gray, with a thin layer of lignite @65%, approximately 6"
66'- 70' Clay, gray, with sand
70'- 80' Cored interval, ten feet:
Recovered: 5.0 feet Lost: 5.0 feet
3.2' Lignite, dark-layered carbonaceous material, clay, light-gray and tan, with sand, and good zoning
1.3' Lignite
0.5' Lignite with layers of clay, gray
80'- 82' Lignite, with dark-gray clay
82'-117' Clay, blue-gray, with trace of lignite
117'-135' Clay, blue-gray, with sand
135'-150' Clay, blue-gray, with sand
T. D.: 150'

Drill Hole No. 4. Elevation 310'
Location: NE¼, Sec. 7, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 10' Gravel, clay, tan, with sand
10'- 13' Clay, gray, with sand
13'- 22' Clay, dark gray, with carbonaceous material
22'- 32' Clay, light-gray to blue, slightly silty
32'- 40' Clay, gray, silty
40'- 70' Same
70'-100' Sand, gray to white, fine-grained
100'-113' Clay, gray, with sand, lignite at 112', approximately 4 inches
113'-120' Clay, gray, sandy
120'-150' Clay, gray, sandy with carbonaceous material
T. D.: 150'

Drill Hole No. 5. Elevation 380'
Location: SW¼, Sec. 32, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 6' Clay, tan, gravel
6'- 8' Clay, tan, sand, gravel
8'- 10' Clay, tan, sand
10'- 12' Clay, red, sand
12'- 13' Clay, tan, sand
13'- 18' Sand, fine-grained
T. D.: 18'

Drill Hole No. 6. Elevation 367'
Location: NE¼, Sec. 31, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 5' Weathered surface material
5'- 10' Clay, tan, sand and gravel
10'- 12' Clay, tan to gray, with sand and gravel
Gravel
12'- 18' Clay, gray, with sand
18'- 20' Clay, gray, with very-fine sand
20'- 27' Sand, white
27'- 50' Clay, gray, sand
50'- 70' Clay, tan and gray
70'- 90' Clay, tan and gray
90'-100' Clay, tan and gray
100'-120' Clay, tan and gray, with sand
120'-150' Clay, tan and gray, with sand
T. D.: 150'

Drill Hole No. 7. Elevation 365'
Location: SW¼, Sec. 20, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 5' Clay, tan and red, with sand
5'- 10' Clay, tan, with sand
10'- 15' Clay, gray, with sand
15'- 21' Sand, gray, with clay
21'- 50' Sand, gray, with clay
50'-100' Sand, gray with thin layers of gray clay
100'-150' Sand, gray, with thin layers of gray to blue clay
T. D.: 150'

Drill Hole No. 8. Elevation 300'
Location: NW¼, Sec. 20, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 9' Clay, tan, with gravel
9'- 11' Clay, gray, with sand and gravel
11'- 22' Clay, tan and gray, with sand and gravel
22'- 40' Clay, gray, with sand
40'- 62' Sand, gray, w/some clay layers
62'- 75' Sand, gray, w/some clay layers
75'-100' Sand, gray, w/some clay layers
100'-120' Sand, gray, with black specks of carbonaceous material
120'-150' Same
T. D.: 150'

Drill Hole No. 9. Elevation 278'
Location: NE¼, Sec. 17, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 7' Clay, brown, with sand
7'- 12' Gravel
12'- 14' Clay, gray to tan, with silt
14'- 27' Clay, gray, with sand
27'- 30' Clay, gray, with sand
30'- 33' Clay, dark-gray, lignite, approximately 1 to 2 inches
33'- 36' Clay, gray, with very-fine sand
36'- 60' Sand, gray, very-fine
60'-147' Sand, gray, with some clay, gray
T. D.: 147'

Drill Hole No. 10. Elevation 290'
Location: SE¼, Sec. 5, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 10/75.

0'- 10' Weathered top soil with red clay
10'- 27' Gravel, sand
27'- 28' Clay, gray, with sand
28'- 35' Sand, gray, with thin clay layers
35'- 40' Gravel, well-rounded, clay, gray, with sand
40'- 50' Gravel, sand, clay, white
50'- 60' Sand, very-fine
60'- 70' Clay, light-gray, with sand
70'- 80' Clay, light-gray, with very-fine sand
80'- 90' Same
90'-100' Clay, tan and gray, with sand
100'-120' Clay, light-gray to tan, with very-fine sand
120'-125' Clay, gray, carbonaceous with trace of lignite
125'-135' Clay, dark-gray, with sand, with trace of lignite
135'-145' Cored interval, ten feet
Recovered: 0 feet Lost: 10 feet
145'-150' Clay, dark-brown, with lignite partings
150'-180' Clay, gray, with medium-grained sand
T. D.: 180'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 11. Elevation 340'
Location: NE¼, Sec. 4, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 5' Weathered topsoil, clay, brown, with gravel
5'- 10' Clay, gray, with sand and gravel
10'- 19' Siltstone, approximately 2 inches, clay, gray, with sand
19'- 23' Clay, tan to gray, @ 20' lignite, approximately 2 inches
23'- 28' Gravel, sand, well-rounded
28'- 32' Clay, tan to gray, with sand
32'- 38' Sand, 2 inches, at 32 feet, gravel with sand
38'- 40' Gravel, pebble, with sand
40'- 44' Sand, gray
44'- 46' Sand, clay, white
46'- 50' Gravel, clay
50'-116' Sand, very-fine, white
116'-120' Sand, trace of lignite
120'-122' Sand, very-fine, clay, gray
122'-134' Clay, dark-gray, with silt
134'-150' Clay, dark-gray, with silt
T. D.: 150'

Drill Hole No. 12. Elevation 382'
Location: SW¼, Sec. 34, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 7' Gravel, (pebble size), with sand
7'- 16' Gravel, clay, tan, with sand
16'- 52' Sand, very-fine, trace lignite at 47'
52'- 64' Sand, clay, silty, gray
64'- 75' Clay, gray, with trace of lignite
75'-106' Clay, gray
106'-114' Clay, dark-gray, silty
114'-116' @ 115' lignite, approximately 6-12 inches, clay, gray, silty
116'-138' Clay, gray, silty
138'-140' @ 138' lignite, approximately 2 feet
140'-160' Clay, trace lignite
T. D.: 160'

Drill Hole No. 13. Elevation 405'
Location: NW¼, Sec. 17, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 30' Clay, reddish-brown
30'- 37' Clay, tan and gray, with gravel
37'- 64' Gravel, sand, very-fine
64'- 80' Clay, tan, with trace of lignite
80'- 88' Clay, sandy
88'- 93' Sand, fine
93'- 98' Clay, white, silty with sand
98'-110' Clay, white, with trace of lignite
110'-136' Sand, gravel
136'-150' Clay, gray
150'-160' Clay, gray, with sand
T. D.: 160'

Drill Hole No. 14. Elevation 290'
Location: SW¼, Sec. 6, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 20' Clay, silty, tan and gray
20'- 25' Clay, light-gray, with sand
25'- 28' Sand
28'- 37' Sand
37'- 50' Sand, coarse
50'- 79' Sand, fine, gray
79'-79.2' Lignite stringer
79.2'- 98' Sand, gray, fine-grained
98'-116' Sand, coarse
116'-160' Clay, silty, gray
160'-180' Clay, silty, gray
180'-181' Siltstone

181'-190' Clay, silty, gray
T. D.: 190'

Drill Hole No. 15. Elevation 335'
Location: SW¼, Sec. 27, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 14' Sand, dark, tan, clay
14'- 35' Sand, coarse, gravel
35'- 86' Sand, white, very fine
86'-94.5' Clay, light gray, with sand, with trace of lignite
94.5'-95' Lignite
95'-106' Clay, light gray
106'-110' Clay, with trace of lignite, carbonaceous
110'-126' Clay, light-gray, with sand
126'-140' Sand, hard layer with clay, gray
140'-150' Clay, light-gray, with sand, fine
T. D.: 150'

Drill Hole No. 16. Elevation 420'
Location: NW¼, Sec. 27, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 6' Sand, red, clay
6'- 12' Sandstone, tan, clay with gravel
12'- 34' Sand, fine-grained, with trace of lignite
34'- 58' Sand, fine-grained, with trace of lignite
58'- 80' Sand, with clay, tan, thin layers
80'- 95' Sand
95'-140' Clay, light, layered with sand
140'-150' Sand
T. D.: 150'

Drill Hole No. 17. Elevation 300'
Location: NW¼, Sec. 15, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 6' Sand, gravel
6'- 10' Clay, light-gray, tan with sand and gravel
10'- 31' Sand, light-tan, clay
31'- 47' Sand, tan, gray, clay
47'- 54' Clay, dark-gray, lignite trace, thin layers, approximately 1-2" per layer
54'- 67' Clay, dark-gray, increasing zones
67'- 96' Clay, dark-gray, with sand, @ 67' a 3" seam of lignite
96'- 97' Siltstone, 2-4" layers
97'-150' Sand, dark-gray, clay, silty
T. D.: 150'

Drill Hole No. 18. Elevation 302'
Location: SW¼, Sec. 3, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 25' Clay, light-gray, tan, with sand and gravel
25'- 39' Clay, dark-gray, tan, with sand and gravel
39'- 61' Gravel w/clay, light-tan and gray
61'- 76' Sand, fine-grained
76'-105' Clay, light-gray
105'-113' Sand, light-tan, clay, light-gray layers, with chert conglomerate
T. D.: 113'

Drill Hole No. 19. Elevation 348'
Location: SE¼, Sec. 1, T. 17 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert 11/75.

0'- 6' Sand, gray, clay, with trace of lignite

6'- 10' Sand, gray, clay, with trace of lignite
10'- 16' Sand, light-gray, clay
16'- 35' Sand, with gravel
35'- 36' Sand, coarse
36'- 37' Clay, light-gray, with sand and gravel, with layer of lignite
37'- 41' Clay, gray, with sand, @ 40' lignite
41'- 45' Clay, silty, dark-brown, with stringers of lignite
T. D.: 45'

Drill Hole No. 20. Elevation 365'
Location: SW¼, Sec. 30, T. 18 N., R. 5 E.
County, Greene
Logged by: M. A. Stoyanov 11/75.

0'- 9' Clay, light-tan, sandy with gravel, trace of lignite at 6'
9'- 16' Clay, light-tan to gray, sandy with gravel
16'- 35' Sand, coarse
35'-36.6' Clay, light-gray, sandy and gravel
36.6'-37' Lignite
37'- 45' Clay, dark-brown, with lignite stringers
45'- 90' Clay, dark-gray, silty
90'- 95' Clay, dark-gray, silty with lignite stringers
95'-116' Clay, light-tan, with lignite trace
116'-150' Clay, dark-gray, silty
T. D.: 150'

Drill Hole No. 21. Elevation 330'
Location: NW¼, Sec. 25, T. 18 N., R. 4 E.
County, Greene
Logged by: M. A. Stoyanov 11/75.

0'- 15' Sand, red, tan, with clay
15'- 16½' Gravel
16½'- 52' Sand, red and tan, with clay
52'- 78' Sand, fine, clay, light-tan
78'- 88' Sand, fine, clay, with gravel
88'-110' Clay, light-gray, very sandy
110'-118' Clay, dark-gray, with sand, at 118', trace of lignite
118'-133' Clay, dark-gray, with sand
133'-170' Clay, light-gray, very sandy
T. D.: 170'

Drill Hole No. 22. Elevation 278'
Location: SE¼, Sec. 24, T. 11 N., R. 3 E.
County, Poinsett
Logged by: D. W. Lumbert 11/75.

0'- 10' Clay, tan, gray, with possible trace of lignite
10'- 15' Clay, tan, gray, with silt
15'- 24' Gravel, seam with clay, sandy
24'- 35' Sand with clay, gray
35'- 40' Sand with clay, gray
40'- 50' Sand with gravel
50'- 70' Sand, fine-grained
70'- 78' Clay, gray, with sand, fine grained
78'- 88' Clay, gray, with sand, fine-grained
88'-110' Clay, gray
110'-120' Clay, dark-gray, w/lignite trace
120'-122' Clay, dark-gray, with lignite stringer at 118'
122'-135' Clay, dark-gray, with clay, tan
135'-140' Clay, tan, gray
140'-150' Clay, gray, with sand, fine-grained
150'-160' Clay, gray, with sand, fine-grained
160'-170' Lignite, approximately 1-2", with sand, iron cemented with clay, tan, gray
T. D.: 170'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 23. Elevation 348'
Location: NE¼, Sec. 7, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 1' Humus, with red-clay and sand
1'- 10' Clay, red with scattered pebbles and sand
10'- 19' Clay, red, with gravel
19'- 30' Clay, red to dark-brown, sandy
30'- 62' Clay, light-gray, sandy, with lignite stringers
62'- 69' Lignite with clay, gray
69'- 70' Clay, red to light-gray, sandy
70'- 80' Clay, light-gray to bluish, with sand
80'-114' Clay, light-gray to bluish, with sand
114'-115' Stringer of lignite
115'-150' Clay, light-gray to blue, with silt
T. D.: 150'

Drill Hole No. 24. Elevation 368'
Location: NE¼, Sec. 18, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 1' Humus, with well-rounded gravel
1'- 5' Clay, brown to light-gray, with sand
5'- 10' Clay, silty, red-brown to gray
10'- 20' Clay, light-gray, with iron stains, silty
20'- 40' Clay, light-gray, with iron stains, fine sand, and pea-gravel
40'- 50' Clay, light-gray, with thin layer of iron cemented sandstone
50'- 77' Clay, dark-gray
77'- 88' Clay, dark-gray, with trace of lignite
80'- 90' Cored interval, ten feet:
Recovered: Lost:
10' 0
4.5' Lignite
2.5' Lignite with inter layers of clay, dark gray
3.0' Lignite, with clay, dark-gray, with sand
90'-100' Clay, light-gray to light-blue
100'-120' Clay, blue-gray, with fine sand
120'-150' Clay, blue to tan, with iron stains
T. D.: 150'

Drill Hole No. 25. Elevation 398'
Location: SW¼, Sec. 17, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75

0'- 20' Clay, red with sand, gravel
20'- 30' Clay, red to tan, with sand, iron cemented and well consolidated
30'- 40' Clay, dark-brown, with sand
40'- 49' Clay, dark-brown, with sand and narrow lignite seams
49'- 60' Clay, dark-brown, with sand
60'- 62' Lignite
62'- 86' Clay, light to dark-blue, with sand
86'-104' Clay, blue to dark-gray, with sand
104'-129' Clay, blue to dark-gray, with sand and narrow lignite seams
129'-144' Clay, blue to dark-gray, with sand
144'-150' Clay, dark blue to dark-gray, with sand
T. D.: 150'

Drill Hole No. 26. Elevation 350'
Location: NE¼, Sec. 16, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 6' Clay, red, with sand
6'- 22' Sand, coarse with pea-gravel
22'- 35' Sand and gravel
35'- 41' Clay, light-gray, sandy, with trace of lignite
41'- 42' Lignite
Core 42'- 50' No recovery, estimated 30% clay, 70% lignite
Core 49'- 50' No recovery due to large gravel falling into hole -- Main lignite deposit between 40'- 50' with little clay--from cuttings. It indicated good grade of lignite.
60'- 70' 25% lignite, 25% sand, and 50% clay
T. D.: 70'

Drill Hole No. 27. Elevation 365'
Location: SE¼, Sec. 9, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 27' Clay, red, with very fine-grained sand
27'- 40' Sand, very fine-grained, with iron stained gravel
40'- 41' Gravel, with white clay and sand
41'- 44' Gravel, fine-grained sand, and white clay with a trace of lignite
44'- 50' Sand, very fine-grained and white clay
50'- 63' Clay, gray, with sand with trace of lignite. At this point, casing was installed to eliminate the gravel problem. We cleaned the hole in purpose to obtain a good recovery on the core.
63'- 73' Core Interval 10'
Recovered: Lost:
10' 0
63'- 64.5' Lignitic clay
64.5'-66.8' Lignite, 2.3'
66.8'- 68' Lignitic clay
68'- 73' Sand, with gray clay
73'-140' Clay, gray, with very fine sand
T. D.: 140'

Drill Hole No. 28. Elevation 264'
Location: SE¼, Sec. 33, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand and gravel
10'- 20' Gravel
20'- 40' Clay, red, with gravel
40'- 60' Clay, light-tan to white, with very fine sand
60'- 70' Clay, gray, with trace of lignite
70'- 80' Clay, gray
80'- 82' Clay, dark-gray, with approximately 6 inches of lignite
82'- 86' Clay, dark-gray, to black (lignitic)
86'-89' Clay, dark-gray to black (lignitic) with sand
89'- 92' Clay, light-gray, with very-fine sand
92'- 98' Clay, blue-gray, with sand
98'-130' Clay, blue to light-gray, w/sand
T. D.: 130'

Drill Hole No. 29. Elevation 254'
Location: SE¼, Sec. 21, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 21' Clay, dark-tan, with sand

21'- 37' Clay, light-gray, kaolin
37'- 40' Clay, changing to dark-gray
40'- 50' Clay, changing to light-gray
50'- 60' Clay, silty, changing to blue-green
60'- 62' Lignitic clay, dark-gray, with sand, very-fine, silty
62'-110' Clay, dark-gray, with sand, with trace of lignite
110'-150' Clay, gray, with sand, with trace of lignite
T. D.: 150'

Drill Hole No. 30. Elevation 274'
Location: SW¼, Sec. 27, T. 12 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 52' Clay, reddish-brown, with sand and gravel
52'-118' Sand, with clay, red, white, tan, with lignite trace
118'-120' Clay, gray, with sand
120'-150' Sand, gray
T. D.: 150'

Drill Hole No. 31. Elevation 398'
Location: SE¼, Sec. 18, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 20' Clay, red, with sand
20'- 30' Clay, red, with sand increasing
30'- 50' Sand
50'- 60' Sand, very-fine
60'- 95' Sand, tan and gray, with clay
95'-105' Clay, gray, with trace of lignite
105'-118' Clay, with lignite, thin layers
118'-120' Clay, tan, gray, with sand
120'-130' Sand, with clay, dark-gray
130'-140' Sand, with lignite, thin layers
140'-150' Cored interval 10'
Recovered: Lost:
6' 4'
2.5' Lignite
1.5' Lignite, clay layers, dark-gray
2.0' Clay, dark-gray
T. D.: 150'

Drill Hole No. 32. Elevation 362'
Location: SW¼, Sec. 30, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand
10'- 20' Clay, white
20'- 44' Clay, white, with sand
44'- 48' Clay, gray, with sand, @ 45' - 47.5' lignite
48'- 51' Clay, white, with sand
51'- 70' Clay, white, with sand, very-fine
70'- 74' Clay, white, with lignite, 2-4"
74'- 90' Clay, brown, white, with sand
90'-100' Clay, dark-gray, with sand, very-fine
100'-108' Clay, gray, with very-fine sand
108'-110' Lignite
110'-138' Clay, gray, with very-fine sand
138'-140' Clay, dark-gray, with sand
T. D.: 140'

Drill Hole No. 33. Elevation 355'
Location: NE¼, Sec. 6, T. 10 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 10' Clay, red, sandy with gravel
10'- 20' Sand, red, small
20'- 30' Sand, white, small
30'- 40' Clay, red, sandy, with gravel
ABANDONED HOLE

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 34. Elevation 340'
Location: SW¼, Sec. 29, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Sand, red, silty
10'- 20' Sand, black, w/clay, dark-gray
20'- 30' Clay, dark-gray, with sand
30'- 40' Clay, dark-gray, with sand, with trace of lignite
40'- 70' Clay, dark-gray, with sand
70'- 80' Clay, gray, with sand, very-fine
80'- 97' Clay, blue-gray, with sand
97'-97.3' Lignite
97.3'-148' Clay, blue-gray
148'-150' Lignite
150'-160' Clay, dark-gray, clay, blue
T. D.: 160'

Drill Hole No. 35. Elevation 306'
Location: SE¼, Sec. 31, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Sand, tan, with tan clay
10'- 20' Clay, with gravel, sandy
20'- 40' Clay, dark-gray
40'- 50' Clay, light-gray to tan, with fine sand
50'- 58' Clay, light to dark-gray, with trace of lignite
58'- 60' Clay, light to dark-gray, with very-fine sand
60'- 73' Clay, dark-gray, w/trace of lignite
73'- 83' Cored Interval 10'
Recovered: Lost:
10' 0'
4.5' Lignite, with clay intervals
2.7' Lignite, with clay and increase in silt
2.8' Lignite, w/clay, dark-gray
83'- 87' Clay, dark-brown
87'- 90' Clay, blue-gray with sand
90'-150' Sand, very-fine, white
T. D.: 150'

Drill Hole No. 36. Elevation 332'
Location: NE¼, Sec. 8, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Gravel, with sand, clay, red
10'- 20' Sand, yellow, with clay, tan
20'- 30' Clay, yellow to tan, with sand, very-fine
30'- 50' Clay, yellow, with sand
50'- 61' Clay, dark-brown
61'- 65' Lignite @ 61'-62', with clay, dark-brown
65'- 98' Clay, blue-gray, w/sand, very-fine
98'-110' Clay, dark-brown, with sand
110'-148' Clay, dark-brown, with sand, with trace of lignite
148'-150' Clay, blue-gray, with sand
T. D.: 150'

Drill Hole No. 37. Elevation 342'
Location: SE¼, Sec. 1, T. 10 N., R. 3 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 20' Clay, gray, tan, with sand
20'- 26' Gravel
26'- 36' Clay, dark-gray
36'- 50' Clay, dark-brown, with trace of lignite
50'- 60' Clay, gray, with sand
60'-150' Clay, blue-gray, with sand
T. D.: 150'

Drill Hole No. 38. Elevation 310'
Location: SE¼, Sec. 21, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand
10'- 20' Sand
20'- 48' Clay, tan, with sand
48'- 50' Clay, tan and gray, lignite trace, sand with wood parts
50'- 70' Clay, tan and gray, with sand
70'-102' Clay, gray, with sand
102'-103' Sand with lignite partings
103'-110' Sand, with clay, gray
110'-120' Clay, blue-gray, with sand
120'-130' Clay, blue-gray, with sand and 6" of siltstone, hard white
130'-150' Clay, blue-gray, with sand
T. D.: 150'

Drill Hole No. 39. Elevation 260'
Location: NW¼, Sec. 27, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Gravel
10'- 20' Clay, light-gray, with sand
20'- 30' Clay, dark-gray, with sand
30'- 40' Clay, gray, with sand
40'- 60' Clay, dark-gray, with sand
60'- 70' Clay, light-gray, with sand
70'- 90' Clay, blue-gray, with sand
90'-100' Sand, light-gray
100'-120' Clay, light-gray, with sand
120'-130' Clay, blue-gray, with sand
130'-160' Clay, light-gray, with sand
T. D.: 160'

Drill Hole No. 40. Elevation 358'
Location: SE¼, Sec. 12, T. 10 N., R. 3 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand and gravel
10'- 20' Gravel and clay, tan, with sand
20'- 40' Clay, white, with sand
40'- 50' Clay, dark-gray
50'- 70' Clay, dark-gray, with trace of lignite
70'-100' Clay, light-gray, with sand
100'-118' Clay, light-gray, tan and yellow, with sand
118'-120' Clay, white and light-gray, with sand
120'-140' Clay, white, with sandstone
140'-150' Clay, dark-gray, with sand
T. D.: 150'

Drill Hole No. 41. Elevation 448'
Location: SE¼, Sec. 18, T. 10 N., R. 5 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 10' Clay, tan, with sand, very-fine
10'- 20' Sand, tan, very-fine, with clay
20'- 40' Gravel
40'- 70' Sand and gravel
T. D.: 70'

Drill Hole No. 42. Elevation 332'
Location: NE¼, Sec. 20, T. 10 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 20' Clay, red, w/sand, very-fine, and pea-size gravel
10'- 20' Sand and gravel
20'- 60' Clay, white, w/sand, very-fine
60'- 80' Clay, silty, brown, lignite stringers @ 68' and 71'
T. D.: 80'

Drill Hole 43. Elevation 340'
Location: SE¼, Sec. 32, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 10' Sand, tan, very-fine w/clay

10'- 20' Clay, gray, with very-fine sand, @ 18' lignite 3"
20'- 30' Sand, very-fine, with clay, dark-brown
30'-60' Clay, dark-gray, w/sand, very-fine
60'-70' Sand, very-fine with clay, dark-brown, trace of lignite
70'- 80' Clay, blue-green, w/sand, very-fine
80'- 90' Clay, dark-gray, with lignite stringer
90'-120' Clay, blue-green, with sand, very-fine
120'-130' Clay, blue-green, with sand, very-fine, 4" hard siltstone
130'-150' Clay, blue-green, with sand, very-fine
T. D.: 150'

Drill Hole No. 44. Elevation 360'
Location: NE¼, Sec. 4, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand
10'- 20' Pea gravel, sand and tan clay
20'- 30' Clay, dark to light-tan to red, with sand
30'-40' Clay, dark-brown, with sand and trace of lignite at 40'
40'- 50' Clay, dark-brown, with sand
50'- 60' Clay, dark-brown
60'- 70' Clay, dark-brown, with stringer of lignite @ 63'
70'-100' Clay, dark-gray, with sand
100'-130' Clay, light-gray
T. D.: 130'

Drill Hole No. 45. Elevation 342'
Location: NW¼, Sec. 10, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red to brown, with gravel and sand
10'- 30' Clay, light-tan, with very-fine sand
30'- 40' Clay, dark-brown, with very-fine sand and lignite stringer at 39'
40'- 50' Clay, dark-gray, with lignite stringer at 43'
50'- 56' Clay, dark-gray
56'- 58' Lignite, and clay, dark-gray, with sand
58'- 60' Clay, dark-gray, with sand
60'- 80' Clay, light-gray, with sand
80'-120' Clay, bluish-green, with sand
120'-140' Clay, tan, with sand
140'-150' Clay, blue-green, with sand
T. D.: 150'

Drill Hole No. 46. Elevation 258'
Location: SE¼, Sec. 16, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red, with sand and gravel
10'- 20' Gravel, pea-size, with clay, tan, and sand
20'- 28' Clay, red, with sand
28'- 30' Clay, dark-gray, with sand
30'- 36' Gravel
36'- 40' Clay, dark-gray, with sand, trace of lignite at 39'
40'- 50' Clay, dark-brown, with sand
50'- 51½' Lignite
51½'-55' Clay, dark-gray, with sand
55'- 70' Clay, light-gray, with sand
70'- 80' Clay, bluish-green, with sand
80'-100' Clay, bluish-green with lignite stringers @ 86' and 98'
100'-130' Clay, bluish-green, with sand and clay, white
130'-150' Clay, bluish-gray, with sand
T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 47. Elevation 245'
Location: SW¼, Sec. 28, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 5' Clay, red to tan, with sand
5'- 10' Clay, bluish-gray, tan, with sand
10'- 40' Clay, tan, with sand
40'- 50' Clay, dark-gray, with sand,
lignite at 48' 2" thickness
50'- 60' Clay, dark-gray, with sand, very-
fine
60'- 70' Clay, tan and gray, with sand
70'- 80' Sand, salt and pepper
80'- 90' Sand, with clay, light-gray,
trace of lignite at 83'
90'-100' Clay, gray to dark-brown, with
trace of lignite in thin layers
100'-110' Clay, bluish-green, with sand
110'-120' Clay, light-gray
120'-130' Clay, dark-brown, with trace of
lignite in thin layers
130'-150' Clay, bluish-green, with sand
T. D.: 150'

Drill Hole No. 48. Elevation 407'
Location: SE¼, Sec. 31, T. 10 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 12/75.

0'- 10' Clay, red to tan, with very-fine
sand
10'- 20' Clay, dark-tan, with very-fine
sand
20'- 30' Clay, red to dark-tan, with sand
30'- 34' Sand, with clay, red to tan
34'- 37' Gravel, small, with sand and
clay, red
37'- 45' Sand, salt and pepper
45'- 50' Sand, black and white, with
gravel
50'- 60' Sand, large
60'- 79' Sand, iron cemented
79'- 90' Clay, dark-gray, with very-fine
sand
90'-112' Clay, dark-brown, with very-fine
sand
112'-115' Clay, bluish-gray, with sand
115'-115'3" Lignite, 3 in., hard
115'3"-116' Clay, bluish-green to gray, with
sand
116'-120' Clay, bluish-gray, lignite trace
120'-130' Clay, blue, light-gray, lignite
trace
130'-150' Clay, blue-gray, with sand,
lignite traces
T. D.: 150'

Drill Hole No. 49. Elevation 445'
Location: SW¼, Sec. 7, T. 9 N., R. 4 E.
County, Cross
Logged by: D. W. Lumbert 12/75.

0'- 30' Clay, dark-tan, with sand
30'- 40' Clay, reddish brown, with sand
40'- 50' Sand, salt and pepper
50'- 60' Sand
60'- 66' Gravel, pea-size, with sand
66'- 70' Gravel, pea-size
70'- 80' Clay, red and tan, with very-
fine sand
80'- 90' Sand and gravel
T. D.: 90'

Drill Hole No. 50. Elevation 402'
Location: SW¼, Sec. 36, T. 10 N., R. 3 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 10' Sand and gravel, red

10'- 40' Sand, coarse with gravel
40'- 90' Clay, white, with sand
90'-100' Clay, light-brown, with sand
100'-110' Pea gravel
110'-120' Clay, light-gray, with sand
120'-128' Sand, dark-gray, with clay
128'-150' Clay, dark-gray, with sand
T. D.: 150'

Drill Hole No. 51. Elevation 355'
Location: NE¼, Sec. 6, T. 10 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 6' Clay, dark-tan, with sand and
gravel
6'- 8' Pea gravel
8'- 9' Clay, red with sand
9'- 20' Gravel, pea-sized
T. D.: 20'

Drill Hole No. 52. Elevation 388'
Location: NW¼, Sec. 32, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 10' Clay, dark-tan, with sand
10'- 30' Clay, red, with sand
30'- 40' Clay, light-tan, with sand
40'- 57' Clay, white, with sand
57'- 67' Clay, dark-brown, with sand
67'- 70' Clay, dark-gray, with sand
70'- 70'6" 6 inch lignite stringer
70'6"-160' Clay, dark-gray, with sand
160'-200' Clay, blue-green, with silt
T. D.: 200'

Drill Hole No. 53. Elevation 386'
Location: SE¼, Sec. 19, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 38' Clay, dark-tan, with sand
38'- 42' Pea-gravel and sand
42'- 60' Clay, brown to tan, with sand
60'- 72' Pea gravel
72'- 75' Lignite, with sand
75'- 88' Clay, gray, with sand
88'- 98' Clay, light-tan, with sand
98'-120' Clay, dark-gray
120'-121' Clay, dark-brown, with trace
of lignite
121'-124' Clay, dark-gray, with sand
124'-125' Lignite stringer
125'-163' Clay, gray to blue
163'-174' Clay, dark-gray, with lignite
stringers
174'-194' Clay, dark-gray, with sand
194'-200' Clay, blue-gray
T. D.: 200'

Drill Hole No. 54. Elevation 276'
Location: SW¼, Sec. 10, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 12/75.

0'- 42' Sand, white, tan and red
42'- 69' Sand with silt, and clay, gray
69'- 80' Clay, light-gray, with sand
80'-110' Sand, coarse, light-gray
110'-134' Sand, very-fine, light gray
134'- Lignite stringer
134'-190' Sand, very-fine, light-gray
190'-200' Clay, blue-green, with fine sand
T. D.: 200'

Drill Hole No. 55. Elevation 262'
Location: SE¼, Sec. 9, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 1/76.

0'- 4' Clay, brown, with coarse sand
and gravel

4'- 10' Clay, light-gray to tan, with
sand
10'- 20' Clay, light-tan to light-gray,
with coarse sand and large to
medium gravel
20'- 30' Clay, gray to light-gray, with
sand
30'- 35' Clay, gray, with silt and trace
of lignite
35'- 42' Clay, dark-gray, with silt
42'- 50' Clay, blue-gray with silt
50'-110' Clay, blue-gray and tan, with
silt and fine sand
T. D.: 110'

Drill Hole No. 56. Elevation 240'
Location: NW¼, Sec. 10, T. 11 N., R. 4 E.
County, Poinsett
Logged by: D. W. Lumbert 1/76.

0'- 10' Clay, dark-brown, with sand
and gravel
10'- 20' Clay, brown, with sand and silt
20'- 30' Clay, dark to light-gray, with
sand
30'- 40' Clay, dark to light-gray, with
sand
40'- 50' Black spongy peat
50'- 55' Black spongy peat
55'- 60' Fossil bed containing gastropods
and pelecypods, sand, silt, and
gray-clay
60'-100' Clay, white-light gray, with sand
100'-110' Clay, gray, with silt
T. D.: 110'

Drill Hole No. 57. Elevation 262'
Location: SE¼, Sec. 31, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 1/76.

0'- 18' Clay, dark-tan
18'- 19' Pea gravel
19'- 55' Clay, light-tan, with red silt
55'- 74' Clay, and silt, light-tan to gray,
with trace of lignite
74'- 93' Clay, gray, with silt
93'-107' Clay, gray, with silt and lignite
stringers
107'-112' Clay, dark-brown, lignitic
112'-115' Clay, light-gray to tan
115'-129' Clay, brown, with sand
129'-136' Clay, blue-gray, with silt
136'-190' Sand, very-fine, with lignite
stringer at 154'
T. D.: 190'

Drill Hole No. 58. Elevation 325'
Location: NE¼, Sec. 36, T. 11 N., R. 3 E.
County, Poinsett
Logged by: M. A. Stoyanov 1/76.

0'- 10' Clay, dark-tan to dark-brown,
with sand
10'- 14' Clay, dark-tan, with sand
14'- 15' Gravel
15'- 19' Clay, light-gray to tan
19'- 22' Silt, light-gray
22'- 34' Clay, white, with sand
34'- 36' Clay, brown
36'- 43' Clay, dark-gray
43'- 53' Clay, dark-gray, with lignite
stringers
53'- 59' Clay, dark-gray, with silt
59'- 61' Clay, lignitic
61'- 64' Clay, dark-gray
64'- 69' Clay, lignitic
69'- 97' Clay, dark-gray
97'-110' Clay, dark-brown
110'-120' Clay, light-brown, with silt
120'-130' Clay, light-brown
T. D.: 130'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 59. Elevation 312'
Location: SE¼, Sec. 16, T. 11 N., R. 4 E.
County, Poinsett
Logged by: M. A. Stoyanov 1/76.

0'-22' Sand, dark-tan, with clay
22'-23' Gravel
23'-27' Sand, dark-tan, with clay
27'-34' Clay, light-gray, with sand
34'-39' Clay, light-gray to light-tan, with sand
39'-43' Clay, dark-brown, with sand
43'-48' Clay, gray, with sand and trace of lignite
48'-57' Clay, dark-gray, with sand
57'-71' Clay, dark-brown, lignitic
71'-75' Clay, lignitic, with lignite stringer
75'-96' Clay, light-gray, with silt
96'-150' Clay, blue-green with silt
T. D.: 150'

Drill Hole No. 60. Elevation 388'
Location: NW¼, Sec. 28, T. 13 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov 1/76.

0'-10' Sand, fine, with gravel
10'-20' Sand, very-fine
20'-30' Sand, very-fine, with white to gray clay, and trace of lignite
30'-40' Clay, gray, to brown, with silt
40'-50' Clay, gray, with silt
50'-60' Clay, gray, with silt, very-fine sand, and glauconite
60'-70' Clay, gray and white
70'-90' Clay, blue-green to brown, with silt
90'-100' Clay, light blue to gray, with silt
100'-105' Clay, blue-green, with silt
105'-120' Clay, light-gray, with silt
120'-130' Clay, light blue-gray and white, with silt
130'-160' Clay, light gray-green, with silt
T. D.: 160'

Drill Hole No. 61. Elevation 292'
Location: SW¼, Sec. 16, T. 13 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov 1/76.

0'-4' Clay, light-tan, with sand
4'-20' Clay, dark-tan, with sand and gravel
20'-30' Clay, white, with sand
30'-32' Clay, white to light-gray, with sand
32'-50' Sand, gray, very-fine, with white clay
50'-60' Clay, gray, with sand
60'-118' Clay, gray to light-tan, with sand
118'-137' Clay, dark-gray, with silt
137'-137'4" Siltstone
137'4"-144' Clay, dark-gray, with silt
144'-162' Clay, dark-gray, with silt and sand
162'-166' Clay, gray, with siltstone, sand and trace of lignite
166'-200' Sand, red to tan, with clay and silt
T. D.: 200'

Drill Hole No. 62. Elevation 388'
Location: SW¼, Sec. 28, T. 13 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov 1/76.

0'-5' Clay, dark tan, with sand

5'-10' Sand
10'-17' Gravel
17'-36' Clay, light gray, with silt
36'-38' Clay, dark gray
38'-40' Clay, dark-brown, with silt
40'-48' Clay, gray
48'-57' Clay, blue-gray, with silt
57'-58' Clay, dark-brown, lignitic
58'-64' Clay, gray, with silt
64'-67' Sand
67'-68' Clay, dark-brown, with silt
68'-70' Clay, dark-brown, with trace peat (lignitic)
70'-75' Peat (soft lignite?)
75'-85' Cored Interval 10'
Recovered: 10
Lost: 0
3.5 Lignitic clay
1.5 Lignite
5.0 Clay, gray, with silt
85'-118' Clay, blue-gray, with silt
118'-126' Clay, dark-brown, with silt
126'-134' Clay, blue-green, with silt
134'-150' Clay, light gray, with silt
T. D.: 150'

Drill Hole No. 63. Elevation 362'
Location: NW¼, Sec. 17, T. 13 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov 1/76.

0'-24' Sand and pea-gravel
24'-38' Sand, light-gray, with clay and silt
38'-60' Clay, gray, with silt
60'-70' Clay, gray, with silt and lignite stringer
70'-150' Clay, light-gray, with silt
150'- Sand, white
T. D.: 150'

Drill Hole No. 64. Elevation 372'
Location: SE¼, Sec. 7, T. 13 N., R. 4 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'-40' Sand, large, with gravel, pea-size
40'-45' Sand, large
45'-47' Clay, light gray
47'-50' Sand, large
50'-90' Sand, large, w/gravel, pea size
T. D.: 90'

Drill Hole No. 65. Elevation 409'
Location: SW¼, Sec. 36, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'-20' Sand and gravel, with some clay, dark tan
20'-42' Gravel, pebble-size, with sand
42'-50' Clay, light-gray to tan
50'-70' Sand, with clay, light-gray
70'-138' Sand
138'-145' Clay, light-gray to tan, with sand
145'-150' Clay, red with sand, and very-fine silt
150'-160' Clay, light-gray, with silt
160'-190' Clay, red, with sand and silt
190'-200' Clay, red, with sand
T. D.: 200'

Drill Hole No. 66. Elevation 382'
Location: NE¼, Sec. 36, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'-8' Clay, dark-tan
8'-13' Gravel, pea-size
13'-58' Sand, with clay, tan
58'-80' Clay, light-gray, with sand

80'-100' Sand, light tan, with clay
100'-120' Sand, white to tan
120'-130' Sand, gray to light-gray
130'-170' Sand, gray to light-gray and tan, with clay, gray
T. D.: 170'

Drill Hole No. 67. Elevation 368'
Location: NW¼, Sec. 13, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'-30' Sand and gravel
(CAVE IN)

Drill Hole No. 68. Elevation 282'
Location: SE¼, Sec. 21, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'-16' Clay, dark tan, with silt
16'-20' Clay, tan, with silt and gravel
20'-33' Clay, mottled, with silt
33'-38' Sand, white, with clay, tan
38'-43' Clay, tan, with sand and silt
43'-62' Clay, white, with sand, white, and silt
62'-102' Sand, white to tan, with clay and silt
102'-105' Siltstone layer,
105'-108' Lignitic clay
108'-118' Clay, white to tan, with silt
118'-130' Clay, brown to white, with lignite
130'-138' Clay, white to tan, with silt
138'-156' Clay, gray, with silt
156'-157' Clay, gray, w/lignite and silt
157'-160' Clay, gray, with silt
160'-168' Core interval 8'
Recovered: 8
Lost: 0
160'-163.5' Clay, gray, with silt
163.5'-164' Lignite
164'-165' Clay, gray, with sand and siltstone
165'-168' Clay, gray, with silt
168'-170' Clay, gray, with silt
170'-174' Siltstone, with clay, white
174'-180' Clay, gray, lignite trace
180'-185' Core interval 5'
Recovered: 5
Lost: 0
180'-181' Clay, light-brown, with silt
181'-183' Lignite
183'-184' Clay, light-brown,
184'-185' Clay, light-brown to blue-green, with silt
185'-186' Clay, very-lignitic
186'-190' Clay, blue, with silt
190'-200' Core interval 10'
Recovered: 10
Lost: 0
190'-197.5' Clay, tan and gray, very sandy, with silt
197.5'-198.5' Clay, blue-green, with lignite
198.5'-200' Clay, blue-green
200'-210' Core interval 10'
Recovered: 10
Lost: 0
200'-202' Clay, tan to gray, with silt
202'-203.5' Lignite
203.5'-204' Clay, gray, with lignite
204'-205' Clay, gray, with silt
205'-210' Clay, blue-green
210'-214' Clay, blue-green, with lignite stringer
T. D.: 214'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 69. Elevation 302'
Location: NW¼, Sec. 27, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'- 10' Clay, tan, with medium sand
10'- 12' Clay, light-gray, with medium sand
12'- 20' Clay, tan, with pea-size gravel and sand
20'- 26' Clay, tan, with sand
26'- 27' Gravel, pea-size with clay, tan
27'- 32' Clay, tan, with sand
32'- 40' Clay, light-gray, with sand
40'- 72' Sand, with clay, light-gray
72'- 90' Clay, light-gray, with sand
90'-100' Clay, light-tan, with silt
100'-153' Sand, with clay, light-gray
153'-154.6' Lignite, 6"
154.6'-170' Sand, with clay, tan
170'-180' Sand, with lignite stringers
180'-193' Clay, brown, with silt
193'-200' Silt, lignitic
200'-206' Clay, gray, with silt
206'-206.2' Lignite
206.2'-210' Clay, gray, with silt
210'-220' Clay, gray, with large sand
T. D.: 220'

Drill Hole No. 70. Elevation 320'
Location: NE¼, Sec. 29, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'- 6' Clay, brown-tan, with sand and silt
6'- 8' Gravel
8'- 17' Clay, tan, with silt
17'- 20' Clay, tan, with sand
20'- 30' Sand, tan, medium
30'- 67' Sand, fine, tan
67'- 87' Sand, tan, with clay
87'- 90' Clay, red, with sand
90'- 96' Sand, red
96'-108' Clay, red, with sand
108'-110' Lignite, with brown lignitic clay
110'-115' Clay, tan, with silt
115'-117' Lignite
117'-117.5' Clay, brown, lignitic
117.5'-119' Clay, brown, lignitic, with lignite stringers
119'-124' Clay, tan, with silt
124'-130' Clay, lignitic, with lignite stringers
130'-145' Sand, tan, medium
145'-148' Lignite, with clay, dark-gray
148'-150' Clay, lignitic, brown
150'-198' Clay, very-silty, with sand
198'-200' Lignite, with clay, dark-brown
200'-211' Clay, tan, with silt and sand
T. D.: 211'

Drill Hole No. 71. Elevation 310'
Location: SE¼, Sec. 19, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'- 40' Clay, tan, with silt and trace gravel
40'- 48' Clay, light-gray, with silt and sand
48'- 54' Clay, mottled, with silt and sand
54'- 58' Gravel, with clay, and sand
58'- 65' Clay, light-gray, with silt and sand
65'- 76' Clay, light-gray, with silt
76'- 85' Clay, light-gray, with silt and trace of lignite
85'-100' Clay, light-gray, with silt
100'-142' Sand, light-gray to tan, with clay and sand
142'-159' Sand, light-gray, to white, with

159'-165' minor gravel
Clay, light-gray, with sand and silt
165'-168' Clay, light-gray, with silt and sand
168'-170' Clay, brown, lignitic with lignite stringer
170'-176' Clay, gray, with sand and silt
176'-176.5' Lignite, soft
176.5'-180' Lignite
180'-182' Lignite, soft, with wood fibers
182'-192' Clay, gray, with silt and sand
192'-195' Clay, light-gray, with silt and sand
195'-200' Clay, blue-green, with silt

Core interval 10' (175'-185')
Bagged 2'7" for analysis; the rest was lignitic clay.

Recovered: 10' Lost: 0'

T. D.: 200'

Drill Hole No. 72. Elevation 275'
Location: NE¼, Sec. 31, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'- 24' Clay, tan, with medium sand
24'- 50' Sand, very-fine, with clay, tan
50'- 70' Sand, medium, with clay, light-tan and light-gray
70'- 80' Sand, clean, with clay, tan
80'- 90' Sand, coarse, with clay, tan
90'-124' Sand, clean, medium with very little clay
124'-125' Lignite
125'-148' Clay, light-gray, with sand
148'-163' Clay, dark-gray, with silt
163'- Siltstone, very hard
T. D.: 163'

Drill Hole No. 73. Elevation 275'
Location: NE¼, Sec. 19, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'- 6' Clay, dark tan, with sand
6'- 10' Clay, light tan, with sand and gravel
10'- 16' Gravel, with sand and clay, tan
16'- 40' Sand, with gravel and clay, tan @ 39' Wood fibers
40'- 50' Cored interval-10'
Recovered: 8' Lost: 2'
2.0' Lost
5.0' Lignite
3.0' Clay, dark-gray to bluish-green
50'- 71' Clay, blue-gray, with clay, light gray with silt
71'-102' Sand, salt and pepper
102'-150' Sand, very fine
150'- Clay, blue-green, with silt
T. D.: 150'

Drill Hole No. 74. Elevation 265'
Location: SE¼, Sec. 18, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 2/76.

0'- 18' Clay, tan, with sand
18'- 26' Clay, light-gray to red
26'- 32' Clay, dark-gray, with very-fine sand
32'- 34' Gravel
34'- 46' Sand, very-fine, white and black
46'- 56' Core interval 10'
Recovered: 10' Lost: 0'

5.0' Lignite
2.5' Lignite, with clay, gray
2.5' Clay, gray to bluish-green
56'- 60' Lignite, hard, with clay, light-gray
60'- 70' Clay, blue-gray, with silt
70'- 80' Clay, dark-gray, with silt
80'- 95' Sand, very-fine, tan
95'-110' Clay, dark-gray
110'-112' Sand, very fine, light-tan
112'-113' Siltstone
113'-120' Sand, very-fine, light-tan
120'-130' Clay, light green
130'-140' Clay, light-gray
140'-142' Siltstone
142'-150' Clay, light-gray
T. D.: 150'

Drill Hole No. 74a. Elevation 265'
Location: SE¼, Sec. 18, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'-16' Clay, light tan, with medium sand
16'- 26' Clay, light-gray, with medium sand
26'- 32' Clay, dark-gray, with sand, very-fine
32'- 33' Gravel
33'- 52' Sand, salt and pepper
52'- 55' Lignite
T. D.: 55' - Due to waterline

Drill Hole No. 74-b. Elevation 265'
Location: SE¼, Sec. 18, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 2/76.

0'- 16' Clay, light tan, with sand, medium
16'- 26' Clay, light-gray, with sand, medium
26'- 32' Clay, dark-gray, with sand, very-fine
32'- 33' Gravel
33'- 45' Sand, salt and pepper - H₂O, sand
45'- 52' Lignite, with some clay, light-gray, at 47'
52'- 53' Lignite
53'- 60' Clay, light-gray, with sand, very-fine
60'- 70' Clay, blue-green, with silt
70'- 74' Clay, dark-gray, with sand
74'- 80' Clay, blue-green, with silt
80'- 95' Clay, tan, with sand
95'- 96' Siltstone
96'-112' Clay, dark-gray, with silt
112'-113' Siltstone
113'-126' Sand, with clay, light tan
126'-130' Clay, light-gray, with sand
130'-142' Clay, light-gray, with silt
142'-142½' Siltstone
142½'-150' Clay, gray, with silt
150'-160' Clay, dark-gray, with sand
160'-170' Clay, dark-green, with sand
170'-174' Lignite, with clay, dark-gray
174'-176' Clay, light-gray
176'-186' Clay, blue-green, with sand
186'-197' Clay, dark-gray, with sand
197'-199' Lignite, with clay, dark gray to black
199'-200' Lignite
200'-202' Clay, dark-gray
202'-288' Clay, dark-green to black, with silt
288'-288½' Siltstone
288½'-300' Clay, dark-green to black, with silt
T. D.: 300'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 75. Elevation 275'
Location: SE¼, Sec. 24, T. 14 N., R. 2 E.
County, Craighead
Logged by: M. A. Stoyanov* 2/76.

0'- 4' Sand, tan
4'- 10' Clay, tan to gray, with sand
10'- 38' Clay, tan to light-gray, with silt
38'- 48' Clay, tan and red, with silt
48'- 58' Sand, tan, coarse
58'- 63' Sand, fine, with gravel
*63'- 75' Clay, blue-green, with silt
75'- 78' Clay, gray, with silt
78'- 79' Siltstone
79'- 82' Sand, gray, fine, with clay and silt
82'- 82.3' Siltstone, gray
82.3'-92' Sand, gray, fine with clay and silt
92'-170' Sand, gray, fine with 2" layer of siltstone
170'-183' Sand, gray, fine, with 1" thick stringer of lignite
183'-186' Sand, gray, fine-grained, with 1" siltstone
186'-192' Sand, gray, fine-grained
192'-192.5' Siltstone
192.5'-201.5' Sand, fine-grained, gray
T. D.: 201.5'
*From 63' to T. D. was drillers log only

Drill Hole No. 76. Elevation 267'
Location: NE¼, Sec. 19, T. 14 N., R. 3 E.
County, Craighead
Logged by: B. F. Clardy* 2/76.

0'- 4' Sand, tan, medium-grained
4'- 12' Clay, tan and gray, with silt
12'- 25' Clay, with sand, tan
25'- 26' Gravel
26'- 31' Clay, tan to light-gray, with silt
31'- 38' Clay, gray, with silt
38'- 44' Lignite with some woody material and clay seams
44'- 50' Clay, tan, with silt
50'- 65' Clay, light-gray with silt
65'- 83' Clay, gray, with silt
83'- 83.5' Siltstone
83.5'- 91' Clay, gray, with silt
91'-123' Sand, gray, fine, with 2" layer of siltstone
123'-125' Clay, with silt and sand, fine
125'-125.5' Siltstone
125.5'-54' Clay, gray, with silt and sand, fine
154'-158' Clay, light-gray, with silt
158'-177.5' Clay, gray, with silt and sand, 2" layer of siltstone
177.5'-184' Sand, gray, with clay and silt
184'-195' Clay, gray, with sand, fine
195'-199' Lignite
199'-280' Clay, gray, with silt and sand, fine
280'-289' Clay, gray, with sand, fine
289'-289.5' Siltstone
T. D.: 289.5'

Core (37'-47') 100% recovery
4.2' lignite.

37' - 37.5' Clay, gray, silty w/lignite at 37.5
37.5'- 40.7' Lignite, black, with brown woody streaks
40.7'- 41' Dark gray lignitic silty clay

41'- 42' Lignite
42'- 43' Clay, dark-gray, silty and lignitic
43'- 45' Clay, tan
45'- 47' Clay, gray, silty
Core (190'-200') 50% recovery
190'-195' lost, probably loose sand
195'-199' Sand, glauconitic, gray, and semi-consolidated
199'-200' lignite
*Drillers log only except for core

Drill Hole No. 77. Elevation 270'
Location: SE¼, Sec. 16, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 3/76.

0'- 32' Clay, gray to tan, with brown humus
32'- 48' Gravel, pea-size to pebbles, with sand
48'- 58' Clay, dark-gray, with silt
58'- 70' Sand, medium
70'- 91' Sand, fine, with trace of lignite @ 87'
91'- 94' Lignite, soft, black
94'- 98' Clay, black, very lignitic
98'-100' Clay, light-gray, to white
100'-140' Sand, fine, with lignite stringer @ 129'
140'-150' Clay, bluish-green, with silt
150'-158' Sand, very-fine
158'-170' Sand, very-fine, with clay, blue to gray, @ 167' siltstone
170'-176½' Sand, very-fine, with clay, blue-gray
176½'-182' Lignite stringers, with clay, gray
182'-200' Clay, tan, with silt
T. D.: 200'

Drill Hole No. 78-B. Elevation 345'
Location: Sec. 23, T. 14 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov 3/76.

0'- 24' Clay, light-brown, with silt
24'- 38' Clay, tan, with silt
38'- 40' Sand, coarse
40'- 58' Clay, tan to light-gray, w/silt
58'- 68' Clay, gray to blue-green, with silt
68'- 68.5' Sand and gravel
68.5'- 79' Clay, dark-gray to gray, with silt
79'- 83' Lignite w/clay, brown, lignitic
83'- 88' Clay, dark-brown, with silt
88'-122' Clay, light-gray, with silt
122'-124' Clay, dark-brown
124'-148' Clay, light-gray, with silt
148'-154' Clay, blue-green, with silt
154'-162' Clay, gray, with silt and clay, blue-green
162'-162.5' Siltstone layer, approximately 6"
162.5'-168' Clay, lignitic, with sand
168'-171' Lignite
171'-200' Clay, light-gray, with silt
T. D.: 200'

Drill Hole No. 78. Elevation 310'
Location: SW¼, Sec. 9, T. 14 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert 3/76.

0'- 24' Clay, light-tan, with sand, medium

24'- 38' Clay, tan, with sand
38'- 40' Sand, coarse with gravel
40'- 58' Clay, tan to light-gray, with sand
58'- 68' Clay, gray, blue-green, with silt
68'- 68.5' Sand and gravel layer
68.5'-71.5' Clay, dark-gray, with silt
71.5'- 79' Clay, gray, with silt
79'- 80' Clay, dark-gray, with silt
80'- 82.5' Lignite
82.5'- 93' Clay, light-gray, with silt
93'- 94' Clay, gray, with sand
94'- 95' Lignite
95'- 99' Clay, gray, with silt
99'-105' Clay, light-gray, with silt
105'-105.5' Sand, gray
105.5'-112' Clay, gray, with sand
112'-118' Sand, with clay, gray
118'-122' Clay, gray, with sand
122'-190' Sand, gray, with clay
190'-212' Clay, gray, with silt
212'-213' Lignite
213'-220' Clay, dark-brown, with trace of lignite and silt
220'-230' Clay, light-gray, with silt
230'-246' Clay, dark to light-gray, with silt, some wood fibers
246'-248' Lignite with clay, dark-brown
248'-252' Clay, light-brown, with silt
252'-260' Clay, dark to light-gray, with silt
T. D.: 260'

Drill Hole No. 79. Elevation 325'
Location: NE¼, Sec. 13, T. 14 N., R. 2 E.
County, Craighead
Logged by: D. W. Lumbert 3/76.

0'- 10' Clay, red, with sand
10'- 30' Clay, red to tan, with sand
30'- 52' Clay, red, with sand and gravel
52'- 60' Sand, with clay, tan to dark-brown
60'- 80' Sand, with clay, tan to dark-brown
80'-100' Clay, dark-brown, with sand with trace of lignite
100'-120' Sand, very-fine, clay, gray to blue
120'-130' Clay, light to dark-gray, with very-fine sand
130'-150' Clay, light to dark-gray, with very-fine sand
150'-170' Clay, dark-gray, with sand and/or silt
170'-190' Clay, dark-gray, blue, white, with sand
190'-200' Clay, dark-gray, with silt
T. D.: 200'

Drill Hole No. 80. Elevation 255'
Location: NE¼, Sec. 14, T. 14 N., R. 2 E.
County, Craighead
Logged by: M. A. Stoyanov 3/76.

0'- 55' Sand, gray, with clay, white to tan
55'- 56' Gravel with sand
56'- 70' Sand, gray, with clay, white to tan
70'- 71' Sand, with black organic material (tar)
71'- 80' Sand, gray, with clay, tan to gray
80'- 90' Sand, with gravel and tar
90'-100' Sand, gray, with clay, and sand, white to brown, very-fine
100'-105' Sand, gray, with clay, tan
105'-110' Sand, gray, with gravel
110'-120' Sand, gray, with clay
120'-130' Sand, gray, with clay increasing
T. D.: 130'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 81. Elevation 280'

Location: Sec. 15, T. 14 N., R. 3 E.
County, Craighead

Logged by: M. A. Stoyanov 3/76.

0'- 27' Sand, white to tan, with 3" siderite at 23'
27'- 27.5' Siltstone, hard with clay, red
27.5'-50' Sand and gravel with clay, red
50'- 60' Clay, mottled, with sand, white
60'- 80' Clay, tan, with sand
80'- 90' Clay, gray, with sand
90'-120' Clay, light-tan, white, with sand
120'-130' Clay, light-gray, increase in sand
130'-149' Sand, salt-pepper, with clay, tan @ 148' lignite stringer
149'-195' Sand, salt-pepper, with clay, brown
195'-200' Clay, black, very lignitic
T. D.: 200'

Drill Hole No. 82. Elevation 400'

Location: Sec. 16, T. 15 N., R. 3 E.
County, Craighead

Logged by: M. A. Stoyanov 3/76.

0'- 50' Clay, red, tan, with sand
50'- 60' Sand, red, with clay, white, and silt
60'- 70' Sand, red, with clay, white, red
70'- 80' Sand, red (larger grain), with clay, white
80'-110' Sand, red to tan, with clay, white
T. D.: 110'

Drill Hole No. 83. Elevation 300'

Location: Sec. 7, T. 14 N., R. 3 E.
County, Craighead

Logged by: M. A. Stoyanov 3/76.

0'- 35' Clay, tan, with sand
35'- 68' Clay, red to tan, with sand
68'- 84' Gravel
84'- 89' Clay, gray, with sand
89'- 92' Clay, dark-gray, with sand
92'-92'2" Lignite stringer, approximately 2"
92'2"- 107' Clay, gray, with sand, thin lignite stringer @ 107'
107'-114' Clay, gray, with silt
114'-120' Clay, blue-green, with silt
120'-130' Sand, very fine, with siltstone layer at 130'
130'-136' Clay, blue-green, with siltstone layer @ 136'
136'-138' Clay, blue-green
138'-140' Clay, lignitic
140'-154' Clay, blue-green to gray, with silt, @ 154' lignite, with wood fibers
154'-177' Clay, light-gray, with silt
177'-192' Clay, gray, with silt and siltstone layer @ 192'
192'-200' Sand, very fine, with siltstone layer @ 198'
T. D.: 200'

Drill Hole No. 84. Elevation 420'

Location: Sec. 6, T. 15 N., R. 4 E.
County, Craighead

Logged by: D. W. Lumbert 3/76.

0'- 20' Clay, red with sand
20'- 62' Gravel, with clay, red, with sand
62'- 68' Sand, coarse, clay, red to tan
68'- 94' Clay, light-gray to tan, with sand
94'- 98' Clay, light-gray, with sand
98'-128' Sand, clay, tan
128'-230' Sand, clay, light-gray to tan
230'-238' Clay, light-gray to tan, with

sand
238'-265' Clay, dark-gray
265'-265.4' Hard material, probably siltstone, none to ID
265.4'-284' Clay, dark-gray, with trace of lignite with fine sand, hard layer @ 284', approximately 5"
284'-300' Clay, gray to dark-gray, with sand
T. D.: 300'

Drill Hole No. 85. Elevation 320'

Location: Sec. 12, T. 15 N., R. 3 E.
County, Craighead

Logged by: M. A. Stoyanov 3/76.

0'- 10' Sand, tan with clay, silt
10'- 20' Sand, tan, with silt
20'- 38' Clay, gray, with silt and sand
38'- 45' Gravel, with sand, tan-gray
45'- 60' Sand, tan, gray, with clay
60'- 80' Sand and gravel
T. D.: 80'
Cave-in, lost circulation
No mud

Drill Hole No. 86. Elevation 340'

Location: Sec. 28, T. 15 N., R. 3 E.
County, Craighead

Logged by: M. A. Stoyanov 3/76.

0'- 20' Clay, dark-tan, with sand
20'- 38' Clay, tan, very sandy
38'- 50' Gravel, pea-sized, with coarse sand
50'- 60' Sand, coarse, with clay, red
T. D.: 60'
Cave-in, sand
No mud

Drill Hole No. 87. Elevation 474'

Location: NE¼, Sec. 32, T. 16 N., R. 4 E.
County, Greene

Logged by: M. Howard 3/76.

0'- 28' Clay, dark-tan, with iron concretions
28'- 36' Clay, light-tan, with iron concretions
36'- 50' Coarse sand and pea gravel
50'- 60' Coarse sand
Hole abandoned at 60' - could not get past base of gravel at 50'

Drill Hole No. 88. Elevation 395'

Location: NE¼, Sec. 29, T. 16 N., R. 4 E.
County, Greene

Logged by: D. W. Lumbert 3/76.

0'- 5' Clay, brown to tan, with sand
5'- 12' Sand, coarse, w/gravel, pea-size
12'- 20' Sand, coarse
20'- 50' Sand, medium to fine, clay, tan
50'- 60' Sand, fine, clean silica
60'- 70' Sand, fine, clean silica
70'- 80' Sand, fine, clean silica
80'- 88' Sand, fine, clean silica
88'-100' Sand, very-fine, compacted
100'-108' Sand, fine, clean silica
108'-112' Clay, light-brown, with silt
112'-113' Lignite
113'-120' Clay, light-brown, with silt
T. D.: 120'

Drill Hole No. 89. Elevation 360'

Location: Sec. 32, T. 16 N., R. 4 E.
County, Greene

Logged by: M. A. Stoyanov 4/76.

0'- 8' Clay, dark-tan, with sand
8'- 11' Clay, dark-tan, with sand
11'- 14' Gravel, with sandy clay

14'- 18' Gravel
18'- 19' Clay, light-gray, with sand
19'- 21' Gravel
21'- 37' Clay, light-gray, tan sand
37'- 40' Sand, light-gray, and clay
40'- 50' Sand, tan
50'- 90' Sand, tan, very fine
90'-100' Sand, light-tan, fine
100'-110' Sand, light-tan, white, very fine
110'-130' Sand, light-tan, very fine
130'-150' Sand, tan, very fine with clay
T. D.: 150'

Drill Hole 89-B. Elevation 360'

Location: Sec. 32, T. 16 N., R. 4 E.
County, Greene

Logged by: M. A. Stoyanov 4/76.

0'- 10' Clay, dark-tan, with sand
10'- 14' Gravel, pea-size
14'- 37' Clay, tan, with silt
37'- 48' Clay, dark-tan, with silt
48'- 70' Sand, well rounded, w/clay, tan
70'-102' Sand, well rounded, w/clay, red
102'-109' Clay, dark, lignitic @ 109' lignite
109'-160' Sand, very fine
160'-169' Clay, gray, with silt
169'-178' Clay, lignitic, trace lignite
178'-181' Lignite, hard
181'-182' Clay, light-gray, with silt
182'-185' Lignite, hard
185'-188' Clay, gray, with silt @ 188' sandstone layer 3"
188'-206' Clay, blue-green and light-gray
206'-211' Clay, dark-gray and blue-green
211'-244' Siltstone @ 211' and clay, gray, blue-green
244'-259' Clay, gray, with silt
259'-260' Lignite, hard
260'-266' Clay, gray, with silt
266'-290' Clay, light-gray @ 290' lignite stringer
290'-300' Clay, gray, with silt
T. D. 300'

Cored interval 177.9'-187.9'

Recovered: 6' Lost: 4'
177.9'-182' Lignite (hard)
182'-183.9' Clay, tan, very sandy

Drill Hole No. 90. Elevation 365'

Location: Sec. 34, T. 16 N., R. 3 E.
County, Greene

Logged by: M. A. Stoyanov 4/76.

0'- 2' Sand, tan
2'- 11' Clay, dark-tan, with sand
11'- 19' Sand, gravel
19'- 27' Clay, tan, with sand and gravel
27'- 70' Sand, tan
70'-113' Clay, light-gray, with sand @ 100' Lignite, approximately 3" to 4" stringer
113'-113'3" @ 113' lignite, approximately 2" to 3" stringer
113'3"-216' Clay, dark-gray, with silt @ 216' siltstone
T. D.: 216', unable to penetrate
Unable to penetrate

Drill Hole No. 91. Elevation 448'

Location: Sec. 32, T. 16 N., R. 4 E.
County, Greene

Logged by: M. A. Stoyanov 4/76.

0'- 21' Clay, dark-tan, with sand
21'- 44' Sand and gravel, coarse
44'-178' Sand, coarse
178'-180' Clay, dark brown, lignitic material
T. D.: 180', lost circulation

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 92. Elevation

Location:
County
Logged by:

Abandoned

Drill Hole No. 93. Elevation 428'

Location: Sec. 35, T. 16 N., R. 3 E.
County, Greene
Logged by: D. W. Lumbert

4/76.

0'- 21' Clay, tan, with sand
21'- 27' Sand, with clay, tan
27'- 63' Gravel, with clay, red, with sand
63'- 68' Clay, red, with sand and gravel
68'- 71' Gravel
71'- 90' Clay, red, with sand, with layers of gravel
90'-130' Sand, packed, with gravel, clay, red
130'-195' Clay, dark-gray, with sand
195'-236' Sand, packed with clay
236'-236.5' Lignite
236.5'-249' Sand, packed with clay, dark-gray
249'-252' Clay, lignitic
252'-255' Lignite
255'-258' Clay, lignitic, with sand
258'-259' Siltstone
259'-276' Clay, light-gray, with sand
276'-276.5' Siltstone
T. D.: 276.5'

Drill Hole No. 94. Elevation 340'

Location: Sec. 8, T. 15 N., R. 4 E.
County, Craighead
Logged by: D. W. Lumbert

4/76.

0'- 20' Clay, tan, with sand
20'- 52' Clay, tan, with sand and gravel
52'- 54' Gravel
54'- 94' Sand, coarse, clay, tan
94'-107' Sand, medium grained, clay, light-gray-tan
107'-140' Clay, gray, with sand
140'-160' Clay, gray, with sand - "packed"
160'-190' Clay, dark-gray, with silt
190'-195' Clay, dark-gray, with sand
195'-196' Clay, dark-gray, with silt
196'-197' Lignite
197'-232' Clay, dark-gray, blue-green, with silt; @ 223' siltstone 2" layer
232'-233' Lignite
233'-241' Clay, blue-green, dark-brown, with silt
@ 241' siltstone layer
241'-275' Clay, blue-green, dark-tan, with sand
275'-287' Clay, dark-tan, brown, with sand
287'-289' Lignite
289'-300' Clay, dark-tan, brown, with sand
T. D.: 300'

Drill Hole No. 95. Elevation 440'

Location: Sec. 3, T. 15 N., R. 3 E.
County, Craighead
Logged by: M. A. Stoyanov

4/76.

0'- 26' Clay, tan, very sandy
26'- 77' Clay, red, tan, with pea-size gravel
77'-100' Clay, tan, sandy
100'-175' Clay, light-tan, white, with sand, coarse
175'-278' Clay, dark-gray, very sandy, white
278'-285' Clay, dark-gray, with sand

285'-287' Lignite, with wood fibers
287'-300' Clay, dark-gray, with sand
T. D.: 300'

Drill Hole No. 96. Elevation 355'

Location: Sec. 9, T. 15 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov

4/76.

0'- 32' Clay, red, very sandy
32'- 50' Sand, red, with clay
50'- 82' Sand, coarse
82'-117' Sand, coarse
117'-165' Clay, white, light-gray, tan, with sand
165'-200' Clay, brown, lignite traces with sand
@198' lignite stringer 6"
200'-230' Clay, light-tan, white, with packed sand
230'-240' Clay, light-tan, very sandy
240'-265' Clay, light-tan, white with increase in sand
265'-267' Lignite, hard
267'-277' Clay, gray, with packed sand
277'-300' Clay, gray, white, with packed sand
T. D.: 300'

Drill Hole No. 97. Elevation 330'

Location: Sec. 18, T. 15 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov

4/76.

0'- 2' Gravel, pea-sized, with sand
2'- 10' Sand, tan, with clay
10'- 60' Sand, light-gray, white, with clay, white
60'- 70' Sand, light-tan, very fine
70'-150' Sand, light-tan, very fine
T. D.: 150'
Cave in; unable to drill

Drill Hole No. 98. Elevation 315'

Location: Sec. 18, T. 15 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov

5/76.

0'- 24' Clay, dark-tan, with sand
24'- 49' Sand, coarse
49'-200' Sand, fine, "packed"
200'-245' Sand, coarse
T. D.: 245'

Drill Hole No. 99. Elevation 385'

Location: Sec. 31, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert

5/76.

0'- 18' Clay, red, with sand
18'- 36' Gravel, clay, red, with sand
36'-100' Sand, clay, red
100'-190' Sand, large, clay, tan, with gravel
190'-200' Sand, large, clay, light-gray
200'-215' Sand, compacted, clay, light-gray to white layers
215'-224' Clay, light-gray, with sand
224'-240' Clay, dark-gray, with sand
240'-248' Clay, dark-gray, trace of lignite with sand
248'-250' Lignite, with clay
T. D.: 250'

Drill Hole No. 100. Elevation 410'

Location: Sec. 19, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert

5/76.

0'- 10' Clay, red and tan, with 50% sand
10'- 20' Sand, with tan clay layers
20'- 26' Sand, medium-size, with gravel

26'- 38' Gravel
38'- 50' Sand, coarse, with clay, tan
50'-100' Gravel, clay, tan, with gravel
100'-140' Sand, coarse, with clay, light-gray
140'-160' Sand, coarse, with clay, gray
T. D.: 160'

Drill Hole No. 101. Elevation 372'

Location: Sec. 20, T. 16 N., R. 4 E.
County, Greene
Logged by: D. W. Lumbert

5/76.

0'- 6' Clay, dark brown-tan, with sand
6'- 22' Clay, gray, with sand
22'- 28' Gravel with large coarse sand
28'- 34' Sand
34'- 38' Clay, gray, with sand
38'- 39' Siltstone
39'- 43' Clay, gray, with sand
43'- 53' Clay, pink to red, with layers of siltstone
53'- 57' Clay, gray, with sand
57'- 65' Sand, "packed"
65'- 74' Sand, clay, gray, "silty"
74'-100' Sand, coarse, clay, gray
100'-120' Sand, coarse, clay, white-gray, with trace of lignite
120'-133' Sand, very fine, clay, gray to dark-gray
133'-136' Clay, with very black lignitic material
136'-137' Lignite "hard"
137'-140' Clay, dark lignitic, silty
140'-150' Clay, gray, with sand
150'-160' Clay, dark gray, with sand
160'-172' Clay, gray, with silt
172'-215' Clay, gray and blue-green, with silt
215'-215.5' Lignite
215.5'-260' Clay, blue-gray, with silt
260'-261' Lignite
261'-270' Clay, gray, with silt
270'-280' Clay, dark-gray, with silt
280'-300' Clay, dark-gray, with silt, with trace of lignite
T. D.: 300'

Drill Hole No. 102. Elevation 440'

Location: Sec. 2, T. 15 N., R. 4 E.
County, Craighead
Logged by: M. A. Stoyanov

5/76.

0'- 6' Clay, tan, light-gray, with sand
6'- 11' Gravel, tan, with sand
11'- 26' Clay, gray
26'- 71' Clay, gray, with sand
71'- 96' Clay, gray, dark, with silt
96'-102' Clay, gray, with increase of silt
102'-175' Sand, gray, fine
175'-195' Sand, coarse
195'-200' Clay, light-gray, with silt
200'-240' Clay, light-gray, with sand
240'-247' Clay, light-gray, with lignite stringer
247'-263' Clay, light-gray, with silt
@ 263' lignite, approximately 6"
263'-300' Clay, light-gray, with silt
T. D.: 300'

Drill Hole No. 103 and 103A. Elevation 340'

Location: Sec. 12, T. 15 N., R. 3 E.
County, Craighead
Logged by: D. W. Lumbert

5/76.

0'- 11' Clay, tan, sandy
11'- 21' Clay, tan and gray, sandy with gravel
21'- 32' Sand, coarse, and gravel
T. D.: 32'; abandoned location

ARKANSAS LIGNITE INVESTIGATIONS

103-A.

0'- 16' Clay, tan, sandy
16'- 70' Sand and gravel
Abandoned location
T. D.: 70'

Drill Hole No. 104. Elevation 385'
Location: Sec. 16, T. 15 N., R. 4 E.
County, Craighead
Logged by: D. W. Lumbert 5/76.

0'- 10' Clay, red-tan, with sand
10'- 20' Clay, tan, with sand,
20'- 21' Gravel
@ 19.5 gravel
21'- 36' Sand, coarse, clay, tan
36'- 38' Clay, yellow, with sand
38'- 39' Clay, tan-gray, with sand
39'- 58' Clay, gray, with silt
58'- 58.2' Lignite
58.2'- 67' Clay, gray, with silt
@ 67' siderite 4"
67'- 85' Clay, gray, as above
@ 85' lignite stringer
85'- 99' Clay, gray, silty
99'-101' Silt, tan to light brown, w/clay
101'-118' Sand, fine, gray to white
118'-170' Sand, medium to coarse, quartz
and chert pebbles
170'-173' Lignitic clay and lignite stringers
173'-195' Sand and silt, lignitic in places
195'-201' Lignite stringers and lignitic clay
201'-223' Sand, medium tan to light brown
223'-224' Lignite
224'-230' Clay, brown, lignitic
230'-240' Clay, gray, with silt stringers
240'-293' Sand, gray, medium grained
293'-294.5' Lignite
294.5'-300' Clay, gray
T. D.: 300'

Drill Hole No. 105. Elevation 360'
Location: Sec. 22, T. 15 N., R. 4 E.
County, Craighead
Logged by: D. W. Lumbert 5/76.

0'- 21' Clay, tan, with sand
21'- 32' Sand and gravel
32'- 50' Sand & gravel w/clay, tan, gray
50'-120' Sand, medium-grained, clay,
tan-gray
120'-170' Clay, light gray, with sand
170'-215' Clay, gray, with sand
215'-230' Sand, "packed", clay, gray
230'-233' Clay, brown, with sand
233'-234' Lignite
234'-240' Clay, dark brown-gray, w/ sand
240'-300' Clay, dark brown-gray, with
sand and trace of lignite
T. D.: 300'

Drill Hole No. 106. Elevation 378'
Location: Sec. 17, T. 15 N., R. 4 E.
County, Craighead
Logged by: D. W. Lumbert 5/76.

0'- 6' Clay, tan-brown, with sand
6'- 14' Gravel, coarse sand, w/clay, tan
14'-110' Sand, clay, tan
110'-133' Sand, very coarse
133'-133.6' Lignite
133.6'-247' Sand, clay, gray
247'-248' Siltstone
248' Sand, clay, gray
T. D.: 248'

Drill Hole No. 107. Elevation 350'
Location: NW¼, Sec. 4, T. 15 N., R. 4 E.
County, Craighead
Logged by: J. M. Howard 5/76.

0'- 8' Tan silt with sand

8'- 35' Tan sand
35'- 95' Tan sand w/white silt, clay seams
95'-100' Sand, coarse, iron-stained, lost
circulation
T. D.: 100'

Drill Hole No. 108. Elevation 295'
Location: SE¼, Sec. 17, T. 15 N., R. 5 E.
County, Craighead
Logged by: J. M. Howard 5/76.

0'- 31' Tan silt, clay, with minor sand
31'- 70' Gray sand, with clay
70'- 79' Dark gray clay, with sand
@ 79' lignite 2"
79'-100' Gray sand, with minor, thin
stringers of lignite
100'-138' Gray sand, with clay
138'-138½' Lignite
138½'-140' Gray sand, with clay, thin pink
layers of silt clay
140'-300' Gray sand, medium to coarse,
some hard packed layers of sand
T. D.: 300'

Drill Hole No. 109. Elevation 290'
Location: NE¼, Sec. 8, T. 15 N., R. 5 E.
County, Craighead
Logged by: J. M. Howard 5/76.

0'- 10' Sand, tan, medium with small
limonite concretions
10'- 11' Gravel
11'- 25' Gray clay with sand
25'- 30' Sand, gray, with gravel
T. D.: 30'

Drill Hole No. 110. Elevation 300'
Location: NW¼, Sec. 18, T. 15 N., R. 5 E.
County, Craighead
Logged by: J. M. Howard 5/76.

0'- 19' Clay, tan, with sand
19'- 27' Gravel and sand
27'- 90' Sand, tan, medium to fine-
grained
T. D.: 90'

Drill Hole No. 111. Elevation 380'
Location: SW¼, Sec. 3, T. 15 N., R. 4 E.
County, Craighead
Logged by: J. M. Howard 5/76.

0'- 5' Sand, tan, with clay
5'- 22' Sand, tan, and gravel
Sand, medium to coarse grained,
clean, rounded to sub angular
22'-140' Sand, tan
140'-150' Sand, fine, gray, with few thin
stringers of clay, light-tan
150'-249' Clay, layers of light brown, in
sand, fine
249'-250½' Lignite, hard
250½'-260' Sand, fine, with light-green clay
stringers
260'-260½' Siderite layer, hard, 8" thick
260½'-275' Sand, fine
275'-277' Lignite, hard
277'-289' Sand, fine
@ 289 siderite layer, hard
T. D.: 289'

Drill Hole No. 112. Elevation 335'
Location: SE¼, Sec. 31, T. 15 N., R. 4 E.
County, Craighead
Logged by: J. M. Howard 6/76.

0'- 27' Clay, tan with sand
27'- 37' Clay, tan, with sand and gravel
37'-105' Sand, tan, medium-grained
105'-215' Sand, tan, coarse with few thin
stringers of gray and brown clay
@ 215' lignite, 3", hard
215'-255' Sand, tan, fine

@ 254' lignite, hard, 9"
255'-266' Sand, tan, w/stringer of gray clay
@ 265' lignite, hard, 3"
266'-286' Clay, gray, with sand stringers
@ 285' Lignite, hard, 3"
286'-300' Clay, green & gray interlayered
T. D.: 300'

Drill Hole No. 113. Elevation 295'
Location: SE¼, Sec. 35, T. 15 N., R. 3 E.
County, Craighead
Logged by: J. M. Howard 6/76.

0'- 16' Clay, tan, with silt
16'- 27' Clay, light-gray
27'- 30' Sand, iron-stained, with silt
30'- 49' Clay, tan, with gravel
49'- 70' Sand, tan, coarse
70'- 94' Sand, tan, coarse with gravel
94'- 97' Clay, brown
@ 96' lignite, hard, 6"
97'-130' Sand, gray, fine
@ 106½' lignite, hard, 18"
130'-135' Sand, gray, very coarse
135'-300' Clay, gray, with sand with
siderite layers
T. D.: 300'

Drill Hole No. 114. Elevation 315'
Location: NW¼, Sec. 25, T. 15 N., R. 3 E.
County, Craighead
Logged by: J. M. Howard 6/76.

0'- 45' Clay, brown, with silt
45'- 65' Clay, gray, interbedded with
brown silt and brown organic
clay layers
65'- 71' Sand, coarse, with gravel
71'-135' Sand, medium tan
135'-140' Sand, tan, medium to coarse,
with gravel, scattered traces of
lignite
140'-150' Sand, tan, medium
T. D.: 150'

Drill Hole No. 115. Elevation 330'
Location: SW¼, Sec. 19, T. 15 N., R. 4 E.
County, Craighead
Logged by: J. M. Howard 6/76.

0'- 14' Clay, tan, with silt
14'- 30' Sand, fine, w/red to white clay
30'- 40' Clay, light-gray, with fine sand
40'- 90' Sand, tan, medium, clean
90'-103' Sand, tan, coarse, with thin gray
clay stringers
103'-140' Sand, gray, fine to medium,
clean
140'-205' Sand, gray, medium to coarse,
clean
205'-240' Sand, gray, fine to medium,
clean
240'-243' Clay, gray
243'-255' Sand, gray, fine
255'-289' Clay, gray with small shows of
lignite - 2 separate 1" stringers
@ 263' siderite, hard, 2"
289'-290' Lignite, soft, with brown clay
290'-300' Clay, gray
@ 293' siderite, hard, 6"
T. D.: 300'

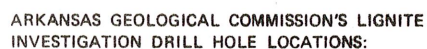
Drill Hole No. 116. Elevation 295'
Location: SW¼, Sec. 27, T. 16 N., R. 5 E.
County, Greene
Logged by: J. M. Howard 6/76.

0'- 4' Silt, brown, with sand
4'- 22' Sand, brown, with gray to
cream clay
22'-105' Sand, tan, medium to fine
105'-110' Clay, cream to pink, with sand
110'-165' Sand, tan, medium to coarse
T. D.: 165'

APPENDIX B

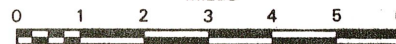
County location maps and drill logs of south Arkansas

Bradley County



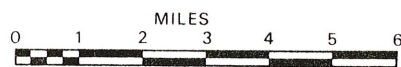
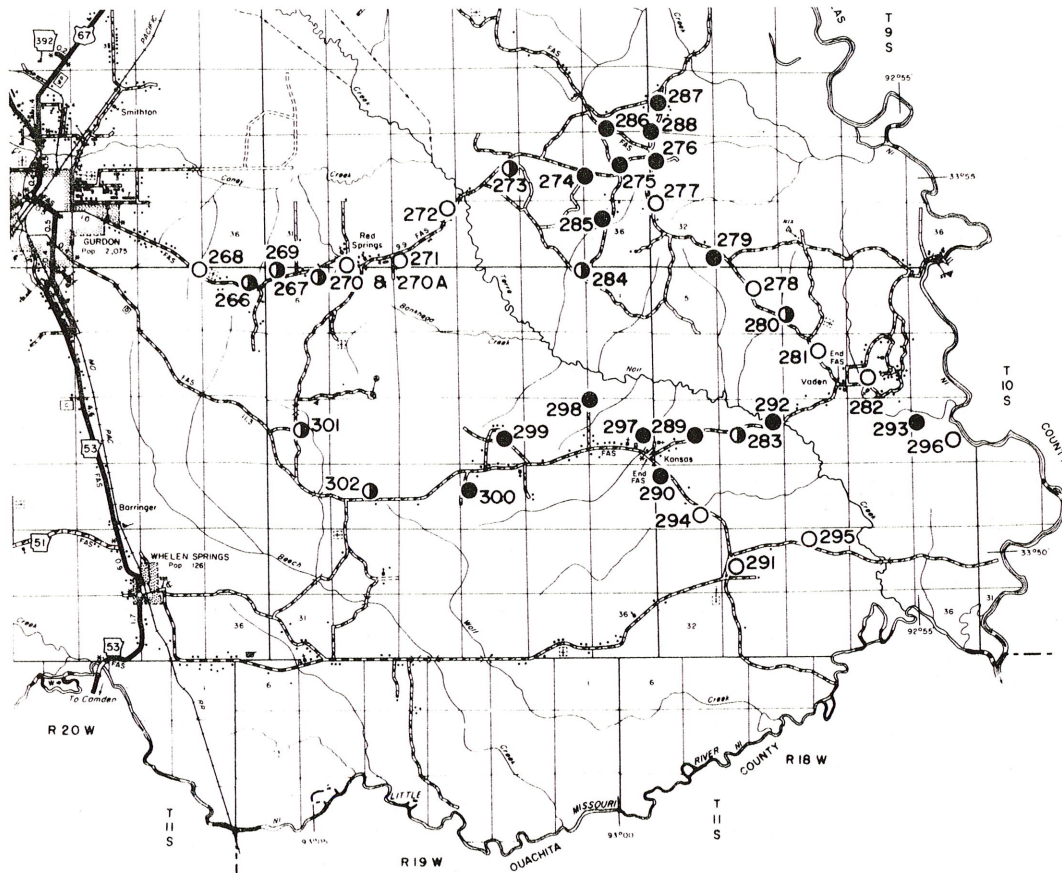
- — less than 6" of lignite
 - ◐ — 6" to 3' of lignite
 - ◑ — over 3' of lignite
- 156 — drill hole reference number

MILES



Arkansas Lignite Investigations

Clark County



EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- ◐ — 6" to 3' of lignite
- — over 3' of lignite

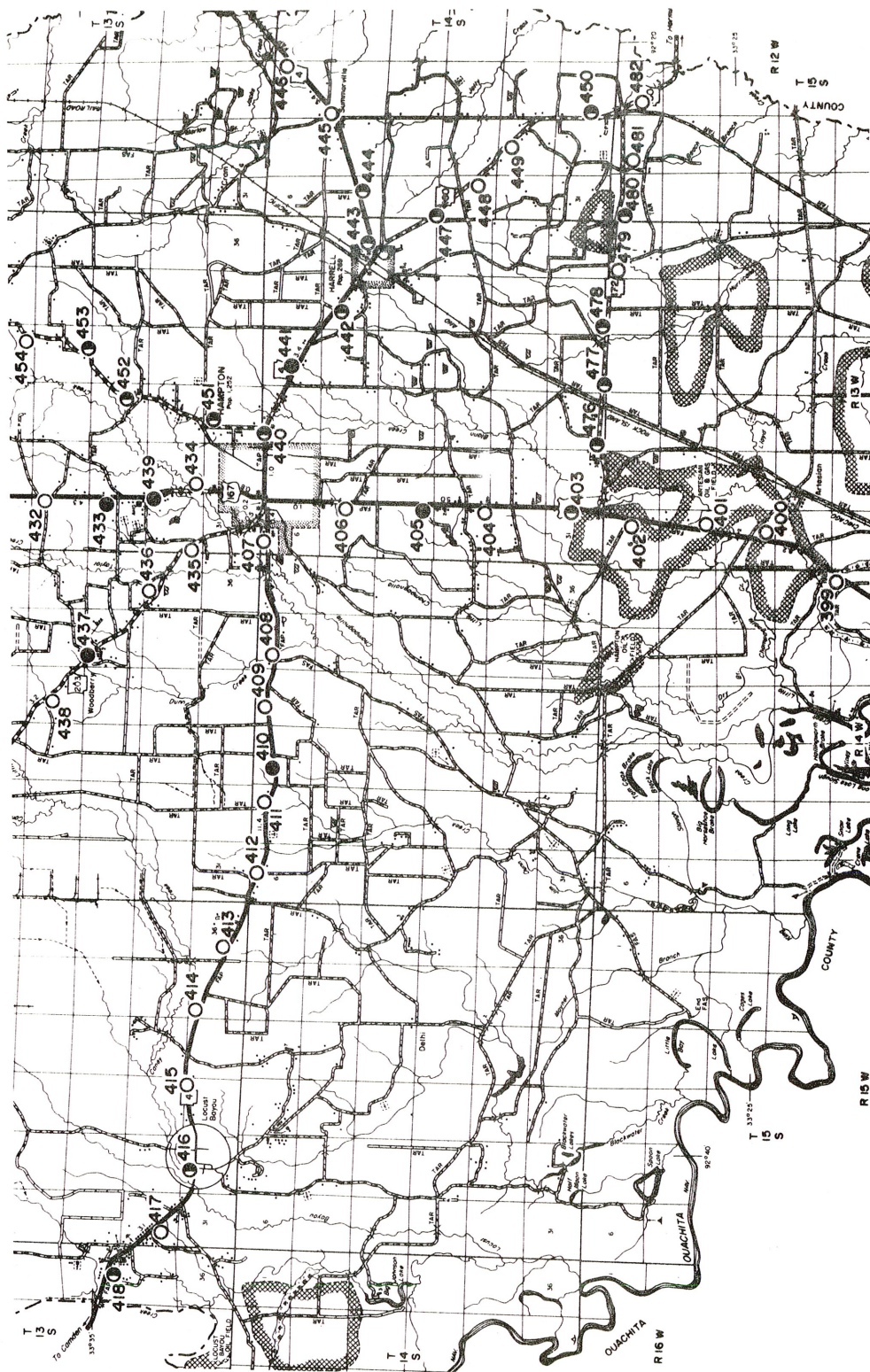
156 — drill hole reference number

Calhoun County



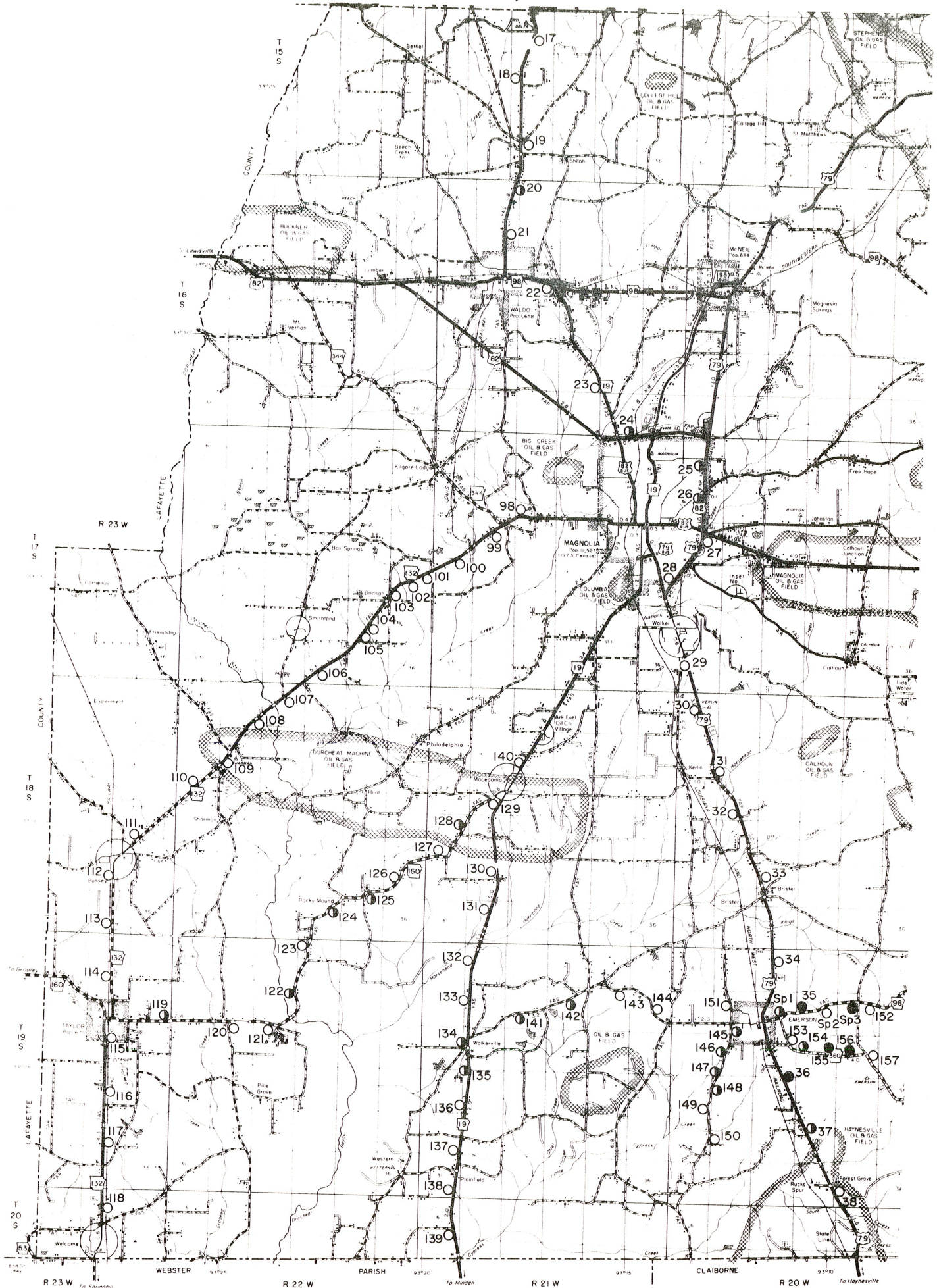
Arkansas Lignite Investigations

Calhoun County



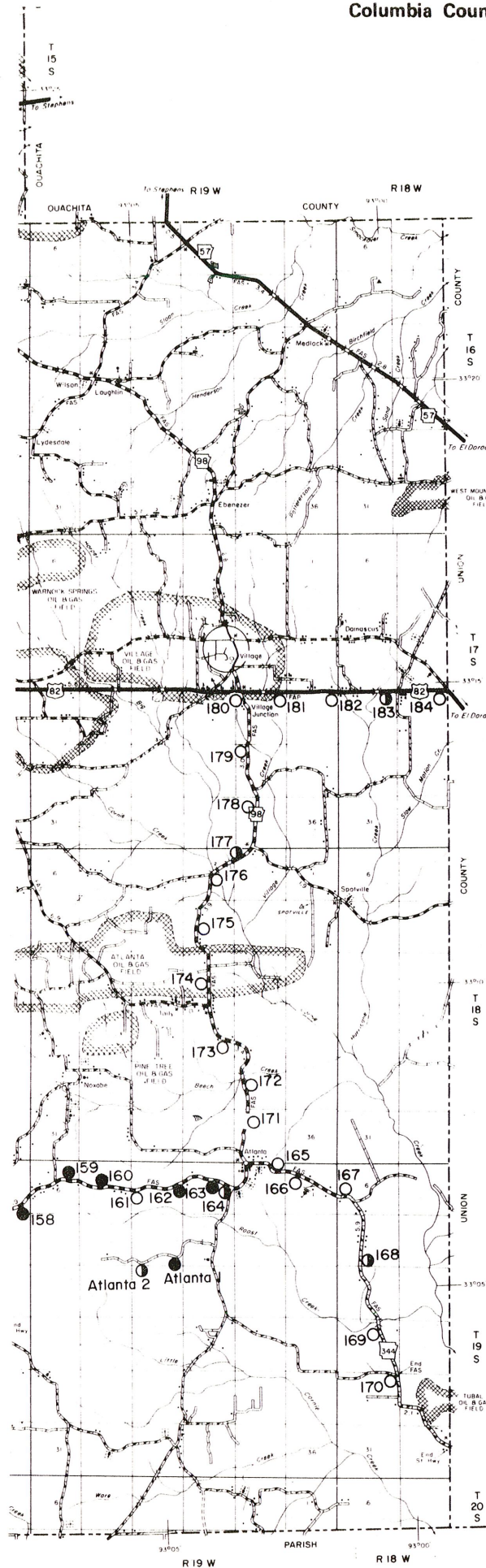
Arkansas Lignite Investigations

Columbia County



Arkansas Lignite Investigations

Columbia County

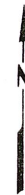
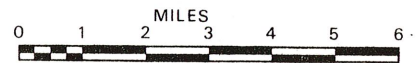


EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

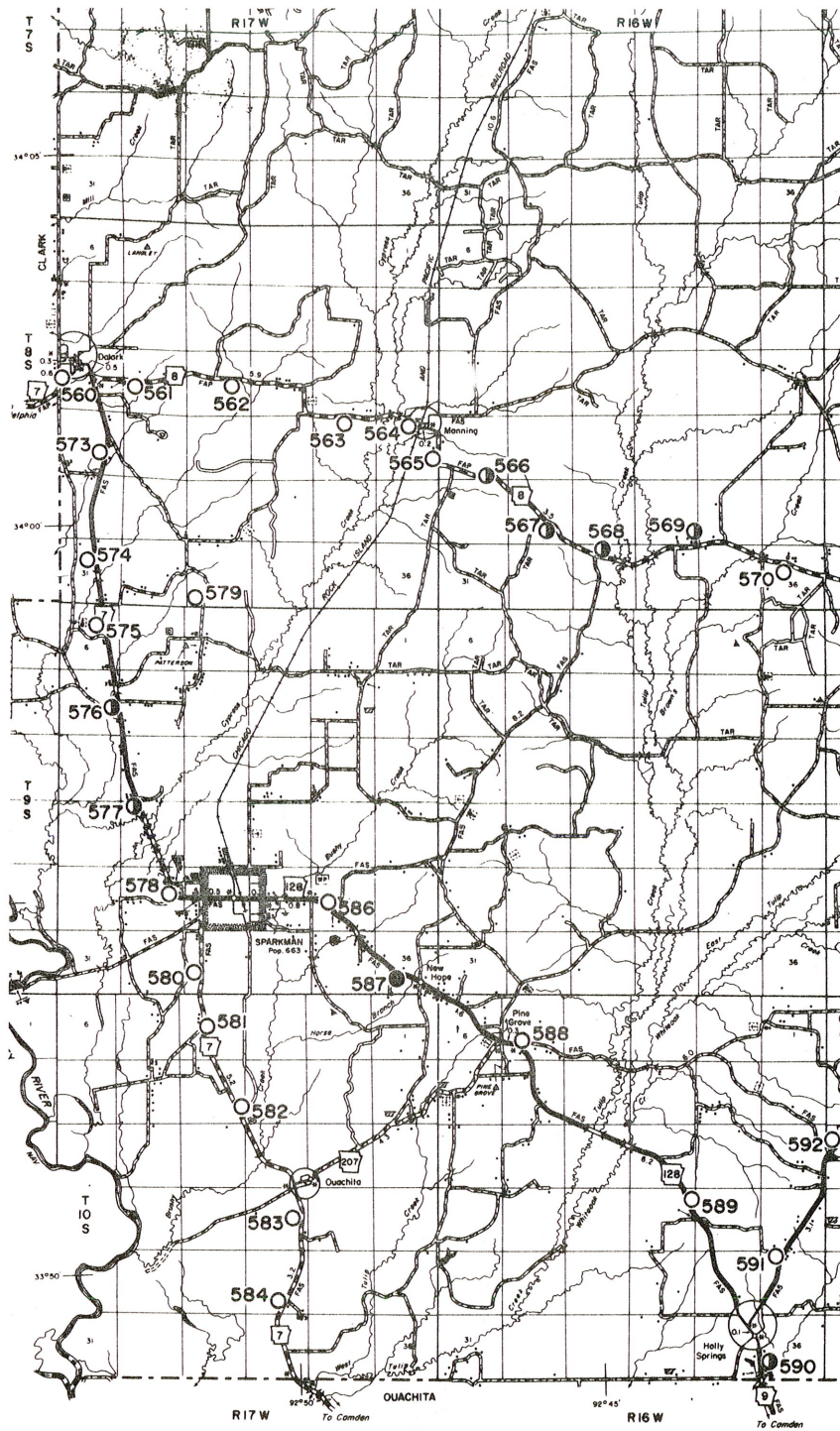
- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite

156 — drill hole reference number



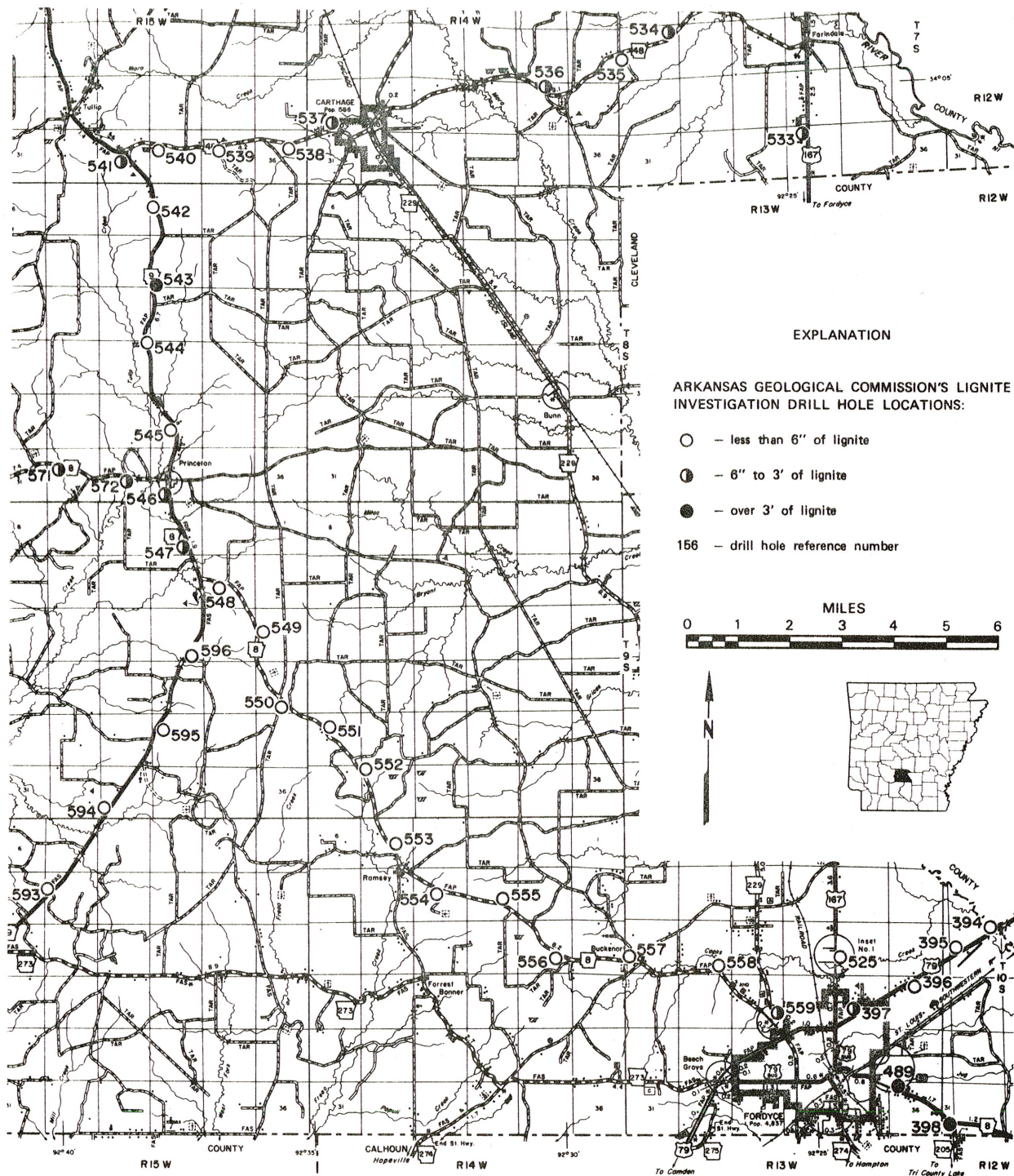
Arkansas Lignite Investigations

Dallas County



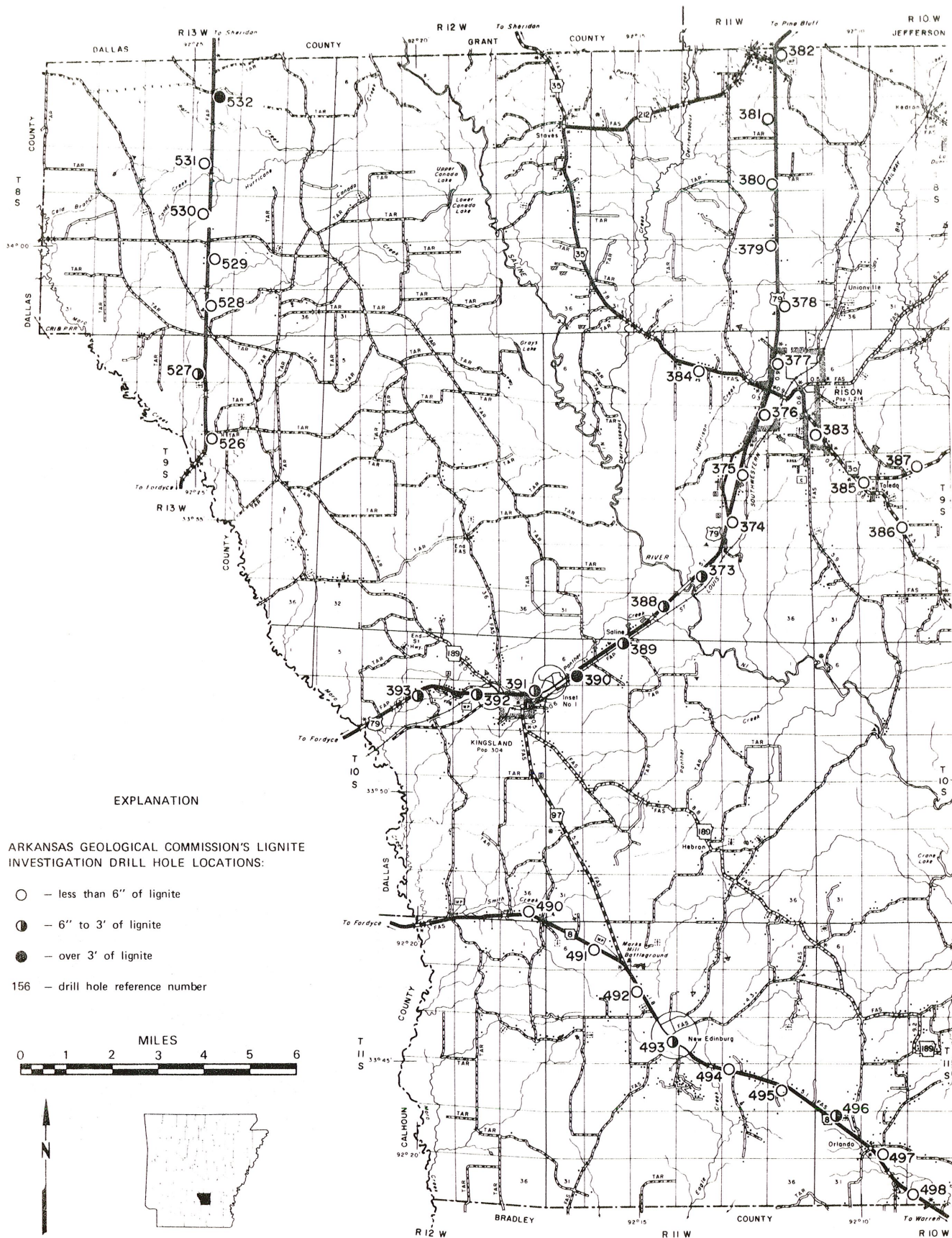
Arkansas Lignite Investigations

Dallas County



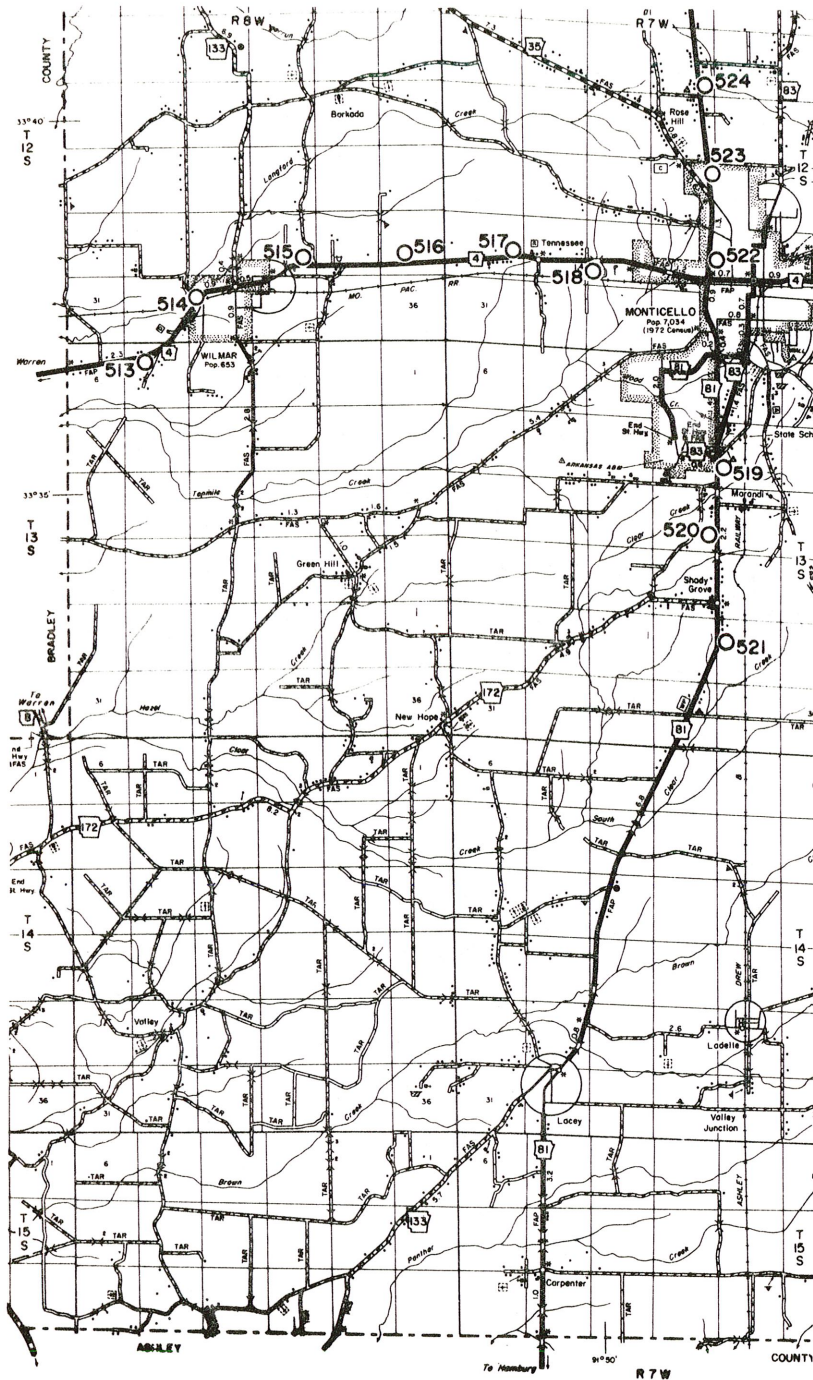
Arkansas Lignite Investigations

Cleveland County



Arkansas Lignite Investigations

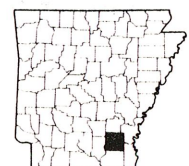
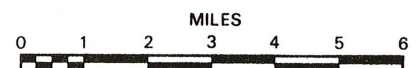
Drew County



EXPLANATION

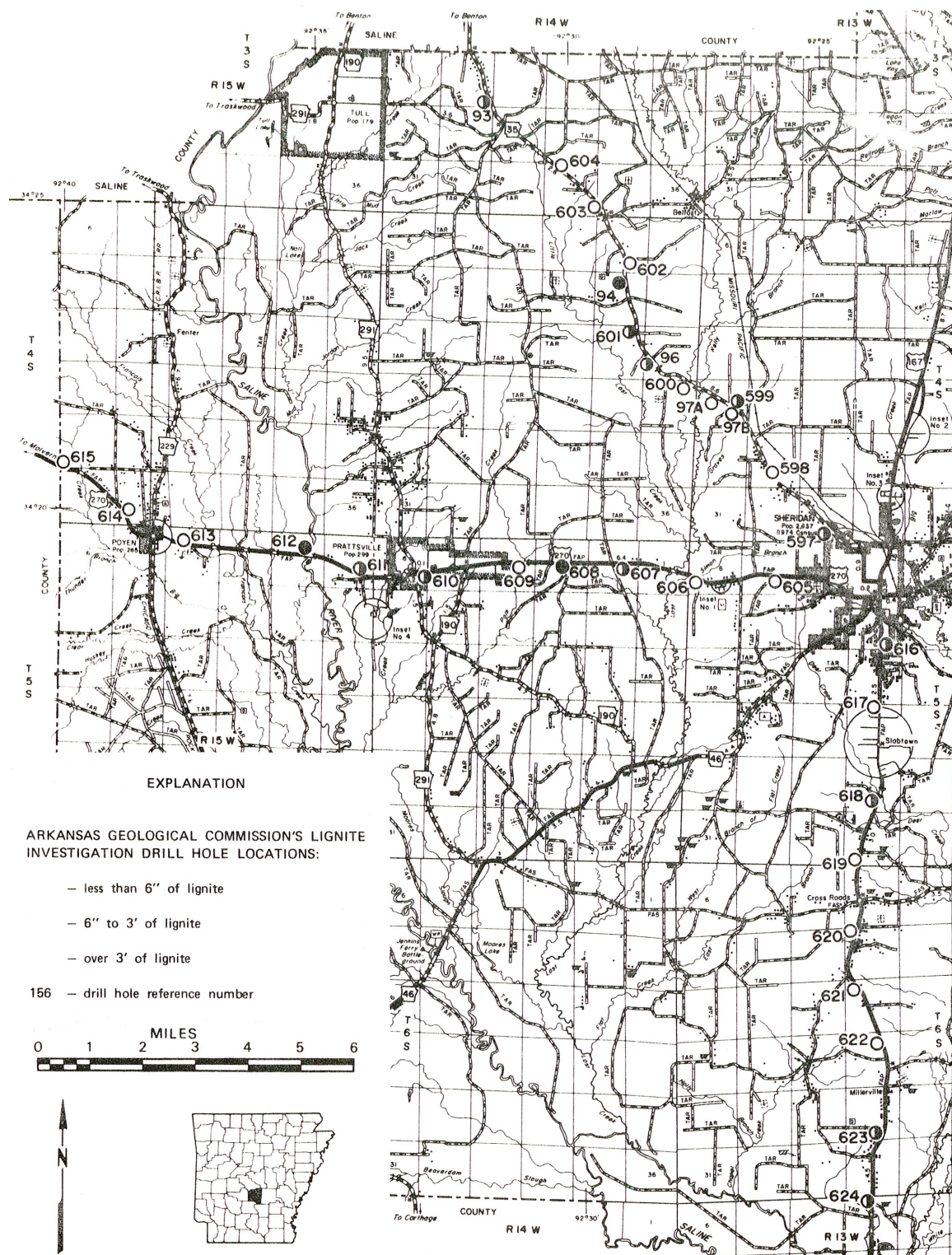
ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite
- 156 — drill hole reference number



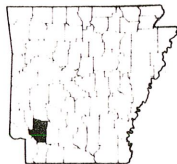
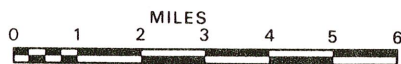
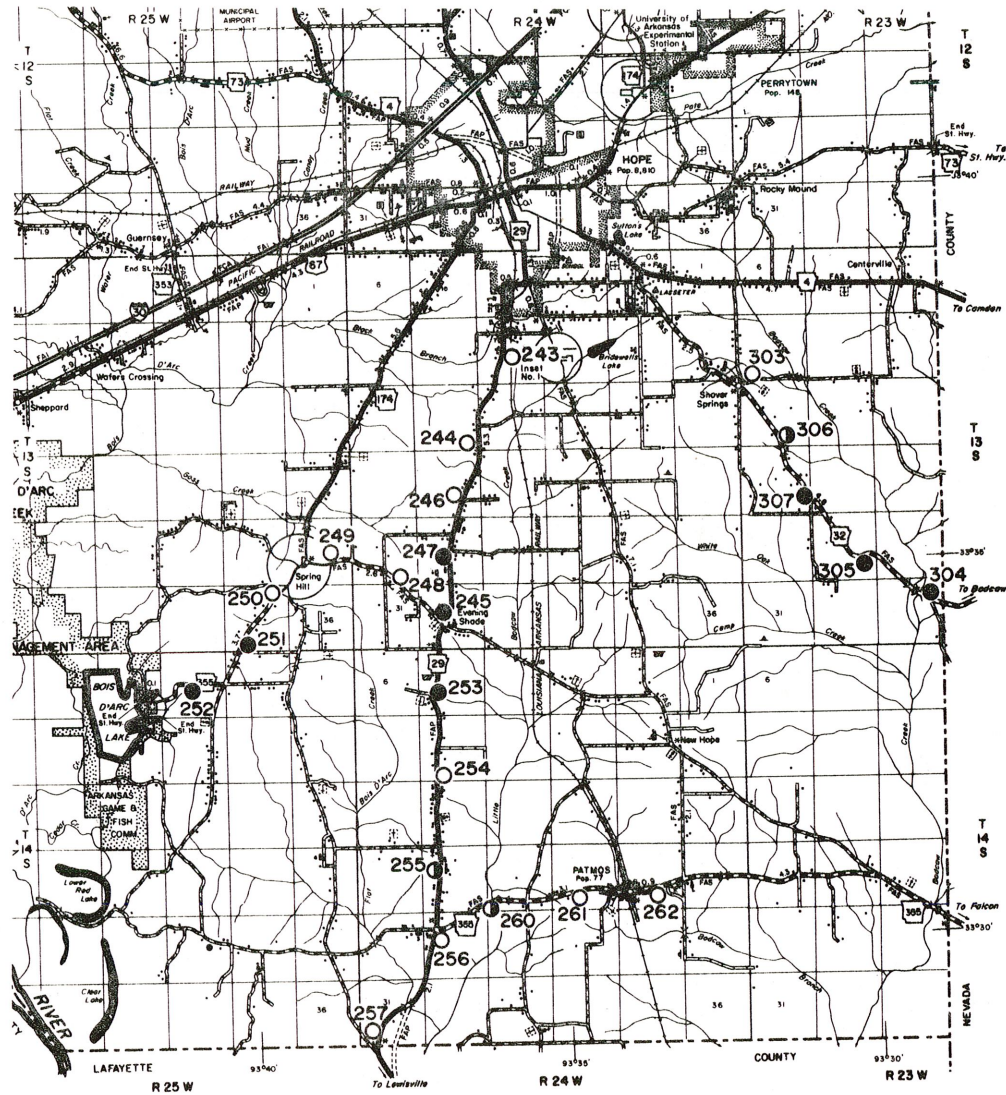
Arkansas Lignite Investigations

Grant County



Arkansas Lignite Investigations

Hempstead County



EXPLANATION

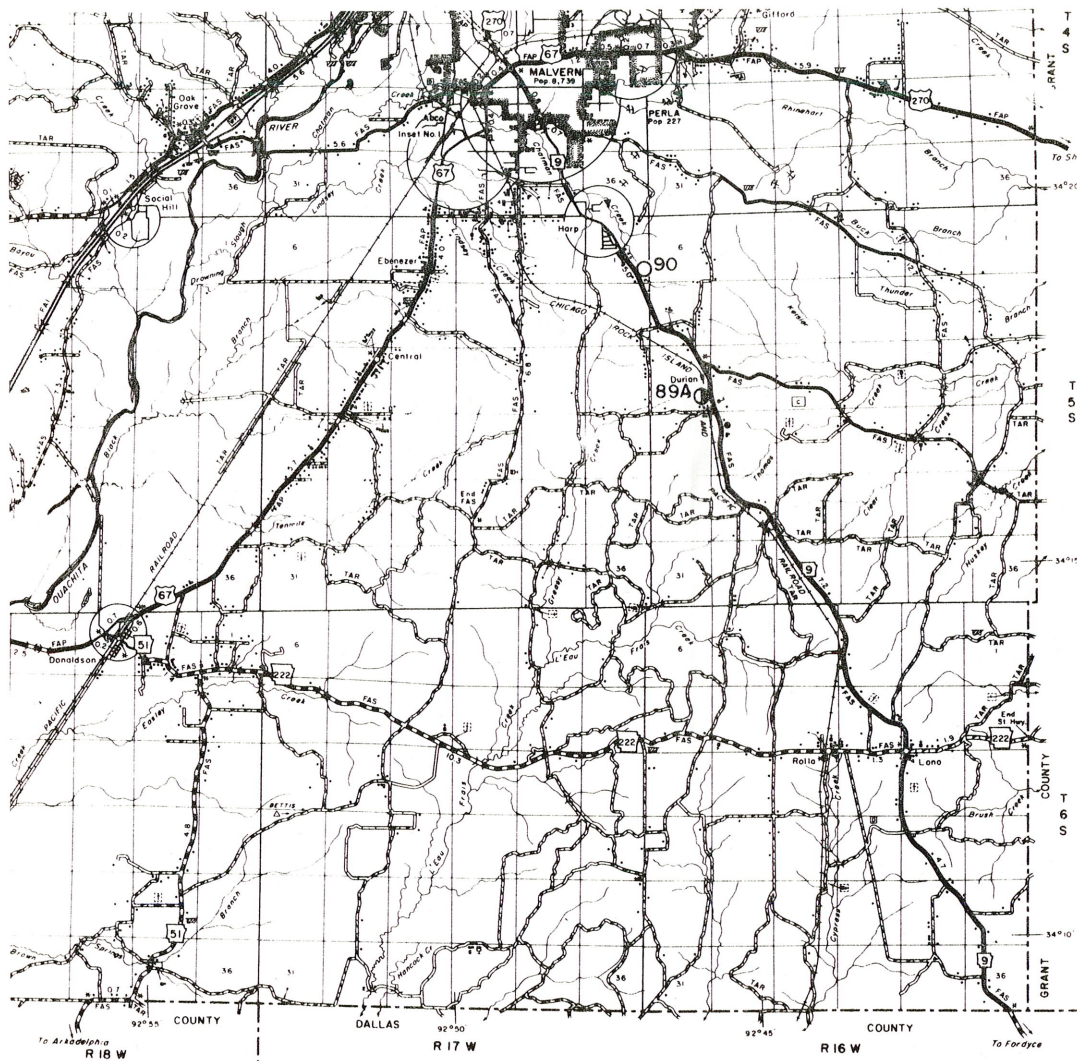
ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- ① — 6" to 3' of lignite
- — over 3' of lignite

156 — drill hole reference number

Arkansas Lignite Investigations

Hot Spring County



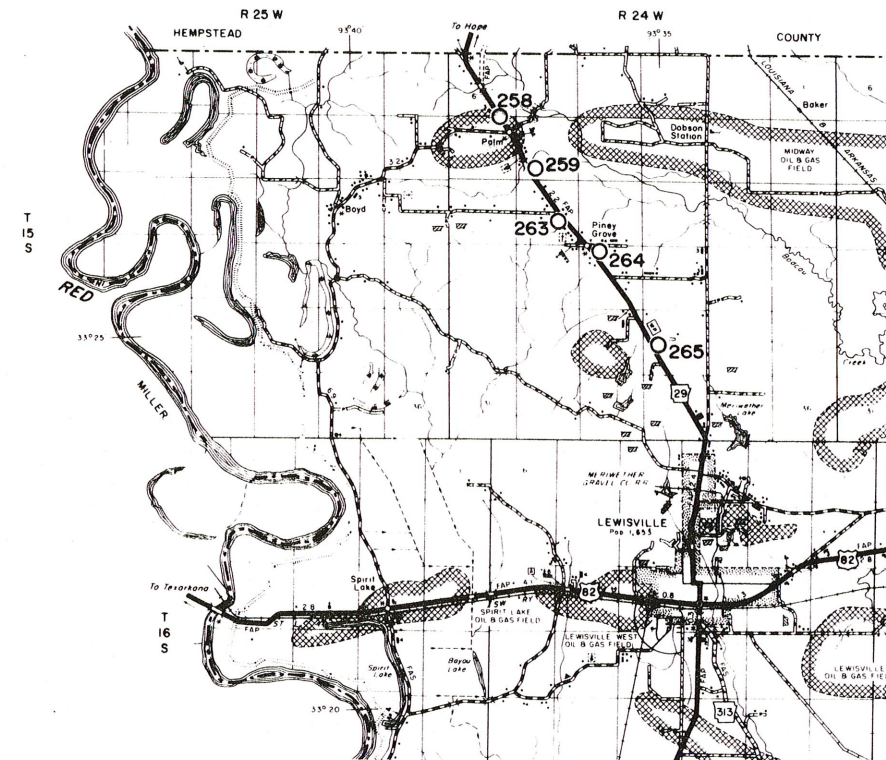
EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite
- 156 — drill hole reference number

Arkansas Lignite Investigations

Lafayette County



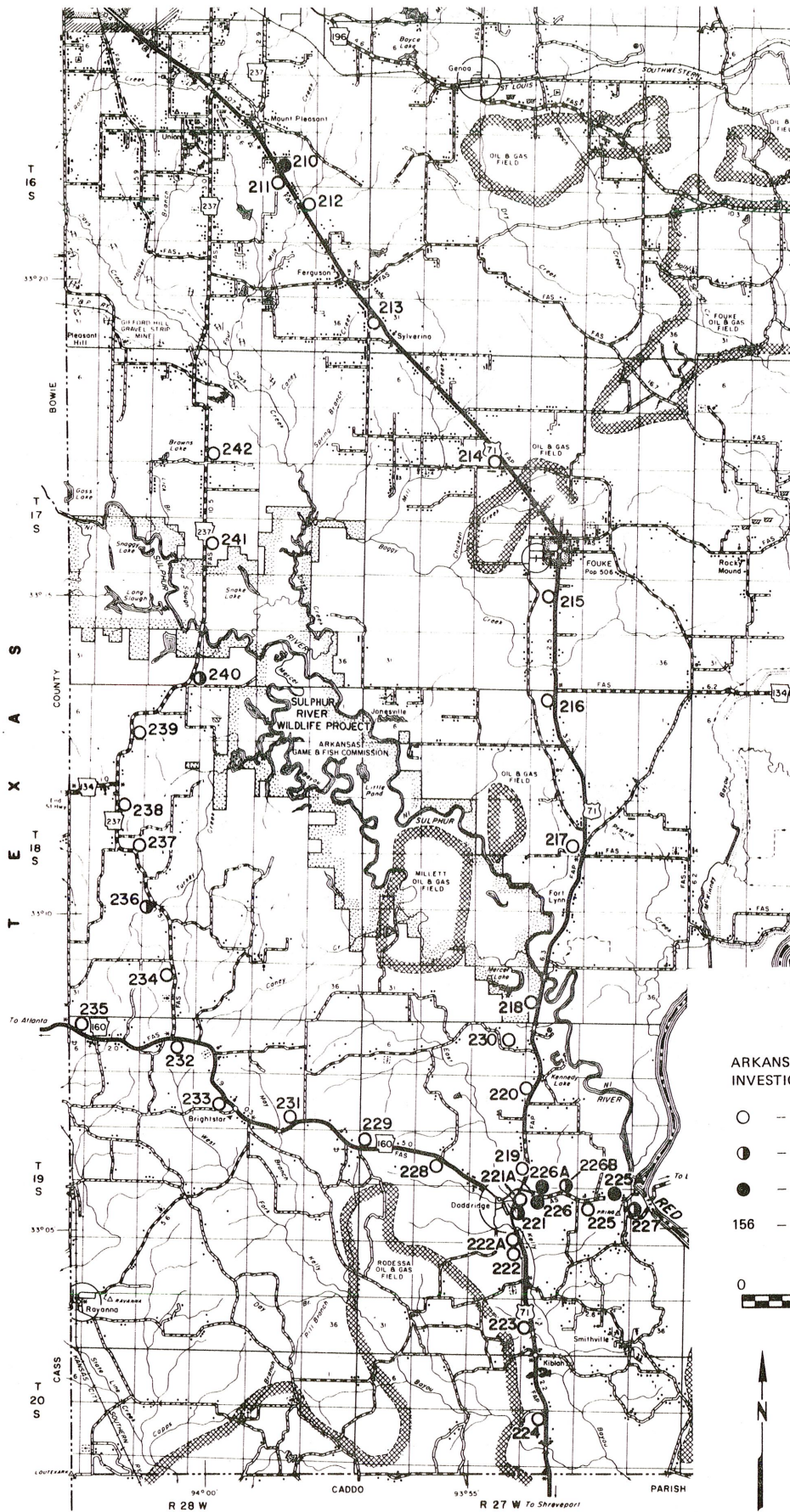
EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite
- 156 — drill hole reference number

Arkansas Lignite Investigations

Miller County



EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

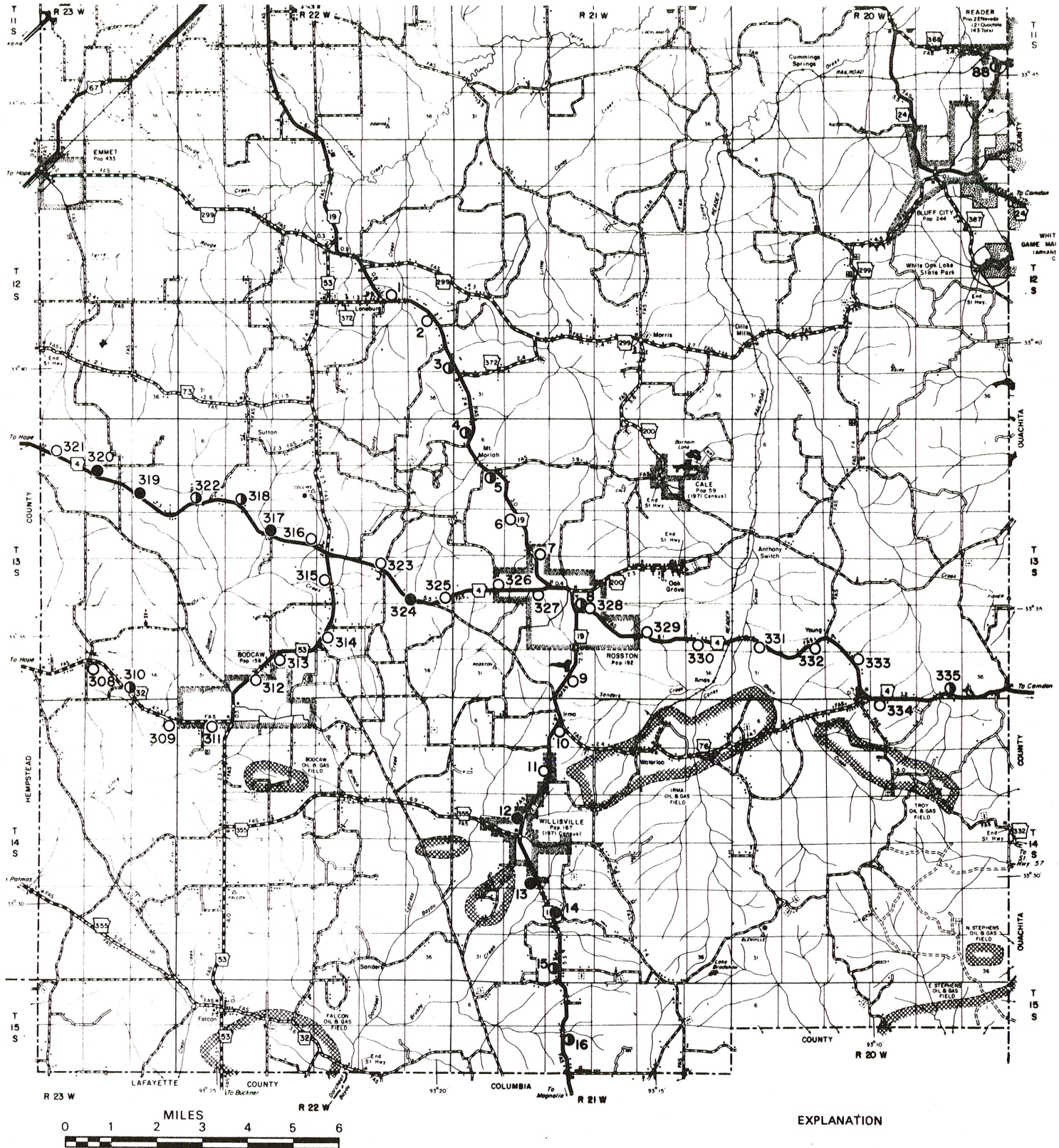
- — less than 6" of lignite
- ◐ — 6" to 3' of lignite
- — over 3' of lignite

156 — drill hole reference number

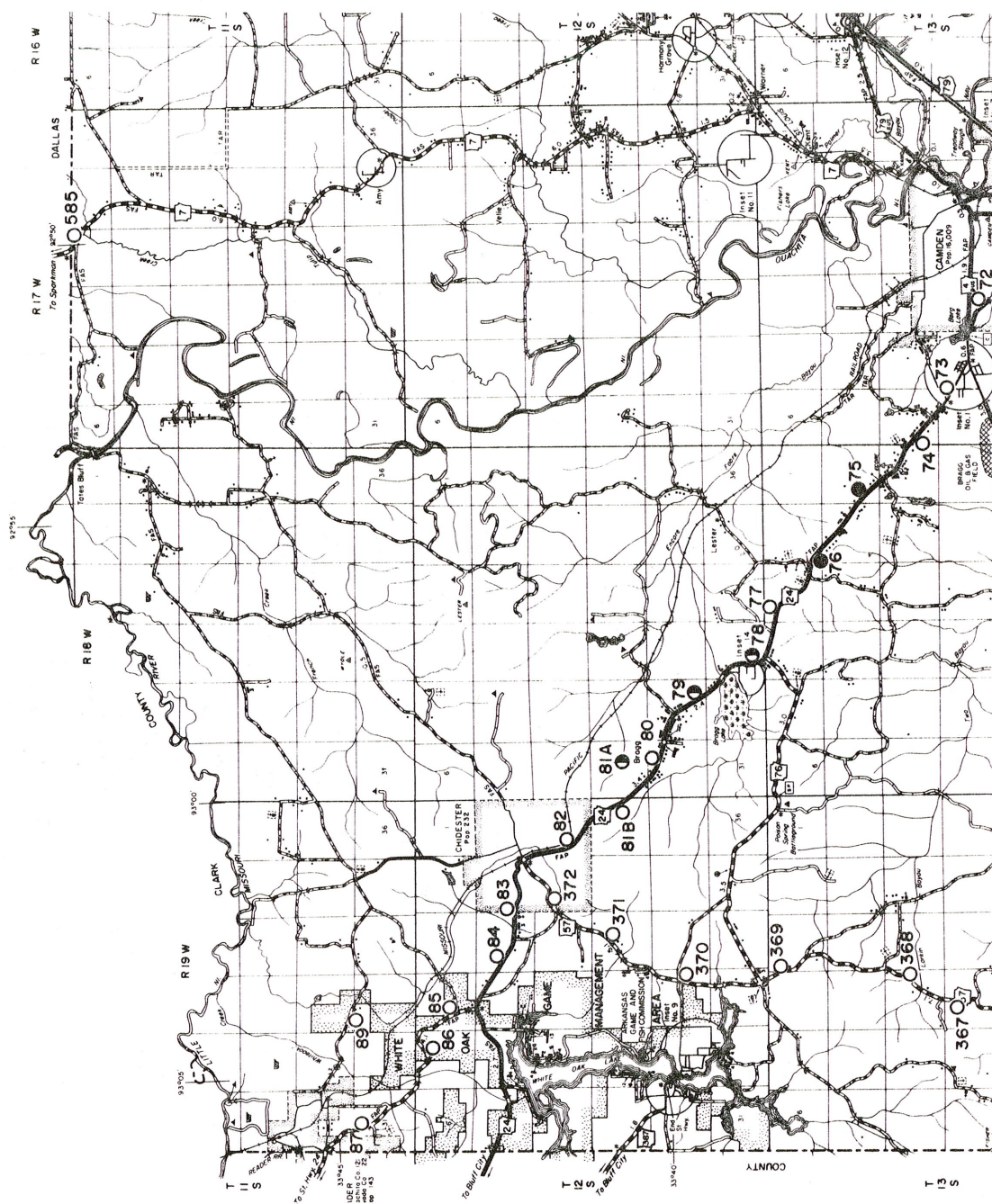


Arkansas Lignite Investigations

Nevada County

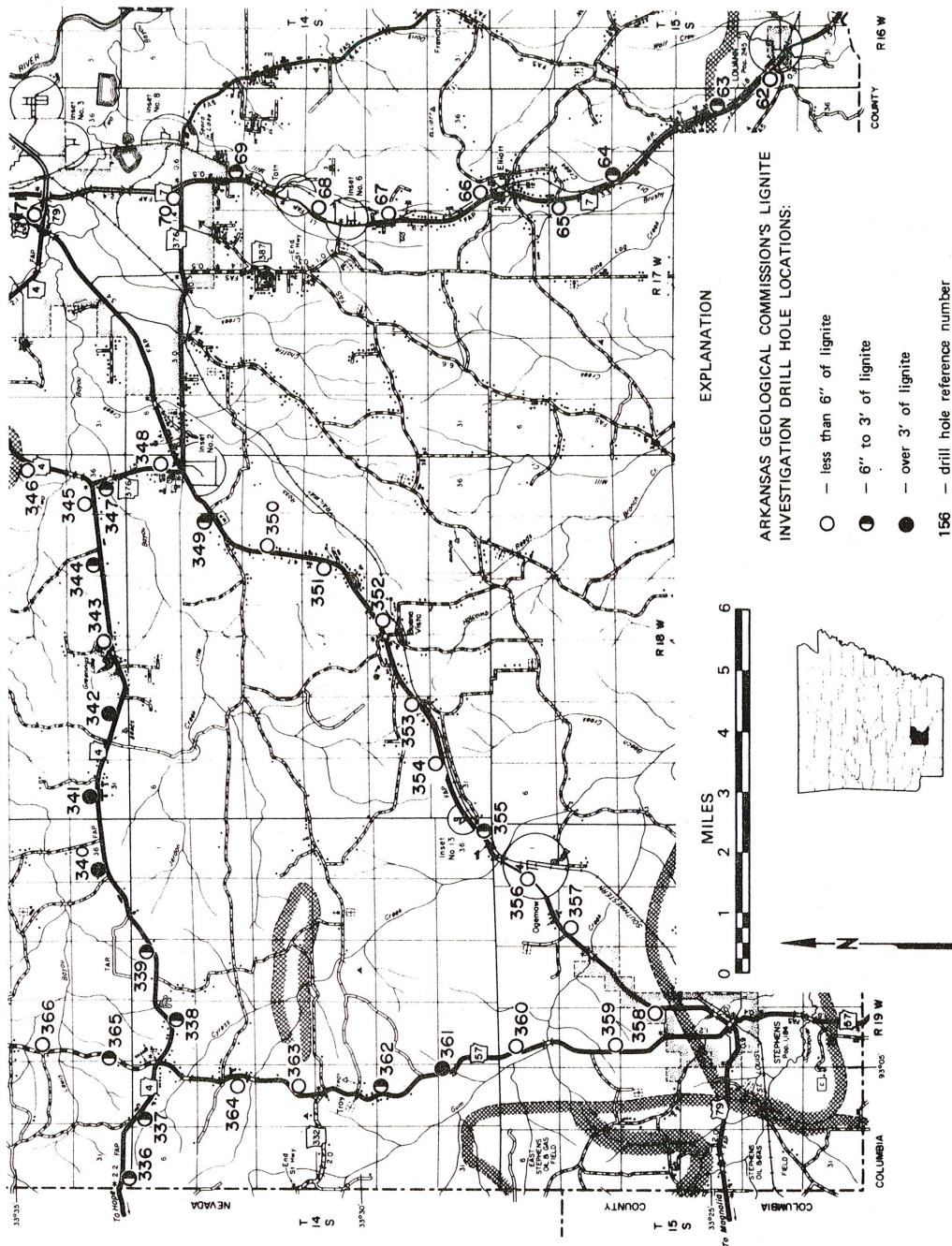


Ouachita County



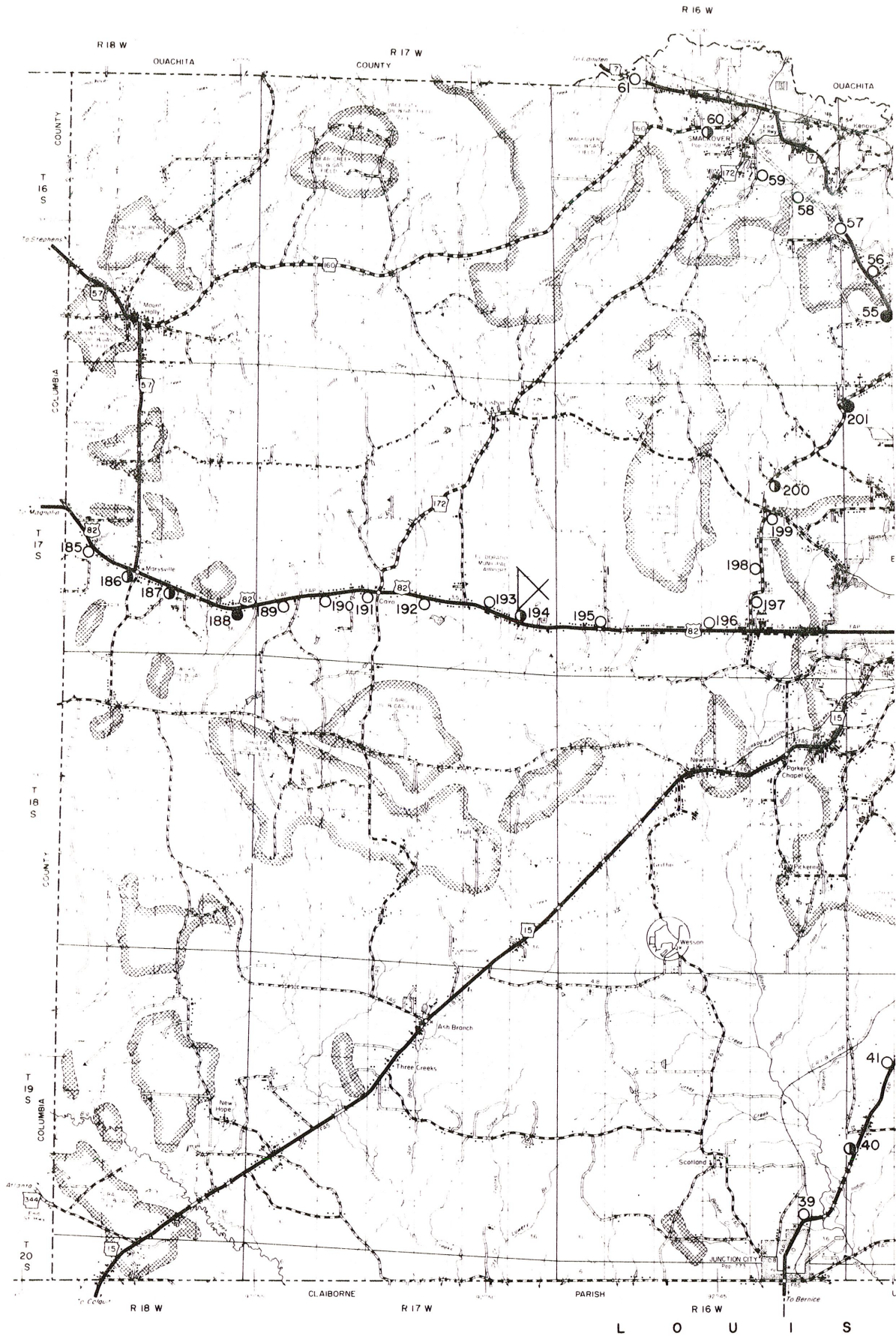
Arkansas Lignite Investigations

Ouachita County



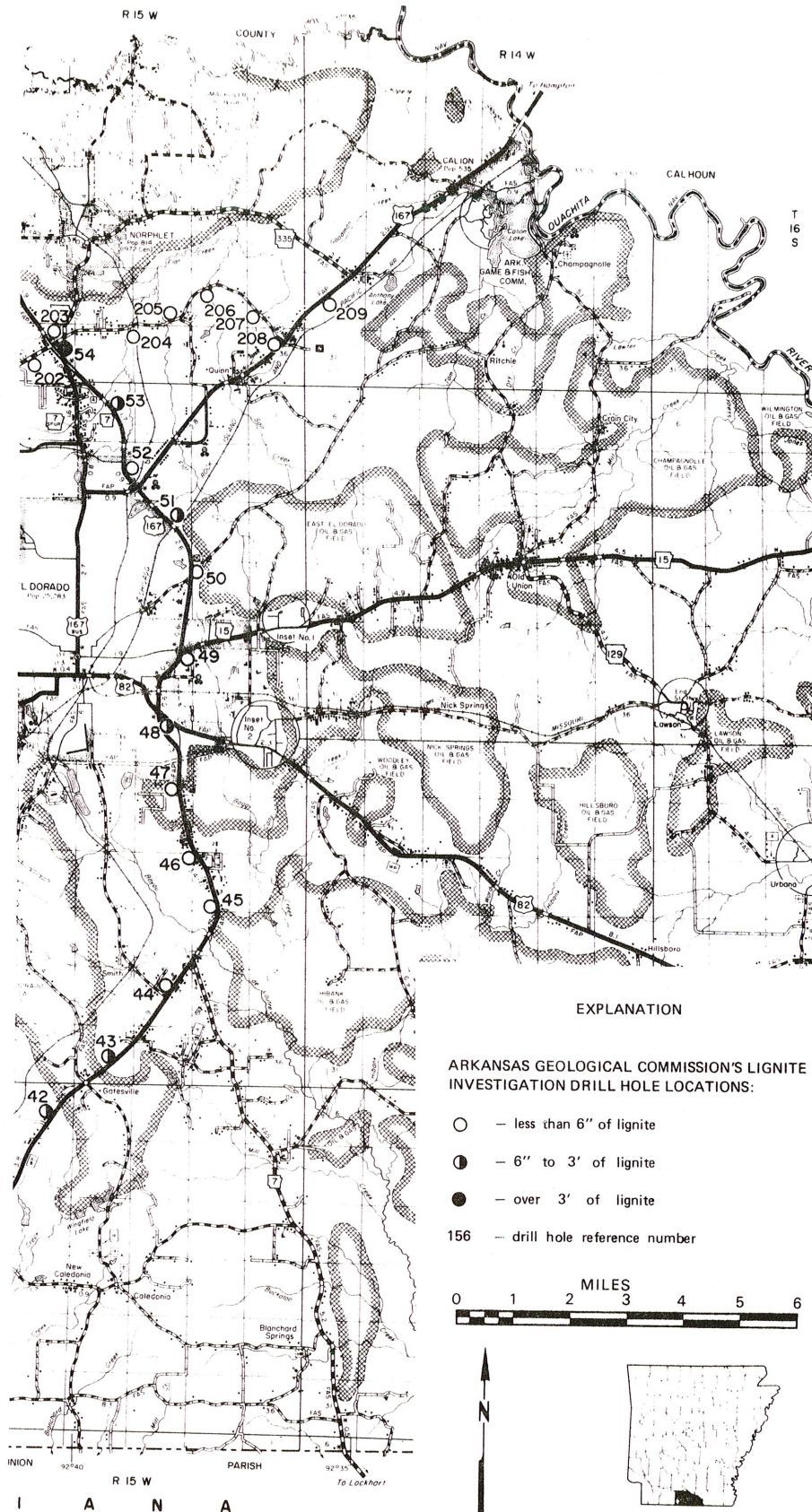
Arkansas Lignite Investigations

Union County



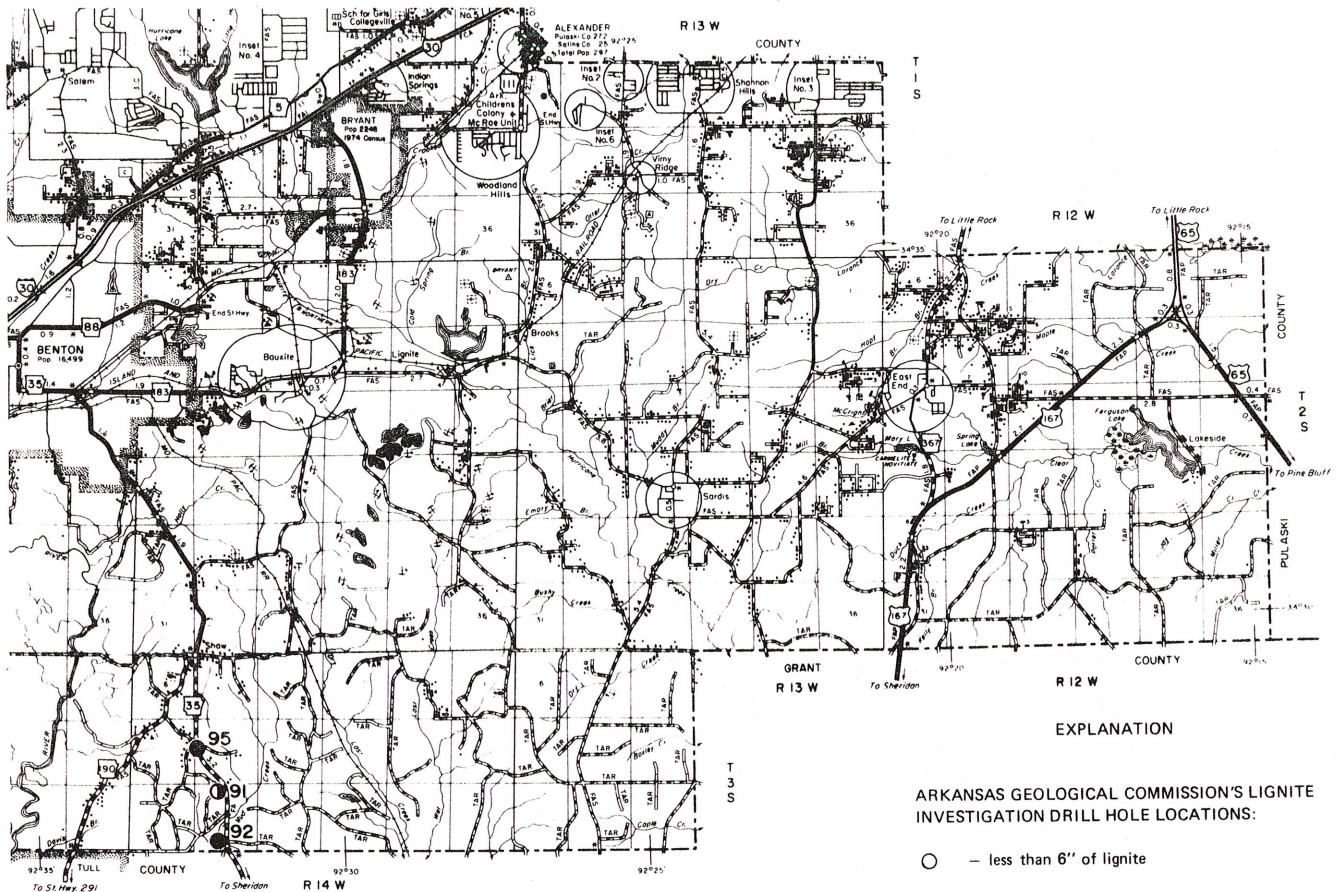
Arkansas Lignite Investigations

Union County



Arkansas Lignite Investigations

Saline County

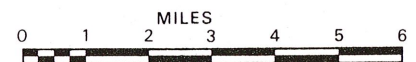


EXPLANATION

ARKANSAS GEOLOGICAL COMMISSION'S LIGNITE INVESTIGATION DRILL HOLE LOCATIONS:

- — less than 6" of lignite
- — 6" to 3' of lignite
- — over 3' of lignite

156 -- drill hole reference number



ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 1. Elevation 258'

Location: Sec. 23, T. 12 S., R. 22 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 10' Sand, coarse-grained, with red clay and humus
- 10'- 16' Sand, coarse-grained, with some red clay
- 16'- 20' Clay, light-gray, turning to dark-gray, with traces of lignite
- 20'- 25' Clay, dark-gray, with fractured lignite
- 25'- 30' Contact between Wilcox and Midway formations, small gravel with mixed red clay and coarse sand, some woody lignite
- 30'- 33' Clay, dark-gray, with subconchoidal fracture
T. D.: 33'

Drill Hole No. 2. Elevation 380'

Location: SE¼, Sec. 24, T. 12 S., R. 22 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 10' Sand, medium-grained, with red clay
- 10'- 20' Sand, medium coarse-grained, with red and tan clay
- 20'- 30' Sand, fine-grained, with clay, tan to white
- 30'- 40' Sand, fine-grained, with white clay nodules
- 40'- 50' Clay, white, with thin beds of fine-grained sand
- 50'- 60' Sand, fine to medium-grained, with white and tan clay
- 60'- 83' Clay, white, some fine-grained sand
- 83'- 93' Gravel and coarse-grained sand with white clay fragments
The coarse material in the gravel is granule size.
- 93'- 95' Clay, gray, with traces of lignite and sand
- 95'-100' Sand, medium to coarse, with some gray clay
- 100'-118' Sand, fine-grained, with gray clay
- 118'-124' Sand, fine-grained, with gray clay
- 124'-140' Clay, gray, with fine sand
- 140'-150' Clay, gray, with plant fragments and fine-grained sand
T. D.: 150'

Drill Hole No. 3. Elevation 350'

Location: SE¼, Sec. 25, T. 12 S., R. 22 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 10' Clay, red, with medium to fine-grained sand
- 10'- 19' Clay, white to light tan, with fine-grained sand
- 19'- 22' Clay, dark gray, with fine-grained sand
- 22'- 36' Clay, gray, with sand
- 36'- 42.5' Clay, dark-gray, with some sand
- 42.5'- 44' Clay and sand as above with ironstone concretions
- 44'- 56' Clay, light tan, with some sand
- 56'- 57' Clay, as above, with ironstone concretions
- 57'- 61' Clay, tan, with fine-grained sand
- 61'- 75' Clay, white, with thin layers of very fine-grained sand
- 75'- 76' Clay, lignitic, with very fine-

- 76'- 80' grained sand
Clay, gray to tan, with very fine-grained sand
- 80'- 86' Sand, with iron concretions and some white clay layers
- 86'- 90' Sand, very fine-grained, with tan to reddish tan clay layers
- 90'- 91' Siderite
- 91'- 96' Sand, medium to fine-grained, with white clay
- 96'-103' Clay, white, to gray, with fine-grained sand
- 103'-105' Sand, medium to coarse-grained with iron concretions
- 105'-106' Lignite
- 106'-116' Clay, gray, with very-fine sand
- 116'-120' Clay, dark-gray, with trace of lignite and very fine sand
T. D.: 120'

Drill Hole No. 4. Elevation 270'

Location: NW¼, Sec. 6, T. 13 S., R. 21 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 8' Clay, reddish tan, with medium-grained sand and humus
- 8'- 28' Clay, white, with fine-grained sand and iron concretions
- 28'- 33' Clay, dark to light-gray, with trace of lignite and fine-grained sand
- 33'- 33.5' Lignite
- 33.5'- 43' Clay, gray to dark-gray, with very fine sand
- 43'- 44' Lignite
- 44'- 46' Clay, lignitic, with fine-grained sand
- 46'- 49' Clay, gray, with fine-grained sand
- 49'- 50' Lignite, with dark-gray clay
- 50'- 55' Clay, light-blue
- 55'- 56' Lignite, hard
- 56'- 57' Clay, gray to dark-gray
- 57'- 60' Clay, light-gray to light-blue
- 60'- 78' Clay, gray to light-brown, coarsely crystalline
- 78'-78.5' Lignite
- 78.5'- 86' Clay, light-gray to brown
- 86'- 87' Clay, dark-brown, with some silt
- 87'- 89' Lignite, with some lignitic clay
- 89'- 90' Clay, dark-brown to gray
- 90'- 92.5' Lignite, hard
- 92.5'- 97' Clay, brown
- 97'- 98' Clay, light-gray to light-blue
- 98'-101' Clay, gray
- 101'-103.5' Sand, very-fine grained, with clay stringers
- 103.5'-104' Lignite
- 104'-108' Clay, light-gray to blue
- 108'-111' Clay, brown
- 111'-112' Lignite
- 112'-126' Clay, light-gray, with some very fine-grained sand
T. D.: 126'

Drill Hole No. 5. Elevation 270'

Location: NE¼, Sec. 7, T. 13 S., R. 21 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 10' Clay, tan, with medium-grained sand
- 10'- 20' Clay, brown, lignitic, with medium to fine-grained sand
- 20'- 54' Clay, brown, lignitic, with silt
- 54'- 60' Clay, light-brown, plastic with fine-grained sand
- 60'- 73' Sand, fine-grained, with brown clay layers and trace of lignite

- 73'- 90' Sand, very-fine-grained, with some brown clay and lignite stringers @ 73', 83' and 86'
- 90'-112' Sand, fine-grained, with traces of lignite and some light-brown to gray clay
- 112'-117' Clay, gray, with very fine-grained sand
- 117'-118' Clay, brown, with very fine sand
- 118'-123' Clay, gray, w/very fine-grained sand
- 123'-124' Lignitic clay, with very-fine sand
- 124'-125' Clay, brown to light tan, with very-fine grained sand
- 125'-126' Lignite, hard
- 126'-127' Clay, lignitic
- 127'-150' Clay, light-gray to blue, with some silt and fine sand
T. D.: 150'

Drill Hole No. 6. Elevation 380'

Location: NW¼, Sec. 17, T. 13 S., R. 21 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 5' Clay, red, with medium-grained sand
- 5'- 7' Clay, white, kaolinite
- 7'- 10' Clay, dark-gray, carbonaceous, with some sand
- 10'- 14' Clay, lignitic, with very fine-grained sand
- 14'- 17' Clay, brown, carbonaceous, fissile
- 17'-17.5' Sand, very fine-grained
- 17.5'-37' Clay, brown, fissile, with very fine sand
- 37'- 40' Clay, sideritic, with iron nodules and siderite layers
- 40'- 44' Clay, brown, with very fine-grained sand
- 44'- 70' Clay, brown to light-brown, fissile, with very fine-grained sand
- 70'- 72' Sand, very fine-grained
- 72'- 73' Clay, gray, with very fine-grained sand
- 73'- 84' Clay, brown, with very fine grained sand, @ 84' siderite
T. D.: 84'

Drill Hole No. 7. Elevation 290'

Location: SE¼, Sec. 17, T. 13 S., R. 21 W.
County, Nevada

Logged by: D. W. Lumbert 10/76.

- 0'- 4' Clay, red to tan,
- 4'- 40' Clay, gray to brown, with very fine-grained sand
- 40'- 48' Clay, light to dark-brown, with traces of lignite and very fine-grained sand
- 48'- 55' Clay, light gray, with very fine-grained sand and traces of glauconite
- 55'- 56' Sand, very fine-grained,
- 56'- 70' Clay, gray to brown, traces of lignite and thin layers of fine-grained sand
- 70'-110' Sand, very fine-grained, with many thin layers of gray to brown, sometimes fissile, clay and traces of lignite
- 110'-120' Clay, brown, fissile, pyritic, with very fine-grained sand
- 120'-150' Sand, very fine-grained with brown fissile clay and traces of lignite
T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 8. Elevation 345'

Location: NE¼, Sec. 28, T. 13 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 3' Clay, red to tan, with some fine-grained sand
3'- 5' Clay, white, with fine-grained sand
5'- 10' Clay, dark brown, with fine-grained sand
10'- 12' Clay, green, glauconitic, micaceous
12'- 12½' Siderite
12½'-15' Clay, brown, with layers of glauconitic material
15'- 16' Siderite and ironstone
16'- 22' Clay, brown, with glauconitic layers
22'- 23' Clay, green, very glauconitic
23'- 39' Clay, brown to dark-brown, with a trace of lignite
39'- 40' Sand, very fine-grained, with lignite
40'- 60' Clay, brown to dark-brown, lignitic, with very fine sand
60'- 80' Clay, brown, oily, with very fine sand
80'- 96' Clay, brown
96'-116' Clay, brown, fissile, micaceous, with very fine sand
116'-119' Clay, lignitic, with very fine sand
119'-121' Lignite, with brown clay
121'-129' Clay, lignitic, brown, with some very fine sand
129'-130' Siderite
130'-148' Clay, brown, lignitic, with very fine sand
148'-150' Clay, lignitic, brown, with very fine sand
T. D.: 150'

Drill Hole No. 9. Elevation 348'

Location: SW¼, Sec. 33, T. 13 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 3' Clay, red to tan, with fine-grained sand
3'- 14' Clay, tan to white, with fine grained sand
14'- 17' Clay, dark-gray, with trace of lignite and very fine sand
17'- 20' Clay, gray, with fine grained sand
20'- 37' Clay, gray, silty, with trace of lignite
37'- 89' Clay, gray to brown, silty, with traces of lignite and glauconite
Cuttings were oily.
89'- 90' Clay, brown, with traces of lignite and very fine sand
90'-100' Clay, gray to brown, layered with glauconite and very fine sand
100'-103' Sand, very fine, with gray clay
103'-110' Clay, gray, with trace of lignite and very fine sand
110'-123' Clay, gray
123'-127' Clay, brown, with sand
127'-130' Clay, gray, with silt
130'-132' Clay, brown, lignitic, with very fine sand
132'-138' Clay, gray, with silt
138'-140' Sand, very fine, with gray clay and a trace of lignite
140'-150' Clay, gray and brown layered, with very fine sand
T. D.: 150'

Drill Hole No. 10. Elevation 370'

Location: SW¼, Sec. 4, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 6' Clay, red to tan, with fine-grained sand
6'- 20' Clay, brown to gray, with silt
20'- 48' Clay, gray to dark-gray, silty, with traces of lignitic material
48'- 54' Clay, gray, silty, with trace of lignite
54'- 56' Lignite stringers, with very fine sand
56'- 58' Sand, fine
58'- 60' Clay, gray, with sand
60'- 62' Sand, very fine, with gray clay
62'- 66' Clay, gray, with very fine sand
66'- 68' Clay, lignitic, with very fine sand
68'- 70' Clay, gray, with very fine sand
70'-105' Clay, gray, glauconitic, silty, with trace of lignite @ 80' and siderite layer @ 85'
105'-106' Lignite, with silt
106'-125' Clay, gray, silty
125'-128' Sand, fine, with lignitic clay
128'-130' Clay, lignitic, with very fine sand
130'-150' Sand, very fine, with lignite traces
T. D.: 150'

Drill Hole No. 11. Elevation 365'

Location: SE¼, Sec. 8, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 3' Clay, red to tan, with sand
3'- 11' Clay, white, with iron stain and fine sand
11'- 12' Clay, brown, with fine sand
12'- 19' Clay, gray, with fine sand
19'- 20' Clay, brown, with fine sand
20'- 45' Clay, gray, silty, and glauconitic in places
45'-46' Sand, fine grained, with gray clay
46'- 53' Clay, gray, lignitic, silty
53'- 54' Sand, very fine, with gray clay
54'- 68' Clay, gray, silty
68'- 75' Clay, brown, lignitic, silty
75'- 77' Clay, gray, silty
77'- 80' Clay, brown, lignitic, with very fine sand
80'- 90' Sand, very fine, with gray clay
90'-110' Clay, gray, silty, with trace of lignite and siderite stringer
110'-120' Silt, with gray clay and chunks of lignite
120'-137' Clay, gray, with silt and lignite
137'-145' Silt, with tan, brittle clay, lignite and glauconite
145'-150' Clay, gray, silty
T. D.: 150'

Drill Hole No. 12. Elevation 320'

Location: NE¼, Sec. 17, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 5' Clay, red to tan, with fine sand
5'- 17' Clay, white, with very fine sand
17'- 26' Sand, very fine, clean
26'- 30' Clay, gray, lignitic, with very fine sand
30'- 37' Sand, very fine, with silt and clay
37'- 38' Clay, gray, with silt
38'- 40' Lignite, with clay

40'- 43' Clay, gray, very silty with trace of lignite
43'- 43½' Siderite
43½'-50' Clay, gray, silty, with layers of siderite and traces of lignite
50'- 53' Clay, gray, with silt
53'- 57' Clay, dark brown, with trace of lignite
57'- 60' Lignite
60'- 65' Clay, gray, interbedded with very fine sand
65'- 67' Clay, gray, with very fine sand
67'- 70' Sand, very fine
70'- 73' Clay, brown, lignitic, with very fine sand
73'- 88' Sand, very fine, with some gray to brown clay
88'- 90' Clay, gray, with trace of lignite
90'-107' Clay, gray, with silt
107'-110' Clay, gray and brown
110'-118' Clay, brown, with trace of lignite and very fine sand
118'-124' Clay, gray, with very fine sand
124'-125' Clay, brown, with very fine sand
125'-130' Clay, gray
130'-138' Silt, with gray clay
138'-140' Lignite, with brown clay and fine sand
140'-150' Clay, gray, with very fine sand and layers of siderite
Core Interval 50'-60'
Recovered: 6' Lost: 4'
50' - 56' Clay, brown and gray, silty
56' - 60' Lignite showed in cuttings; no recovery
T. D.: 150'

Drill Hole No. 13. Elevation 330'

Location: SE¼, Sec. 20, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 7' Clay, red to tan, with medium to fine sand
7'- 9' Clay, gray to white, with fine sand
9'- 10' Sand, fine, with clay, yellow
10'- 13' Sand, medium, with small gravel
13'- 18' Clay, dark brown, with fine sand and stringer of lignite @ 13'
18'- 22' Clay, gray, with fine sand
22'- 35' Sand, fine grained, with traces of lignite and gray clay
35'- 36' Clay, brown, with fine sand
36'- 40' Clay, gray, silty
40'- 55' Clay, light-brown to light-gray, with trace of lignite, and fine sand
55'- 56' Sand, fine, with thin layer of lignite
56'- 68' Clay, gray, with silt
68'- 70' Clay, brown, with very fine sand
70'- 80' Clay, brown to light-gray, silty, with trace of lignite
80'-120' Silt to very fine sand, packed with some gray clay
120'-123' Lignite, with brown clay
123'-124' Clay, brown, with silt
124'-132' Lignite
132'-150' Sand, lignitic
Core Interval 120'-130'
Recovered: 0' Lost: 10'
Note: Core lost due to large quantity of sand and silt. Cuttings indicate lignite at this section was several thin seams within very fine sand.
T. D.: 150'

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Drill Hole No. 14. Elevation 360'
Location: SW¼, Sec. 28, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 3' Silty loam soil
3'- 12' Silt, gray, with abundant clay
12'- 17' Sand, fine to medium
17'- 40' Clay, dark gray, silty, interbedded with beds of gray silt some slightly lignitic
40'- 45' Sand, tan, fine, with silt
45'- 48' Sand, packed, tan, fine
48'- 51' Clay, gray and brown, silty
51'- 54' Lignite, with some silty clay
54'- 56' Clay, brown to dark-brown, with very fine sand and silt
56'- 64' Clay, gray, with silt
64'- 67' Sand, fine, packed
67'- 73½' Clay, gray to light gray, w/silt
73½'-76½' Lignite
76½'-80' Lignite, and clay, brown, with very fine sand
80'- 83' Very fine sand, silt, w/gray clay
83'- 90' Clay, gray, with silt
90'-120' Sand, very fine, with silt and gray clay
120'-138' Clay, brown to light brown, with silt, very hard
138'-150' Clay, gray, with silt
Core interval 50'-55'2"
Recovered: 3'11" Lost: 15"
50'-50'6" Clay, gray, with very little silt
50'6"-51'1" Clay, light brown to gray, with very fine sand
51'1"-52' Clay, dark brown, with very fine sand, lignitic
52'-53'3" Lignite, large cuttings in mud, and broken core indicate 15" of lignite lost at this interval
53'3"-54'8" Lignite, hard
54'8"-55'2" Clay, dark-brown, lignitic, with very fine sand
Core interval 70'-80'
Recovered: 7'4" Lost: 2'8"
70'-74'2" Clay, gray
74'2"-74'9" Lignite
74'9"-75' Sand, fine,
75'-77'4" Lignite
77'4"-80' Section lost, probably sand
T. D.: 150'

Drill Hole No. 15. Elevation 375'
Location: SW¼, Sec. 33, T. 14 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 10/76.

0'- 5' Clay, red, with fine sand
5'- 12' Clay, light gray, w/very fine sand
12'- 14' Clay, light-brown, with very fine sand
14'- 28' Clay, dark gray, with silt
28'- 30' Clay, brown, fine sand and siderite layers
30'- 45' Clay, dark gray, w/very fine sand
45'- 50' Clay, brown and gray layers, with very fine sand and trace of lignite
50'- 64' Sand, very fine, with light gray clay and traces of lignite
64'- 75' Clay, gray, with very fine sand and trace of lignite
@ 64' 2" layer of siderite
75'- 81½' Very fine sand and silt, with

gray clay
81½'- 82' Siderite
82'- 92½' Sand, very fine, with gray clay and trace of lignite
92½'- 94' Lignite and brown clay, with silt
94'- 98' Clay, brown, lignitic, with silt
98'-100' Clay, light-gray, w/very fine sand
100'-110' Sand, very fine, and silt, with layers of light-brown and light-gray clay
110'-112' Clay, brown to dark brown, with very fine sand
112'-115' Lignite and dark brown clay, with very fine sand
115'-122' Sand, very fine, with silt and brown clay
122'-140' Silt, with very little clay
140'-150' Clay, light gray, with silt
T. D.: 150'

Drill Hole No. 16. Elevation 345'
Location: NW¼, Sec. 9, T. 15 S., R. 21 W.
County, Nevada
Logged by: D. W. Lumbert 11/76.

0'- 5' Clay, red and light-gray layers with fine sand
5'- 10' Clay, as above
10'- 18' Sand, fine, w/trace of lignite
18'- 29' Clay, gray, silty, with trace of lignite and glauconite
29'- 30' Sand, fine, lignitic
30'- 38' Sand, fine, with gray clay @ 34' siderite layer
38'- 40' Clay, gray, with fine sand
40'- 45' Sand, fine, with gray clay
45'- 58' Clay, gray, glauconitic, with fine sand
58'- 59' Sandstone or siderite layer
59'- 68' Sand, fine, with gray clay
68'- 78' Clay, gray, with very fine sand
78'- 79' Clay, brown, lignitic, with very fine sand
79'- 93' Sand, very fine, with traces of lignite and light-gray clay
93'- 98' Clay, light-gray, with lignite stringers
98'-100' Sand, very fine, w/trace of lignite
100'-110' Clay, gray, with very fine sand
110'-114' Sand, very fine, with clay
114'-115' Clay, gray, with very fine sand
115'-115½' Siderite
115½'-120' Clay, gray, with very fine sand
120'-130' Sand, very fine, with fissile, gray clay
130'-148' Clay, light-gray to gray, with silt
148'-151' Lignite, with dark-brown clay, and very fine sand
151'-155' Clay, light brown to light gray, with silt
T. D.: 155'

Drill Hole No. 17. Elevation 400'
Location: SE¼, Sec. 16, T. 15 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 4' Clay, red, with fine sand
4'- 18' Clay, white to light gray, with fine sand
18'- 23' Clay, light to dark brown, with very fine sand
23'- 34' Clay, dark-gray, with very fine sand
34'- 40' Clay, gray, slightly glauconitic, with very fine sand
40'- 46' Clay, gray, with brown lignitic clay, and very fine sand
46'- 50' Clay, gray, glauconitic
50'- 60' Clay, gray, glauconitic, with very fine sand
@ 55' lignite seam
60'- 80' Clay, gray, glauconitic, with

very fine sand
80'- 108' Sand, fine, with gray clay, glauconitic and lignitic
108'-116' Clay, light-brown and gray, with very fine sand
@ 113' siderite layer
116'-120' Sand, very fine, with gray clay
120'-130' Clay, gray to light-gray, glauconitic, with very fine sand
130'-149' Clay, gray, brown layered, with very fine sand
@ 148' siderite layer
T. D.: 149'

Drill Hole No. 18. Elevation 345'
Location: SW¼, Sec. 21, T. 15 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 3' Clay, red and yellow, with fine sand
3'- 8' Clay, gray
8'- 10' Clay, light brown, with consolidated bed of fine sand
10'- 18' Clay, gray to dark gray, lignitic with very fine sand
18'- 26' Clay, gray, with beds of very fine sand
26'- 30' Clay, gray, lignitic, with very fine sand
30'- 34' Clay, gray, with very fine sand
34'- 38' Clay, gray, hard
38'- 40' Clay, gray, slightly lignitic, with silt
40'- 46' Clay, gray, lignitic, glauconitic with very fine sand
46'- 47' Sandstone, iron cemented, with pyrite nodules
47'- 50' Clay, gray, with lignitic material and fine sand
50'- 57' Sand, very fine, with gray clay layers and a trace of lignite
57'- 60' Clay, gray to light brown, with very fine sand and trace of lignite
60'- 67' Sand, very fine, with gray clay
67'- 72' Clay, tan to light brown, with silt
72'- 78' Clay, gray, with very fine sand and trace of lignite
78'- 87' Clay, light brown, with very fine sand and silt
@ 87' lignite stringer
87'- 90' Clay, brown to gray, with very fine sand
90'-113' Silt, w/very fine sand, and gray clay
@ 105½' siderite layer
113'-120' Clay, gray, with very fine sand and silt
120'-150' Silt, with some very fine sand layers, gray clay, and stringers of siderite
T. D.: 150'

Drill Hole No. 19. Elevation 365'
Location: NW¼, Sec. 33, T. 15 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 8' Clay, red and gray layered, with fine sand
8'- 11' Clay, light brown, with very fine sand
11'- 16' Clay, dark brown
16'- 17' Clay, gray, with silt
17'- 20' Clay, gray
20'- 24' Clay, gray, glauconitic, w/very fine sand
24'- 38' Clay, gray, glauconitic, with very fine sand and trace of lignite
38'- 46' Clay, gray to brown, with very

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fine sand
46'- 62' Clay, light gray, glauconitic, with very fine sand and silt
62'- 70' Clay, gray, glauconitic, with very fine sand, trace of lignite
70'- 73' Clay, brown, lignitic, with very fine sand
73'- 78' Sand, very fine, with brown and gray layered clay
78'-106' Clay, gray, glauconitic, silty, with trace of lignite and some thin siderite beds
106'-118' Clay, gray to light brown, with very fine sand
118'-120' Silt and very fine sand, packed, with gray clay
120'-150' Clay, layered gray and brown, with very fine sand and thin siderite layers
T. D.: 150'

Drill Hole No. 20. Elevation 380'
Location: NE¼, Sec. 5, T. 16 S., R. 21 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 4' Clay, red, with very fine sand
4'- 6' Clay, yellow, with very fine sand
6'- 10' Clay, gray, with silt, banded with red and yellow clay
10'- 20' Clay, light gray to white
20'- 24' Clay, dark brown to black, very lignitic, with very fine sand
24'- 27' Clay, brown to black, lignitic with very fine sand
27'- 28' Sand, very fine, with brown clay and a trace of lignite
28'- 30' Clay, dark-brown, with silt
30'- 60' Clay, gray, silty, with trace of lignite
60'- 69' Clay, gray, glauconitic, with trace of lignite and very fine sand
69'- 70' Lignite, with very fine sand
70'- 80' Clay, gray, with very fine sand
80'- 87' Sand, fine to very fine, w/gray clay
87'-100' Clay, light-gray, with bluish tint, silty
100'-120' Clay, gray to dark-gray, silty
120'-140' Clay, gray, with bright green glauconitic sand, very fine
140'-150' Clay, gray to dark-gray, with very fine sand
T. D.: 150'

Drill Hole No. 21. Elevation 360'
Location: NE¼, Sec. 8, T. 16 S., R. 21 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 7' Clay, red to yellow, with very fine sand
7'- 14' Clay, light gray to white, with very fine sand
14'- 15' Clay, dark brown, lignitic, with very fine sand
15'- 27' Clay, blue-gray, with very fine sand
27'- 29' Clay, dark gray, with very fine sand
29'- 29½' Lignite
29½'- 30' Siderite layer
30'- 43' Clay, gray to dark-gray, with very fine sand, slightly lignitic
43'- 54' Clay, gray, with very fine sand

54'- 55' Sand, fine, lignitic
55'- 68' Clay, bluish-gray, with interbedded, very fine sand
68'- 87' Clay, gray to bluish-gray, with layers of very fine sand
87'- 87½' Sand, very fine
87½'- 90' Clay, gray, with silt
90'- 97' Clay, gray, glauconitic, lignitic, with very fine sand
97'- 97½' Sand, very fine
97½'-106' Clay, gray, glauconitic, with very fine sand
106'-110' Silt, with some glauconitic clay
110'-120' Clay, gray, fissile, with layers of very fine sand
120'-123' Clay, dark gray to green, glauconitic, with very fine sand
123'-125' Clay, white
125'-129' Clay, gray, glauconitic, with very fine sand
129'-129½' Siderite
129½'-134' Clay, gray, glauconitic, with very fine sand
134'-150' Clay, brown, with very fine sand
T. D.: 150'

Drill Hole No. 22. Elevation 385'
Location: NE¼, Sec. 16, T. 16 S., R. 21 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 2' Clay, red, with fine sand and humus
2'- 3½' Gravel, iron cemented
3½'- 12' Clay, light gray, with very fine sand
12'- 16' Clay, brown, lignitic, with very fine sand
16'- 26' Clay, gray, with very fine sand
26'- 33' Clay, light gray, silty, with trace of lignite
33'- 40' Clay, blue green
40'- 44' Clay, gray, with very fine sand
44'- 47' Sand, fine
47'- 50' Clay, gray, with very fine sand
50'- 57' Clay, gray to blue, with very fine sand
57'- 64' Clay, brown, with very fine sand
64'- 79' Clay, blue green, with very fine sand
79'- 85' Clay, brown, laminated with very fine sand
85'- 90' Clay, gray, with very fine sand
90'- 92' Clay, brown, laminated with very fine sand
T. D.: 92'

Drill Hole No. 23. Elevation 276'
Location: SW¼, Sec. 26, T. 16 S., R. 21 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 8' Clay, reddish tan, with fine sand
8'- 9' Gravel, pea-size
9'- 10' Clay, grayish pink, with fine sand
10'- 14' Clay, white to tan, with very fine sand
14'- 16' Clay, brown, with very fine sand
16'- 20' Clay, gray to dark-gray, slightly lignitic, with very fine sand
20'- 30' Clay, gray, with very fine sand and trace of lignite
30'- 58' Clay, gray, with very fine sand
58'- 70' Clay, blue-gray, with very fine sand
70'- 82' Clay, gray, with very fine sand
82'- 85' Sand, fine
85'- 87' Clay, gray, with very fine sand

87'- 89' Sand, fine, with lignite
89'- 90' Clay, gray, with very fine sand
90'-100' Sand, fine, interbedded with gray and brown clay, with a trace of lignite
100'-116' Clay, gray, silty, glauconitic, with siderite layer @ 105'
116'-150' Clay, light brown to gray, with very fine sand
T. D.: 150'

Drill Hole No. 24. Elevation 280'
Location: SE¼, Sec. 35, T. 16 S., R. 21 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 5' Clay, red to tan, with fine sand
5'- 6' Gravel, pea-size
6'- 8' Clay, white to tan, with fine sand
8'- 10' Clay, dark-brown, lignitic, with fine sand
10'- 11' Lignite, with some brown clay
11'- 20' Clay, gray, with fine sand
20'- 28' Clay, gray, with brown layers, fissile, and fine sand
28'- 30' Clay, light gray, with very fine sand
30'- 45' Clay, gray, glauconitic, with fine sand
45'- 50' Clay, light gray with bluish tint
50'- 61½' Clay, light gray, with very fine sand, and siderite layer @ 54'
61½'- 63' Sand, fine
63'- 72' Clay, gray, silty
72'- 78' Clay, light brown, with very fine sand
78'- 80' Clay, bluish-gray, with very fine sand
80'-107' Clay, light bluish-gray, with silt
107'-109' Sand, fine, with gray and brown layered clay
109'-120' Clay, brown, lignitic, with very fine sand
120'-140' Clay, gray, with very fine sand and siderite layer @ 125'
140'-150' Clay, brown, silty
T. D.: 150'

Drill Hole No. 25. Elevation 350'
Location: NE¼, Sec. 6, T. 17 S., R. 20 W. County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 8' Clay, red, with fine sand
8'- 10' Sand, fine
10'- 48' Sand, very fine, with some clay
48'- 50' Clay, dark brown, with trace of lignite and very fine sand
50'- 63' Sand, very fine, with layers of dark brown clay, and some lignite
63'- 64' Lignite, with very fine sand
64'- 70' Sand, very fine, with light gray clay
70'- 80' Clay, gray to light brown, with very fine sand
80'- 90' Clay, brown, with very fine sand
90'-100' Clay, dark brown, trace of lignite, and very fine sand
100'-107' Clay, blue-green, glauconitic, with very fine sand and siderite layer @ 106'
107'-110' Clay, gray, with very fine sand
110'-137' Clay, greenish gray, with very fine sand
137'-140' Clay, light blue-green
140'-150' Clay, gray to light brown, with very fine sand
T. D.: 150'

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Drill Hole No. 26. Elevation 300'
Location: NE¼, Sec. 7, T. 17 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 5' Clay, red to tan, with fine sand and iron concretions
5'- 7' Clay, brown and white layered, very fine sand
7'- 10' Clay, white, with very fine sand
10'- 21' Clay, gray, with fine sand
21'- 23' Lignite, with dark brown clay and fine sand
23'- 28' Clay, gray-green, with fine sand
28'- 96' Sand, fine, with thin beds of gray and gray-green clay, and a few traces of lignite
96'-120' Clay, gray with blue tint, silty
120'-130' Clay, light blue-gray, with silt
130'-140' Sand, fine, with gray clay
140'-150' Clay, gray, glauconitic, with very fine sand
T. D.: 150'

Drill Hole No. 27. Elevation 280'
Location: NE¼, Sec. 18, T. 17 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 10' Sand and clay, red to tan
10'- 13' Sand, with gray and white clay layers
13'- 15' Clay, gray, with trace of lignite and fine sand
15'- 20' Sand, fine, with gray clay
20'- 30' Clay, gray, with very fine sand
30'- 38' Clay, gray and brown layered, with very fine sand
38'- 40' Clay, brown, trace of lignite and very fine sand
40'- 56' Clay, gray, silty
56'- 56½' Siderite
56½'- 60' Clay, brown, with very fine sand
60'- 70' Clay, gray and brown, with very fine sand
70'-105' Clay, gray, with very fine sand
105'-107' Sand, fine, with gray clay
107'-115' Clay, gray, with very fine sand
115'-118' Sand, fine, with brown and gray clay and trace of lignite
118'-120' Clay, gray, with very fine sand
120'-130' Sand, fine, with gray clay
130'-150' Clay, gray, with very fine sand, siderite @ 145'
T. D.: 150'

Drill Hole No. 28. Elevation 273'
Location: SE¼, Sec. 24, T. 17 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 10' Clay, red and tan layers, with fine sand
10'- 30' Gravel, medium, with tan and white clay layers, and fine sand
30'- 40' Sand, fine, with white clay @ 35'
40'- 65' Clay, gray, with very fine sand
65'- 75' Clay, dark brown, with very fine sand and layers of siderite
75'- 95' Clay, bluish-gray, with very fine sand, trace of lignite, and siderite layer @ 95'
95'-107' Clay, light brown, silty
107'-109' Clay, dark brown, lignitic, with very fine sand
109'-120' Clay, gray, with layers of brown clay, with very fine sand
120'-150' Clay, gray, silty, with siderite layer from 134½' - 136½'.
T. D.: 150'

Drill Hole No. 29. Elevation 305'
Location: NW¼, Sec. 31, T. 17 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 11/76.

0'- 10' Clay, white to gray, silty
10'- 17' Clay, white to gray, silty, with oxidized sandy iron clay balls
17'- 20' Sand, brown, medium, lignitic
20'- 21' Clay, gray, with fine sand and silt
21'- 23½' Sand, gray, with silt
23½'- 31' Clay, gray, with fine sand and silt, and trace of lignite
31'- 56' Sand, gray, fine
56'- 56½' Clay, gray, with fine sand and silt, with trace of lignite
56½'- 60' Sand, gray, fine
60'- 68' Clay, gray, with very fine sand and silt, trace of lignite
68'- 75' Clay, brown, with silt
75'- 80' Clay, brown, silty, interbedded with gray silty clay
80'- 85½' Clay, gray, silty
85½'- 86' Clay, brown, silty, with thin lignite seams
86'-102' Clay, gray, silty
102'-106' Clay, brown, silty, with fine sand and siderite @ 105½'
106'-146' Clay, gray, silty, with very fine sand and thin layer of siderite @ 131'
146'-150' Clay, brown, silty, with fine sand
T. D.: 150'

Drill Hole No. 30. Elevation 347'
Location: NE¼, Sec. 6, T. 18 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 4' Clay, red to tan, with fine sand
4'- 11' Clay, white, kaolinitic
11'- 12' Clay, as above, with ironstone concretions
12'- 40' Clay, white, with some very fine sand and silt
40'- 55' Clay, white, with very fine sand
55'- 60' Clay, gray, slightly lignitic, with very fine sand
60'- 65' Sand, fine, with gray lignitic clay
65'- 70' Clay, gray, with trace of lignite and very fine sand
70'- 90' Sand, fine, with some thin beds of gray, tan, and white clay and scattering ironstone concretions
90'- 95' Clay, green, glauconitic, with layers of ironstone concretions and very fine sand
95'- 96½' Siderite
96½'- 99' Sand, fine, with some brown to gray clay
99'-100' Clay, brown, with very fine sand
100'-120' Clay, gray, with trace of lignite and very fine sand, glauconitic in places
120'-140' Clay, gray, with very fine sand
140'-150' Clay, gray, with brown layers, and very fine sand
T. D.: 150'

Drill Hole No. 31. Elevation 280'
Location: SE¼, Sec. 7, T. 18 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 10' Clay, white, silty
10'- 24' Clay, white to light brown, silty
24'- 26' Clay, brown, with very fine sand and silt

26'- 30' Clay, gray, silty
30'- 40' Clay, gray, silty, carbonaceous
40'- 49' Clay, brown, silty
49'- 50' Clay, gray, silty
50'- 70' Clay, gray, with some brown layers, with very fine sand
70'- 80' Clay, brown to gray layers, with very fine sand
80'- 90' Clay, gray, with glauconitic with very fine sand
90'-128' Clay, brown to gray, with very fine sand
128'-130' Clay, bluish-gray, silty
130'-148' Clay, gray, silty, with very fine sand
148'-150' Clay, gray, glauconitic and micaceous, with fine sand
T. D.: 150'

Drill Hole No. 32. Elevation 266'
Location: SE¼, Sec. 17, T. 18 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 11/76.

0'- 4' Clay, red and tan, with ironstone concretions and fine sand
4'- 5' Gravel, pea-size
5'- 12' Clay, white, silty, with ironstone concretions
12'- 14' Clay, dark-brown, silty
14'- 20' Clay, gray, silty
20'- 30' Clay, bluish-gray, with very fine sand and trace of lignite
30'- 40' Clay, bluish-gray, glauconitic, with very fine sand, and siderite layer
40'- 50' Clay, bluish-green, as above, with beds of brown lignitic clay
50'- 77' Clay, bluish-gray, with very fine sand
77'- 80' Clay, dark brown, lignitic, silty
80'- 86' Clay, dark brown, with fine sand and lignite seam
86'-110' Clay, gray, with very fine sand
110'-113' Clay, gray, glauconitic, with very fine sand and siderite layer
113'-115' Clay, blue-gray, and very fine sand
115'-118' Sand, very fine, with some lignite
118'-123' Clay, gray, with very fine sand and siderite layer
123'-130' Sand, very fine, with glauconitic clay and trace of lignite
130'-140' Clay, gray, glauconitic, with trace of lignite and very fine sand, and a siderite layer @ 131'
140'-150' Clay, gray, glauconitic, with trace of lignite and very fine sand, with siderite layer @ 144'
T. D.: 150'

Drill Hole No. 33. Elevation 275'
Location: NW¼, Sec. 28, T. 18 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 11/76.

0'- 5' Clay, tan, with medium to fine sand and silt
5'- 16' Clay, white to cream, silty
16'- 20' Clay, brown, and silty
20'- 22' Clay, gray, silty
22'- 32½' Clay, gray, silty, interbedded with brown clay, with siderite layer @ 32½'
32½'-44' Clay, gray, silty, with trace of lignite and brown clay
44'- 46' Clay, gray, silty
46'- 46½' Sandstone, with a brown carbonate cement
46½'- 60' Clay, gray, silty, with fine sand and minor, light-brown, clay stringer

ARKANSAS LIGNITE INVESTIGATIONS

60'- 79' Clay, blue-gray, silty
79'- 80' Clay, light brown, silty
80'- 85' Clay, gray, silty, with very fine sand
85'- 90' Clay, gray, micaceous, with fine sand and silt
90'-100' Silt, gray, with very fine sand and mica
100'-105' Clay, gray, silty
105'-110' Sand, very fine, gray, with silt
110'-125' Clay, gray, silty, with fine sand
125'-141' Sand, gray, very fine, with silt
141'-150' Sand, glauconitic, fine, with numerous thin siderite seams
T. D.: 150'

Drill Hole No. 34. Elevation 284'
Location: NE¼, Sec. 4, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 12/76.

0'- 7' Clay, red, tan and brown, with very fine sand
7'- 15' Clay, white to light-gray, silty
15'- 17' Clay, light-brown, silty, carbonaceous
17'- 26' Clay, light to dark-gray, silty
26'- 29' Clay, dark-gray, with very fine sand and silt
29'- 35' Clay, gray to light tan, with very fine sand and siderite layers
35'- 57' Clay, dark-gray, with traces of lignite and layers of very fine sand
57'- 67' Clay, dark-brown, with layers of gray clay and very fine sand
67'- 70' Clay, gray, glauconitic, with very fine sand
70'- 85' Clay, light-gray, silty, slightly lignitic
85'- 88' Clay, dark-brown, with very fine sand
88'- 92' Clay, dark-gray, with layers of white clay, and very fine sand
92'-110' Sand, very fine, with gray silty clay and traces of lignite
110'-130' Clay, gray, with very fine sand
130'-140' Sand, very fine, glauconitic, with some gray clay
140'-141' Clay, gray, with very fine sand
141'-150' Sand, glauconitic
T. D.: 150'

Drill Hole No. 35. Elevation 310'
Location: NW¼, Sec. 10, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 12/76.

0'- 10' Clay, tan to white, with very fine sand
10'- 20' Clay, white, with pink tint, with very fine sand
20'- 24' Clay, white, with very fine sand
24'- 33' Clay, light brown to gray, with very fine sand
33'- 34' Clay, light brown to dark-brown, layered with silt
34'- 35½' Clay, light-gray, silty
35½'- 40' Lignite, friable, silty, increasingly better lignite from 38'-40'
40'- 41½' Lignite, friable
41½'- 50' Clay, light-gray, with light-brown layers, silty, and slightly glauconitic
50'- 60' Clay, gray, slightly glauconitic, with trace of lignite
60'- 80' Clay, bluish-gray, silty
80'- 90' Clay, bluish-gray, glauconitic, silty, with siderite @ 89'
90'- 99½' Clay, gray, with very fine sand
99½'-100' Lignite

100'-120' Clay, greenish-gray, with very fine sand
120'-130' Clay, light-gray to light-brown, with trace of lignite
130'-150' Clay, light blue-green, with silt
Core interval 35'-45'
Recovered: 8' Lost: 2'
35'-36' Clay, gray, silty
36'-37' Clay, brown to dark brown, with very fine sand and silt
37'-43' Lignite, hard, with conchoidal fracture
43'-45' Only 2" of very fine sand with brown lignitic material recovered
T. D.: 150'

Drill Hole No. 36. Elevation 305'
Location: SE¼, Sec. 16, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 12/76.

0'- 5' Clay, light-gray, with fine sand
5'- 11' Sand, with light gray clay
11'- 13' Clay, light-brown, with very fine sand
13'- 17' Clay, light-gray, with very fine sand
17'- 20' Clay, dark-brown, with trace of lignite and very fine sand
20'- 25' Clay, light gray, layered with light-brown, silty clay
25'- 27' Clay, light-brown, silty
27'- 28' Clay, dark-brown, very lignitic with very fine sand
28'- 30' Clay, light-gray, with very fine sand
30'- 40' Clay, light-gray, interbedded with brown, lignitic clay
40'- 44½' Clay, gray to light brown, with trace of lignite and very fine sand
44½'- 48' Lignite, with dark-brown clay, and very fine sand
48'- 50' Clay, light-brown, with very fine sand and lignitic material
50'- 60' Sand, fine, with trace of lignite
60'-100' Clay, light blue-gray, with very fine sand
100'-110' Clay, light-gray, with trace of lignite and very fine sand
110'-140' Clay, light-gray, slightly glauconitic
140'-150' Clay, light blue-gray, with very fine sand
Core interval 40'-46'
Recovered: 6' Lost: 0'
40'-41½' Clay, brown, with very fine sand
41½'-45' Lignite
45'-46' Clay, brown, and very fine sand
T. D.: 150'

Drill Hole No. 37. Elevation 300'
Location: NW¼, Sec. 27, T. 19 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 12/76.

0'- 10' Silt, tan clayey, with gray silty clay interbedded
10'- 23' Silt, mottled, tan, gray and pink, with clay
23'- 28' Sand, tan, with silt, and trace of lignite
28'- 30' Clay, light brown, silty
30'- 47½' Sand, tan, fine, with silt
47½'- 48' Lignite
48'- 59' Sand, tan, fine
59'- 60' Clay, gray, with silt

60'- 67' Sand, tan, fine
67'- 80' Clay, gray, with silt, and trace of lignite
80'- 90' Clay, gray, with thin inter-layers of fine gray sand and silt
90'-132' Clay, greenish-gray, with lignite flakes or partings, at some fine brown
132'-146' Clay, light-brown, slightly silty
146'-150' Clay, brown, with lignite stringers
T. D.: 150'

Drill Hole No. 38. Elevation 320'
Location: NE¼, Sec. 35, T. 19 S., R. 20 W.
County, Columbia
Logged by: B. F. Clardy 12/76.

0'- 5' Clay, very silty, mottled red and gray
5'- 25' Clay, very silty, light gray
25'- 26' Clay, reddish-brown, sandy and glauconitic
26'- 55' Clay, gray, silty and sandy, with some glauconite
55'- 77' Clay, gray, very sandy
77'- 91' Clay, dark-gray, silty, sandy, with glauconite in places
91'-105' Clay, very silty, sandy, brown, lignitic
105'-121' Sand, semi-consolidated, blue-green glauconitic, clay interbedded with thin beds of brown lignitic, silty, clay
121'-123' Clay, chocolate brown, with lignite stringers
123'-137' Clay, blue-gray, silty
137'-142' Clay, chocolate brown, lignitic, silty
142'-150' Clay, silty, gray, slightly sandy, with trace of lignite
T. D.: 150'

Drill Hole No. 39. Elevation 140'
Location: Sec. 36, T. 19 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 5' Sand, fine, with red clay binder
5'- 16' Sand, fine, with gray clay binder
16'- 20' Clay, light-gray to white, silty
20'- 56' Sand, very fine, with traces of lignite, and some gray clay
56'- 62' Clay, light-gray, with very fine sand and trace of lignite
62'- 66' Sand, fine, glauconitic, micaceous, with thin beds of siderite
66'- 77' Clay, gray, glauconitic, with very fine sand
77'-103' Clay, brown, lignitic, with very fine sand
103'-110' Clay, light-gray, slightly glauconitic, with very fine sand
110'-120' Clay, gray, silty, micaceous
120'-130' Clay, as above, with siderite @ 122½'-123'
130'-140' Clay, gray, glauconitic, micaceous
140'-150' Clay, gray to brown, with siderite layers
T. D.: 150'

Drill Hole No. 40. Elevation 190'
Location: NW¼, Sec. 19, T. 19 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 22' Sand, very fine, with red clay
22'- 52' Sand, very fine, with white, red, and gray clay binder
52'- 60' Clay, gray, with very fine sand and trace of lignite

ARKANSAS LIGNITE INVESTIGATIONS

60'- 79½' Sand, very fine, with gray clay binder
 79½' 80' Sand, very fine, with lignite
 80'- 83' Lignite
 83'- 90' Sand, very fine, with lignite and brown clay
 90'-100' Clay, gray, with very fine sand and trace of lignite
 100'-140' Gray clay, with very fine sand may be packed sand getting very few cuttings
 140'-150' Sand, very fine, packed, @ 143' -145' lignitic sand
 T. D.: 150'

Drill Hole No. 41. Elevation 180'
 Location: SE¼, Sec. 7, T. 19 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 12' Sand, very fine, with gray clay binder and ironstone concretion layer at 7'
 12'- 30½' Clay, light-gray to tan, with very fine sand
 30½' 62' Sand, very fine
 62'- 90' Clay, dark gray, with trace of lignite and very fine sand
 90'- 91½' Siderite
 91½'-100' Sand, fine, with gray clay, and trace of lignite
 100'-110' Clay, gray, slightly glauconitic with very fine sand
 110'-150' Clay, gray to blue-gray, glauconitic, micaceous, silty, with very fine sand
 T. D.: 150'

Drill Hole No. 42. Elevation 195'
 Location: NE¼, Sec. 5, T. 19 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Clay, gray, silty
 10'- 28' Clay, light gray to tan, silty
 28'- 30' Clay, brown, with very fine sand and trace of lignite
 30'- 40' Clay, light gray with brown clay interbedded with very fine sand
 40'- 46' Clay, light-gray, with very fine sand
 46'- 57' Sand, very fine, with iron stained clay
 57'- 60' Clay, light gray, with very fine sand
 60'- 88' Sand, very fine, with stringers of lignite
 88'- 90' Clay, light gray, glauconitic, with very fine sand
 90'-100' Sand, very fine
 100'-110' Sand, very fine, interbedded with gray clay, with a trace of lignite
 110'-127' Sand, very fine
 127'-130' Clay, gray, slightly glauconitic, with a trace of lignite and very fine sand
 130'-140' Sand, very fine, interbedded with gray clay
 140'-150' Sand, very fine
 T. D.: 150'

Drill Hole No. 43. Elevation 262'
 Location: NE¼, Sec. 33, T. 18 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Clay, light gray to tan, silty
 10'- 20' Clay, light gray, silty, with some iron stain
 20'- 40' Clay, light gray to tan, silty,

with some sand layers, and ironstone concretion layer @ 33'
 40'- 50' Sand, very fine, with light gray clay
 50'- 80' Sand, very fine, with trace of lignite
 80'- 90' Sand, very fine, with gray clay
 90'-110' Sand, very fine, with trace of lignite
 110'-120' Sand, very fine, lignitic
 120'-147' Sand, very fine
 147'-150' Lignite and very fine sand
 150'-160' Clay, gray, slightly glauconitic, with very fine sand
 T. D.: 160'

Drill Hole No. 44. Elevation 232'
 Location: NE¼, Sec. 27, T. 18 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Sand, red , with clay binder
 10'- 20' Sand, with interbedded red to tan clay
 20'- 70' Sand, very fine
 T. D.: 70'

Drill Hole No. 45. Elevation 220'
 Location: SW¼, Sec. 14, T. 18 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Clay, light gray, with very fine sand
 10'- 20' Clay, light gray, with fine sand and iron layer at 15'
 20'- 60' Sand, very fine, with gray clay
 60'- 70' Sand, very fine, with trace of lignite
 70'- 80' Silt, gray
 80'- 90' Sand, very fine, with trace of lignite
 90'-110' Sand, very fine, with stringer of lignite
 T. D.: 110'

Drill Hole No. 46. Elevation 235'
 Location: NE¼, Sec. 15, T. 18 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 7' Clay, light gray to red, with fine sand
 7'- 10' Sand, fine, with clay, light gray to red
 10'- 20' Clay, light gray to white, silty, interbedded with fine sand
 20'- 25' Clay, white silty
 25'- 30' Sand, very fine, with white clay
 30'- 37' Clay, white, silty
 37'- 40' Sand, very fine, with white and pink clay
 40'- 50' Sand, very fine, interbedded with white clay
 50'- 65' Sand, very fine
 T. D.: 65'

Drill Hole No. 47. Elevation 220'
 Location: SE¼, Sec. 3, T. 18 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Sand, very fine, with red clay binder
 10'- 20' Sand, fine, with interbedded light-gray clay
 20'- 30' Sand, fine
 30'- 38' Sand, fine, interbedded with light gray clay
 38'- 40' Clay, gray, w/trace of lignite
 40'- 50' Sand, very fine, with interbedded light-gray clay
 50'- 60' Sand, very fine, with gray clay, lignitic

60'- 70' Sand, very fine, with stringer of lignite
 70'- 90' Sand, very fine, with gray clay
 90'-100' Clay, gray, with very fine sand
 100'- 110' Clay, gray, slightly glauconitic with trace of lignite
 110'-120' Clay, gray, with very fine sand
 120'-132' Clay, gray to brown, with very fine sand
 132'-140' Sand, gray, very fine, packed, with gray clay
 140'-150' Clay, gray, silty, micaceous
 T. D.: 150'

Drill Hole No. 48. Elevation 215'
 Location: Sec. 34, T. 17 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 14' Sand, very fine, with red and tan clay
 14'- 20' Clay, light gray to white, with very fine sand
 20'- 32' Sand, very fine, with white clay
 32'- 50' Clay, light gray to white, with very fine sand
 50'- 64½' Sand, very fine, with tan clay
 64½' 65' Lignite
 65'- 70' Clay, gray, glauconitic, with very fine sand
 70'- 80' Clay, gray, with trace of lignite and very fine sand
 80'-100' Clay, gray, glauconitic, with very fine sand
 100'-110' Clay, gray to brown, with very fine sand
 110'-120' Clay, gray, glauconitic, with very fine sand
 120'-144½' Clay, gray, with very fine sand
 144½'-145' Siderite, with glauconite on top
 145'-150' Clay, gray, with very fine sand
 T. D.: 150'

Drill Hole No. 49. Elevation 200'
 Location: NE¼, Sec. 27, T. 17 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 10' Sand, very fine, with red clay binder
 10'- 20' Sand, very fine, with light gray to white clay
 20'- 30' Sand, very fine, with white to tan clay
 30'- 96' Sand, very fine, with thin beds of tan and white clay
 96'-100' Clay, gray, with very fine sand and lignite stringer
 100'-110' Clay, gray, interbedded with fine sand and trace of lignite
 110'-120' Clay, gray to brown, with fine sand, and trace of lignite
 120'-130' Clay, gray, with very fine sand and trace of lignite
 130'-140' Clay, gray, interbedded with very fine sand
 140'-150' Clay, gray to tan, interbedded with very fine sand and trace of lignite
 T. D.: 150'

Drill Hole No. 50. Elevation 210'
 Location: NW¼, Sec. 23, T. 17 S., R. 15 W. County, Union
 Logged by: D. W. Lumbert 2/77.

0'- 30' Sand, very fine, interbedded with tan and gray clay
 30'- 60' Sand, very fine, interbedded with tan and brown clay, with few stringers of lignite
 60'- 70' Sand, very fine
 T. D.: 70'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 51. Elevation 182'
Location: Sec. 15, T. 17 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 10' Clay, tan to light brown, with very fine sand
10'- 14' Clay, light gray, with very fine sand
14'- 25' Sand, yellow, very fine
25'- 28' Sand, very fine, with brown clay
28'- 29' Lignite, and brown clay
29'- 30' Clay, brown, with trace of lignite
30'- 46' Clay, brown, with stringers of lignite and very fine sand
46'- 54' Clay, blue-green, with very fine sand
54'- 60' Clay, brown, with very fine sand and trace of lignite
60'- 66' Sand, very fine, with brown clay
66'- 70' Clay, brown, with very fine sand and trace of lignite
70'- 80' Brown clay, and very fine sand, interbedded
80'- 90' Clay, brown to gray, very sandy
90'-100' Clay, gray, slightly glauconitic, with very fine sand
100'-140' Clay, gray, glauconitic, micaceous, with very fine sand and trace of lignite
140'-150' Clay, gray, interbedded with very fine sand
T. D.: 150'

Drill Hole No. 52. Elevation 150'
Location: Sec. 9, T. 17 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 10' Sand, very fine, with red clay
10'- 20' Sand, very fine, with tan to gray clay
20'- 67' Sand, very fine, with stringers of lignite
67'- 72' Clay, blue-green, with silt
72'- 80' Clay, brown, with stringers of lignite
80'- 90' Clay, light brown, and very fine sand
T. D.: 90'

Drill Hole No. 53. Elevation 150'
Location: Sec. 4., T. 17 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 10' Sand, very fine, interbedded with gray clay
10'- 20' Clay, gray, with very fine sand
20'- 30' Clay, blue-gray, with very fine sand
30'- 40' Clay, blue-gray, with very fine sand and trace of lignite
40'- 60' Sand, very fine
60'- 80' Sand, very fine, with stringers of lignite
80'- 82' Sand, very fine
82'- 84' Clay, blue-gray, with very fine sand
84'- 88' Sand, very fine
88'- 94' Clay, blue-gray, with very fine sand and lignite stringers
94'-110' Clay, gray, glauconitic, slightly micaceous, with very fine sand and siderite
110'-117' Sand, very fine
117'-120' Clay, gray to brown, with very fine sand
120'-134' Clay, blue-gray, with very fine sand

134'-135½' Lignite
135½'-140' Clay, gray, with interbedded very fine sand
140'-150' Sand, very fine, with interbedded gray clay and stringers of lignite
T. D.: 150'

Drill Hole No. 54. Elevation 158'
Location: Sec. 32, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 9' Clay, red and light gray, with very fine sand
9'- 10' Clay, brown, carbonaceous, with very fine sand and some lignite
10'- 17' Lignite
17'- 18' Clay, brown, with very fine sand
18'- 20' Clay, gray, with very fine sand
20'- 27' Clay, brown, with silt
27'- 30' Clay, light gray, with very fine sand
30'- 39' Sand, very fine
39'- 40' Sand, very fine, with lignite stringers and brown clay
40'- 50' Sand, very fine, with lignite stringers
50'-100' Sand, fine
Core interval 9' - 17'
Recovered: 8' Lost: 0'
9' - 13'4" Lignite, hard, with conchoidal fracture
13'4" - 14' Clay, gray & brown, with lignite partings
14' - 17' Clay, gray & brown, with very fine sand
T. D.: 100'

Drill Hole No. 55. Elevation 180'
Location: SW¼, Sec. 29, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 2/77.

0'- 19' Clay, light gray to tan, with very fine sand
19'- 20' Clay, light brown, with very fine sand
20'- 21½' Clay, dark brown, with very fine sand
21½'-24½' Lignite
24½'-30' Clay, dark to light brown, with interbedded very fine sand
30'- 35' Clay, light brown, with very fine sand
35'- 40' Clay, light gray, with very fine sand
40'- 44' Clay, gray to brown, with very fine sand
44'- 46' Lignite, with very fine sand
46'- 55' Sand, very fine, with interbedded light brown clay
55'- 60' Clay, gray, with very fine sand
60'- 66' Clay, light brown, with very fine sand
66'- 70' Clay, blue-green, with very fine sand
70'- 85' Clay, green to brown, with trace of lignite and interbedded very fine sand
85'-120' Clay, blue-green, silty, with trace of lignite at 94'
120'-130' Clay, gray, slightly glauconitic, with interbedded fine sand
130'-150' Sand, very fine, with interbedded gray clay, some glauconite and mica

Core interval 20' - 25'
Recovered: 5' Lost: 0'
20' - 21'8" Clay, brown, lignitic, sandy
21'8"-24'2" Lignite, hard
24'2"-24'8" Lignite, waxy
24'8"-25' Brown, lignitic sand
T. D.: 150'

Drill Hole No. 56. Elevation 215'
Location: SE¼, Sec. 19, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, light gray, w/very fine sand
10'- 20' Clay, light gray to light brown, with very fine sand
20'- 30' Clay, light brown, with interbedded very fine sand
30'- 50' Sand, fine, with interbedded light brown clay
50'- 65' Clay, gray, w/very fine sand
65'-110' Sand, fine, with gray clay
110'-120' Sand, fine, slightly glauconitic
120'-130' Sand, fine, slightly glauconitic, with gray clay
130'-140' Sand, fine, with lignite stringers
140'-150' Clay, gray, glauconitic, with very fine sand
T. D.: 150'

Drill Hole No. 57. Elevation 195'
Location: SW¼, Sec. 18, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, very fine, with red clay binder
10'- 20' Sand, very fine, with light gray and tan clay layers
20'- 70' Sand, very fine
70'- 73' Clay, brown, with very fine sand and trace of lignite
73'- 90' Sand, very fine
90'- 96' Clay, gray to brown, with interbedded very fine sand and trace of lignite
96'-100' Clay, gray, with very fine sand
100'-130' Clay, gray, with interbedded very fine sand and trace of lignite
130'-140' Clay, gray, with very fine, packed, sand
140'-150' Clay, gray, with very fine sand
T. D.: 150'

Drill Hole No. 58. Elevation 120'
Location: NW¼, Sec. 13, T. 16 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 20' Sand, very fine
20'- 30' Clay, dark gray, with very fine sand and trace of lignite
30'- 50' Clay, blue-gray, with very fine sand
50'- 70' Clay, gray, glauconitic, micaceous, with very fine sand
70'- 85' Clay, gray to brown, with very fine sand
85'- 90' Sand, very fine, with gray to brown clay
90'-103' Sand, interbedded with gray clay, and trace of lignite
103'-103½' Siderite
103½'-120' Clay, gray, slightly glauconitic, with very fine sand
120'-130' Clay, green, very glauconitic, with siderite and very fine sand
130'-150' Clay, gray to brown, with very fine sand
T. D. 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 59. Elevation 150'

Location: Sec. 11, T. 16 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 13' Clay, red, very sandy
13'- 20' Clay, light gray, interbedded
with fine sand
20'- 60' Sand, very fine, with light gray
clay
60'- 70' Sand, very fine, packed, with
some gray clay
70'- 80' Clay, gray, interbedded with
very fine sand and trace of
lignite
80'- 94' Clay, blue-gray, with very fine
sand and trace of lignite
94'- 94½' Siderite
94½'-120' Clay, gray, with very fine sand,
siderite layer @ 100'
120'-140' Clay, gray to dark brown, with
very fine sand
140'-147' Clay, blue-gray, glauconitic,
with very fine sand
147' Siderite
T. D.: 147'

Drill Hole No. 60 a. Elevation 160'

Location: Sec. 3, T. 16 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, red, very sandy
10'- 20' Sand, very fine
20'- 30' Sand, very fine, with some tan
clay
30'- 43' Sand, very fine, with tan clay
43'- 43½' Lignite
43½'-50' Clay, gray, with interbedded,
very fine sand
50'- 57' Sand, fine, with trace of lignite
T. D.: 57'

Drill Hole 60 b. Elevation 160'

Location: Sec. 3, T. 16 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, gray, with very fine sand
10'- 16' Sand, very fine, with gray to
white clay
16'- 26' Clay, dark gray, silty, with very
fine sand
26'- 30' Sand, medium to fine
30'- 60' Clay, gray, silty, slightly glau-
conitic, with very fine sand and
trace of lignite
60'- 70' Clay, gray to tan, with very fine
sand
70'- 87' Clay, brown, with very fine sand
and trace of lignite
87'- 90' Clay, gray, with very fine sand
90'-110' Clay, gray, slightly glauconitic,
with very fine sand, trace of
lignite, and siderite layer @ 104'
110'-120' Sand, very fine, with interbed-
ded gray-green clay and siderite
120'-140' Sand, very fine, with gray clay
and siderite layer at 137'
140'-149' Sand, very fine, interbedded
with gray clay and trace of lig-
nite, siderite layer at 149'
T. D.: 149'

Drill Hole No. 61. Elevation 112'

Location: SE¼, Sec. 32, T. 15 S., R. 16 W.
County, Union
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, medium, with iron
cement and red clay

10'- 20' Sand, medium to fine
20'- 30' Clay, gray, glauconitic, with
interbedded very fine sand
30'- 33' Siderite layer, with large gravel
33'- 50' Clay, gray, with very fine sand
50'- 58' Clay, gray, with fine sand
T. D.: 58'

Drill Hole No. 62. Elevation 120'

Location: Sec. 30, T. 15 S., R. 16 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 7' Clay, gray, with very fine sand
7'- 8' Ironstone concretion layer
8'- 10' Clay, gray, with very fine sand
10'- 15' Gravel, pea-size, with coarse
sand
15'- 23' Clay, gray, with fine sand
23'- 26' Clay, gray to light gray, lignitic
with very fine sand
26'- 28' Clay, brown, with very fine sand
28'- 35' Clay, gray, with very fine sand
35'- 38' Clay, light brown, with very fine
sand and siderite at 38'
38'- 40' Clay, brown to gray, with inter-
bedded, very fine sand
40'- 50' Clay, gray, with very fine sand
50'- 79' Clay, gray, glauconitic, slightly
lignitic, with very fine sand
and siderite layers @ 66' and
78'
79'- 80' Sand, very fine, with gray clay
80'- 96' Clay, gray, glauconitic, with
very fine sand
96'-103' Sand, very fine
103'-120' Clay, light gray to tan, with
trace of lignite and very fine
sand
120'-130' Sand, very fine, with gray and
brown clay
130'-140' Clay, brown, with very fine
sand
140'-150' Clay, blue-gray, with brown
layers of clay and very fine
sand
T. D.: 150'

Drill Hole No. 63. Elevation 148'

Location: SE¼, Sec. 24, T. 15 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 19' Clay, light gray to white, with
very fine sand
19'- 24' Sand, very fine, with iron stain
24'- 40' Clay, gray, glauconitic, with
very fine sand
40'- 53' Clay, gray, very glauconitic,
with very fine sand and siderite
layer @ 53'
53'- 80' Clay, gray, glauconitic, with
very fine sand
80'- 90' Clay, gray, with very fine sand
90'- 97' Clay, gray, glauconitic, with
very fine sand
97'-100' Sand, very fine, with gray
glauconitic clay
100'-126' Clay, gray, glauconitic, with
very fine sand
126'-130' Sand, very fine, with gray
glauconitic clay
130'-140' Clay, gray, glauconitic, with
interbedded very fine sand
140'-150' Sand, very fine, interbedded
with brown lignitic clay
150'-151' Lignite, with dark brown clay,
and very fine sand
151'-160' Clay, gray to brown, with
very fine sand
T. D.: 160'

Drill Hole No. 64. Elevation 165'

Location: Sec. 14, T. 15 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 5' Sand, very fine, with red and
tan clay
5'- 10' Clay, gray, with very fine sand
and pea gravel @ 9'
10'- 20' Sand, very fine, with light gray
clay and trace of lignite
20'- 25' Sand, very fine, with light gray
clay
25'- 50' Sand, very fine, glauconitic
with gray clay
50'- 60' Sand, very fine, with inter-
bedded gray clay, and dark
brown clay and lignite
60'- 62' Clay, dark brown, with lignite
62'- 90' Sand, very fine, with layers of
brown clay and stringers of
lignite
90'-110' Sand, very fine, with light gray
and tan clay
110'-114' Clay, light gray to tan, with
very fine sand
114'-130' Sand, very fine, with light gray
to tan clay
130'-133' Lignite
133'-135' Clay, dark brown to light brown
with traces of lignite and very
fine sand
135'-138' Sand, very fine
138'-140' Clay, gray to light gray, with
very fine sand
140'-150' Clay, blue-gray, with very fine
sand
T. D.: 150'

Drill Hole No. 65. Elevation 234'

Location: NW¼, Sec. 11, T. 15 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, very fine, red, with light
gray clay
10'- 36' Sand, very fine, with white clay
36'- 50' Sand, very fine
50'- 70' Sand, very fine, with white clay
70'- 80' Sand, very fine, with lignite
stringer
80'- 85' Clay, gray, slightly glauconitic
with very fine sand
85'- 90' Sand, very fine
90'- 97' Clay, gray, with trace of lignite
T. D.: 97'

Drill Hole No. 66. Elevation 265'

Location: SW¼, Sec. 35, T. 14 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 34' Sand, very fine, with some red
clay
34'- 50' Clay, gray, with very fine sand
50'- 63' Clay, gray, silty, with traces of
lignite
63'- 70' Sand, very fine, with gray clay
70'- 80' Sand, very fine
80'-100' Sand, very fine, with stringers
of lignite
100'-110' Sand, very fine, interbedded
with gray glauconitic clay and
siderite
110'-137' Clay, green, glauconitic, with
interbedded siderite and very
fine sand
137'-140' Clay, light gray, with very
fine sand and trace of lignite
140'-150' Clay, light gray, slightly glau-
conitic, with very fine sand
T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 67. Elevation 235'

Location: Sec. 27, T. 14 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, fine to very fine
10'- 14' Sand, very fine
14'- 14½' Ironstone layer
14½'- 20' Clay, gray, with very fine sand and trace of lignite
20'- 30' Clay, gray to brown, with very fine sand-silt, @ 23' siderite 3"
30'- 40' Clay, gray, with very fine sand
40'- 50' Clay, gray, slightly lignitic, with very fine sand
50'- 60' Same
60'- 70' Sand, very fine, glauconitic, micaceous
70'- 80' Sand, very fine, glauconitic, micaceous, interbedded with clay, gray
80'- 90' Clay, white to gray, glauconitic, with interbedded siderite
90'-100' Sand, very fine, glauconitic, with interbedded siderite
100'-110' Clay, light gray, with very fine sand
110'-120' Clay, gray to brown, with very fine sand and trace of lignite @ 115'
120'-130' Clay, layered gray to brown, with trace of lignite
130'-150' Clay, gray, with very fine sand
T. D.: 150'

Drill Hole No. 68. Elevation 220'

Location: NE¼, Sec. 22, T. 14 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, very fine to fine, with iron stain
10'- 20' Sand, very fine, with clay, light gray to white
20'- 30' Clay, white to light gray, with very fine sand
30'- 40' Sand, very fine, with clay, white to light gray
40'- 44½' Sand, coarse
44½'- 50' Clay, light gray to white, with very fine sand
50'- 53' Sand, fine to coarse
53'- 55' Clay, white to gray, with very fine sand
55'- 60' Clay, gray to dark gray, with very fine sand
60'- 70' Clay, gray, with very fine sand
70'- 89'8" Clay, gray, slightly glauconitic, with very fine sand @ 74½' siderite layer @ 87'8" siderite layer, and @ 89'8" siderite layer
89'8"-97' Clay, gray, glauconitic, with very fine sand
97'-104' Sand, very fine @ 98' siderite layer
104'-110' Clay, gray, glauconitic, with very fine sand
110'-120' Clay, gray to brown, with trace of lignite
120'-130' Clay, gray, with tan clay layers and trace of lignite and very fine sand
130'-139' Clay, light gray, slightly glauconitic with trace of lignite
139'-140' Siderite
140'-144½' Clay, light bluish-gray, with very fine sand
144½'-147' Sand, very fine
147'-150' Clay, gray, with very fine light-gray sand
T. D.: 150'

Drill Hole No. 69. Elevation 165'

Location: SE¼, Sec. 11, T. 14 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 7' Clay, red, with very fine sand
7'- 8' Gravel, pea-size
8'- 10' Clay, light gray to white, with very fine sand
10'- 23' Clay, gray, carbonaceous, with very fine sand
23'- 23½' Gravel, pea-size
23½'- 30' Clay, light gray, with iron stain and coarse sand
30'- 37' Sand, very fine, with stringer of lignite
37'- 43' Clay, gray to brown, with very fine sand and trace of lignite
43'- 60' Sand, very fine, with gray-green glauconitic clay
60'- 70' Clay, gray to brown, glauconitic with interbedded very fine sand
70'- 80' Sand, very fine, with gray to brown, slightly glauconitic clay
80'-100' Clay, gray to brown, with sand
100'-110' Clay, gray to light brown, with very fine sand and siderite layers
110'-116½' Sand, very fine, with gray clay
116½'-120' Clay, dark brown, with lignite and silt
120'-130' Sand, very fine
130'-140' Sand, very fine, with traces of lignite and silt
140'-150' Silt, packed
T. D.: 150'

Drill Hole No. 70. Elevation 180'

Location: SE¼, Sec. 2, T. 14 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 7' Clay, tan, with layers of limonite, and very fine sand
7'- 10' Clay, black to dark brown, very lignitic, with very fine sand
10'- 37' Clay, chocolate brown, with silt
37'- 57' Clay, brown to light brown, slightly glauconitic, with very fine sand
57'- 57½' Lignite, with sand
57½'-70' Clay, gray, with very fine sand
70'- 89' Sand, very fine, with gray clay and tan siderite layers
89'- 90' Clay, gray, with very fine sand
90'- 95' Sand, very fine, with siderite
95'-100' Clay, white, with silt @ 98'-99' sand, very fine
100'-110' Sand, very fine, with silt
110'-120' Clay, gray, with traces of lignite and silt
120'-140' Clay, light gray to light brown, with very fine sand
140'-150' Clay, light gray, with silt
T. D.: 150'

Drill Hole No. 71. Elevation 180'

Location: SW¼, Sec. 26, T. 13 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, tan, with sand
10'- 12' Clay, brown, with trace of lignite
12'- 23' Clay, gray, with very fine sand and trace of lignite @ 12'-14'
23'- 25' Clay, white, with very fine sand
25'- 30' Clay, gray brown, with very fine sand
30'- 40' Clay, gray, glauconitic, with

very fine sand
40'- 53' Clay, gray, with traces of lignite
53'- 60' Sand, very fine, with brown clay
60'- 75' Sand, very fine, interbedded with brown clay and trace of lignite
75'- 80' Clay, brown, with very fine sand and trace of lignite
80'- 95' Sand, very fine, with brown clay
95'- 97½' Clay, dark brown, with very fine sand
97½'-100' Clay, gray, with very fine sand
100'-110' Clay, gray, interbedded with very fine sand
110'-140' Silt, with gray clay @ 136' trace of lignite
140'-150' Silt, with traces of lignite
T. D.: 150'

Drill Hole No. 72. Elevation 150'

Location: SW¼, Sec. 21, T. 13 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, reddish tan to gray, with fine sand
10'- 27' Clay, light gray to tan, with very fine sand
27'- 30' Clay, gray to brown, with very fine sand
30'- 40' Sand, very fine, with clay, brown to gray, and trace of lignite
40'- 56' Clay, brown, with very fine sand
56'- 63' Clay, gray, with very fine sand
63'- 76½' Sand, very fine, with gray clay
76½'-77' Lignite, with very fine sand
77'- 80' Clay, gray, with very fine sand
80'- 86' Clay, light gray to white, with silt
86'- 90' Clay, gray, interbedded with fine sand
90'-100' Clay, gray to light gray
100'-110' Clay, gray to light gray, with interbedded very fine sand
110'-140' Clay, gray to light gray, with very fine sand
140'-150' Clay, light gray to brown, with very fine sand
T. D.: 150'

Drill Hole No. 73. Elevation 220'

Location: NW¼, Sec. 19, T. 13 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, light gray, with iron stain, and very fine sand
10'- 20' Clay, gray, with very fine sand
20'- 30' Clay, gray to brown, with very fine sand
30'- 40' Clay, gray to brown, carbonaceous, with very fine sand
40'- 70' Clay, brown, with silt
70'- 73' Clay, dark brown, with silt
73'- 76' Clay, light gray, with very fine sand
76'- 77' Clay, white, with silt
77'- 90' Clay, gray, with silt
90'-110' Silt, with gray clay @ 108' trace of lignite
110'-118' Silt, interbedded with gray clay
118'-120' Clay, gray, with silt
120'-140' Sand, very fine, with interbedded gray clay and traces of lignite
140'-150' Sand, very fine
T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 74. Elevation 308'
Location: SW¼, Sec. 18, T. 13 S., R. 17 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 8' Clay, red, with fine sand
8'- 10' Clay, green, glauconitic, with fine sand; @ 8' siderite
10'- 18' Clay, green to gray, with very fine sand
18'- 20' Clay, red to yellow, with iron concretions and very fine sand
20'- 25' Sand, very fine, with tan clay
25'- 28' Clay, gray, with very fine sand
28'- 30' Clay, tan to white, with silt
30'- 40' Sand, very fine, with white to tan clay layers
40'- 50' Silt, with white clay
50'- 60' Clay, gray to brown, with silt
60'- 70' Clay, brown, with silt @ 68'- 68½' very fine sand and trace of lignite
70'- 80' Clay, gray, slightly glauconitic @ 78' trace of lignite
80'- 93' Clay, gray, with silt
93'- 96' Sand, very fine, with silt
96'-100' Clay, gray, with silt
100'-110' Clay, gray, slightly glauconitic with silt
110'-130' Silt, interbedded with light gray clay, @ 121' siderite
130'-132' Clay, gray, with silt
132'-137' Silt, with gray clay
137'-140' Clay, gray, with silt
140'-144' Silt
144'-146' Clay, gray to brown, with very fine sand
146'-150' Silt, with gray clay
T. D.: 150'

Drill Hole No. 75. Elevation 260'
Location: SW¼, Sec. 12, T. 13 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, white, with very fine sand and iron concretions
10'- 37' Clay, gray, with very fine sand, and traces of lignite
37'- 40' Lignite
40'- 42' Clay, dark brown, with very fine sand
42'- 48' Sand, very fine, interbedded with gray clay
48'- 55½' Clay, gray, and very fine sand
55½'- 57½' Lignite
57½'- 60' Clay, gray to brown, with very fine sand
60'- 68½' Silt
68½'- 70' Clay, brown, with very fine sand
70'- 80' Clay, light gray, with silt @ 77' trace of lignite
80'-100' Clay, light blue-gray, with silt
100'-120' Clay, light blue-gray, with sand, very fine
120'-150' Sand, very fine @ 143'-145' gray clay
T. D.: 150'

Drill Hole No. 76. Elevation 210'
Location: SW¼, Sec. 2, T. 13 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, very fine, with red to yellow clay, and iron concretions
10'- 18' Sand, very fine, with kaolin
18'- 21' Lignite, soft, with silt
21'- 30' Sand, very fine, with layers of brown clay
30'- 37½' Clay, gray, with very fine sand layers

37½'- 41' Lignite
41'- 50' Clay, light gray, and chocolate brown interlayered, and very fine sand
50'- 55' Clay, light blue-gray, with silt
55'- 60' Clay, light gray to gray, with silt
60'- 80' Clay, blue-gray, with silt
80'- 90' Clay, light gray, glauconitic, with interbedded silt
90'-110' Silt, with gray clay
110'-130' Sand, very fine
130'-140' Sand, very fine, with silt
Core interval 18'-28'
Recovered: 9'8" Lost: 4"
18'-25' Clay, gray to chocolate brown, with very fine sand
25'-27'8" Lignite
Core Interval 35'- 45'
Recovered: 10' Lost: 0"
35'-43' Clay, gray
43'-43'4" Sand, very fine
43'4"-45' Lignite
T. D.: 140'

Drill Hole No. 77. Elevation 240'
Location: NW¼, Sec. 3, T. 13 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 6' Clay, red to gray, with very fine sand
6'- 10' Sand, very fine, with light gray to gray clay
10'- 20' Clay, light gray to light brown, with very fine sand
20'- 30' Clay, light gray to brown and blue interlayered, with very fine sand
30'- 40' Clay, brown and chocolate brown interlayered, with traces of lignite
40'- 44' Clay, light brown, with interbedded very fine sand
44'- 50' Sand, very fine
50'- 57' Sand, very fine, with white to gray clay and trace of lignite
57'- 60' Clay, light brown to gray, with very fine sand
60'- 70' Sand, very fine, with light brown to tan clay
70'- 90' Silt, with interbedded, brown to light brown and gray clay, with trace of lignite
90'-100' Sand, very fine, w/light tan clay
100'-130' Sand, very fine, with light gray clay, and traces of lignite
130'-140' Sand, very fine, with traces of lignite
140'-150' Sand, very fine, with gray clay
T. D.: 150'

Drill Hole No. 78. Elevation 245'
Location: SW¼, Sec. 33, T. 12 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 9' Clay, kaolin, with iron staining
9'- 10' Lignite, with chocolate brown clay, and very fine sand
10'- 10½' Lignite
10½'- 12' Clay, kaolin
12'- 20' Sand, with mottled clay
20'- 28' Clay, light blue-gray
28'- 30' Clay, chocolate brown, with traces of lignite and silt
30'- 40' Clay, gray, with silt @ 38' siderite
40'- 43' Clay, black to dark brown, very lignitic, with silt
43'- 50' Clay, gray, with silt

50'- 60' Sand, very fine, with pink to light tan clay
60'- 73' Clay, brown to gray, with silt
73'- 80' Clay, brown, with very fine sand and traces of lignite
80'-110' Clay, light brown to brown, interbedded with very fine sand @ 100'-110' traces of lignite
110'-120' Sand, very fine, with stringer of lignite at 117' - 118'
120'-124' Clay, white to light gray, with very fine sand
124'-140' Sand, very fine, with traces of lignite
140'-150' Sand, very fine to fine, with traces of lignite
T. D.: 150'

Drill Hole No. 79. Elevation 240'
Location: SE¼, Sec. 29, T. 12 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Sand, very fine to fine, with red clay binder
10'- 14' Clay, light gray to white, iron stained, with silt
14'- 17½' Clay, gray, with very fine sand
17½'- 20' Lignite, with chocolate brown clay, and silt
20'- 26' Clay, gray, with fine sand
26'- 30' Sand, fine
30'- 39' Clay, brown, with silt
39'- 40' Clay, gray, with silt
40'- 55' Silt (?)
T. D.: 55'

Drill Hole No. 80. Elevation 250'
Location: NE¼, Sec. 30, T. 12 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, red to light gray, w/silt
10'- 20' Clay, light gray, iron stained, with silt
20'-110' Clay, light gray @ 102' to 103' very fine sand
110'-120' Clay, gray, with silt
120'-150' Clay, gray
T. D.: 150'

Drill Hole No. 81a. Elevation 250'
Location: NW¼, Sec. 19, T. 12 S., R. 18 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 10' Clay, kaolin
T. D.: 10'

Drill Hole No. 81b. Elevation 250'
Location: SE¼, Sec. 24, T. 12 S., R. 19 W.
County, Ouachita
Logged by: Lonnie Gilbreath 4/77.

0'- 6½' Clay, mottled, with silt
6½'- 7' Sand, tan, very fine, with silt
7'- 24' Clay, tan and light gray, with silt
24'- 46' Clay, gray and yellow, with fine sand
46'- 63' Silt, gray, with clay
63'- 95' Sand, light gray to tan, very fine with silt
95'-106' Sand, light gray to tan, fine to medium, with silt
106'-107' Lignite
107'-127' Sand, light gray to tan, fine to medium, with gray clay from 117'-120'
127'-128' Lignite
128'-134' Clay, gray, with silt @ 134' lignite stringer
134'-140' Sand, light gray to tan, medium
T. D.: 140'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 82. Elevation 240'
Location: NW¼, Sec. 13, T. 12 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 3/77.

0'- 7' Sand, fine to very fine
7'- 10' Sand, very fine, with white to tan clay
10'- 20' Sand, medium, with red clay
20'- 40' Sand, medium to fine
40'- 50' Sand, fine to very fine
50'- 60' Clay, gray, with fine sand
60'- 70' Sand, medium to fine, slightly glauconitic
70'- 80' Sand, medium to fine, with brown to gray clay
80'- 100' Sand, fine to very fine @ 97' siderite
100'-110' Sand, very fine to fine, interbedded with brown clay
110'-127' Clay, brown, very glauconitic with fine sand
127'-140' Sand, very fine, with brown glauconitic, micaceous clay
140'-150' Clay, brown, glauconitic, micaceous interbedded with very fine sand
T. D.: 150'

Drill Hole No. 83. Elevation 290'
Location: NW¼, Sec. 11, T. 12 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 3' Clay, white, with silt
3'- 8' Sand, very fine, with silt
8'- 10' Clay, white, with silt
10'- 30' Sand, very fine, with red clay binder
30'- 70' Sand, medium to fine @ 68' stringer of lignite, with gray clay and coarse sand
70'- 85' Sand, medium to fine, with dark brown clay
T. D.: 85'

Drill Hole No. 84. Elevation 270'
Location: NW¼, Sec. 10, T. 12 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 10' Sand, medium to fine, with red clay
10'- 30' Sand, fine to very fine
30'- 45' Sand, coarse to fine, w/gray clay
45'- 50' Clay, gray, with fine sand
50'- 63' Sand, coarse to medium
63'- 66' Clay, brown, with coarse sand
66'- 69' Sand, coarse to medium
69'- 70' Siderite, with coarse to medium sand
70'- 80' Sand, medium, with brown clay @ 73' siderite
80'- 86' Sand, medium, with interbedded brown to tan clay
86'- 90' Clay, brown to tan, with medium sand @ 86' siderite
90'-100' Sand, medium to fine, with brown clay
100'-110' Clay, brown, with fine to very fine sand
110'-120' Clay, brown, with silt
120'-150' Clay, brown, with silt and traces of lignite
T. D.: 150'

Drill Hole No. 85. Elevation 327'
Location: SW¼, Sec. 4, T. 12 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 5' Clay, mottled, with silt

5'- 15' Clay, red to orange, with very fine sand
15'- 20' Silt, with white clay, and trace of lignite
20'- 30' Silt, with very fine sand @ 25' iron cemented sand
30'- 60' Silt, with very fine sand, and tan clay
60'- 70' Silt, with white clay
70'- 84' Silt, with white to tan, iron stained clay
84'- 90' Clay, gray to brown, with silt @ 84' ironstone concretions
90'-106' Sand, fine to very fine, with glauconitic clay
106'-110' Clay, chocolate brown, with interbedded fine to very fine sand and traces of lignite
110'-120' Sand, very fine to fine, with interbedded chocolate brown clay
120'-140' Sand, very fine to fine, with interbedded gray clay
140'-150' Sand, very fine, with gray to brown clay
T. D.: 150'

Drill Hole No. 86. Elevation 215'
Location: NE¼, Sec. 5, T. 12 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 10' Sand, fine, with light gray to white clay
10'- 23' Sand, fine, with mottled clay
23'- 30' Clay, brown to gray, w/traces of lignite and very fine sand
30'- 35' Sand, fine
35'- 40' Clay, gray to brown, with very fine sand
40'- 48' Sand, very fine
48'- 56' Clay, brown to gray, with very fine sand and traces of lignite
56'- 60' Sand, very fine, with brown clay and trace of lignite
60'- 77' Clay, brown, w/very fine sand
77'- 85' Clay, light gray, w/very fine sand
85'-120' Clay, brown, w/very fine sand
120'-130' Clay, gray to brown, with very fine sand, @ 123' siderite
130'-150' Sand, very fine, interbedded with brown clay
T. D.: 150'

Drill Hole No. 87. Elevation 280'
Location: NW¼, Sec. 31, T. 11 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 7' Clay, red to tan, with fine sand
7'- 10' Clay, brown, with very fine sand
10'- 37' Clay, brown, with silt
37'- 40' Sand, very fine, with brown clay
40'- 50' Clay, brown, slightly glauconitic with very fine sand @ 49% siderite
50'- 55' Clay, brown, slightly glauconitic interbedded with very fine sand and traces of lignite
55'-110' Clay, brown, with silt
110'-140' Sand, very fine, with interbedded brown clay @ 117' loose sand
140'-150' Sand, very fine, with brown clay and trace of lignite
T. D.: 150'

Drill Hole No. 88. Elevation 190'
Location: NE¼, Sec. 25, T. 11 S., R. 20 W.
County, Nevada
Logged by: D. W. Lumbert 4/77.

0'- 10' Clay, gray, with silt

10'- 17' Clay, light gray to tan, with very fine sand
17'- 26' Sand, very fine to fine, with light gray to gray clay
26'- 28' Gravel, medium to pea-size
28'- 30' Lignite
T. D.: 30'

Drill Hole No. 89. Elevation 290'
Location: SW¼, Sec. 28, T. 11 S., R. 19 W.
County, Ouachita
Logged by: D. W. Lumbert 4/77.

0'- 5' Sand, with red clay binder
5'- 7' Sand, with white clay
7'- 10' Clay, white to light gray, with very fine sand
10'- 17' Clay, brown, with very fine sand
17'- 20' Clay, dark gray, with silt and trace of lignite
20'- 26' Clay, gray, carbonaceous, with traces of lignite and silt
26'- 30' Clay, gray, with silt and interbedded very fine sand, containing stringers of lignite
30'- 40' Clay, gray, with very fine sand
40'- 50' Clay, gray, micaceous, with pyrite nodules and very fine sand
50'- 57' Clay, gray, slightly glauconitic with siderite layers, and very fine sand
57'- 60' Clay, brown, with very fine sand
60'- 70' Sand, very fine, with brown clay, and trace of lignite
70'- 80' Sand, very fine, with interbedded gray to brown, glauconitic clay, and traces of lignite
80'- 90' Clay, chocolate brown, with very fine sand @ 86' lignite stringer
90'-110' Clay, brown, interbedded with silt
110'-116' Clay, brown, with silt and traces of lignite
116'-135' Clay, brown, with interbedded silt
135'-140' Silt, with brown clay
140'-150' Clay, brown, with interbedded silt, slightly glauconitic
T. D.: 150'

Drill Hole No. 89a. Elevation 505'
Location: SE¼, Sec. 18, T. 5 S., R. 16 W.
County, Hot Spring
Logged by: D. W. Lumbert 4/77.

0'- 12' Gravel, medium
12'- 14' Sand, medium to fine
14'- 18' Clay, white, with silt
18'- 41' Clay, blue-gray to gray, with silt
41'- 41½' Sand, very fine
41½'-45' Clay, chocolate brown, with very fine sand
45'- 50' Clay, dark brown, very lignitic
50'- 55' Lignite, with chocolate brown clay and very fine sand
55'- 60' Clay, light gray, with silt
60'- 61' Gravel, pea-size
61'- 70' Clay, white kaolin
70'- 84' Clay, gray, with silt
84'-120' Clay, chocolate brown, with trace of lignite, and interbedded, very fine sand
120'-130' Clay, light brown, with very fine sand
130'-140' Sand, very fine, with light brown clay
140'-150' Clay, gray, with very fine sand
T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 90. Elevation 420'
Location: SE¼, Sec. 1, T. 5 S., R. 17 W.
County, Hot Spring
Logged by: D. W. Lumbert 4/77.

0'- 5' Gravel
5'- 7' Sandstone, iron cemented
7'- 10' Lignite, w/gravel and gray clay
10'- 20' Sand, fine, with gray clay, and traces of lignite
20'- 30' Sand, fine, with brown clay, and large flakes of lignite, and pyrite nodules
30'- 40' Clay, dark brown, fissile, w/very fine to fine sand, and lignite
40'- 50' Sand, fine, with brown clay, and lignite
50'- 70' Sand, very fine to fine
70'-100' Clay, white, kaolin, w/minor silt
100'-106' Clay, white, w/increasing silt
106'-110' Clay, chocolate brown, with lignite, and very fine sand
110'-115' Sand, very fine, with brown clay and lignite
115'-130' Clay, white, with silt @ 126' sand, very fine, with lignite
130'-140' Sand, very fine, with white to gray clay
140'-150' Sand, medium to very fine T. D.: 150'

Drill Hole No. 91. Elevation 333'
Location: NW¼, Sec. 17, T. 3 S., R. 14 W.
County, Saline
Logged by: D. W. Lumbert 4/77.

0'- 6' Clay, light gray to tan, with very fine sand
6'- 8' Gravel
8'- 9' Clay, orange, with very fine to fine sand
9'- 10' Sand, fine
10'- 16' Clay, light gray, with very fine sand
16'- 20' Clay, gray to brown, with fine sand and trace of lignite
20'- 27' Sand, very fine, with gray clay
27'- 35' Clay, chocolate brown, with traces of lignite and very fine sand
35'- 38' Clay, light brown, with very fine sand
38'- 40' Sand, very fine, with light brown clay
40'- 50' Sand, very fine, with traces of lignite
50'- 60' Sand, very fine, with gray clay and traces of lignite
60'- 61' Lignite, with dark brown clay and very fine sand
61'- 64' Clay, chocolate brown, with very fine sand
64'- 66' Clay, white, with silt
66'- 68' Sand, very fine
68'- 70' Clay, brown, with very fine sand and trace of lignite
70'- 86' Sand, very fine
86'- 90' Clay, chocolate brown, fissile, with lignite
90'- 97' Clay, chocolate brown, very lignitic, with very fine sand
97'-127' Sand, very fine
127'-130' Siderite
T. D.: 130'

Drill Hole No. 92. Elevation 280'
Location: SW¼, Sec. 17, T. 3 S., R. 14 W.
County, Saline
Logged by: D. W. Lumbert 4/77.

0'- 10' Sand, very fine to fine, with white clay

10'- 28' Sand, very fine
28'- 30' Lignite, with very fine sand
30'- 37' Clay, black, very lignitic, with very fine sand
37'- 40' Sand, very fine
40'- 60' Sand, very fine, with stringers of lignite
@ 50'-60' also few stringers of gray clay
60'- 70' Clay, black, lignitic, with very fine sand
70'- 80' Clay, brown, interbedded with very fine sand
80'- 92' Clay, white, with very fine sand
92'-102' Sand, very fine, with gray clay
102'-110' Clay, gray to brown, fissile, with very fine sand
110'-117' Sand, very fine
117'-120' Clay, gray to brown, with very fine sand
120'-127' Clay, gray, glauconitic, with very fine sand
127'-134' Sand, very fine
134'-150' Clay, gray, glauconitic, with very fine sand
@ 147' siderite
Core interval 27'-31'8"
35" inches of lignite for analysis
T. D.: 150'

Drill Hole No. 93. Elevation 342'
Location: SE¼, Sec. 20, T. 3 S., R. 14 W.
County, Grant
Logged by: D. W. Lumbert 4/77.

0'- 7' Clay, white to tan, with silt
7'- 10' Clay, white to tan, with fine to very fine sand
10'- 16' Clay, tan, with very fine sand
16'- 19' Sand, very fine
19'- 20' Clay, white
20'- 26' Clay, tan, with very fine sand
26'- 30' Sand, fine
30'- 36' Clay, white to light tan, with very fine sand
36'- 40' Sand, very fine, with light tan clay
40'- 84' Sand, very fine to fine
@ 50'-60' minor gray clay
84'- 85' Clay, light gray, with trace of lignite and very fine sand
85'- 87' Lignite, with chocolate brown clay and very fine sand
87'- 90' Clay, brown, with very fine sand
90'-100' Sand, very fine, with lignite stringers
100'-110' Clay, gray, with thin brown clay layers and traces of woody lignite, with very fine sand
110'-114' Clay, black, with lignite and very fine sand
114'-115' Clay, brown, to light brown, with very fine sand
115'-130' Sand, very fine, with brown clay
130'-135' Sand, very fine
135'-140' Clay, gray
T. D.: 140'

Drill Hole No. 94. Elevation 317'
Location: NE¼, Sec. 11, T. 4 S., R. 14 W.
County, Grant
Logged by: J. M. Howard 5/77.

0'- 9' Clay, mottled, with fine sand
9'- 14' Clay, tan, with fine sand
14'- 20' Sand, fine, interbedded with mottled clay
20'- 24' Sand, fine, tan
24'- 28' Clay, gray
28'- 34' Clay, green and brown interbedded
34'- 37½' Clay, turquoise, interbedded

37½'- 44' Clay, gray to light gray
44'- 45' Clay, cream
45'- 50' Clay, gray and brown interbedded with fine sand and trace of lignite
50'- 56' Clay, gray and brown interbedded
56'- 64' Clay, turquoise and brown interbedded
64'- 66' Clay, brown
@ 66' siderite
66'- 66½' Clay, dark brown, with 2" lignite stringer
66½'- 70' Clay, gray
70'- 75' Clay, turquoise and brown interbedded
75'- 77½' Clay, light gray, with fine green glauconitic sand
77½'- 81' Clay, light gray to green
81'- 83' Clay, dark brown, with trace of lignite
83'- 84' Clay, tan
84'- 88' Clay, green
88'- 90' Clay, gray to green, with silt
90'- 99' Clay, gray
99'-100' Clay, cream
100'-102' Clay, light brown
102'-109' Clay, gray and brown, interbedded with trace of lignite
109'-114' Clay, turquoise
114'-116' Clay, greenish gray and brown interbedded
116'-120' Lignite, thin stringers and dark brown clay
120'-122' Clay, turquoise
122'-139' Clay, greenish gray, with silt
139'-145' Silt
145'-150' Clay, light brown
T. D.: 150'

Drill Hole No. 95. Elevation 350'
Location: NW¼, Sec. 8, T. 3 S., R. 14 W.
County, Saline
Logged by: D. W. Lumbert 4/77.

0'- 10' Clay, light gray to tan, with very fine sand
@ 9½'-10' traces of lignite
10'- 20' Clay, gray, with traces of lignite and very fine sand
20'- 30' Lignite, with dark brown clay and very fine sand
30'- 34' Clay, chocolate brown, with very fine sand
34'- 40' Clay, white to light gray, with interbedded very fine sand
40'- 45' Lignite, with dark brown clay, and very fine sand
45'- 50' Sand, very fine, with white to light gray clay
50'- 54' Clay, white, with very fine sand
54'- 60' Clay, gray, with very fine sand
60'- 80' Clay, gray to light gray, glauconitic, with very fine sand
80'- 85' Sand, very fine, with tan clay
85'- 86' Siderite

Core interval 20'- 30'

Recovered: 9' Lost: 1'

20'-29' Lignite, with some chocolate brown clay partings

Core interval 40'- 50'

Recovered: 8' Lost: 2'

42'-44' Lignite

44'-45½' Sand, with lignite and some brown clay

45½'-50' Clay, light gray, with very fine sand

T. D.: 86'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 96. Elevation 301'

Location: SW¼, Sec. 13, T. 4 S., R. 14 W.
County, Grant
Logged by: J. M. Howard 5/77.

0'- 9' Clay, cream to tan, with fine sandy silt
9'- 12' Clay, light to dark brown
12'- 16' Lignite, soft
16'- 17' Clay, dark brown
17'- 19' Lignite, hard
19'- 22' Clay, light brown
22'- 25' Silt, gray, with gray clay
25'- 32' Clay, gray, with silt
32'- 34' Clay, gray green
34'- 40' Clay, gray green, interbedded with medium to dark brown clay, and trace of lignite
40'- 46½' Sand, gray, medium to fine, with trace of lignite
46½'- 50' Clay, gray green
50'- 61½' Clay, light green
61½'- 64' Sand, fine, green, glauconitic
64'- 70' Clay, light green
70'- 72' Clay, light green and light brown interbedded
72'- 87' Clay, green, with silt
87'- 88' Clay, green, with fine green glauconitic sand
88'-115' Sand, fine, green, glauconitic with silt
@ 115' lignite stringer
115'-117' Clay, dark green
117'-139' Sand, fine, green, glauconitic, micaceous
@ 139' siderite
139'-150' Clay, green and light brown interbedded
Core interval 10'-20'
Recovered: 4'10" Lost: 5'2"
10'8"-13' Clay, tan to brown
13'- 15'6" Lignitic clay
T. D.: 150'

Drill Hole No. 97a. Elevation 260'

Location: NW¼, Sec. 19, T. 4 S., R. 13 W.
County, Grant
Logged by: J. D. McFarland 5/77.

0'- 3½' Clay, gray to reddish brown
3½'-20' Clay, reddish brown, with fine to coarse sand
T. D.: 20'

Drill Hole No. 97b. Elevation 260'

Location: SE¼, Sec. 19, T. 4 S., R. 13 W.
County, Grant
Logged by: J. D. McFarland 5/77.

0'- 16' Clay, light gray to reddish brown, with very fine to medium sand
16'- 22' Clay, with very fine to medium sand and few quartz pebbles
@ 19'-21' gravel
22'- 40' Clay, dark gray to gray and brown interbedded, with sand and silt, trace of lignite
40'- 60' Clay, dark gray to gray and brown, with silt
60'- 70' Clay, gray, with sand and few sand layers
70'-107' Sand, very fine to medium, interbedded with clay
@ 103½' red clay with sand
107'-150' Clay, gray, interbedded with sand and red clay
T. D.: 150'

Drill Hole No. 98. Elevation 270'

Location: SW¼, Sec. 9, T. 17 S., R. 21 W.
County, Columbia
Logged by: B. F. Clardy 5/77.

0'- 20' Clay, light brown to buff, with silt
20'- 30' Clay, gray to brown, with silt
30'- 40' Clay, gray to green, glauconitic with silt
40'- 60' Clay, gray, with silt
60'- 65' Clay, gray to brown
65'- 80' Clay, gray, with silt
80'- 85' Clay, with very fine sand and trace of lignite
85'-125' Clay, gray, with silt and trace of lignite
125'-150' Silt, with gray clay, and very fine sand
150'-155' Clay, gray, with silt
155'-160' Clay, brown, lignitic
160'-180' Sand, very fine, with silt and brown clay and traces of lignite
180'-185' Clay, gray, with silt
185'-190' Clay, gray, with silt and siderite
190'-195' Clay, gray to brown, with trace of lignite
195'-199' Clay, gray
@ 198'-199' siderite
T. D.: 199'

Drill Hole No. 99. Elevation 310'

Location: NW¼, Sec. 17, T. 17 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Clay, red, with fine sand
15'- 20' Clay, light gray to tan, with very fine sand
20'- 45' Clay, light gray, with very fine to fine sand
45'- 50' Clay, gray, interlayered with brown clay and very fine sand
50'-105' Clay, gray, glauconitic, with very fine sand
@ 80' trace of lignite
105'-110' Clay, gray, glauconitic, with siderite and very fine sand
110'-150' Clay, gray to dark gray, with traces of lignite and very fine sand
@ 120' siderite
150'-160' Clay, gray to dark gray, glauconitic, with very fine sand
160'-170' Clay, gray, and traces of lignite and very fine sand
170'-180' Clay, gray to green, glauconitic, with trace of lignite
180'-200' Clay, gray, glauconitic, with very fine sand and minor siderite
T. D.: 200'

Drill Hole No. 100. Elevation 275'

Location: NE¼, Sec. 19, T. 17 S., R. 21 W.
County, Columbia
Logged by: B. F. Clardy 5/77.

0'- 20' Sand, fine, red and buff, with light gray clay
20'- 25' Clay, red and buff, with fine sand
25'- 45' Clay, gray, with very fine sand and silt
45'- 50' Clay, gray, with trace of lignite
50'- 80' Silt, gray, with fine gray sand and gray clay
80'- 95' Clay, gray, with silt, and traces of lignite
95'-115' Clay, gray to green, glauconitic with sand

115'-130' Clay, gray to green, with siderite and sand
130'-150' Sand, gray, very fine, with siderite and traces of lignite
150'-155' Clay, gray, with silt
155'-160' Sand, gray, and siderite
160'-165' Clay, gray, with sand
165'-175' Sand, gray, with gray clay
175'-200' Clay, gray, with silt
T. D.: 200'

Drill Hole No. 101. Elevation 290'

Location: NE¼, Sec. 24, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 45' Sand, fine to very fine, with tan to red alternating clays
45'- 50' Sand, very fine, with tan and gray alternating clays
50'- 55' Clay, gray, with very fine sand
55'- 75' Clay, dark gray to dark brown, with lignite and very fine sand
75'-105' Clay, gray, glauconitic, with very fine sand
105'-110' Clay, gray, glauconitic, with trace of lignite
110'-115' Clay, brown, with trace of lignite and very fine sand
115'-120' Clay, gray, with very fine sand
120'-150' Clay, gray to brown, with very fine sand
150'-160' Clay, brown, with trace of lignite
160'-170' Sand, very fine, with gray clay and traces of lignite
170'-180' Clay, gray, with very fine sand
180'-190' Clay, gray, with iron concretions and very fine sand
190'-198' Clay, gray, with silt
T. D.: 198'

Drill Hole No. 102. Elevation 285'

Location: NE¼, Sec. 24, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 35' Clay, tan to red, with very fine sand
35'- 55' Clay, tan to white, with very fine sand
@ 40'-42' Sand, very fine
55'- 60' Clay, gray, with very fine sand
60'- 70' Clay, gray to brown, lignitic with very fine sand and approximately 1' lignite
70'- 90' Clay, gray, with very fine sand
90'- 95' Clay, gray, with very fine sand
95'-130' Clay, gray, minor glauconite, and very fine sand
@ 115'-120' trace of lignite
130'-140' Clay, gray and brown interbedded, and silt
140'-150' Clay, brown, with silt
150'-155' Clay, brown, with gray layers, and silt
155'-160' Clay, gray, with very fine sand and trace of lignite
160'-168' Clay, gray, glauconitic, with very fine sand
168'-180' Sand, very fine, with thin lignite layers and brown to gray clay
180'-185' Clay, gray, glauconitic, micaceous, with very fine sand
@ 181' siderite
185'-190' Sand, very fine, with gray clay
190'-198' Clay, light gray to gray, glauconitic, micaceous, with very fine sand
T. D. 198'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 103. Elevation 290'
Location: SE¼, Sec. 24, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine, with light gray clay
10'- 20' Clay, light gray, with tan iron stained, very fine sand @15'-20' increase in sand
20'- 25' Clay, light gray, with very fine sand
25'- 30' Clay, yellow, with very fine sand
30'- 35' Sand, very fine
35'- 40' Sand, very fine, with gray clay
40'- 50' Clay, gray to brown, micaceous with very fine sand
50'- 55' Clay, dark gray, micaceous, with very fine sand
55'- 65' Clay, gray to green, glauconitic with very fine sand @ 55'-60' trace of lignite
65'- 70' Sand, very fine, with glauconitic clay and siderite layers
70'- 80' Clay, gray, glauconitic, with very fine sand
80'- 90' Sand, very fine, with gray to green glauconitic clay @ 85'-90' trace of lignite
90'- 95' Sand, very fine, with gray clay
95'-100' Clay, gray, glauconitic, with very fine sand
100'-105' Clay, gray to brown, with trace of lignite and very fine sand
105'-110' Clay, gray, interlayered with white clay and siderite layers
110'-120' Sand, very fine, with gray glauconitic clay and siderite
120'-130' Clay, gray, with very fine sand
130'-140' Clay, gray to brown, with very fine sand
140'-150' Clay, gray, with layers of lignitic sand and very fine sand
150'-160' Sand, very fine, with gray to green and brown clay @ 155'-160' traces of lignite
160'-170' Sand, with gray micaceous clay
170'-180' Clay, gray, with very fine, slightly glauconitic sand @ 172' siderite
180'-190' Clay, gray, glauconitic, with interbedded very fine sand: traces of lignite in sand
190'-198' Sand, very fine, with gray clay @ 195'-198' traces of lignite T. D.: 198'

Drill Hole No. 104. Elevation 280'
Location: NE¼, Sec. 26, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with light gray to tan clay
10'- 20' Sand, fine to very fine, w/light gray clay and iron concretions
20'- 25' Clay, gray to brown, iron stained, with very fine sand
25'- 30' Clay, chocolate brown, with very fine sand
30'- 40' Clay, gray, slightly glauconitic with trace of lignite and very fine sand
40'- 45' Clay, gray, interbedded with brown lignitic material and very fine sand
45'- 55' Clay, gray, glauconitic, with very fine sand @ 51' siderite
55'- 60' Clay, gray, glauconitic, with trace of lignite and very fine sand

60'- 70' Clay, brown, glauconitic, with very fine sand @ 65'-70' trace of lignite
70'- 90' Clay, green to blue, very glauconitic, with silt and very fine sand @ 83' siderite
90'-100' Clay, gray to green, with very fine sand
100'-110' Sand, very fine, with gray to green clay, and traces of lignite
110'-120' Sand, very fine, interbedded with gray to brown clay and traces of lignite
120'-130' Clay, gray, slightly glauconitic with traces of lignite and very fine sand
130'-140' Clay, gray, slightly glauconitic and very fine sand
140'-150' Sand, w/gray, glauconitic clay
150'-160' Clay, gray to green, and sand with traces of lignite
160'-190' Clay, gray to green, with silt @ 171' siderite
190'-200' Silt, with gray clay T. D.: 200'

Drill Hole No. 105. Elevation 280'
Location: SE¼, Sec. 26, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, tan to red, with very fine sand
20'- 30' Clay, light gray to tan, with very fine sand
30'- 50' Clay, gray, slightly glauconitic with very fine sand
50'- 65' Clay, gray, glauconitic, with very fine sand and siderite
65'- 95' Clay, gray to blue, with very fine sand increasing to 95'
95'-100' Clay, gray, glauconitic, fissile, with fine sand
100'-110' Clay, gray, glauconitic, with traces of lignite
110'-130' Clay, gray, interbedded with sand
130'-150' Sand, very fine, interbedded with gray to brown clay
150'-160' Sand, with gray, glauconitic clay
160'-170' Clay, gray, with very fine sand
170'-175' Sand, very fine, with gray to green clay
175'-200' Sand, very fine, interbedded with gray clay and traces of lignite T. D.: 200'

Drill Hole No. 106. Elevation 260'
Location: SE¼, Sec. 34, T. 17 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Sand, very fine to fine, with tan clay
15'- 28' Clay, light gray and brown interlayered, and very fine sand
28'- 30' Sand, very fine
30'- 40' Clay, gray, micaceous, with very fine sand
40'- 50' Clay, gray to brown, lignitic, with very fine sand
50'- 55' Clay, dark gray, with thin stringer of lignite, and very fine sand
55'- 75' Clay, gray, slightly glauconitic with very fine sand @ 75' siderite
75'- 90' Clay, dark gray to green, micaceous, with silt

90'-100' Clay, dark gray to green, with traces of siderite
100'-110' Clay, glauconitic, with traces of lignite @110' siderite
110'-120' Clay, dark gray to gray and green, with traces of lignite
120'-125' Clay, gray, interlayered with chocolate brown, with lignite and very fine sand
125'-130' Clay, gray, with very fine sand
130'-140' Clay, blue-gray, with silt
140'-150' Clay, gray, slightly glauconitic with very fine sand
150'-160' Clay, gray, with very fine sand
160'-170' Clay, blue-gray, with very fine sand and siderite
170'-180' Clay, gray, glauconitic, with traces of lignite
180'-190' Clay, gray, with silt
190'-200' Clay, gray, glauconitic, with interbedded siderite T. D.: 200'

Drill Hole 107. Elevation 245'
Location: NE¼, Sec. 4, T. 18 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray, iron stained with silt
10'- 20' Clay, light brown to brown, with iron concretions and very fine sand
20'- 25' Clay, gray, with very fine sand
25'- 30' Clay, dark gray, with fine to very fine sand
30'- 50' Clay, gray to dark gray, interlayered and very fine sand
50'- 80' Clay, gray, glauconitic, with very fine sand
80'- 90' Clay, gray @ 89' siderite
90'-100' Clay, gray, with trace of lignite and interbedded siderite and very fine sand
100'-115' Clay, gray, very glauconitic with layers of siderite
115'-120' Sand, very fine, some iron cemented with gray clay
120'-130' Clay, green to brown, with trace of lignite
130'-140' Clay, gray to brown, with traces of lignite and very fine sand
140'-145' Clay, gray, glauconitic, with very fine sand @ 145' iron cemented sand T. D.: 145'

Drill Hole No. 108. Elevation 225'
Location: SE¼, Sec. 5, T. 18 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with red clay binder
10'- 40' Clay, tan to red, with very fine sand
40'- 50' Clay, red with gray layers, and very fine sand
50'- 60' Clay, blue-gray, with very fine sand
60'- 65' Sand, coarse, grading to pea gravel, with some gray clay
65'- 70' Clay, gray, with coarse sand
70'- 80' Clay, gray, carbonaceous, with very fine sand increasing to 80'
80'- 90' Clay, gray, with trace of lignite and very fine sand
90'-100' Clay, gray, glauconitic with very fine sand
100'-150' Clay, gray, glauconitic with very fine sand

ARKANSAS LIGNITE INVESTIGATIONS

@ 110'-115' trace of lignite
 @ 115'-150' siderite layers
 150'-165' Clay, gray, with very fine sand
 165'-180' Clay, gray, decreasing glauconite with interbedded siderite and very fine sand
 180'-190' Clay, gray, with very fine sand
 190'-200' Clay, gray, with silt
 T. D.: 200'

Drill Hole No. 109. Elevation 270'
 Location: SW¼, Sec. 8, T. 18 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, red to brown, with fine sand
 10'- 40' Clay, brown
 40'- 60' Clay, tan and brown inter-layered with silt
 60'- 65' Clay, light gray, with minor woody lignite, and very fine sand
 65'- 75' Sand, coarse, with gravel and gray clay
 75'- 95' Clay, gray, with traces of lignite and silt
 95'-150' Clay, gray to light gray, glauconitic, with very fine sand and layers of siderite: minor trace of lignite
 150'-160' Clay, gray, micaceous, with very fine sand
 160'-180' Clay, gray, glauconitic, micaceous, w/fine to very fine sand
 180'-200' Clay, gray, with silt
 T. D.: 200'

Drill Hole No. 110. Elevation 285'
 Location: NW¼, Sec. 18, T. 18 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, tan to light brown, w/silt
 10'- 50' Clay, red to reddish brown, with silt
 50'- 65' Clay, red to light tan, inter-layered, and very fine sand
 65'- 85' Sand, coarse, with minor pea gravel and red to gray clay
 85'- 90' Clay, red to brown, with silt
 90'-100' Clay, gray to dark gray, micaceous
 100'-105' Clay, gray, and brown inter-layered, and lignitic material and very fine sand
 105'-115' Clay, gray, micaceous, with very fine sand
 115'-120' Sand, fine, with iron concretions and gray clay
 120'-175' Clay, gray, minor glauconite and silt
 175'-185' Clay, gray, with traces of lignite and very fine sand
 185'-200' Clay, gray to brown, micaceous, with very fine sand
 T. D.: 200'

Drill Hole No. 111. Elevation 285'
 Location: SW¼, Sec. 24, T. 18 S., R. 23 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, red, with fine to very fine sand
 20'- 30' Sand, very fine, with red clay
 30'- 35' Clay, red, with very fine sand
 35'- 40' Sand, very fine, w/red to tan clay
 40'- 50' Sand, very fine, with red clay and some carbonaceous material
 50'- 60' Gravel, with red clay
 60'- 70' Clay, gray, with very fine sand
 70'- 80' Clay, gray, with limonite layers

80'- 90' and very fine to fine sand
 90'-100' Clay, gray, with very fine sand and traces of lignitic material
 100'-115' Clay, gray to brown, with traces of lignitic material
 115'-120' Clay, gray, with very fine sand
 120'-130' Clay, gray, glauconitic, with very fine sand
 @125'-130' trace of lignite
 130'-140' Sand, very fine, with gray clay and lignite flakes
 140'-150' Clay, gray, glauconitic, micaceous, with traces of lignite and very fine sand
 150'-160' Clay, gray and brown, inter-layered: trace of lignite in brown clay and very fine sand
 160'-175' Clay, gray, glauconitic, with very fine sand
 175'-180' Sand, very fine, with gray glauconitic clay and traces of lignite
 180'-190' Sand, very fine, interbedded with gray clay
 190'-200' Clay, gray, with very fine sand
 T. D.: 200'

Drill Hole No. 112. Elevation 250'
 Location: NE¼, Sec. 26, T. 18 S., R. 23 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 25' Clay, tan to red, with very fine sand
 25'- 30' Clay, light gray, with very fine sand
 30'- 35' Clay, gray, with silt
 35'- 40' Clay, light gray, glauconitic with very fine sand
 40'- 50' Clay, gray and tan interlayered and very fine sand
 50'- 60' Clay, gray, glauconitic, with very fine sand
 60'- 80' Clay, gray, with minor woody lignite and very fine sand
 @ 78'-80' woody lignite
 80'- 90' Clay, with lignite flakes, and very fine sand
 90'- 95' Sand, very fine, with gray clay
 95'-105' Clay, gray, glauconitic, with siderite layers and very fine sand
 105'-110' Sand, with gray clay, and traces of lignite
 110'-155' Clay, gray, glauconitic, with very fine sand
 @ 145' siderite
 @ 150'-155' traces of woody lignite
 155'-160' Sand, very fine, with glauconitic clay and traces of woody lignite
 160'-190' Clay, gray, with very fine sand @ 175' siderite
 190'-200' Clay, gray, glauconitic, micaceous, with very fine sand
 T. D.: 200'

Drill Hole No. 113. Elevation 250'
 Location: SW¼, Sec. 35, T. 18 S., R. 23 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, gray to brown, with very fine sand
 10'- 45' Clay, red to yellow, with very fine sand
 45'- 50' Clay, tan, with very fine sand
 50'- 70' Sand, coarse, with pea gravel
 70'- 85' Clay, gray, with very fine sand
 85'- 90' Sand, very fine, with gray clay and trace of lignite
 90'-120' Clay, gray, glauconitic, with very fine sand
 @ 100'-110' traces of lignite

120'-145' Clay, gray, glauconitic, micaceous, with traces of lignite and minor siderite
 145'-150' Sand, very fine, with gray, glauconitic clay
 150'-155' Clay, gray, glauconitic, with very fine sand
 155'-160' Sand, very fine, with clay and interbedded siderite
 160'-170' Clay, gray, glauconitic, with very fine sand
 170'-180' Sand, very fine, with gray, glauconitic clay and siderite
 180'-200' Clay, glauconitic, with siderite and very fine sand
 T. D.: 200'

Drill Hole No. 114. Elevation 240'
 Location: NE¼, Sec. 2, T. 19 S., R. 23 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with tan clay
 10'- 20' Clay, tan, with very fine sand
 20'- 55' Clay, red and tan interlayered, and very fine sand
 55'- 60' Sand, coarse, with red to brown clay
 60'- 90' Clay, gray, with very fine sand and minor glauconite
 90'-100' Clay, gray, with trace of lignite
 100'-120' Clay, gray, slightly glauconitic with very fine sand
 120'-130' Clay, gray, glauconitic, with interbedded siderite, and very fine to fine sand
 130'-150' Clay, green, very glauconitic with increasing stringers of siderite
 150'-190' Clay, gray to green, with very fine, micaceous sand @ 165' siderite
 @ 170'-180' trace of lignite
 190'-200' Clay, gray, glauconitic, micaceous, with trace of lignite and fine sand
 T. D.: 200'

Drill Hole No. 115. Elevation 250'
 Location: NE¼, Sec. 14, T. 19 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with tan to red clay
 10'- 25' Clay, light gray and red inter-layered, and very fine sand
 25'- 30' Sand, very fine, with red clay
 30'- 40' Sand, very fine to coarse, with minor red clay
 40'- 50' Clay, red, w/coarse to fine sand
 50'- 60' Clay, red, with very fine sand
 60'- 80' Sand, with pea gravel, increasing to 80'
 80'- 90' Clay, gray, glauconitic, with coarse sand
 90'-100' Clay, gray, glauconitic, micaceous, with coarse to fine sand
 100'-110' Sand, coarse, interbedded with gray clay
 110'-130' Sand, coarse to fine, with gray glauconitic clay and trace of lignite
 130'-150' Clay, gray, glauconitic, with fine sand; @ 139' siderite
 150'-160' Clay, gray, with silt @ 158' sand, fine
 160'-180' Clay, gray, glauconitic, with very fine sand; @ 174' siderite
 180'-200' Clay, gray, glauconitic, micaceous, with very fine sand
 T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 116. Elevation 250'
Location: NE¼, Sec. 23, T. 19 S., R. 23 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, tan, with fine sand
10'- 55' Clay, red, with tan layers,
and very fine sand
55'- 60' Clay, red with gray layers,
and very fine sand
60'- 65' Clay, tan, with gray layers
and silt
65'- 70' Clay, tan, with fine sand
70'- 80' Sand, coarse to fine, with
iron concretions and tan clay
80'- 90' Sand, coarse to pea gravel,
with gray clay
90'- 95' Clay, gray, with fine sand
95'-100' Sand, fine to medium, with
gray clay
100'-105' Clay, gray, slightly glauconitic
with fine sand
105'-110' Sand, fine, with glauconitic
clay
110'-140' Clay, gray, glauconitic, with
very fine sand
140'-150' Sand, very fine to fine, with
gray clay
150'-170' Clay, gray to green, glauconitic
with stringers of siderite and
very fine sand
170'-190' Clay, gray, glauconitic, with
very fine sand
190'-200' Clay, gray, glauconitic, with
siderite layers and very fine
sand
T. D.: 200'

Drill Hole No. 117. Elevation 250'
Location: SE¼, Sec. 26, T. 19 S., R. 23 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, red
20'- 30' Clay, red to brown, with silt
30'- 40' Sand, very fine, with red clay
and iron concretions
40'- 42' Clay, red, with fine sand
42'- 65' Gravel, pea to medium size
65'- 80' Clay, gray, glauconitic
with very fine sand
80'- 95' Clay, gray to green glauconitic
with very fine sand
95'-100' Sand, fine cemented, with
glauconite and green clay
100'-130' Clay, gray, glauconitic, with
stringers of siderite and very
fine sand
130'-140' Clay, brown with gray layers,
and very fine sand
140'-190' Clay, gray to green, glauconitic,
with very fine sand, some
siderite
190'-200' Clay, gray, glauconitic, with
interbedded siderite and very
fine sand
T. D.: 200'

Drill Hole No. 118. Elevation 270'
Location: NE¼, Sec. 2, T. 20 S., R. 23 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 25' Clay, red, with sand
25'- 60' Sand, fine, with minor red clay
60'- 80' Clay, red, with interbedded fine
sand
80'- 85' Sand, fine, with gray clay
85'- 90' Gravel, with fine sand
90'-100' Sand, fine, with gray glauconitic
clay
100'-120' Sand, very fine, with gray glau-
conitic clay and siderite

120'-135' Sand, fine, with interbedded
gray clay and trace of lignite
135'-140' Clay, gray, with glauconitic very
fine sand
140'-150' Clay, gray, with very fine sand
150'-160' Clay, gray, very glauconitic,
with very fine sand
160'-170' Sand, very fine, with glauco-
nitic clay
170'-180' Clay, gray to green, glauconitic
with interbedded siderite and
sand
180'-190' Clay, gray, with very fine sand
190'-200' Clay, gray, glauconitic, with
very fine sand
T. D.: 200'

Drill Hole No. 119. Elevation 240'
Location: SE¼, Sec. 12, T. 19 S., R. 23 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, red, with very fine sand
20'- 25' Sand, coarse, with pea gravel
25'- 45' Clay, red, with very fine sand
45'- 50' Clay, tan, with very fine sand
50'- 55' Clay, tan to brown, with very
fine sand
55'- 60' Sand, very fine, with tan clay
60'- 65' Clay, tan, with very fine to fine
sand
65'- 75' Gravel
75'- 80' Clay, gray, with lignite and very
fine sand
80'- 90' Sand, fine, with gray glauconitic
clay
90'-100' Clay, gray, glauconitic, with
very fine sand
100'-105' Clay, gray, with trace of lignite
105'-110' Clay, gray, with iron concre-
tions, and very fine to fine sand
110'-140' Clay, green, glauconitic, with
siderite layers, and very fine
sand
140'-170' Clay, green, very glauconitic,
with very fine sand and trace
of lignite
@ 155' siderite
170'-180' Clay, gray to brown, with very
fine sand
180'-190' Clay, green, glauconitic, with
very fine sand and interbedded
siderite
190'-200' Clay, gray, glauconitic, with
very fine sand
T. D.: 200'

Drill Hole No. 120. Elevation 220'
Location: NE¼, Sec. 17, T. 19 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, tan to red, with fine sand
20'-100' Sand, fine, grading to coarse
100'-105' Clay, reddish brown, with fine
sand
105'-200' Clay, gray, glauconitic, with
fine sand
T. D.: 200'

Drill Hole No. 121. Elevation 220'
Location: NE¼, Sec. 16, T. 19 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray, with coarse
sand
10'- 30' Clay, gray to tan, with very
fine sand
30'- 40' Clay, light gray layered with
brown, and very fine sand

40'- 50' Sand, coarse, with pea gravel
50'- 60' Clay, gray, with interbedded
coarse sand
60'- 75' Clay, gray, glauconitic, with
fine sand
75'- 95' Clay, gray to green, glauconitic
with siderite layers and very
fine sand
95'-100' Clay, gray, lignitic, with fine
sand
100'-110' Clay, gray, glauconitic, with
lignite traces
110'-150' Clay, gray to brown, with
siderite layers, traces of lignite
and very fine sand
150'-160' Clay, gray to green, with very
fine sand, and interbedded very
fine sand
160'-190' Clay, gray to green, glauconitic
with interbedded siderite and
very fine sand
190'-200' Clay, gray and brown interbed-
ded, with siderite and very fine
sand
T. D.: 200'

Drill Hole No. 122. Elevation 241'
Location: NE¼, Sec. 9, T. 19 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, brown to red, with fine
sand
10'- 20' Clay, gray to light gray, with
interlayered red and very fine
sand
20'- 30' Clay, gray to red, with traces
of oxidized lignite
30'- 70' Clay, reddish brown, with silt
70'-100' Clay, light brown with silt
100'-120' Clay, light brown and gray
interlayered, and very fine sand
120'-130' Clay, gray, with very fine
glauconitic sand
130'-135' Clay, gray, with lignite and
interbedded very fine glauco-
nitic sand
135'-150' Clay, gray, glauconitic, with
very fine sand
150'-170' Clay, gray, with very fine
sand
170'-180' Clay, gray, glauconitic, with
traces of lignite and very fine
sand
180'-190' Clay, gray, with traces of
lignite
190'-200' Clay, gray, glauconitic, with
very fine sand
T. D.: 200'

Drill Hole No. 123. Elevation 252'
Location: NW¼, Sec. 3, T. 19 S., R. 22 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0 - 10' Clay, red and light gray inter-
layered, and very fine sand
10'- 30' Sand, fine to very fine, with red
clay
30'- 50' Clay, reddish brown, with silt
50'- 70' Clay, light gray and reddish
brown interlayered, and very
fine sand
70'- 75' Clay, gray, with very fine sand
75'- 85' Gravel, pea with coarse sand
85'-115' Clay, gray, very glauconitic,
with very fine sand
115'-120' Sand, fine, with traces of lignite
and gray, glauconitic clay
120'-135' Clay, green, very glauconitic
with very fine sand and siderite
135'-150' Clay, gray, glauconitic, with
siderite

ARKANSAS LIGNITE INVESTIGATIONS

150'-160' Clay, gray, glauconitic, micaceous, with very fine sand
 160'-170' Clay, gray, glauconitic, with very fine sand
 170'-190' Clay, gray to green, very glauconitic, with very fine sand
 190'-200' Clay, green, with layers of siderite and very fine sand
 T. D.: 200'

Drill Hole No. 124. Elevation 270'
 Location: NE¼, Sec. 34, T. 18 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, tan, with layers of red, and very fine sand
 20'- 30' Clay, light gray to tan, with very fine sand
 @ 25'-30' iron concretions
 30'- 35' Clay, gray, with very fine sand
 35'- 40' Clay, green, glauconitic, with very fine sand
 40'- 55' Clay, gray, slightly glauconitic with very fine sand
 55'- 75' Clay, gray, with trace of lignite and very fine sand
 @ 60'-75' glauconitic
 75'- 80' Clay, gray, with lignite, and very fine sand
 80'-105' Clay, gray, slightly glauconitic with very fine sand
 105'-120' Clay, gray, with lignite, and very fine sand
 120'-150' Sand, very fine, with gray to green, glauconitic clay
 @ 120'-130' lignite stringers
 150'-160' Clay, gray, glauconitic, with traces of lignite and very fine sand
 160'-190' Sand, very fine, with gray glauconitic clay, and traces of lignite
 190'-200' Clay, gray, glauconitic, with very fine sand
 @ 191' siderite
 T. D.: 200'

Drill Hole No. 125. Elevation 288'
 Location: SE¼, Sec. 26, T. 18 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, red, with sand
 10'- 20' Clay, light gray, with iron concretions and very fine sand
 20'- 30' Clay, tan, with very fine sand
 @ 25'-30' iron concretions
 30'- 45' Clay, light tan, with very fine sand
 45'- 50' Clay, gray, with very fine sand
 50'- 65' Clay, gray, slightly glauconitic, with very fine sand
 65'- 75' Clay, gray, slightly glauconitic, with traces of lignite
 75'-100' Sand, very fine, with gray, glauconitic clay and interbedded siderite and trace of lignite
 100'-105' Clay, gray, with very fine sand
 105'-110' Sand, very fine, with traces of lignite and gray clay
 110'-130' Sand, very fine, with gray clay
 130'-185' Clay, gray, glauconitic, with very fine sand
 @ 145' increase in sand
 185'-200' Clay, gray, glauconitic, with interbedded very fine sand
 T. D.: 200'

Drill Hole No. 126. Elevation 280'
 Location: NE¼, Sec. 25, T. 18 S., R. 22 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine, with gray to tan clay, and minor lignitic material
 10'- 15' Clay, gray layered with tan, and very fine sand
 15'- 20' Clay, white to light gray, with fine sand
 20'- 25' Clay, tan, with minor iron stain and very fine sand
 25'- 30' Clay, gray layered with tan, and iron concretions and very fine sand
 30'- 40' Clay, gray, glauconitic
 40'- 55' Clay, gray, glauconitic, with very fine sand
 @ 46' siderite
 55'- 70' Clay, gray, glauconitic, with trace of lignite, and very fine sand
 @ 60'-70' siderite layers
 70'-110' Clay, gray, glauconitic, micaceous, with very fine sand
 110'-120' Clay, gray to green, with very fine sand
 120'-130' Clay, green, with very fine sand
 @ 125' siderite
 130'-160' Clay, gray, minor glauconite with very fine sand
 @ 140'-150' trace of lignite
 160'-170' Clay, gray to brown, with very fine sand and traces of lignite
 170'-180' Clay, gray, with very fine to fine sand
 180'-200' Clay, gray, with interbedded very fine sand
 T. D.: 200'

Drill Hole No. 127. Elevation 280'
 Location: SW¼, Sec. 19, T. 18 S., R. 21 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 35' Sand, very fine, with red clay
 35'- 50' Clay, red to tan, with very fine sand
 50'- 60' Clay, tan, with fine to very fine sand
 60'-100' Clay, gray, with very fine sand
 @ 75'-80' trace of lignite
 @ 80'-100' glauconite
 100'-115' Clay, gray to brown, with very fine sand
 115'-150' Clay, gray, glauconitic, with very fine sand
 @ 120' decrease of glauconite; trace of lignite
 150'-165' Clay, gray, glauconitic, with thin beds of siderite and very fine sand
 165'-200' Sand, very fine, with interbedded clay and layers of siderite
 T. D.: 200'

Drill Hole No. 128. Elevation 280'
 Location: NE¼, Sec. 19, T. 18 S., R. 21 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 15' Sand, fine, with red clay
 15'- 25' Clay, tan to light tan, with very fine sand and iron concretions
 25'- 50' Clay, light gray to gray, with very fine sand
 50'- 70' Clay, gray, with very fine sand and silt
 70'- 80' Sand, fine, with lignite

80'- 90' Clay, gray, with traces of lignite
 90'-100' Clay, gray, glauconitic, with very fine sand
 100'-110' Clay, gray, with very fine sand
 110'-150' Clay, gray, glauconitic, with very fine sand
 @ 145' increase in sand
 150'-160' Clay, gray, with very fine sand and traces of lignite
 160'-180' Clay, gray, with interbedded very fine to fine sand
 @ 170'-180' minor glauconite
 180'-190' Clay, gray, slightly glauconitic with very fine sand and traces of lignite
 190'-200' Clay, gray, slightly glauconitic, micaceous, with very fine sand
 T. D.: 200'

Drill Hole No. 129. Elevation 300'
 Location: SE¼, Sec. 17, T. 18 S., R. 21 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, gray, with very fine sand and iron concretions
 10'- 25' Clay, gray with tan layers, and very fine sand
 25'- 75' Clay, gray, with very fine sand
 @ 65'-70' trace of lignite
 75'- 85' Clay, gray, with lignite stringers and very fine sand
 85'-115' Clay, gray, slightly glauconitic with very fine sand
 115'-120' Clay, gray, glauconitic, with trace of lignite
 120'-130' Clay, gray, glauconitic, with some iron staining, and very fine sand
 130'-150' Sand, very fine, with thin interbedded gray clay, and trace of lignite
 150'-160' Clay, gray, with sand and trace of lignite
 160'-170' Sand, very fine, with gray, slightly micaceous clay, and trace of lignite
 170'-180' Clay, gray, with very fine sand
 180'-190' Clay, gray, with silt
 190'-200' Sand, very fine, with gray clay
 T. D.: 200'

Drill Hole No. 130. Elevation 235'
 Location: NE¼, Sec. 29, T. 18 S., R. 21 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine, with red clay
 10'- 20' Clay, gray and red interlayered, and very fine sand
 20'- 25' Clay, tan, with very fine sand
 25'- 30' Clay, light gray to tan, with very fine sand
 30'- 45' Clay, gray, with very fine sand
 45'- 50' Clay, dark gray, with very fine sand
 50'- 75' Clay, gray, slightly glauconitic with very fine sand
 75'- 90' Sand, very fine, with gray clay and stringers of lignite
 90'-110' Clay, gray to dark gray, with very fine sand
 110'-125' Clay, gray, with silt and trace of lignite
 125'-130' Sand, very fine, glauconitic, with interbedded siderite
 130'-140' Clay, gray, glauconitic, micaceous, with trace of lignite
 140'-150' Clay, gray, micaceous, with very fine sand
 150'-155' Sand, very fine, with gray clay and traces of lignite
 155'-165' Clay, gray, with very fine sand

ARKANSAS LIGNITE INVESTIGATIONS

165'-180' Sand, very fine, with gray, glauconitic clay and traces of lignite
180'-195' Clay, gray to dark gray, micaceous, with silt
195'-200' Silt, with gray clay
T. D.: 200'

Drill Hole No. 131. Elevation 230'
Location: NE¼, Sec. 32, T. 18 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 18' Sand, fine
18'- 20' Clay, gray to tan, and very fine sand
20'- 45' Clay, light gray, with very fine sand
45'- 50' Clay, light gray to tan, with iron stain
50'- 65' Clay, light gray, with very fine sand
@ 60'-65' trace of lignite
65'- 70' Sand, very fine, with tan to red clay
70'-100' Clay, gray, glauconitic, with trace of lignite and very fine sand
@ 85'-95' increase in sand
100'-110' Sand, very fine, with gray clay and trace of lignite
110'-120' Clay, gray, with very fine sand and trace of lignite
120'-130' Clay, gray to brown, micaceous with very fine sand
130'-140' Clay, gray to dark gray and green, very glauconitic, micaceous with very fine sand
140'-150' Clay, gray to dark gray, with silt and trace of lignite
150'-180' Sand, very fine, interbedded with glauconitic clay and layers of siderite
180'-190' Sand, very fine, with gray glauconitic clay and trace of lignite
190'-200' Clay, gray, with silt
@ 190' siderite
T. D.: 200'

Drill Hole No. 132. Elevation 225'
Location: NW¼, Sec. 5, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Clay, light gray to light brown, with fine to medium sand
15'- 35' Sand, coarse, grading to pea gravel
35'- 40' Clay, gray, with coarse sand
40'- 50' Clay, dark gray, with very fine sand
50'- 70' Sand, fine to medium, green, with interbedded siderite
@ 55'-60' trace of lignite
70'- 80' Clay, green, very glauconitic with very fine sand
80'-100' Clay, dark gray to green, with very fine sand and siderite layers
100'-120' Clay, dark green, micaceous, with very fine sand and siderite layers
120'-130' Clay, gray to dark gray, with very fine sand
130'-200' Clay, dark gray to green, with very fine sand
@ 130'-150' siderite layers
@ 160'-180' siderite layers
@ 190'-200' trace of lignite
T. D.: 200'

Drill Hole No. 133. Elevation 300'
Location: NW¼, Sec. 8, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 30' Sand, fine, with interbedded red to tan clay
30'- 50' Clay, gray, with very fine sand @ 40' increasing sand
50'-100' Clay, gray to dark gray, with very fine sand
100'-110' Sand, very fine with green clay and interbedded siderite
110'-120' Clay, gray, with trace of lignite
120'-160' Sand, very fine, with traces of lignite and minor gray to green glauconitic clay
@ 150'-160' siderite layers
160'-170' Sand, very fine, with brown clay and trace of lignite
170'-180' Clay, gray and brown interlayered, and very fine sand and traces of lignite
180'-200' Clay, brown, with traces of lignite
@ 190'-200' very fine sand
T. D.: 200'

Drill Hole No. 134. Elevation 300'
Location: NW¼, Sec. 17, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 90' Sand, very fine, alternating with light gray clay
@ 50'-60' minor layers of tan clay
@ 60'-85' traces of lignite
90'-100' Clay, chocolate brown, with very fine sand and lignitic material
100'-105' Clay, chocolate brown to gray, with stringers of lignite and very fine sand
105'-110' Clay, gray, with very fine sand
110'-140' Clay, gray, slightly glauconitic, micaceous, with very fine sand
140'-160' Sand, very fine, with gray clay and traces of lignite
160'-180' Sand, very fine, with interbedded gray, glauconitic clay and traces of lignite
180'-200' Clay, gray, with lignite stringers and very fine sand
T. D.: 200'

Drill Hole No. 135. Elevation 290'
Location: SW¼, Sec. 17, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray to light tan interlayered, w/very fine sand
10'- 15' Clay, light gray, with silt
15'- 20' Clay, light gray, iron stained with silt
20'- 25' Clay, light gray and brown interlayered, and very fine sand
25'- 35' Clay, chocolate brown, with very fine sand
@ 30'-35' traces of lignite
35'- 50' Clay, gray, slightly glauconitic with interbedded very fine sand
50'- 65' Clay, gray to dark gray, slightly glauconitic with very fine sand
65'- 75' Clay, gray, glauconitic, with interbedded siderite and very fine sand
75'- 85' Clay, brown and gray interbedded, and very fine sand
85'- 90' Clay, chocolate brown, with traces of lignite and very fine sand

90'-100' Clay, chocolate brown and gray interlayered, and very fine sand
100'-120' Clay, greenish gray, with very fine sand
120'-135' Clay, gray, w/very fine, slightly micaceous sand
135'-160' Clay, gray, with very fine sand @ 135'-140' traces of lignite @ 150'-160' glauconite
160'-180' Sand, very fine, with gray glauconitic clay
@ 170'-180' traces of lignite
180'-200' Silt, with gray to green clay @ 192' siderite
T. D. 200'

Drill Hole No. 136. Elevation 315'
Location: SW¼, Sec. 20, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with red clay
10'- 25' Clay, light gray, with very fine sand
@ 15'-20' minor tan clay layers
25'- 50' Sand, fine
50'- 55' Sand, fine, with light tan clay
55'-100' Clay, gray to dark gray, with very fine sand
@ 80'-85' trace of lignite
@ 85'-100' thin stringers of lignite
100'-115' Clay, gray, slightly glauconitic, micaceous, with very fine sand
115'-130' Clay, gray, glauconitic, with very fine sand and trace of lignite
130'-135' Clay, gray to green, very glauconitic with very fine sand
135'-160' Clay, gray, with very fine sand
160'-200' Sand, very fine, with green to gray clay
@ 180'-190' traces of lignite
T. D.: 200'

Drill Hole No. 137. Elevation 250'
Location: SE¼, Sec. 30, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, with red clay
10'- 20' Clay, light brown, with very fine sand
20'- 30' Clay, dark gray, with very fine sand
30'- 45' Clay, greenish gray, with very fine sand
45'- 60' Clay, dark gray, with very fine sand
60'- 65' Clay, gray with thin brown layers, and very fine sand
65'- 70' Clay, dark gray, with very fine sand
70'- 90' Clay, bluish green, very glauconitic, with very fine sand @ 80'-90' siderite layers
90'-100' Clay, dark gray to green, with very fine sand
100'-120' Silt with dark gray to green clay
120'-130' Clay, gray to green, with silt
130'-140' Clay, gray to green, with interbedded very fine sand
140'-150' Clay, dark gray to green, with very fine sand
150'-160' Sand, very fine, with green clay and thin siderite layers
160'-200' Sand, very fine, with interbedded, gray, dark gray, and green, very glauconitic clay and thin siderite layers
T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 138. Elevation 240'
Location: SE¼, Sec. 31, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Clay, tan to light gray, with very fine sand
15'- 20' Clay, gray, with very fine sand
20'- 40' Clay, greenish gray, with slightly glauconitic silt
40'- 50' Clay, bright green, with very fine sand and interbedded siderite
50'- 85' Sand, very fine to fine, alternating with gray to green clay
85'- 90' Clay, green, with siderite layers
90'-110' Clay, dark gray to green, with very fine sand
110'-140' Clay, dark gray to green, glauconitic, with very fine sand @ 120'-140' decreasing glauconite
140'-160' Clay, dark gray to gray, with very fine sand @ 150'-160' increasing glauconite and trace of lignite
160'-170' Silt, with gray to green clay
170'-180' Clay, dark gray to green, with very fine sand
180'-200' Clay, gray, glauconitic, with silt @ 190'-200' increasing silt T. D.: 200'

Drill Hole No. 139. Elevation 238'
Location: SE¼, Sec. 6, T. 20 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Clay, red to tan, with sand
15'- 20' Sand, with siderite layers
20'- 35' Clay, gray, with very fine sand
35'- 40' Clay, black, micaceous, with very fine sand
40'- 60' Clay, gray, glauconitic, with very fine sand @ 55'-60' siderite layers
60'- 80' Clay, dark gray to green, with very fine micaceous sand
80'- 85' Siderite T. D.: 85'

Drill Hole No. 140. Elevation 310'
Location: SW¼, Sec. 9, T. 18 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray to tan, with very fine sand
10'- 30' Clay, light gray to light brown, with very fine sand
30'-105' Clay, light gray and tan inter-layered, and very fine to fine sand @ 70'-90' trace of lignite @ 90'-100' trace of lignite and siderite
105'-110' Silt, with gray, glauconitic, micaceous clay
110'-120' Sand, very fine, with interbedded gray, glauconitic clay
120'-150' Clay, gray, with very fine sand @ 145'-150' traces of lignite
150'-165' Clay, gray, slightly glauconitic with very fine sand @ 162' siderite
165'-170' Silt, with gray, glauconitic clay
170'-200' Clay, gray, glauconitic, with interbedded very fine sand @ 170'-180' traces of lignite T. D.: 200'

Drill Hole No. 141. Elevation 285'
Location: SW¼, Sec. 9, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, light gray, w/very fine sand
20'- 40' Clay, gray, slightly glauconitic with very fine sand @ 35'-40' stringers of lignite
40'- 50' Clay, gray, with thin stringers of lignite and very fine sand
50'- 60' Clay, gray to green, glauconitic with silt
60'- 70' Clay, gray, glauconitic, with very fine sand @ 65' siderite
70'- 80' Clay, gray to green, with traces of lignite and very fine sand
80'- 90' Clay, bluish green to gray, with very fine sand @ 85'-90' traces of lignite
90'-120' Clay, gray to green, with very fine sand
120'-130' Clay, gray with silt
130'-135' Clay, gray, with very fine glauconitic sand
135'-150' Sand, very fine, with green clay
150'-170' Silt, with green to gray clay
170'-190' Clay, gray to green, with interbedded very fine sand
190'-200' Clay, gray, with silt T. D.: 200'

Drill Hole No. 142. Elevation 280'
Location: NE¼, Sec. 10, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 30' Sand, fine, with minor tan clay
30'- 35' Clay, light brown, with traces of lignite and very fine sand
35'- 40' Sand, fine, with traces of lignite
40'- 50' Sand, fine, with lignite stringers
50'- 55' Clay, brown, with very fine sand and stringers of lignite
55'- 60' Sand, fine, with interbedded brown clay and traces of lignite
60'- 65' Clay, gray, with stringers of lignite and very fine sand
65'- 85' Clay, gray, with very fine sand
85'- 90' Sand, very fine, with gray clay
90'-100' Clay, gray, with very fine sand and trace of lignite
100'-115' Clay, gray, with silt
115'-120' Sand, very fine, with gray clay and trace of lignite
120'-150' Clay, gray, with interbedded very fine sand
150'-180' Sand, fine to very fine, with interbedded gray clay and traces of lignite
180'-200' Clay, gray, slightly glauconitic with very fine sand T. D.: 200'

Drill Hole No. 143. Elevation 290'
Location: NE¼, Sec. 11, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray to tan, iron stained with very fine sand
10'- 70' Clay, gray to light gray, with very fine sand @ 40'-50' micaceous @ 50'-65' minor glauconite @ 65'-70' siderite layers
70'- 80' Clay, gray to dark gray to green, with very fine micaceous sand
80'-100' Clay, gray to light gray, with very fine micaceous sand
100'-120' Clay, dark gray, micaceous, glauconitic, with very fine sand
120'-130' Sand, very fine to fine, w/gray to

130'-145' green clay, and traces of lignite
Clay, gray, glauconitic, with very fine sand
145'-150' Sand, fine, with gray clay
150'-170' Sand, fine, with interbedded gray clay and traces of lignite
170'-180' Clay, gray, with silt
180'-190' Clay, gray, slightly glauconitic with very fine sand
190'-200' Clay, gray, glauconitic, with interbedded very fine sand and siderite T. D.: 200'

Drill Hole No. 144. Elevation 300'
Location: NE¼, Sec. 12, T. 19 S., R. 21 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray to light brown, with very fine sand
10'- 20' Clay, light gray, with very fine sand
20'- 30' Clay, light brown, with very fine sand
30'- 40' Clay, bluish gray, with very fine sand
40'- 65' Clay, gray, slightly glauconitic with very fine sand
65'- 75' Clay, gray to brown, with very fine sand
75'- 90' Clay, gray to dark green, with very fine slightly micaceous sand
90'-100' Clay, brown, with very fine sand
100'-140' Clay, gray, glauconitic, micaceous, with very fine sand
140'-150' Clay, bluish gray, with very fine sand
150'-170' Clay, gray to bright green, with very fine sand @ 160'-170' siderite layers
170'-190' Sand, fine, with green clay @ 180'-190' siderite layers
190'-200' Clay, bright green, with interbedded very fine sand and siderite T. D.: 200'

Drill Hole No. 145. Elevation 290'
Location: SE¼, Sec. 8, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 15' Clay, light brown, with very fine sand
15'- 20' Lignite
20'- 35' Clay, light to chocolate brown, with very fine sand
35'- 50' Clay, dark gray to gray, with very fine sand @ 35'-40' trace of lignite
50'- 65' Clay, dark gray and dark brown interbedded, and very fine sand
65'-100' Clay, gray, glauconitic, with very fine sand @ 70'-80' siderite layers
100'-130' Clay, gray to green, with very fine micaceous sand
130'-140' Sand, very fine, with gray clay and minor siderite
140'-160' Clay, gray to greenish gray, with very fine sand
160'-170' Sand, very fine, with green glauconitic clay
170'-190' Silt, with green glauconitic clay and minor siderite
190'-200' Clay, green, with silt
Core interval 12'-20'
Recovered: 8' Lost: 8'
12'-20' no lignite recovered; apparently from 12'-18' thick T. D.: 200'

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Drill Hole No. 146. Elevation 300'
Location: NE¼, Sec. 17, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray, with very fine sand
10'- 15' Clay, light gray to white, with very fine sand
15'- 17' Clay, light gray to white and brown, with very fine sand
17'- 25' Lignite, with chocolate brown clay and very fine sand
25'- 30' Clay, gray, with traces of lignite and very fine sand
30'- 50' Clay, gray to green, with very fine sand
50'- 75' Clay, light gray to dark gray and green, micaceous, with very fine sand
@ 75' siderite
75'- 90' Clay, dark gray to green, with very fine sand
90'-120' Clay, gray, micaceous, with very fine sand
120'-145' Clay, gray to dark gray, with very fine, slightly glauconitic sand
145'-150' Silt, with gray clay
150'-170' Clay, gray, with very fine sand @ 160'-170' micaceous
170'-190' Sand, very fine, with gray clay
190'-200' Silt, with gray clay
Core interval 20'-28'
Recovered: 8' Lost: 0'
20'-20'5" lignite with clay
20'5"-21'4" lignite, soft
21'4"-22'4" lignite, hard
22'4"-23' lignite, very argillaceous
23'-27' silt, brown, lignitic, with sand and clay
27'-28' sand, very fine, glauconitic, gray to green
T. D.: 200'

Drill Hole No. 147. Elevation 290'
Location: SW¼, Sec. 17, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light tan to light brown, with very fine sand
10'- 20' Clay, light gray, with very fine sand
20'- 25' Clay, brown, with very fine sand
25'- 30' Lignite
30'- 40' Clay, gray, slightly glauconitic, with very fine sand
40'- 50' Clay, gray to brown, with very fine sand
50'- 70' Clay, gray, slightly glauconitic with very fine sand
@ 66' siderite
70'- 80' Clay, gray to brown, slightly glauconitic, with very fine sand and siderite layers
80'-110' Clay, gray to green to brown, with very fine sand
110'-140' Clay, gray, with very fine sand @ 110'-120' micaceous
140'-150' Sand, very fine, with gray slightly glauconitic clay
150'-170' Silt, with gray, slightly glauconitic clay
170'-180' Clay, gray, slightly glauconitic with silt
180'-190' Silt, with interbedded gray clay
190'-200' Clay, gray, with interbedded very fine sand

Core interval 27'-30'
Recovered: 3' Lost: 0'
27'-28' lignite, silty
28'-29'1" lignite, hard
29'1"-30' silt, with few lignite stringers
T. D.: 200'

Drill Hole No. Special 1. Elevation 315'
Location: SE¼, Sec. 9, T. 19 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 5/77.

0'- 6' Sand, very fine, with mottled silt
6'- 17' Sand, very fine, with gray silt and minor gray clay layers
17'- 27' Sand, very fine, with silt and light brownish gray clay
27'- 36½' Clay, brown
36½'-45½' Clay, gray, with silt and fine sand
45½'-47' Lignite
47'- 48½' Clay, dark brown
48½'-51' Clay, gray, with silt and fine sand
51'- 58' Clay, dark brown, lignitic
58'- 60' Clay, gray and light brown interlayered
60'- 64' Clay, brown, lignitic
64'- 68' Sand, tan, very fine, lignitic
68'- 88' Clay, brown, lignitic, with very fine sand
88'-100' Clay, brown, with slightly glauconitic fine sand
100'-112' Sand, tan, fine, with silt
112'-125' Clay, gray, with fine sand and glauconite and trace of lignite
125'-129' Sand, fine, glauconitic, with greenish gray clay and trace of lignite
129'-148' Clay, gray, with very fine sand and glauconite
@ 148' siderite
T. D.: 148'

Drill Hole No. Special 2. Elevation 302'
Location: NE¼, Sec. 10, T. 19 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 5/77.

0'- 5' Sand, very fine, with mottled silt
5'- 9' Clay, tan, with very fine sand
9'- 14' Clay, light brown, with fine sand
@ 12'-14' trace of lignite in clay
14'- 16' Sand, fine to very fine, tan, with silt and trace of lignite
16'- 19' Clay, gray, lignitic, with very fine sand
19'- 22½' Sand, fine, tan, with trace of lignite
22½'-34' Clay, gray, with silt
34'- 36' Clay, dark brown
@ 35'-35½' lignite
36'- 45' Clay, dark brown, lignitic
45'- 48' Clay, dark brown, with very fine sand and trace of lignite
48'- 50' Sand, fine, gray, with brown clay
50'- 77' Sand, fine, gray, with few lignitic silt and clay stringers
@ 74' lignite stringer
77'- 85' Clay, gray, with silt
85'- 88½' Clay, gray, with sand and trace of lignite
88½'-89' Siderite
89'-106' Silt, gray, with very fine micaceous sand
@ 100'-106' trace of lignite

106'-116' Clay, gray, with silt and fine sand
@ 116' siderite
116 -120' Clay, gray, with silt and very fine sand
120'-126' Silt, grayish brown, lignitic, micaceous, with fine gray sand
126'-140' Clay, gray, with silt and fine sand
@ 130'-140' trace of lignite
140'-144' Clay, gray, with silt
144'-147' Clay, brown
147'-150' Silt, gray, with fine sand
T. D.: 150'

Drill Hole No. Special 3. Elevation 315'
Location: NE¼, Sec. 11, T. 19 S., R. 20 W.
County, Columbia
Logged by: J. M. Howard 5/77.

0'- 6' Silt, mottled, with clay and fine sand
6'- 16' Sand, fine, tan, with silt
16'- 23' Clay, light brown, with trace of lignite
23'- 25' Clay, gray
25'- 28' Clay, brown
28'- 30' Lignite
30'- 34' Lignite, with thin interbeds of dark brown clay
34'- 40' Sand, fine, tan, with silt and clay
40'- 49' Sand, fine, gray, with silt
49'- 66' Clay, gray, with very fine sand and silt
@ 60'-65' traces of lignite
66'- 68' Sand, fine, gray, with trace of lignite
68'- 83' Clay, gray, with silt and very fine sand
@ 80'-83' trace of glauconite
@ 83' siderite
83'- 90' Clay, gray, with fine sand and glauconite
90'-100' Clay, brown, with silt and fine sand
100'-105' Silt, brown, with very fine sand
105'-110' Clay, gray, with silt and very fine sand
110'-120' Silt, gray, with very fine sand and clay
120'-137' Clay, gray, with silt
@ 137' siderite
137'-143' Sand, very fine, gray with silt
143'-147' Clay, gray, with silt and very fine sand
@ 147' siderite
Core interval 27'-35'5"
Recovered: 8'5" Lost: 0'
27'-28' clay, dark brown to chocolate brown, micaceous, lignitic, with very fine sand
28'-30' lignite, friable
30'-30'8" lignite, hard, very compact
30'8"-35'5" lignite, hard, slightly friable
T. D.: 147'

Drill Hole No. Atlanta 1. Elevation 310'
Location: SE¼, Sec. 9, T. 19 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 6/77.

0'- 10' Sand, fine to very fine, with brown to light brown clay
10'- 15' Clay, light tan to brown, with very fine sand
15'- 20' Clay, light tan to brown, with red clay and iron stained very fine sand

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20'-30' Clay, gray, with very fine sand and trace of carbonaceous material, silt, mica
 30'-35' Clay, brown to gray, with very fine sand, silt, mica and interbedded sand
 35'-40' Clay, gray to brown, with very fine to fine sand, mica
 40'-55' Clay, gray, with interbedded sand, very fine, silt, mica
 55'-58' Clay, gray, with lignite stringer and interbedded sand
 58'-60' Clay, gray, with very fine sand, silt, mica and trace of lignite
 60'-70' Sand, very fine to fine, hard packed, with clay, gray, silt and mica
 70'-77' Clay, gray, with interbedded sand and lignite
 77'-80' Lignite
 80'-83' Lignite, with sand and clay
 83'-100' Sand, very fine, with trace of lignite
 100'-108' Sand, very fine, with silt
 108'-130' Clay, brown, with very fine sand, silt and mica
 130'-135' Clay, brown, with some very fine sand and lignite stringers
 135'-140' Clay, brown, with very fine sand
 140'-150' Clay, dark brown, lignitic, with very fine sand and lignite stringers
 Core interval 76'-86'
 Recovered: 5' Lost: 5'
 76'-80'2" lignite, fairly hard, compact and friable, some conchoidal fracture, usually no visible sign between hard and softer portions, although top portion is more compact
 80'2"-81' sand, very fine to fine, with slightly micaceous brown clay
 81'-86' washed out drilled-like sand
 T. D.: 150'

Drill Hole No. Atlanta 2. Elevation 290'
 Location: SE¼, Sec. 9, T. 19 S., R. 19 W. County, Columbia
 Logged by: G. L. Delavan 6/77.

0'-10' Clay, light tan to brown, with very fine sand
 10'-20' Clay, tan to white, with very fine sand, silt and mica
 20'-30' Sand, fine, with clay, light tan to brown
 30'-40' Sand, fine, with interbedded clay, light tan, and iron concretions
 40'-50' Sand, fine, with clay, chocolate brown, with iron concretions and trace of lignite
 50'-60' Sand, fine, with clay, light gray, and iron concretions
 60'-70' Sand, fine, with clay binder, gray, and trace of lignite
 70'-75' Sand, fine, trace of lignite
 T. D.: 75'

Drill Hole No. 148. Elevation 293'
 Location: NW¼, Sec. 20, T. 19 S., R. 20 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'-20' Clay, light gray to tan, with very fine sand
 20'-30' Clay, gray, with very fine sand
 30'-40' Clay, gray to brown, with very fine sand

40'-45' Lignite
 45'-50' Clay, chocolate brown, with lignite and very fine sand
 50'-55' Sand, very fine, with clay, brown
 55'-70' Clay, gray, slightly glauconitic, with very fine sand
 70'-80' Clay, gray, carbonaceous, with trace of lignite and very fine sand
 80'-100' Clay, gray to brown layers, with very fine sand
 100'-120' Clay, gray to green, with very fine sand interbedded @ 115'-120' siderite
 120'-165' Clay, gray, slightly glauconitic, micaceous, with very fine sand @ 150'-165' interbedded siderite
 165'-170' Sand, very fine, clay, gray
 170'-175' Clay, gray, with very fine sand
 175'-180' Sand, very fine, with clay, gray
 180'-200' Silt, with interbedded clay, gray, slightly glauconitic
 Core interval 37'-45'
 Recovered: 2'7" Lost: 5'5"
 30" lignite recovered, possibly from more than one bed separated by sand. Core showed no interbedded sand, but driller thought sand may have washed. 1" sand at base of core barrel
 T. D.: 200'

Drill Hole No. 149. Elevation 270'
 Location: SE¼, Sec. 19, T. 19 S., R. 20 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'-10' Clay, light gray to tan, with very fine sand
 10'-25' Clay, chocolate brown, with very fine sand
 25'-30' Silt, with clay, brown, and trace of lignite
 30'-35' Clay, brown, with very fine sand
 35'-40' Silt, with minor clay, brown
 40'-50' Sand, fine to very fine, with lignite
 50'-60' Sand, fine
 60'-70' Sand, fine, with stringers of lignite
 70'-80' Sand, very fine, with silt
 80'-100' Clay, gray to brown, with very fine sand
 100'-115' Clay, gray, slightly glauconitic with very fine sand
 115'-120' Sand, very fine, with clay, gray, and trace of lignite
 120'-130' Clay, gray, with very fine sand
 130'-150' Clay, brown to dark brown, with trace of lignite and very fine sand
 150'-160' Clay, light brown, with sand, very fine
 160'-170' Clay, gray, with very fine sand
 170'-180' Clay, layered gray to brown, with traces of lignite and very fine sand
 180'-190' Clay, brown, w/very fine sand
 190'-200' Clay, brown, with interbedded sand, very fine, and trace of lignite and sand
 T. D.: 200'

Drill Hole No. 150. Elevation 280'
 Location: NE¼, Sec. 30, T. 19 S., R. 20 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'-10' Sand, fine, with clay, white to light gray

10'-15' Gravel
 15'-50' Clay, gray, with very fine sand
 50'-75' Clay, gray, slightly glauconitic with very fine sand
 75'-90' Sand, very fine, silt, w/clay, gray
 90'-110' Clay, gray, with very fine sand @ 100'-110' trace of lignite
 110'-180' Clay, gray, with carbonaceous layers and very fine sand @ 120'-180' trace of lignite
 180'-190' Clay, gray, micaceous, with very fine sand
 190'-200' Clay, gray to brown, micaceous with very fine sand
 T. D.: 200'

Drill Hole No. 151. Elevation 320'
 Location: NE¼, Sec. 8, T. 19 S., R. 20 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'-10' Clay, gray to tan, with very fine to fine sand
 10'-20' Clay, light gray, interbedded with clay, chocolate brown, and very fine sand
 20'-30' Clay, gray, with layers of brown, and very fine sand
 30'-70' Clay, gray, with very fine sand @ 50'-60' micaceous @ 60'-70' minor glauconite
 70'-80' Clay, gray, with silt
 80'-90' Clay, gray, slightly glauconitic with very fine sand
 90'-100' Clay, greenish gray, with silt
 100'-150' Clay, gray, with very fine sand, slightly glauconitic, and silt interbedded with clay, gray to green @ 120'-125' minor glauconite
 150'-190' Clay, gray, slightly glauconitic, w/very fine sand, micaceous, and silt, interbedded with gray clay
 190'-200' Clay, gray, with interbedded silt and siderite
 T. D.: 200'

Drill Hole No. 152. Elevation 290'
 Location: NE¼, Sec. 11, T. 19 S., R. 20 W. County, Columbia
 Logged by: D. W. Lumbert 5/77.

0'-10' Sand, fine, with clay, light gray to white
 10'-20' Clay, brown, with fine sand
 20'-30' Clay, gray to brown, with very fine sand
 30'-40' Clay, gray, with very fine sand
 40'-50' Clay, slightly glauconitic, with very fine sand @ 48' less than 1' siderite
 50'-70' Clay, gray, slightly micaceous with very fine sand
 70'-90' Clay, gray, glauconitic, with very fine sand
 90'-120' Clay, gray, slightly glauconitic with very fine sand @ 100'-120' minor glauconite
 120'-140' Clay, gray with brown layers @ 128' less than 1' siderite
 140'-155' Clay, gray, with very fine sand
 155'-160' Silt, with very fine sand and gray clay
 160'-165' Clay, gray, with very fine sand
 165'-170' Silt, with clay, gray, micaceous
 170'-200' Clay, gray, with silt and very fine sand @ 180'-190' micaceous @ 190'-200' slightly glauconitic and trace of siderite
 T. D.: 200'

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Drill Hole No. 153. Elevation 323'
Location: SE¼, Sec. 16, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray, with fine sand
10'- 15' Clay, bluish gray, with very fine sand
15'- 20' Clay, brown, with very fine sand
20'- 30' Clay, light blue to gray, with very fine sand
30'-100' Clay, gray, w/fine sand and silt @ 50'-60' minor green clay @ 70'-90' minor glauconite @ 80'-100' trace of lignite
100'-200' Clay, gray, glauconitic, with very fine sand and silt @ 117' less than 1' siderite @ 130'-140' micaceous sand T. D.: 200'

Drill Hole No. 154. Elevation 320'
Location: NW¼, Sec. 15, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light gray to white, with very fine sand
10'- 25' Clay, light gray to gray, with very fine sand
25'- 30' Clay, gray, with interbedded sand, very fine to fine
30'- 67' Clay, gray, with very fine sand @ 40'-50' trace of lignite @ 50'-67' fine sand increase
67'- 69' Lignite
69'-100' Clay, gray, carbonaceous, with very fine sand
100'-130' Clay, gray, slightly glauconitic, micaceous, with very fine sand
130'-135' Sand, very fine to fine, with clay, gray
135'-200' Clay, gray, with very fine sand @ 150'-200' minor glauconite @ 170'-180' siderite layers T. D.: 200'

Drill Hole No. 155. Elevation 330'
Location: NE¼, Sec. 15, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 60' Clay, light gray to gray, with very fine sand @ 30'-60' minor mica in sand
60'- 70' Clay, gray, with interbedded brown clay, and very fine sand
70'- 80' Lignite bearing section
80'- 85' Clay, chocolate brown, with very fine sand
85'- 90' Clay, chocolate brown, with thin stringers of lignite and very fine sand
90'-100' Clay, gray to brown, with very fine sand
100'-120' Clay, gray, with very fine sand
120'-150' Clay, gray, micaceous, carbonaceous, with very fine sand
150'-160' Silt, with clay, gray, and trace of lignite
160'-180' Clay, gray, with very fine sand, slightly micaceous
180'-190' Clay, gray and brown interbedded, and very fine sand
190'-200' Clay, gray, slightly glauconitic, with very fine sand and traces of siderite T. D.: 200'

Drill Hole No. 156. Elevation 350'
Location: NE¼, Sec. 14, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine
10'- 35' Clay, light gray to gray, with very fine sand
35'- 40' Lignite bearing section
40'- 45' Clay, brown, w/very fine sand
45'- 50' Clay, brown, carbonaceous, with very fine sand
50'- 55' Clay, chocolate brown, with very fine sand
55'- 70' Clay, gray, with very fine sand
70'-100' Clay, brown, micaceous, with very fine sand
100'-110' Lignite, with very fine sand, and clay, brown
110'-120' Sand, very fine, with traces of lignite
120'-150' Clay, gray to brown, with interbedded very fine sand and trace of lignite
150'-160' Sand, very fine, with clay, gray to brown
160'-190' Clay, gray to brown, with interbedded very fine sand
190'-200' Silt, with clay, brown T. D.: 200'

Drill Hole No. 157. Not drilled.

Drill Hole No. 158. Elevation 320'
Location: SE¼, Sec. 1, T. 19 S., R. 20 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with clay, white
10'- 20' Clay, white, with silt
20'- 33' Clay, light gray to gray, w/silt
33'- 40' Lignite bearing section
40'- 50' Sand, very fine, w/clay, chocolate brown, and traces of lignite
50'- 60' Sand, very fine, with clay, gray to brown, and trace of lignite
60'- 70' Clay, gray, micaceous, with very fine sand
70'- 80' Clay, gray w/brown interbedded layers, and very fine sand
80'- 90' Clay, brown, slightly glauconitic w/very fine sand and traces of siderite
90'-120' Clay, gray to brown, with very fine sand
120'-130' Clay, gray to brown, with increasing very fine sand
130'-140' Clay, gray, with very fine sand
140'-150' Clay, bluish gray, w/very fine sand
150'-190' Clay, brown, w/very fine sand @ 160'-190' minor mica & sand
190'-200' Clay, bluish gray, with very fine sand
Core interval 27'-32'
Recovered: 5' Lost: 0'
27'-31'6" friable lignite
31'6"-31'8" sand, lignitic
31'8"-32' lignite, sandy
61" total core
59" saved for analysis
T. D.: 200'

Drill Hole No. 159. Elevation 320'
Location: NE¼, Sec. 6, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, red with sand
10'- 25' Sand, very fine to fine, with clay, light gray to white
25'- 30' Sand, fine, with clay, chocolate

30'- 35' brown, and trace of lignite
Lignite with clay, chocolate brown, and very fine sand
35'- 65' Clay, gray, with very fine sand @ 50'-65' minor carbonaceous material
65'- 70' Clay, gray, with stringers of lignite, and very fine sand
70'- 80' Clay, gray, with trace of lignite and very fine sand
80'- 90' Clay, gray, with very fine sand
90'-100' Clay, gray to olive green, with very fine sand
100'-110' Clay, gray, with bright green glauconite and very fine sand @ 102' siderite
110'-120' Clay, gray, slightly glauconitic with increasing very fine sand
120'-140' Clay, gray, glauconitic with interbedded siderite and very fine sand
140'-150' Clay, gray, with increasing sand, very fine
150'-170' Clay, gray, slightly glauconitic with very fine sand
170'-180' Sand, very fine, with clay, gray
180'-200' Clay, gray, slightly micaceous, with very fine sand
Core interval 36'4"-40'3"
Recovered: 3'11" Lost: 0'
36'4"-40'3" hard lignite, with conchoidal fracture
47" saved for analysis
T. D.: 200'

Drill Hole No. 160. Elevation 310'
Location: NE¼, Sec. 5, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with clay, red
10'- 20' Sand, fine to very fine, with clay, white to light gray
20'- 30' Sand, fine to very fine, with iron stained, white clay
30'- 36' Sand, very fine, with clay, gray and trace of lignite
36'- 40' Lignite
40'- 50' Sand, very fine, clay, gray, trace of lignite
50'- 70' Clay, gray to brown, with very fine sand @ 60'-70' slightly micaceous
70'- 80' Clay, bluish gray, with silt, micaceous
80'- 90' Clay, gray, with very fine sand, slightly micaceous
90'-100' Clay, gray to brown, slightly glauconitic, with very fine sand @ 90' -siderite 1'
100'-130' Clay, bluish gray, with very fine sand @ 120'-130' increased glauconite and siderite layers
130'-140' Clay, bluish gray, with very fine sand, slightly micaceous
140'-150' Clay, gray, with interbedded very fine sand and siderite layers
150'-170' Clay, gray, with very fine sand, slightly micaceous @ 160'-170' increasing very fine sand
170'-200' Clay, gray, with very fine sand @ 190'-200' slightly micaceous
Core interval 34'-37'10"
Recovered: 3'10" Lost: 0'
34'-37'10" hard lignite
43" saved for analysis
T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 161. Elevation 290'
Location: NW¼, Sec. 4, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, medium to coarse
10'- 30' Clay, light brown, with very fine sand
30'- 40' Clay, chocolate brown, with very fine sand
40'- 50' Sand, very fine, with brown clay and lignite stringers
50'- 65' Clay, brown to light brown, with very fine sand and lignite stringers
65'- 75' Sand, very fine, with brown clay and trace of lignite
75'- 85' Clay, gray, with very fine sand
85'-100' Clay, gray, w/interbedded very fine sand and trace of lignite
100'-120' Clay, gray, slightly glauconitic, slightly micaceous, with very fine sand
@ 110'-120' siderite layers
120'-135' Clay, gray, slightly micaceous with trace of lignite and very fine sand
135'-140' Sand, very fine, with gray clay and stringers of lignite
140'-150' Clay, gray, w/ interbedded very fine sand and trace of lignite
150'-165' Clay, gray, with very fine sand
165'-170' Sand, very fine, with gray clay
170'-190' Clay, gray, with interbedded very fine sand
190'-200' Clay, gray, with slightly micaceous very fine sand
Core interval 30'-50'
Recovered: 20' Lost: 0'
30'-40' sand, gray, fine
40'-50' sand, gray, fine, lignitic with silt
T. D.: 200'

Drill Hole No. 162. Elevation 280'
Location: NE¼, Sec. 4, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, red with white and gray stringers, and very fine sand
10'- 20' Clay, light tan, iron stained, with very fine sand
20'- 30' Clay, light tan, w/very fine sand
30'- 40' Clay, light gray, with very fine sand and silt
40'- 43' Clay, gray, micaceous, with very fine sand
43'- 46' Lignite
46'- 50' Clay, gray, slightly micaceous with very fine sand
50'- 70' Clay, brown to gray, carbonaceous with very fine sand
70'- 80' Clay, brown to gray, slightly micaceous with very fine sand
80'- 90' Clay, brown, with very fine sand
90'-100' Clay, brown, with interbedded very fine sand and stringer of lignite
100'-120' Clay, brown, fissile, with very fine sand and stringers of lignite
120'-150' Clay, brown, with very fine slightly micaceous sand and trace of lignite
150'-160' Clay, bluish gray, with very fine sand
160'-200' Clay, gray to brown, with very fine sand
@ 180'-200' slightly micaceous
Core interval 42'-49'10"

Recovered: 7'10" Lost: 0'
42'-47'5" lignite, hard, black, with conchoidal fracture
47'5"-49'10" sand, fine, light gray, micaceous
T. D.: 200'

Drill Hole No. 163. Elevation 275'
Location: NE¼, Sec. 3, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, light tan to light gray, with very fine sand
10'- 15' Clay, light tan, with iron concretions and very fine sand
15'- 23' Clay, gray, with traces of lignite and very fine sand
23'- 30' Lignite bearing section
30'- 35' Lignite with brown to gray clay and very fine sand
35'- 50' Clay, gray and brown interlayered, and very fine sand
50'- 70' Clay, gray to brown, slightly micaceous, with very fine sand
70'- 80' Clay, bluish gray, with slightly micaceous very fine sand
80'- 95' Clay, gray to brown, with silt
95'-100' Clay, chocolate brown, with very fine sand
100'-120' Clay, chocolate brown and gray interlayered, and very fine sand
@110'-120' traces of lignite
120'-130' Clay, gray and brown interlayered, and very fine sand
130'-140' Clay, gray, with very fine sand and trace of lignite
140'-150' Clay, gray, slightly glauconitic with minor siderite and very fine sand
150'-180' Clay, gray and brown interlayered, and very fine sand
@ 160'-180' sand increase
180'-190' Sand, very fine, with brown clay and traces of lignite
190'-200' Clay, chocolate brown, with very fine sand and traces of lignite
Core interval 30'-40'
Recovered: 10' Lost: 0'
30'-35'9" lignite, hard, black
35'9"-36' lignite, brown, micaceous with sand
36'-40' clay, gray, slightly lignitic with sand
72" lignite saved for analysis
T. D.: 200'

Drill Hole No. 164. Elevation 285'
Location: NE¼, Sec. 3, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with light gray to white iron stained clay
10'- 20' Clay, light tan, with very fine sand
20'- 25' Clay, light tan and red interlayered, and very fine sand
25'- 30' Sand, fine, with tan clay
30'- 40' Clay, tan, with iron concretions and very fine sand
40'- 60' Clay, tan to light brown, with very fine sand
@ 50'-60' trace of lignite
60'- 70' Clay, light tan, with very fine sand
70'- 80' Clay, gray, with very fine sand @ 75'-80' thin stringers of lignite
80'- 90' Clay, bluish gray, with traces of

lignite and very fine sand
90'-100' Sand, very fine, with bluish gray clay
100'-110' Clay, gray to brown, slightly glauconitic with very fine sand
110'-125' Clay, brown, carbonaceous with very fine sand
125'-130' Sand, very fine, with brown clay and trace of lignite
130'-140' Clay, bluish gray, with silt
140'-160' Clay, brown, with very fine sand @ 150'-160' slightly micaceous
160'-170' Clay, gray to green, slightly glauconitic, with very fine sand
170'-180' Clay, brown, slightly micaceous with very fine sand
180'-190' Sand, very fine, with brown to gray clay
190'-200' Clay, gray to brown, with silt
T. D.: 200'

Drill Hole No. 165. Elevation 240'
Location: NE¼, Sec. 2, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 30' Clay, gray and red interlayered, and very fine sand
@ 25'-27' sand, very fine
30'- 50' Clay, gray, slightly carbonaceous, with very fine sand
50'- 80' Sand, very fine, with gray clay @ 50'-55' lignite stringers @ 55'-80' traces of lignite
80'- 90' Sand, very fine, with gray clay
90'-190' Clay, gray, with very fine sand @ 100'-190' slightly micaceous @ 150'-190' trace of lignite @ 180'-190' sand increase
190'-200' Clay, chocolate brown, with very fine sand and silt
T. D.: 200'

Drill Hole No. 166. Elevation 250'
Location: NW¼, Sec. 1, T. 19 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine with tan clay
10'- 25' Clay, tan, with very fine to fine sand
25'- 35' Sand, very fine, with tan clay
35'- 45' Clay, gray, with very fine sand
45'- 50' Sand, fine to very fine, with tan clay
50'- 60' Clay, light tan, with interbedded very fine sand
60'- 80' Silt, with light tan clay
80'- 90' Silt, with interbedded light tan clay
90'-100' Silt, with minor tan clay
100'-115' Silt
115'-120' Silt, with gray clay
120'-130' Clay, gray, with silt
130'-140' Clay, brown, slightly micaceous with very fine sand and silt
T. D.: 140'

Drill Hole No. 167. Elevation 250'
Location: SW¼, Sec. 6, T. 19, S. R. 18 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine, with gray to red clay
10'- 30' Clay, gray, iron stained with very fine sand
30'- 40' Clay, light gray, with very fine sand
40'- 70' Clay, light gray, with interbedded silt
70'-100' Silt
T. D.: 100'

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Drill Hole No. 168. Elevation 230'
Location: SE¼, Sec. 7, T. 19 S., R. 18 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, very fine, with gray to red clay
10'- 20' Silt, with light gray clay
20'- 25' Clay, gray to tan, with very fine sand
25'- 60' Clay, gray, with very fine sand @ 50'-60' lignite stringers
60'- 80' Sand, very fine, with traces of lignite
80'- 90' Lignite, with interbedded very fine sand
90'-100' Clay, gray, with very fine sand
100'-110' Clay, gray to brown, with very fine sand
110'-160' Clay, gray, slightly glauconitic with very fine sand @ 111' siderite @ 130'-140' traces of lignite
160'-200' Clay, gray to brown, with very fine sand T. D.: 200'

Drill Hole No. 169. Elevation 170'
Location: NE¼, Sec. 19, T. 19 S., R. 18 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with gray clay
10'- 15' Clay, gray to brown, with very fine sand
15'- 30' Clay, gray to tan, with very fine sand
30'- 35' Sand, coarse, with gravel
35'- 40' Sand, medium
40'- 75' Clay, gray, with very fine sand @ 50'-75' slightly micaceous
75'-100' Clay, gray to brown, with very fine sand
100'-115' Clay, gray, slightly micaceous, slightly glauconitic, with very fine sand
115'-135' Clay, gray, with interbedded fine sand
135'-140' Clay, gray, slightly glauconitic with interbedded glauconite and minor siderite
140'-145' Clay, gray to brown, with slightly micaceous very fine sand
145'-150' Clay, gray, with interbedded very fine sand and trace of lignite
150'-165' Clay, gray, slightly micaceous with very fine sand
165'-200' Clay, gray, slightly glauconitic with interbedded thin siderite layers T. D.: 200'

Drill Hole No. 170. Elevation 223'
Location: NE¼, Sec. 30, T. 19 S., R. 18 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with gray to red clay
10'- 45' Silt, with minor tan clay
45'- 50' Sand, medium
50'- 55' Clay, tan to gray, with very fine sand
55'- 65' Clay, gray, with very fine sand
65'- 80' Clay, gray, with slightly micaceous silt
80'- 90' Clay, gray, slightly micaceous, with very fine sand
90'-110' Clay, gray, slightly glauconitic with very fine sand @ 90'-100' slightly micaceous @ 105'-110' interbedded siderite
110'-140' Clay, gray, slightly glauconitic,

140'-160' slightly micaceous, with silt Clay, glauconitic, green, with very fine sand
160'-175' Clay, gray, glauconitic, with interbedded siderite and very fine sand
175'-200' Clay, gray, slightly glauconitic, slightly micaceous, with interbedded silt T. D.: 200'

Drill No. 171. Elevation 215'
Location: NW¼, Sec. 35, T. 18 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 8' Sand, fine, with tan to light gray clay
8'- 20' Clay, light gray to tan, with very fine sand
20'- 60' Clay, gray, with very fine sand @ 30'-40' lignitic clay @ 50'-60' slightly micaceous
60'-100' Clay, gray, slightly glauconitic, slightly micaceous, with very fine sand and silt
100'-140' Clay, gray to brown, slightly micaceous, with silt
140'-160' Clay, gray, slightly micaceous with very fine sand
160'-170' Clay, gray to brown, with traces of lignite and very fine sand
170'-180' Clay, brown, with lignite stringers and very fine sand
180'-200' Clay, brown, with interbedded very fine sand and traces of lignite @ 190'-200' slightly glauconitic T. D.: 200'

Drill Hole No. 172. Elevation 197'
Location: NW¼, Sec. 25, T. 18 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with tan clay
10'- 30' Sand, fine to coarse, with gray clay @ 25'-30' pea gravel
30'- 50' Clay, gray, slightly micaceous with very fine sand
50'- 60' Sand, fine, with interbedded gray clay
60'- 80' Clay, gray, slightly micaceous, slightly glauconitic, with very fine sand
80'-150' Sand, very fine to fine, with interbedded gray, slightly micaceous, slightly glauconitic clay @ 100'-150' traces of lignite and thin siderite layers
150'-180' Sand, very fine, with glauconitic clay and siderite
180'-200' Silt to very fine sand with glauconitic, micaceous clay and minor thin siderite layers T. D.: 200'

Drill Hole No. 173. Elevation 255'
Location: SE¼, Sec. 22, T. 18 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 20' Clay, light tan, with very fine sand
20'- 25' Clay, brown, with very fine sand
25'- 30' Clay, brown to gray, with very fine sand and trace of lignite
30'- 40' Clay, brown to gray, with interbedded very fine sand and trace of lignite

40'- 55' Clay, brown, with very fine sand
55'- 65' Clay, gray to brown, slightly micaceous, slightly glauconitic with very fine sand
65'- 90' Clay, light gray, slightly micaceous, with very fine sand
90'-100' Clay, gray, with slightly micaceous very fine sand
100'-110' Clay, gray to brown, with slightly micaceous very fine sand
110'-130' Clay, gray, slightly micaceous with very fine sand
130'-140' Clay, gray to light gray, slightly micaceous with very fine sand
140'-150' Clay, gray, with very fine sand
150'-160' Silt, with glauconitic clay and minor siderite
160'-200' Silt, with minor gray, slightly glauconitic clay @ 170'-200' slightly micaceous T. D.: 200'

Drill Hole No. 174. Elevation 235'
Location: NE¼, Sec. 15, T. 18 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 25' Clay, gray, with very fine sand @ 0'-10' iron concretions
25'- 30' Sand, fine, iron cemented, with tan clay
30'- 40' Clay, gray, slightly micaceous with traces of lignite and silt
40'- 50' Clay, brown, slightly micaceous with very fine sand
50'- 60' Clay, gray, slightly glauconitic, slightly micaceous, with silt
60'- 85' Clay, slightly micaceous, alternating gray and brown layers and silt
85'- 95' Clay, brown, with interbedded silt
95'-100' Clay, gray, with micaceous very fine sand
100'-120' Clay, gray to brown, slightly micaceous, with very fine sand
120'-140' Clay, gray, slightly glauconitic with interbedded silt
140'-150' Clay, gray to brown, with silt
150'-170' Clay, brown, with very fine sand
170'-175' Clay, gray, slightly micaceous with very fine sand
175'-180' Silt, with interbedded brown, slightly micaceous clay @ 180' siderite layer T. D.: 180'

Drill Hole No. 175. Elevation 240'
Location: NW¼, Sec. 10, T. 18 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 5' Clay, light brown to tan, with iron concretions and very fine sand
5'- 50' Clay, gray, with silt @ 10'-50' slightly micaceous
50'- 65' Clay, gray, slightly micaceous
65'- 75' Clay, brown
75'- 80' Clay, light gray
80'-100' Clay, gray, with very fine sand
100'-105' Clay, brown, with very fine sand
105'-140' Clay, gray to brown, with micaceous very fine sand
140'-145' Sand, very fine, with gray clay
145'-155' Clay, gray, with interbedded very fine sand
155'-165' Clay, brown, micaceous, with very fine sand
165'-170' Clay, gray, glauconitic, with interbedded siderite and very fine sand

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170'-180' Clay, gray to brown, with very fine sand
180'-185' Clay, brown
185'-197' Clay, gray
@ 197' siderite layer
T. D.: 197'

Drill Hole No. 176. Elevation 215'
Location: NE¼, Sec. 3, T. 18 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 5' Clay, brown, with iron concretions and fine sand
5'- 15' Clay, light brown to tan, with very fine sand
@ 10'-15' iron concretions
15'- 35' Clay, dark brown, micaceous, with very fine sand
@ 25'-30' interbedded siderite
@ 30'-35' glauconitic
35'- 45' Clay, gray, slightly glauconitic with traces of lignite
45'- 50' Clay, gray, micaceous, with very fine sand
50'- 55' Clay, light gray
55'- 60' Clay, gray to brown, micaceous
60'- 75' Clay, gray
75'- 80' Clay, with interbedded fine sand
80'- 85' Clay, gray to brown, slightly micaceous
85'-100' Clay, gray, with very fine sand
100'-125' Clay, gray, slightly micaceous with very fine sand
@ 110'-125' increase in sand
125'-140' Sand, very fine, with gray clay and minor siderite
140'-150' Clay, gray to brown, with very fine sand
150'-165' Clay, brown, with very fine sand
165'-190' Sand, very fine, with interbedded gray clay
190'-200' Clay, gray, micaceous, with very fine sand
T. D.: 200'

Drill Hole No. 177. Elevation 210'
Location: NW¼, Sec. 2, T. 18 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light brown
10'- 20' Clay, light brown to tan, with interbedded very fine sand
20'- 25' Clay, tan, with iron concretions and very fine sand
25'- 30' Clay, light gray, slightly micaceous, with very fine sand
30'- 45' Clay, brown, slightly micaceous
45'- 50' Clay, brown, carbonaceous, with trace of lignite
50'- 65' Clay, gray to brown, slightly micaceous, with very fine sand
65'- 70' Clay, brown, with trace of lignite
70'- 85' Clay, lignitic, with silt
85'-130' Clay, brown and gray interbedded, and very fine sand
130'-135' Clay, gray to brown, slightly micaceous
135'-150' Sand, fine, with interbedded brown to gray silt
150'-160' Sand, with minor gray clay
160'-170' Clay, gray, glauconitic
170'-180' Clay, gray to brown, with very fine sand
180'-195' Clay, gray to brown
@ 180'-190' micaceous
195'-198' Clay, gray to brown, with trace of lignite and very fine sand
Core interval 70'-72'10"
Recovered: 2'10" Lost: 0'
70'-72' lignite, soft, black
72'-72'10" lignite, soft, dark

brown, micaceous, with silt
T. D.: 198'

Drill Hole No. 178. Elevation 280'
Location: NE¼, Sec. 35, T. 17 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 20' Clay, light brown to tan, with very fine to fine sand
20'- 30' Sand, fine, with trace of light brown lignite
30'- 35' Clay, gray, with very fine, slightly micaceous sand
35'- 40' Clay, light brown, with iron concretions and trace of lignite
40'- 65' Clay, brown, slightly micaceous @ 50'-65' very fine sand
65'- 75' Clay, with light brown slightly micaceous sand
75'- 80' Clay, dark brown, slightly micaceous with very fine sand
80'- 85' Clay, dark brown, slightly micaceous with trace of lignite
85'-100' Clay, dark brown, slightly micaceous with very fine sand
100'-105' Clay, gray to brown, with sand and trace of lignite
105'-120' Clay, gray to brown, slightly micaceous with very fine sand
120'-130' Sand, with brown clay and trace of lignite
130'-150' Clay, dark brown to gray, slightly micaceous with trace of lignite and very fine sand
150'-180' Clay, gray to brown, slightly micaceous, with very fine sand
180'-198' Clay, gray to brown, slightly micaceous, with sand
T. D.: 198'

Drill Hole No. 179. Elevation 240'
Location: NW¼, Sec. 26, T. 17 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 15' Clay, tan to light brown, with silt
15'- 25' Clay, gray to brown, carbonaceous, with very fine sand
25'- 35' Clay, gray, slightly micaceous, with very fine sand
@ 30'-35' increase in sand
35'- 50' Sand, very fine with gray clay
50'- 60' Clay, gray to brown, with very fine sand
60'- 65' Clay, gray, glauconitic, slightly micaceous with very fine sand
65'- 70' Sand, with gray clay and trace of lignite
70'- 90' Clay, gray, slightly micaceous with very fine sand
90'-110' Clay, brown, with interbedded silt
110'-125' Clay, gray, with very fine sand
125'-135' Clay, glauconitic, slightly micaceous with very fine sand
135'-180' Sand, very fine and silt, gray with slightly glauconitic clay and interbedded siderite
180'-185' Clay, gray, slightly micaceous with very fine sand
185'-190' Silt, with fine sand and minor siderite layers
190'-200' Silt, with interbedded siderite
T. D.: 200'

Drill Hole No. 180. Elevation 300'
Location: NW¼, Sec. 23, T. 17 S., R. 19 W.
County, Columbia
Logged by: D. W. Lumbert 5/77.

0'- 10' Clay, gray to red, with very fine sand
10'- 20' Clay, tan to light gray, with

very fine sand
20'- 40' Clay, gray, with very fine sand @ 30'-40' slightly micaceous
40'- 50' Clay, brown, slightly micaceous, slightly carbonaceous, with interbedded very fine sand
50'- 70' Clay, gray, slightly micaceous with very fine sand
@ 50'-65' slightly glauconitic
70'- 80' Sand, very fine, with slightly glauconitic clay and traces of lignite
80'-135' Clay, gray, slightly micaceous with very fine sand
@ 95'-100' minor siderite
@ 100'-110' interbedded silt
135'-170' Silt, with green, very glauconitic clay, and minor siderite
@ 150'-170' increase in siderite layers
170'-175' Clay, brown, with very fine, slightly micaceous sand
175'-180' Clay, brown, with interbedded silt
180'-200' Clay, gray, with interbedded silt @ 180'-190' glauconitic
T. D.: 200'

Drill Hole No. 181. Elevation 250'
Location: NE¼, Sec. 23, T. 17 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light brown to tan
10'- 15' Clay, gray, with very fine sand
15'- 20' Clay, gray to brown, with very fine sand
20'- 40' Clay, brown, with very fine sand
40'- 50' Clay, gray, slightly micaceous
50'- 65' Clay, brown to gray, slightly micaceous
65'- 70' Clay, gray, with trace of lignite and very fine sand
70'- 85' Clay, gray, slightly micaceous
85'-100' Clay, gray to brown, with very fine sand
100'-105' Clay, brown, with very fine sand
105'-125' Clay, gray, with very fine sand
125'-135' Clay, gray, slightly glauconitic, slightly micaceous, with silt
135'-155' Sand, fine, with green very glauconitic clay and interbedded siderite
155'-165' Clay, gray, slightly glauconitic with very fine sand
165'-175' Sand, very fine, with glauconitic clay
175'-180' Clay, brown, slightly micaceous with very fine sand
180'-190' Clay, brown, with interbedded silt
190'-195' Clay, gray to brown, slightly micaceous
195'-200' Silt and very fine sand, with gray slightly glauconitic clay and trace of siderite
T. D.: 200'

Drill Hole No. 182. Elevation 270'
Location: NE¼, Sec. 24, T. 17 S., R. 19 W.
County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 15' Sand, with light brown clay
15'- 25' Sand, very fine, with light gray iron stained clay
25'- 30' Sand, fine, with light gray clay
30'- 35' Sand, medium
35'- 40' Sand, fine, with white to tan clay
40'- 45' Sand, with brown clay
45'- 70' Sand, medium to coarse
70'-100' Sand, fine to medium, with slightly glauconitic clay and trace of lignite

ARKANSAS LIGNITE INVESTIGATIONS

100'-135' Sand, medium
135'-150' Sand, medium to fine, with interbedded gray, slightly glauconitic clay
150'-165' Clay, micaceous
165'-170' Sand, fine, with gray fissile clay
170'-185' Clay, light brown, with very fine to fine sand
185'-190' Sand, fine
190'-195' Clay, brown, slightly micaceous with very fine sand
195'-200' Sand, fine to very fine
T. D.: 200'

Drill Hole No. 183. Elevation 265'
Location: NE¼, Sec. 19, T. 17 S., R. 18 W. County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 30' Clay, light brown to tan
30'- 50' Clay, gray, with very fine sand
50'- 55' Clay, gray to brown
55'- 60' Sand, very fine, with brown clay and lignite stringers
60'- 70' Clay, brown
70'- 80' Clay, lignitic, with very fine slightly micaceous sand
80'- 90' Sand, very fine, with lignitic clay
90'-100' Clay, gray, with very fine sand and trace of lignite
100'-120' Clay, gray, with trace of lignite
120'-130' Clay, gray, with very fine sand @ 125'-130' trace of lignite
130'-135' Silt, with very fine sand and gray clay
135'-140' Clay, brown, with very fine sand
140'-155' Clay, gray to brown, micaceous
155'-180' Silt, with glauconitic clay and interbedded siderite
180'-200' Clay, gray to brown, with very fine sand
T. D.: 200'

Drill Hole No. 184. Elevation 270'
Location: NE¼, Sec. 20, T. 17 S., R. 18 W. County, Columbia
Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light gray to tan, with very fine sand
10'- 20' Clay, gray to light brown iron stained
20'- 30' Clay, light brown to brown, with very fine sand
30'- 40' Clay, gray, slightly glauconitic with very fine sand
40'- 45' Clay, light tan, with silt
45'- 50' Clay, light brown, with very fine sand
50'- 60' Sand, very fine, with light brown clay
60'- 65' Sand, fine to medium, with gray clay
65'-110' Sand, very fine to fine, with traces of lignite
110'-175' Clay, gray, slightly carbonaceous
175'-200' Silt, with gray, glauconitic clay and interbedded siderite
T. D.: 200'

Drill Hole No. 185. Elevation 240'
Location: SE¼, Sec. 21, T. 17 S., R. 18 W. County, Union
Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light brown to tan, with very fine iron stained sand
10'- 15' Clay, light gray, with very fine sand

15'- 20' Sand, fine to very fine, with gray clay
20'- 40' Clay, gray, slightly micaceous with very fine sand
40'- 55' Clay, gray @ 40'-50' very fine sand
55'- 60' Sand, fine to very fine, with gray, slightly carbonaceous clay
60'- 80' Sand, fine, with silt and trace of lignite
80'- 85' Clay, gray, slightly micaceous with very fine sand
85'- 95' Clay, gray to brown, slightly micaceous with fine sand
95'-100' Clay, gray to brown, micaceous with very fine sand
100'-110' Clay, gray to brown, with trace of lignite
110'-150' Clay, brown, slightly micaceous with very fine sand and silt
150'-165' Clay, brown, with very fine sand
165'-175' Clay, brown, with very fine slightly micaceous sand
175'-190' Sand, fine to very fine, with brown, slightly micaceous clay and interbedded siderite
190'-200' Clay, brown, with very fine sand @ 195'-200' slightly micaceous and interbedded siderite
T. D.: 200'

Drill Hole No. 186. Elevation 280'
Location: NW¼, Sec. 27, T. 17 S., R. 18 W. County, Union
Logged by: G. L. Delavan 5/77.

0'- 10' Clay, tan to red, with very fine sand
10'- 20' Clay, light gray, with interbedded very fine sand
20'- 25' Clay, chocolate brown, with very fine sand
25'- 30' Clay, gray, with very fine sand
30'- 40' Clay, brown, lignitic, with very fine sand
40'- 65' Clay, light gray, with very fine sand @ 60'-65' slightly carbonaceous
65'- 80' Silt, with gray clay
80'- 85' Silt, with brown clay
85'-100' Silt, with gray clay and traces of lignite
100'-105' Clay, gray to brown, fissile, slightly glauconitic
105'-140' Silt, with very fine sand and gray, slightly glauconitic clay and interbedded siderite and traces of lignite
140'-160' Silt, with brown clay @ 150'-160' trace of lignite
160'-200' Silt, with gray to brown clay @ 170'-190' traces of lignite @ 190'-200' lignite stringer less than 1'
T. D.: 200'

Drill Hole No. 187. Elevation 340'
Location: SW¼, Sec. 26, T. 17 S., R. 18 W. County, Union
Logged by: D. W. Lumbert 5/77.

0'- 10' Sand, fine, with red clay
10'- 30' Sand, fine, with light tan clay @ 20'-30' carbonaceous
30'- 35' Sand, fine, with tan to red clay
35'- 40' Sand, fine to medium, w/lignite
40'- 75' Clay, light bluish gray, with silt
75'- 80' Clay, chocolate brown, with very carbonaceous silt
80'- 90' Lignite bearing section
90'- 95' Clay, gray to olive green, with silt
95'-100' Clay, blue, with very fine sand

100'-115' Clay, gray to brown, with very fine sand
115'-120' Clay, gray, slightly glauconitic with very fine sand
120'-125' Sand, very fine, with gray to green clay and trace of lignite
125'-130' Sand, very fine, with lignite
130'-150' Clay, brown, with very fine sand @ 140'-150' trace of lignite
150'-160' Clay, brown, with lignite stringers and very fine slightly glauconitic sand @ 160' siderite layer
160'-170' Clay, brown, with very fine sand
170'-180' Sand, very fine, with interbedded gray to brown clay
180'-200' Clay, brown, with interbedded very fine sand
Core interval 70'-80'
Recovered: 10' Lost: 0'
70'-76'10" clay, dark gray, slightly lignitic
76'10"-80' lignite, hard, black with conchoidal fractures
T. D.: 200'

Drill Hole No. 188. Elevation 350'
Location: NE¼, Sec. 36, T. 17 S., R. 18 W. County, Union
Logged by: D. W. Lumbert 6/77.

0'- 10' Sand, fine, with red clay
10'- 20' Sand, fine, with light tan clay
20'- 30' Sand, fine
30'- 40' Lignite, with chocolate brown clay and very fine sand
40'- 50' Clay, gray to brown, with very fine sand
50'- 90' Clay, gray, with very fine sand @ 70'-80' slightly micaceous and trace of lignite
90'-100' Clay, gray, slightly glauconitic with trace of lignite and very fine sand
100'-110' Clay, gray to brown, with very fine sand
110'-125' Clay, brown, with very fine sand
125'-130' Clay, bluish gray, with very fine sand
130'-150' Clay, gray, with very fine sand
150'-155' Clay, brown, with very fine sand
155'-160' Lignite, with brown clay and very fine sand
160'-180' Clay, brown, with interbedded very fine sand
180'-200' Clay, gray to brown, with interbedded very fine sand
Core interval 28'-32'1"
Recovered: 4'1" Lost: 0'
28'-32'1" lignite, dark brown to black, soft
T. D.: 200'

Drill Hole No. 189. Elevation 278'
Location: SE¼, Sec. 30, T. 17 S., R. 17 W. County, Union
Logged by: D. W. Lumbert 6/77.

0'- 10' Clay, red to tan
10'- 30' Clay, light tan, with very fine sand
30'- 35' Clay, brown, with very fine sand
35'- 70' Clay, gray, slightly glauconitic, with interbedded very fine sand
70'-110' Clay, gray, slightly glauconitic, slightly micaceous, with interbedded very fine sand
110'-120' Clay, gray, with very fine, slightly glauconitic sand

ARKANSAS LIGNITE INVESTIGATIONS

120'-140' Sand, very fine and silt, with interbedded gray, slightly glauconitic clay
 140'-150' Silt, with minor gray slightly glauconitic clay
 150'-160' Clay, gray, slightly glauconitic, slightly micaceous, with silt
 160'-165' Silt, with gray clay
 165'-170' Clay, gray, slightly glauconitic with very fine sand
 170'-180' Clay, gray to brown, with very fine sand
 180'-200' Clay, gray, with very fine sand T. D.: 200'

Drill Hole No. 190. Elevation 263'
 Location: SW $\frac{1}{4}$, Sec. 29, T. 17 S., R. 17 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light brown to tan, slightly micaceous, with very fine sand and silt
 10'- 25' Clay, light brown
 25'- 70' Clay, gray, with very fine sand @ 60'-70' interbedded sand
 70'-110' Sand, fine to medium @ 100'-110' minor clay and glauconite
 110'-150' Sand, fine to medium, with interbedded glauconitic clay
 150'-170' Clay, gray, slightly glauconitic with very fine sand
 170'-180' Clay, brown, slightly micaceous
 180'-185' Sand, very fine, with brown clay
 185'-200' Clay, brown to gray, with very fine sand and silt T. D.: 200'

Drill Hole No. 191. Elevation 280'
 Location: NW $\frac{1}{4}$, Sec. 28, T. 17 S., R. 17 W. County, Union
 Logged by: G. L. Delavan 6/77.

0'- 15' Clay, light brown to tan, w/silt
 15'- 20' Clay, tan
 20'- 25' Clay, light brown, with very fine sand
 25'- 30' Clay, brown, with very fine sand, slightly micaceous
 30'- 35' Clay, chocolate brown, lignitic
 35'- 40' Clay, brown
 40'- 60' Clay, gray to brown, with very fine sand and silt @ 40'-45' slightly micaceous
 60'- 65' Clay, brown, with very fine sand and trace of lignite
 65'- 75' Clay, gray to brown, with very fine, slightly micaceous sand
 75'- 85' Clay, brown, with fine sand
 85'-100' Clay, brown, with very fine sand
 100'-185' Clay, brown, with very fine sand and silt @ 100'-105' slightly micaceous
 185'-195' Silt, brown, with brown fissile clay and trace of lignite
 195'-200' Clay, brown, with very fine to fine, slightly micaceous sand T. D.: 200'

Drill Hole No. 192. Elevation 270'
 Location: SW $\frac{1}{4}$, Sec. 27, T. 17 S., R. 17 W. County, Union
 Logged by: G. L. Delavan 6/77.

0'- 25' Clay, light brown to tan, slightly micaceous, with very fine sand
 25'- 50' Clay, gray to brown, with very fine, slightly micaceous sand
 50'- 55' Clay, gray to brown, with lignite stringers
 55'-160' Clay, brown, with fine to very fine sand

@ 55'-65' trace of lignite
 @ 65'-70' slightly micaceous
 @ 75'-80' increase in sand
 @ 150'-160' slightly micaceous
 @ 155'-160' trace of lignite
 160'-170' Clay, brown, with fine, slightly micaceous sand
 170'-180' Clay, brown, with very fine sand @ 175'-180' siderite layers
 180'-200' Clay, brown, with fine sand T. D.: 200'

Drill Hole No. 193. Elevation 225'
 Location: SE $\frac{1}{4}$, Sec. 26, T. 17 S., R. 17 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 15' Clay, light brown to tan, with very fine sand
 15'- 20' Clay, tan, slightly micaceous, with very fine sand
 20'- 30' Clay, light brown, with very fine to fine sand
 30'- 40' Clay, rust brown, with very fine to fine sand
 40'- 60' Sand, gray, very fine with silt @ 50'-60' trace of lignite
 60'- 85' Sand, gray to brown, very fine with brown to gray clay and traces of lignite
 85'-100' Sand, gray to brown, very fine with trace of lignite and clay
 100'-105' Clay, brown, with very fine sand
 105'-130' Sand, gray to brown, very fine w/brown clay & trace of lignite
 130'-150' Clay, gray, slightly lignitic
 150'-175' Clay, gray, slightly micaceous with very fine sand
 175'-180' Clay, gray, with silt and minor siderite
 180'-185' Clay, gray to brown, with very fine sand
 185'-200' Sand, very fine, with silt and gray clay T. D.: 200'

Drill Hole No. 194. Elevation 240'
 Location: SE $\frac{1}{4}$, Sec. 25, T. 17 S., R. 17 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 10' Clay, light gray to brown, with very fine sand
 10'- 40' Clay, tan to light brown, with very fine sand
 40'- 50' Clay, gray, with very fine, slightly micaceous sand
 50'- 80' Clay, gray, w/very fine sand and glauconite, and trace of siderite
 80'- 90' Clay, gray, with fine to very fine sand and friable lignite
 90'-100' Sand, with lignitic clay
 100'-110' Clay, gray, with fine to medium lignitic sand
 110'-120' Sand, fine to very fine, with lignitic stringers
 120'-150' Sand, medium to fine, with trace of lignite
 150'-165' Clay, gray to brown, with very fine sand
 165'-190' Clay, brown, with very fine, slightly micaceous sand
 190'-200' Clay, gray to brown, with very fine, slightly micaceous sand T. D.: 200'

Drill Hole No. 195. Elevation 215'
 Location: SE $\frac{1}{4}$, Sec. 30, T. 17 S., R. 16 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 20' Clay, light gray, w/very fine sand

20'- 35' Clay, gray, slightly glauconitic, slightly carbonaceous, with very fine sand
 35'- 55' Clay, gray to brown, slightly carbonaceous, w/very fine sand
 55'- 95' Clay, brown, with very fine sand and trace of lignite
 95'-120' Sand, very fine, with silt and minor lignitic clay
 120'-125' Clay, brown, with very fine sand
 125'-130' Clay, chocolate brown, lignitic with very fine sand
 130'-190' Clay, brown, slightly micaceous with very fine sand @ 175'-190' trace of lignite
 190'-195' Silt, brown, with very fine lignitic sand
 195'-200' Clay, brown, with very fine sand and trace of lignite T. D.: 200'

Drill Hole No. 196. Elevation 180'
 Location: SE $\frac{1}{4}$, Sec. 27, T. 17 S., R. 16 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 20' Clay, light brown to tan, with very fine sand
 20'- 50' Clay, gray to brown, slightly micaceous, with very fine, slightly glauconitic sand
 50'-115' Clay, brown, slightly micaceous with very fine sand
 115'-160' Clay, brown, with very fine sand @ 115'-120' minor glauconite and siderite @ 125'-135' slightly micaceous with trace of siderite
 160'-180' Clay, with lignitic silt
 180'-200' Clay, brown, with very fine sand T. D.: 200'

Drill Hole No. 197. Elevation 170'
 Location: NW $\frac{1}{4}$, Sec. 26, T. 17 S., R. 16 W. County, Union
 Logged by: G. L. Delavan 5/77.

0'- 20' Clay, light brown to tan, with silt
 20'- 25' Clay, gray to brown, slightly micaceous, with very fine sand
 25'- 30' Lignite, with chocolate brown clay
 30'- 40' Clay, brown, with very fine, slightly carbonaceous sand
 40'- 45' Clay, chocolate brown, with very fine, slightly micaceous sand
 45'- 50' Clay, brown to chocolate brown, with very fine sand
 50'- 85' Clay, brown, with very fine, slightly micaceous sand
 85'- 90' Clay, gray to brown, slightly glauconitic with silt
 90'-125' Clay, brown, with very fine, slightly micaceous sand
 125'-150' Clay, with very fine to fine sand, and trace of lignite
 150'-165' Clay, brown, with interbedded very fine to fine sand
 165'-190' Sand, fine, with thin lignite stringers
 190'-200' Clay, brown to light brown, with very fine sand
 Core interval 35'-40'
 Recovered: 4'10" Lost: 2"
 35'-38'10" lignite, brown, soft, slightly micaceous, with silt
 38'10"-39'10" sand, fine, gray with silt T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 198. Elevation 140'
Location: SW¼, Sec. 23, T. 17 S., R. 16 W.
County, Union
Logged by: G. L. Delavan 5/77.

0'- 60' Clay, light brown to tan, with very fine sand and silt
60'- 80' Clay, gray to brown, slightly micaceous, slightly glauconitic with very fine sand
80'- 90' Clay, brown to light brown, slightly carbonaceous with very fine sand
90'-120' Clay, gray to brown, with very fine sand
@ 90'-100' slightly glauconitic @ 100'-120' carbonaceous
120'-145' Clay, gray to brown, iron stained with carbonaceous material
145'-160' Clay, brown, with sand
160'-175' Clay, brown, with silt and very fine sand
175'-190' Sand, very fine, slightly lignitic with trace of siderite
190'-200' Clay, with very fine sand and minor interbedded siderite
T. D.: 200'

Drill Hole No. 199. Elevation 220'
Location: SW¼, Sec. 14, T. 17 S., R. 16 W.
County, Union
Logged by: G. L. Delavan 5/77.

0'- 10' Sand, very fine, with light brown to tan clay
10'- 20' Clay, light brown to tan, with very fine sand
20'- 35' Clay, brown, with very fine, slightly micaceous sand
35'- 50' Clay, light brown to tan, with very fine, slightly carbonaceous sand
@ 45'-50' increase in sand
50'- 70' Sand, medium to fine, with light brown clay
@ 65'-70' decrease in clay
70'- 90' Sand, gray, fine to very fine, with slightly lignitic stringers
90'-100' Sand, light brown, very fine, with trace of lignite
100'-150' Sand, very fine, and chocolate brown to brown silt with interbedded lignite
150'-165' Clay, brown, with very fine sand
165'-190' Sand, very fine, gray, with gray clay and trace of lignite
@ 175'-190' increase of clay and decrease of lignite
190'-200' Clay, light brown, with very fine sand and lignite traces
T. D.: 200'

Drill Hole No. 200. Elevation 185'
Location: SE¼, Sec. 11, T. 17 S., R. 16 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Sand, reddish brown, fine to very fine, slightly carbonaceous
10'- 20' Clay, light tan to brown, with interbedded very fine iron stained sand
20'- 40' Clay, light tan to brown, with very fine sand
40'- 45' No sample
45'- 55' Sand, very fine to fine, light brown
@ 50'-55' trace of lignite
55'- 60' Lignite, with sand and lignitic clay

60'- 65' Sand, with lignite stringers
65'- 90' Sand, fine to very fine
@ 65'-70' trace of lignite
@ 70'-90' minor clay stringers
90'-115' Clay, brown, with sand and very fine sand stringers
115'-150' Sand, fine to very fine, with thin lignite stringers
150'-155' Sand, fine to very fine, with brown, slightly carbonaceous clay
155'-160' Sand, fine to very fine, slightly carbonaceous
160'-170' Sand, fine to very fine, with brown clay
170'-180' Clay, brown, with very fine sand
180'-195' Sand, very fine to fine, with brown clay and trace of lignite
195'-200' Sand, fine to very fine, with lignitic stringers
T. D.: 200'

Drill Hole No. 201. Elevation 210'
Location: NW¼, Sec. 6, T. 17 S., R. 15 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, brown, with very fine sand
10'- 25' Clay, light brown to tan, slightly micaceous, with very fine sand
25'- 40' Clay, light brown to tan, with interbedded very fine sand
40'- 45' Clay, gray to brown, with trace of lignite
45'- 55' Lignite, with gray clay and very fine sand
55'- 65' Clay, gray to brown, with lignitic stringers and very fine sand
65'- 70' Sand, very fine, with lignite stringers
70'- 75' Lignite, with interbedded gray clay and very fine sand
75'- 80' Lignite, with very fine sand
80'- 95' Clay, gray to brown, with very fine sand and lignite stringers
95'-100' Clay, gray to brown, w/very fine sand and interbedded lignite
100'-110' Sand, very fine, gray, with lignite
110'-125' Clay, gray to brown, with very fine sand and lignite stringers
125'-150' Sand, fine to very fine, with interbedded lignite and minor clay
150'-160' Sand, very fine, with silt and traces of lignite
160'-170' Clay, gray to brown, with very fine sand
170'-180' Silt, gray, with very fine sand and trace of lignite
180'-185' Silt, gray, with brown clay and trace of lignite
185'-190' Silt, with very fine sand and lignite stringers
190'-200' Clay, gray to brown, with very fine sand and trace of lignite
T. D.: 200'

Drill Hole No. 202. Elevation 175'
Location: SW¼, Sec. 32, T. 16 S., R. 15 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, light brown, iron stained
10'- 25' Clay, gray to brown, with very fine sand
25'- 30' Lignite, with gray to brown clay
30'- 35' Clay, gray to brown, with lignite stringers
35'- 45' Clay, brown, with very fine sand

45'- 50' Lignite, with very fine to fine sand and minor clay
50'- 65' Clay, brown, with very fine sand and lignite stringers
65'- 70' Lignite, with very fine sand and silt
70'- 95' Clay, gray to brown, with very fine sand and lignitic stringers
95'-100' Clay, brown to gray, with very fine sand and trace of lignite
100'-115' Clay, brown, with silt and traces of lignite
115'-125' Clay, brown, with very fine sand and trace of lignite
125'-130' Silt, brown, with very fine sand and lignite stringers
130'-140' Clay, brown, with trace of lignite
140'-150' Sand, very fine with lignite
150'-160' Clay, brown, with very fine sand
160'-165' Clay, brown, with very fine sand and trace of lignite
165'-170' Sand, very fine, brown, with lignitic stringers
170'-175' Clay, brown, with fine to very fine sand
175'-200' Silt, with very fine sand and trace of lignite and interbedded siderite
Core interval 27'-37'
Recovered: 0'
10'
27'-28' lignite
28'-28'6" clay, chocolate brown, lignitic, with very fine sand
28'6"-32'8" sand, very fine, carbonaceous, with lignitic clay stringers and lignite stringers less than 1" thick
32'8"-37' sand, very fine, with increased carbonaceous material and minor lignitic clay stringers; also few lignite stringers less than 1" thick
T. D.: 200'

Drill Hole No. 203. Elevation 130'
Location: NE¼, Sec. 32, T. 16 S., R. 15 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Sand, very fine, with light gray clay
10'- 15' Clay, light gray, with very fine sand
15'- 30' Sand, fine, with light gray clay
30'- 40' Sand, fine
40'- 50' Clay, gray, with very fine sand
50'- 65' Clay, gray, with interbedded very fine sand and trace of lignite
65'- 70' Sand, very fine, with gray clay
70'-100' Clay, gray, with interbedded very fine sand
100'-110' Clay, gray to light gray, with very fine sand
110'-115' Sand, fine to very fine, with gray clay
115'-140' Clay, gray, with very fine sand
140'-145' Sand, very fine, with interbedded siderite and trace of lignite
145'-155' Clay, gray, with very fine sand
155'-165' Clay, gray, with interbedded very fine sand
165'-185' Sand, very fine, with silt and minor gray clay
@ 175'-185' thin siderite layers
185'-200' Sand, very fine, with gray silt
T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 204. Elevation 120'
Location: NW¼, Sec. 34, T. 16 S., R. 15 W.
County, Union
Logged by: T. Suen 6/77.

0'- 5' Gravel, pea, with light gray clay
5'- 10' Clay, gray, iron stained, with minor gravel
10'- 20' Sand, gray, very fine @ 15'-20' traces of lignite and gray clay
20'- 25' Sand, gray, with silt and clay and trace of lignite
25'- 30' Clay, dark gray to light green, slightly glauconitic
30'- 35' Clay, light brown and dark gray
35'- 40' Clay, light green, with minor iron concretions
40'- 45' Clay, dark green to gray, with very fine sand
45'- 50' Clay, light brown to gray, with very fine sand
50'- 55' Clay, gray to green, with very fine sand
55'- 70' Clay, dark gray, with very fine sand @ 60'-70' trace of lignite
70'- 75' Clay, light gray, with very fine sand and lignite stringers
75'- 85' Clay, light gray to gray, with very fine sand and traces of lignite
85'- 90' Clay, greenish gray, with silt and traces of lignite
90'-100' Clay, gray, with very fine sand and silt @ 95'-100' soft brown lignite stringers
100'-105' Clay, greenish gray, with very fine sand and traces of lignite
105'-110' Clay, gray, with silt and trace of brown lignitic clay
110'-120' Clay, dark gray, with silt and traces of lignite
120'-125' Clay, light brown, with silt and traces of lignite
125'-130' Clay, light brown to dark gray, with silt and traces of lignite
130'-145' Clay, dark gray, with very fine sand and silt and traces of lignite
145'-150' @ 135'-140' slightly glauconitic Clay, light gray, with silt and trace of lignite T. D.: 150'

Drill Hole No. 205. Elevation 130'
Location: SE¼, Sec. 27, T. 16 S., R. 15 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Sand, very fine, with silt, light brown and brown to tan clay
10'- 25' Clay, light brown to tan, with very fine sand
25'- 40' Clay, gray, with interbedded very fine sand
40'- 75' Clay, gray, with very fine sand @ 55'-60' trace of siderite
75'- 90' Sand, very fine, with gray clay and trace of lignite
90'- 95' Clay, gray to brown, with very fine sand
95'-110' Silt, brown, with trace of lignite
110'-130' Clay, brown, slightly micaceous with very fine sand
130'-135' Silt, brown, with very fine sand
135'-140' Clay, brown, with very fine sand
140'-160' Silt, brown, with clay and very fine sand
160'-170' Silt, brown, with interbedded siderite and very fine sand

170'-190' Sand, very fine, with clay and interbedded siderite
190'-200' Clay, brown, with very fine sand T. D.: 200'

Drill Hole No. 206. Elevation 108'
Location: NW¼, Sec. 26, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 6/77.

0'- 10' Sand, fine, with red clay
10'- 35' Sand, very fine, with interbedded gray clay
35'- 50' Clay, gray, with very fine sand
50'- 65' Clay, gray to light gray, with very fine sand
65'- 75' Clay, gray to brown, with very fine sand
75'- 80' Clay, gray, with interbedded very fine sand
80'-115' Clay, gray, with very fine sand @ 100'-115' slightly glauconitic
115'-140' Silt, with gray, glauconitic clay and interbedded siderite
140'-155' Clay, gray, with very fine sand @ 150'-155' slight glauconite and slightly micaceous
155'-160' Silt, with gray, slightly glauconitic clay and trace of siderite
160'-165' Clay, gray, slightly glauconitic with very fine sand
165'-170' Silt, with very fine sand and gray, slightly glauconitic clay
170'-175' Clay, gray to brown, with very fine sand
175'-200' Silt, with very fine sand and interbedded gray, slightly glauconitic, slightly micaceous clay T. D.: 200'

Drill Hole No. 207. Elevation 150'
Location: SW¼, Sec. 25, T. 16 S., R. 15 W.
County, Union
Logged by: D. W. Lumbert 6/77.

0'- 10' Sand, fine, with red clay
10'- 15' Clay, red, with very fine sand
15'- 50' Sand, very fine to fine, with minor red to tan clay
50'- 55' Clay, gray to brown, with lignite stringers and very fine sand
55'- 80' Clay, gray to brown, with very fine sand @ 70'-80' slightly micaceous
80'-100' Clay, gray, with very fine sand @ 90'-100' slightly glauconitic
100'-120' Clay, gray to brown, carbonaceous with very fine sand
120'-130' Clay, brown, with very fine sand
130'-140' Clay, gray, with very fine, slightly micaceous sand
140'-150' No sample T. D.: 150'

Drill Hole No. 208. Elevation 195'
Location: NE¼, Sec. 36, T. 16 S., R. 15 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, red, with fine sand
10'- 20' Clay, light tan, with very fine sand
20'- 35' Sand, very fine, with light brown to tan clay
35'- 40' Clay, chocolate brown to tan, with very fine sand
40'- 50' Sand, very fine, with gray clay and lignite stringers
50'- 60' Sand, very fine, with yellow clay and minor lignitic clay
60'-150' Clay, brown, with fine to very fine sand @ 70'-100' slightly micaceous

@ 100'-130' trace of siderite
150'-170' Sand, very fine, with silt and gray to brown, slightly micaceous clay
170'-180' Sand, very fine, with brown, slightly micaceous clay
180'-200' Silt, brown, with brown clay T. D.: 200'

Drill Hole No. 209. Elevation 195'
Location: NW¼, Sec. 30, T. 16 S., R. 14 W.
County, Union
Logged by: G. L. Delavan 6/77.

0'- 20' Clay, light gray, with very fine sand and silt
20'- 30' Clay, light tan to gray, with very fine sand
30'- 55' Clay, light gray, with very fine sand @ 40'-50' iron concretions
55'- 60' Sand, very fine, with gray iron stained clay
60'- 70' Clay, gray and brown inter-layered
70'-120' Clay, gray, with interbedded fine to very fine sand and trace of lignite
120'-135' Sand, very fine, with gray clay
135'-150' Clay, gray, with interbedded very fine sand @ 140'-150' minor glauconite and trace of siderite
150'-170' Clay, gray, carbonaceous with very fine sand
170'-180' Clay, brown, with silt
180'-200' Clay, gray, slightly micaceous with silt T. D.: 200'

Drill Hole No. 210. Elevation 300'
Location: SW¼, Sec. 14, T. 16 S., R. 28 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, red to brown, with very fine sand
10'- 15' Sand, red to brown, coarse to fine, with minor clay
15'- 30' Sand, coarse to medium, with pea gravel
30'- 40' Gravel, coarse to pea
40'- 46' Clay, gray, with interbedded siderite
46'- 50' Clay, gray, with lignite stringers and very fine sand
50'- 56' Lignite, black, hard
56'- 58' Clay, gray, with stringers of black, hard, lignite and trace of siderite
58'- 60' Clay, gray, with silt, and trace of siderite
60'- 72' Silt, with gray clay
72'- 76' Lignite, black, hard, with minor gray clay
76'- 80' Silt, with gray to chocolate brown clay, and trace of lignite
80'- 90' Sand, coarse, with pea gravel and minor gray to dark brown clay
90'- 95' Sand, with pea gravel
95'-100' Silt, with gray clay and minor siderite
100'-105' No sample
105'-110' Clay, gray
110'-118' Clay, gray to chocolate brown
118'-120' Lignite, black, soft, with dark brown clay
120'-140' Clay, dark brown to dark gray, with silt and lignite stringers
140'-150' Clay, dark brown, with silt and trace of lignite T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 211. Elevation 305'
Location: SW¼, Sec. 14, T. 16 S., R. 28 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, light tan to brown, with
very fine sand and minor gravel
10'- 20' Sand, red to brown, coarse to
medium, poorly sorted and
minor gravel
20'- 25' Sand, red to brown, coarse to
medium, with minor pebbles
25'- 30' Sand, fine to very fine, with
pea gravel
30'- 35' Sand, medium to fine, with
minor pea gravel
35'- 40' Gravel, pea, with sand
40'- 45' Sand, coarse to fine, with
pea gravel
45'- 50' Gravel, pea
T. D.: 50'

Drill Hole No. 212. Elevation 263'
Location: NE¼, Sec. 23, T. 16 S., R. 28 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 30' Sand and gravel
T. D.: 30'

Drill Hole No. 213. Elevation 332'
Location: NW¼, Sec. 31, T. 16 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, red to brown, with very
fine sand
10'- 15' Sand, very fine, with white to
light tan clay
15'- 30' Sand, very fine, with minor
light brown clay
30'- 35' Gravel, pea, with coarse sand
35'- 40' Gravel, with coarse sand
40'- 48' Gravel, coarse to pebble, with
minor light tan clay
48'- 50' Clay, dark chocolate brown,
slightly micaceous with very
fine sand
T. D.: 50'

Drill Hole No. 214. Elevation 290'
Location: SW¼, Sec. 9, T. 17 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 58' Clay, brown to reddish brown,
with very fine sand alternating
with fine to very fine sand
layers
58'- 63' Gravel, pea, with minor, very
coarse sand
63'- 70' Gravel, with coarse sand and
minor gray to brown clay
70'- 80' Sand, fine to very fine
@ 75'-80' minor brown clay
and trace of lignite
80'-100' Sand, very fine, with dark
brown, micaceous clay
100'-110' Sand, very fine, with choco-
late brown, micaceous clay
110'-135' Sand, very fine, with chocolate
brown clay and silt
135'-140' Sand, very fine, with clay and
trace of lignite
140'-143' Sand, very fine, with cemented
sand stringers
T. D.: 143'

Drill Hole No. 215. Elevation 260'
Location: NW¼, Sec. 27, T. 17 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 25' Clay, brown to light tan, with
fine to very fine sand
25'- 30' Gravel, with coarse sand and
light tan clay
30'- 35' Sand, coarse, with pea gravel
35'- 40' Sand, coarse to very coarse
40'- 50' Clay, dark to chocolate brown,
micaceous, with very fine sand
50'- 60' Clay, chocolate brown, slightly
micaceous, with very fine sand
and trace of black lignite
60'- 73' Sand, very fine, with chocolate
brown clay and trace of lignite
73'- 80' Sand, very fine, w/chocolate to
light brown clay
@ 73' sandstone layer
80'- 90' Sand, very fine, with clay
and trace of lignite
90'- 95' Clay, light tan and dark brown
interlayered, and very fine sand
95'-100' Clay, dark brown, with very fine
sand
100'-110' Sand, very fine, with dark
brown and light tan slightly
micaceous clay
110'-140' Sand, very fine, with dark
brown clay and silt
@ 110'-120' slightly micaceous
and trace of lignite
140'-150' Sand, very fine, with silt and
minor dark brown, slightly
micaceous clay
T. D.: 150'

Drill Hole No. 216. Elevation 255'
Location: NW¼, Sec. 3, T. 18 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 10' Clay, light brown to gray
10'- 55' Clay, brown
@ 10'-15' minor carbonaceous
material
@ 20'-30' slightly micaceous
Sand, very fine, with silt and
minor clay
55'- 68' Gravel, pea, with minor coarse
sand and trace of lignite
68'- 70' Gravel, pea
70'- 77' Gravel, pea
77'- 80' Clay, brown, with gravel
T. D.: 80'

Drill Hole No. 217. Elevation 253'
Location: SE¼, Sec. 15, T. 18 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 40' Clay, light brown to reddish
brown, with silt, interbedded
with very fine sand
40'- 50' Clay, gray to brown, with silt
50'- 60' Clay, gray, with silt
60'- 74' Clay, gray to bluish gray, with
very fine sand
74'- 100' Sand, very fine, with gray clay
and silt
@ 80'-100' trace of lignite
100'-110' Sand, very fine, with gray clay
110'-120' Sand, very fine, with minor clay
and trace of lignite
120'-130' Silt, with blue, carbonaceous
clay
130'-135' Clay, bluish gray, with silt and
very fine sand
T. D.: 135'

Drill Hole 218. Elevation 212'
Location: SW¼, Sec. 34, T. 18 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 20' Clay, brown
20'- 40' Clay, brown, with very fine
sand and silt
40'- 60' Clay, gray, with fine sand
60'- 70' Clay, gray to brown, slightly
micaceous, with coarse sand
and trace of lignite
70'- 75' Clay, gray to brown, with
coarse to fine sand
75'- 80' Clay, gray, with fine sand
80'- 85' Clay, gray to brown, slightly
micaceous, with fine to very
fine sand
85'- 90' Clay, dark gray, with very
fine sand and minor pea gravel
90'- 95' Silt, with very fine sand and
gray clay, and trace of lignite
95'-100' Clay, gray to brown, with very
fine sand and trace of lignite
100'-110' Clay, gray to brown, and fine
sand with white clay
110'-130' Clay, dark brown, with very
fine sand
@ 110'-120' slightly micaceous
@ 120'-130' silt and trace of lig-
nite
130'-147' Silt, with dark brown clay
147'-150' Sand, very fine
T. D.: 150'

Drill Hole No. 219. Elevation 250'
Location: SW¼, Sec. 15, T. 19 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 20' Clay, light gray to reddish
brown with very fine sand
20'- 25' Clay, reddish brown, with very
fine sand
25'- 30' Gravel, pea, with coarse sand
and iron concretions
30'- 35' Clay, gray
35'- 40' Clay, gray, slightly micaceous
with very fine sand
40'- 50' Clay, gray, with very fine
carbonaceous sand and minor
iron cemented sand layers
50'- 60' Clay, gray to brown, with very
fine sand and minor iron cemen-
ted sand layers
60'- 70' Sand, very fine, with gray to
brown clay and trace of lignite
70'- 75' Clay, gray, with very fine sand
and trace of lignite
75'- 80' Clay, gray, slightly micaceous
with very fine sand
80'- 90' Sand, very fine, with gray clay
90'-114' Clay, gray to brown, slightly
micaceous, with very fine sand
@ 105'-114' trace of lignite
114'-130' Sand, very fine, with gray to
brown, slightly micaceous clay
and trace of lignite
130'-150' Clay, gray, slightly micaceous
with very fine sand and trace of
lignite
T. D.: 150'

Drill Hole No. 220. Elevation 332'
Location: NW¼, Sec. 10, T. 19 S., R. 27 W.
County, Miller
Logged by: G. L. Delavan 6/77.

0'- 23' Clay, light tan to reddish brown,
slightly micaceous, with very
fine sand
@ 10'-23' minor iron cemented
sand

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23'- 50' Clay, gray to brown, slightly micaceous with very fine sand
 50'- 55' Clay, gray to brown, with very fine sand
 55'- 65' Clay, dark gray, slightly micaceous with very fine sand
 65'- 70' Clay, gray to brown, with very fine sand
 70'- 80' Clay, gray, with very fine sand and silt
 80'-110' Sand, very fine
 @ 90'-100' minor dark gray clay
 @ 100'-110' trace of lignite
 110'-123' Sand, very fine, with silt and gray clay and trace of lignite
 123'-130' Clay, dark gray to chocolate brown, lignitic, w/very fine sand
 130'-140' Clay, dark gray, with trace of lignite and very fine sand
 140'-150' Clay, dark gray, slightly micaceous with very fine sand
 @ 140'-150' trace of lignite
 T. D.: 150'

Drill Hole No. 221. Elevation 220'
 Location: NE¼, Sec. 21, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'- 5' Clay, brown, with very fine sand
 5'- 10' Clay, gray to reddish brown, with very fine sand
 10'- 30' Sand, fine to very fine, with pea gravel
 30'- 96' Sand, gray, fine to very fine
 @ 40'-70' trace of lignite and iron cemented sand
 @ 70'-96' thin lignite stringers
 96'- 98' Lignite, black, firm, with sand
 98'-100' Clay, gray to brown, with very fine sand and silt
 100'-105' Silt, gray to brown
 105'-110' Clay, gray to brown, slightly micaceous
 Sand, very fine
 110'-130' Sand, fine to very fine, with black, firm lignite
 130'-150' @ 140'-150' thin lignite stringers
 T. D.: 150'

Drill Hole No. 221a. Elevation 219'
 Location: SE¼, Sec. 21, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'- 10' Sand, very fine, light gray, with gray clay
 10'- 20' Sand, very fine, light brown
 20'-150' Sand, very fine, light gray
 @ 20'-40' pea gravel
 @ 20'-50' limonite
 @ 60'-150' thin lignite stringers
 @ 70'-150' minor thin gray and brown clay layers
 150'-162' Sand, light gray, very fine to fine, with black lignite
 162'-170' Clay, dark brown, with trace of lignite
 170'-180' Clay, dark brown and light brown interlayered, slightly glauconitic
 180'-200' Clay, dark brown, slightly lignitic, slightly micaceous
 @ 194'-200' silt
 T. D.: 200'

Drill Hole No. 222. Elevation 237'
 Location: NE¼, Sec. 28, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'- 10' Wash out
 T. D.: 10'

Drill Hole No. 222a. Elevation 232'
 Location: NE¼, Sec. 28, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'- 10' Sand, reddish brown, very fine with silt and clay
 10'- 25' Sand, coarse to very fine, reddish brown, with dark brown clay and small gravel
 25'- 30' Gravel, pea, with coarse sand and white to brown clay
 30'- 44' Sand, fine to very fine, with white to gray clay
 @ 30'-40' small gravel
 44'- 50' Clay, slightly micaceous, gray to brown, with very fine sand
 50'- 60' Clay, gray to brown, with trace of lignite
 @ 55'-60' thin lignite stringers
 60'- 70' Clay, gray, slightly glauconitic with silt
 70'- 80' Clay, gray, slightly micaceous
 80'- 90' Clay, gray, slightly micaceous with light gray, very fine sand
 90'-100' Silt, gray, with gray clay
 100'-130' Clay, gray, slightly micaceous with very fine sand and silt
 130'-150' Silt, gray, with trace of lignite
 @ 130'-140' lignitic clay
 150'-200' Silt, gray, with trace of lignite
 @ 160'-200' lignite stringers, black, firm
 T. D.: 200'

Drill Hole No. 223. Elevation 230'
 Location: NW¼, Sec. 34, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'- 10' Clay, light tan to reddish brown, with very fine sand
 10'- 20' Clay, light reddish brown, with very fine sand
 20'- 30' Clay, dark gray to light brown, with very fine sand
 30'- 40' Sand, very fine, with gray clay
 40'- 80' Clay, gray, with very fine sand and silt
 80'- 90' Sand, very fine, with silt and gray clay
 90'-120' Clay, gray to brown, with very fine sand and silt
 @ 100'-115' slightly micaceous
 @ 115'-120' interbedded very fine sand
 120'-125' Sand, very fine
 125'-150' Clay, gray, slightly micaceous with very fine sand
 @ 130'-140' interbedded very fine sand
 @ 140'-150' trace of lignite
 T. D.: 150'

Drill Hole No. 224. Elevation 235'
 Location: NW¼, Sec. 10, T. 20 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'- 10' Sand, fine to very fine, with light gray clay
 10'- 15' Clay, reddish brown to light tan, with very fine sand
 15'- 20' Clay, brown, slightly micaceous with very fine sand and silt
 20'- 25' Clay, brown, with very fine sand
 25'- 35' No sample
 35'- 60' Sand, very fine, with silt and brown clay
 @ 35'-45' slightly micaceous
 @ 45'-60' trace of lignite
 60'- 70' Sand, very fine, with slightly lignitic, brown to dark brown clay and trace of lignite

70'- 95' Sand, very fine, with brown clay and trace of lignite
 @ 75'-85' slightly micaceous
 @ 90'-95' slightly micaceous
 95'-105' Clay, brown to grayish brown, with very fine sand and silt
 105'-110' Clay, brown to dark brown, with very fine sand and silt
 110'-125' Clay, brown, with very fine sand
 @ 110'-120' slightly micaceous
 125'-140' Sand, very fine, with silt and trace of lignite
 @ 125'-130' trace lignitic clay
 140'-150' Clay, brown, with very fine sand and trace of lignite
 T. D.: 150'

Drill Hole No. 225. Elevation 345'
 Location: NW¼, Sec. 23, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'- 5' Clay, reddish brown, with fine sand and limonite
 5'- 10' Clay, light tan, slightly micaceous, with very fine sand
 10'- 15' Clay, light tan to reddish brown, slightly micaceous, with very fine sand
 15'- 35' Clay, dark gray, slightly micaceous, w/very fine sand and silt
 35'- 52' Clay, dark gray, w/very fine sand
 52'- 60' Clay, dark gray, slightly micaceous, w/very fine sand and silt
 60'- 65' Clay, gray, with very fine sand and thin stringers of cemented sand and silt
 65'- 70' Sand, very fine, w/gray, slightly micaceous clay & trace of lignite
 70'- 80' Sand, very fine, with silt and gray, slightly micaceous clay
 80'- 85' Sand, very fine, with silt and trace of lignite
 85'- 90' Sand, very fine, w/silt and clay
 90'-100' Sand, very fine, with silt and gray clay; also lignitic clay and trace of lignite
 100'-110' Sand, very fine, with silt and gray, slightly micaceous clay and trace of lignite
 110'-130' Sand, very fine, with gray clay
 130'-140' Clay, gray, micaceous, with trace of lignitic material
 T. D.: 140'

Drill Hole No. 225a. Elevation 328'
 Location: NW¼, Sec. 23, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'- 10' Clay, light tan, with silt and fine sand
 10'- 15' Clay, light tan, iron stained with fine sand
 15'- 19' Clay, mottled
 19'- 30' Clay, dark gray, slightly micaceous, glauconitic, with very fine sand
 @ 20'-30' silt
 30'- 50' Clay, dark gray, slightly micaceous, slightly glauconitic, and light tan clay interlayered, and very fine sand and silt
 50'- 60' Clay, dark gray, slightly micaceous, w/very fine sand and silt & thin stringers of black lignite
 60'- 68' Clay, dark gray, slightly micaceous, slightly glauconitic, with very fine sand and silt and lignitic clay and trace of lignite
 68'- 78' Silt, brown, slightly micaceous @ 78' siderite layer
 78'- 80' Silt, brown, with trace of lignite

ARKANSAS LIGNITE INVESTIGATIONS

80'-90' Silt, brown, with lignitic clay and siderite layer @ 80'
 90'-107' Silt, brown, with trace of lignite
 107'-111' Lignite, black, soft
 111'-120' Silt, brown, with lignite stringer and very fine sand
 120'-160' Silt, brown, with very fine sand and trace of lignite
 160'-170' Silt, brown, with very fine sand and trace of pyrite
 170'-183' Silt, brown, with brown clay
 183'-200' Silt, brown, with clay and trace of lignite
 T. D.: 200'

Drill Hole No. 226. Elevation 227'
 Location: NW¼, Sec. 22, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'-10' Sand, fine to very fine, reddish brown
 10'-20' Clay, gray-brown to light tan, with very fine sand and trace of lignite
 20'-40' No sample
 40'-55' Clay, gray, with very fine sand and silt, micaceous
 55'-60' Clay, gray, fissile, with very fine sand
 60'-70' Sand, very fine, with gray clay
 70'-80' Sand, very fine, with gray to brown clay, and trace of lignite
 80'-90' Sand, very fine, with gray to brown, fissile clay
 90'-96' Sand, very fine, silty, with gray clay
 96'-108' Lignite, black, firm
 108'-120' Clay, gray to brown, with very fine sand, slightly micaceous
 120'-130' Clay, gray to brown
 130'-135' Clay, gray, silty
 135'-143' Clay, gray
 143'-150' Sand, very fine, with gray-brown clay
 T. D.: 150'

Drill Hole No. 226a. Elevation 228'
 Location: NW¼, Sec. 22, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Sand, very fine, with reddish brown clay and small gravel
 10'-15' Sand, very fine, with light tan clay
 15'-20' Gravel, pea size, with light tan clay
 20'-25' Clay, gray, with silt
 25'-48' Clay, gray, brown, silty, slightly micaceous
 48'-50' Silt, gray, with gray clay and trace of lignite
 50'-59' Silt, gray, with gray clay and very fine sand
 59'-75' Silt, gray, interbedded with fine sand and trace of lignite
 75'-96' Sand, fine to very fine, light gray, with silt and traces of lignite
 96'-107' Lignite, black, hard, conchoidal fracture
 107'-126' Sand, light gray
 126'-130' Sand, light brown to gray, with silt, clay and trace of lignite
 130'-150' Silt, light brown, with very fine sand and clay, with trace of lignite

Core interval No. 1: 96'-106'
 Recovered: 4'10" Lost: 5'2"

96'-101'2" washed out
 101'2"-105'2" compacted, lignitic sand, with lignite stringers
 105'2"-106' lignite, black, hard with conchoidal fracture

Core interval No. 2: 106'-116'
 Recovered: 10' Lost: 0'

106'-107'2" lignite, black, firm, silty
 107'2"-107'4" sand, with small stringers of lignite
 107'4"-107'9" lignite, black, firm, with uneven fracture
 107'9"-116' sand and clay
 T. D.: 150'

Drill Hole No. 226b. Elevation 318'
 Location: NW¼, Sec. 22, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Sand, light tan to brown, very fine with tan clay
 10'-25' Sand, very fine, light tan to reddish brown, with tan clay and red iron cemented sand layers
 25'-62' Clay, gray-brown, slightly micaceous, with very fine sand
 62'-83' Sand, very fine, brown
 83'-94' Silt, gray, with trace of lignite
 94'-100' Sand, very fine, with gray clay
 100'-113' Silt, gray, with trace of lignite
 113'-135' Clay, brown, silty
 135'-140' Clay, brown, with very fine sand and trace of lignite
 140'-160' Silt, brown, with brown clay and traces of lignite
 160'-188' Silt and very fine sand, with numerous thin beds and stringers of lignite. Lignite beds up to 3" thick. Drilled fast.
 188'-200' Silt, brown, with very fine sand and trace of lignite
 T. D. 200'

Drill Hole No. 227. Elevation 320'
 Location: SW¼, Sec. 24, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'-12' Clay, gray-brown to reddish brown, with some limonite
 12'-20' Clay, dark gray, silty, micaceous and slightly glauconitic
 20'-38' Sand, very fine, with silt and gray clay
 38'-40' Lignite, black, soft, with some lignitic clay
 40'-50' Sand, fine to very fine, gray-brown
 50'-60' Sand, fine to very fine, with gray clay and lignitic clay
 60'-70' Sand, very fine with gray clay and silt
 70'-80' Sand, very fine, with gray-brown clay, slightly lignitic
 80'-92' Silt, with gray-brown clay
 92'-100' Sand, very fine, with gray clay
 100'-120' Clay, gray-brown, slightly micaceous and glauconitic
 120'-130' Clay, gray-brown, with very fine sand
 130'-150' Clay, gray-brown, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 228. Elevation 321'
 Location: SW¼, Sec. 17, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 6/77.

0'-20' Clay, light tan to red, silty, with some limonite
 20'-45' Clay, dark gray, silty, glauconitic, micaceous
 45'-50' Clay, dark gray, silty
 50'-60' Clay, dark gray, micaceous, glauconitic, with very fine sand
 60'-70' Clay, brown, silty, micaceous with very fine sand
 70'-110' Clay, brown, fissile, silty and micaceous
 110'-120' Clay, dark brown, with very fine sand and trace of lignite
 120'-130' Sand, very fine, with brown clay
 130'-140' Silt, with brown clay layers and trace of lignite
 140'-150' Silt, with trace of lignite and lignitic clay
 T. D.: 150'

Drill Hole No. 229. Elevation 363'
 Location: NW¼, Sec. 18, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-15' Clay, reddish brown to light tan, with very fine sand
 15'-20' Sand, very fine, with reddish brown clay and some limonite
 20'-30' Clay, dark gray, silty, micaceous
 30'-35' Clay, dark gray, with very fine sand and trace of lignite
 35'-40' Sand, very fine, with dark gray clay
 40'-45' Sand, very fine, with silt
 45'-50' Silt, with some gray clay
 50'-55' Clay, dark gray to brown, silty, micaceous
 55'-65' Clay, dark gray, silty, micaceous with trace of siderite
 65'-70' Clay, dark gray to brown, silty, with iron cemented red sandstone concretions
 70'-75' Clay, brown, micaceous, with very fine sand
 75'-80' Clay, brown, with very fine sand and some lignitic clay
 80'-95' Sand, very fine, with some dark gray clay
 95'-120' Sand, fine to very fine, light brown
 120'-130' Sand, fine to very fine, with lignite stringers
 130'-150' Sand, fine to very fine
 T. D.: 150'

Drill Hole No. 230. Elevation 311'
 Location: NE¼, Sec. 4, T. 19 S., R. 27 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-18' Sand, medium to fine, with light tan clay
 18'-20' Clay, gray to brown, with fine sand
 20'-30' Clay, dark gray, slightly micaceous, with fine to very fine sand
 30'-40' Clay, dark gray, slightly lignitic with very fine sand
 40'-50' Clay, dark gray, slightly micaceous, silty and glauconitic
 50'-60' Clay, dark gray, with very fine sand, micaceous
 60'-70' Clay, light gray to brown, micaceous, with very fine sand
 70'-80' Clay, brown, slightly micaceous with very fine sand

ARKANSAS LIGNITE INVESTIGATIONS

80'-90' Sand, fine to very fine, with light brown clay
 90'-100' Sand, fine to very fine, lignitic with brown clay
 100'-120' Sand, fine to very fine, with light brown, silty, micaceous clay and trace of lignite
 120'-130' Sand, very fine, light brown
 130'-150' Silt, with lignitic clay and trace of lignite
 T. D.: 150'

Drill Hole No. 231. Elevation 335'
 Location: SW¼, Sec. 11, T. 19 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-13' Sand, fine, with light tan and red iron stained clay
 13'-20' Clay, dark gray, silty, micaceous, with very fine sand
 20'-30' Clay, dark gray to brown, micaceous, with iron stained clay and limonite
 30'-50' Clay, dark gray-brown, slightly micaceous, with very fine sand
 50'-53' Sand, very fine to fine, with gray-brown clay
 53'-60' Sand, very fine, with gray-brown clay and lignite stringers
 60'-65' Sand, gray-brown, very fine, silty, with gray clay
 65'-70' Clay, gray-brown, with very fine sand
 70'-75' Clay, brown, micaceous, with very fine sand and trace of lignite
 75'-90' Clay, brown, slightly micaceous with very fine sand
 90'-93' Clay, brown, slightly micaceous with cemented silt and sand layers and trace of limonite
 93'-120' Clay, brown, slightly micaceous, with very fine sand and silt
 120'-148' Clay, brown, slightly micaceous, fissile, with very fine sand
 148'-150' Clay, gray-brown, slightly micaceous, with very fine sand and silt
 T. D.: 150'

Drill Hole No. 232. Elevation 385'
 Location: NE¼, Sec. 4, T. 19 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Sand, medium to fine, iron stained and cemented in places with light tan to reddish brown clay
 10'-15' Clay, light tan to reddish brown, with very fine sand
 15'-20' Clay, light tan and gray-brown, some iron stain, with very fine sand and silt
 20'-30' Clay, gray-brown, slightly micaceous, with very fine sand and silt
 30'-35' Clay, gray-brown, slightly micaceous, with very fine sand and traces of lignite and limonite
 35'-40' Clay, brown, slightly micaceous and lignitic, with very fine sand
 40'-50' Clay, brown, slightly micaceous, fissile, with very fine sand and silt
 50'-55' Clay, brown, with very fine sand and silt
 55'-58' Clay, brown, slightly micaceous, with very fine sand and silt

58'-64' Sand, very fine, with clay and silt binder
 64'-70' Clay, brown, slightly micaceous, with very fine sand and silt
 70'-80' Sand, very fine, with silt and gray-brown clay binder
 80'-85' Clay, light gray to brown, micaceous, with very fine sand
 85'-90' Clay, brown, with very fine sand and silt
 90'-100' Clay, brown, silty, with very fine sand and trace of lignite
 100'-110' Clay, brown to dark brown, silty, with very fine sand and trace of lignite
 110'-150' Clay, dark brown, silty, with very fine sand and traces of lignite
 T. D.: 150'

Drill Hole No. 233. Elevation 233'
 Location: SE¼, Sec. 10, T. 19 S., R. 28 W. County, Miller
 Logged by: J. M. Howard 7/77.

0'-15' Clay, gray, mottled, with fine sand
 15'-27' Clay, gray, with silt
 27'-33' Silt, gray, with gray clay, and fine micaceous sand
 33'-50' Siderite layer @ 27'
 50'-60' Clay, gray, with silt
 60'-70' Clay, gray, with fine sand and iron concretions @ 50'
 70'-75' Clay, gray, with trace of carbonaceous material
 75'-80' Clay, gray, with trace of lignite
 80'-90' Silt, gray, with clay
 90'-95' Silt, light gray, with gray clay
 95'-100' Clay, gray, with very fine sand and silt
 100'-110' Sand, very fine, with gray clay
 110'-120' Sand, very fine, with silt and dark brown clay
 120'-150' Silt, with dark brown, micaceous clay
 Clay, dark brown, with silt
 T. D.: 150'

Drill Hole No. 234. Elevation 305'
 Location: NE¼, Sec. 33, T. 18 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Clay, mottled, with fine to medium sand
 10'-20' Sand, very fine, with light tan, silty clay
 20'-30' Sand, fine, with interbedded, light tan clay
 30'-35' Silt, gray, with gray clay
 35'-45' Silt, dark gray, slightly micaceous, with clay binder and trace of lignite @ 40'
 45'-55' Silt, gray-brown, with trace of lignite
 55'-70' Silt, gray-brown, with clay and some lignitic clay
 70'-80' Clay, gray-brown, silty, slightly micaceous
 80'-85' Silt, dark brown, slightly lignitic and micaceous
 85'-90' Clay, dark brown, micaceous
 90'-100' Clay, brown, silty, micaceous
 100'-110' Silt, dark brown, micaceous
 110'-116' Sand, very fine, silty
 116'-116½' Siderite, brown, conchoidal fracture
 116½'-120' Clay, dark brown, silty, with trace of siderite
 120'-130' Clay, dark brown, slightly glauconitic and micaceous, with very fine sand and silt

130'-140' Silt, dark brown, micaceous, with very fine sand
 140'-150' Clay, gray-brown, micaceous
 T. D.: 150'

Drill Hole No. 235. Elevation 318'
 Location: NW¼, Sec. 6, T. 19 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Sand, tan, very fine, with some clay
 10'-30' Sand, light tan, very fine
 30'-50' Clay, dark gray, micaceous, with very fine sand and silt
 50'-70' Clay, dark gray to brown, silty, slightly micaceous, with very fine sand and glauconite @ 60' siderite layer
 70'-102' Clay, dark gray to brown, silty, micaceous
 102'-115' Sand, very fine, silty, with dark brown clay
 115'-120' Clay, dark brown
 120'-126' Clay, dark brown, with silt
 126'-140' Silt, dark brown
 T. D.: 140'

Drill Hole No. 236. Elevation 230'
 Location: SW¼, Sec. 21, T. 18 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-20' Sand, very fine, micaceous, with brown clay binder
 20'-30' Silt, brown, micaceous, with some clay
 30'-36' Silt, brown, sandy
 36'-38' Lignite, silty and sandy, black
 38'-40' Clay, brown, micaceous, with very fine sand and silt
 40'-55' Silt, brown, with very fine sand and brown clay
 55'-70' Silt, brown, micaceous, with very fine sand
 70'-80' Silt, brown, micaceous, with very fine sand and trace of carbonaceous material
 80'-86' Sand, silty, brown, very fine, micaceous
 86'-90' Sand, very fine, silty, with stringers of lignite
 90'-100' Silt, brown, micaceous, with very fine sand
 100'-115' Sand, very fine, silty, brown, micaceous
 115'-120' Sand, very fine, brown, micaceous, with clay
 120'-134' Clay, brown, silty, micaceous
 134'-135' Siderite, light tan
 T. D.: 135'

Drill Hole No. 237. Elevation 245'
 Location: SE¼, Sec. 17, T. 18 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Clay, light tan, with very fine sand
 10'-15' Clay, light tan to brown, with very fine to coarse sand
 15'-20' Sand, very fine, with light tan clay binder
 20'-30' Clay, dark brown, micaceous with lignite stringers
 30'-40' Sand, light brown, with dark brown clay binder
 40'-50' Sand, brown, fine to very fine, micaceous and silty
 50'-60' Clay, brown, micaceous, with very fine sand and silt
 60'-70' Sand, very fine, micaceous, with dark brown clay and silt

ARKANSAS LIGNITE INVESTIGATIONS

70'-75' Silt, brown, with very fine sand
 75'-80' Silt, brown, with cemented sand stringers
 80'-85' Silt, dark brown, with siderite
 85'-100' Silt, dark brown, micaceous, with very fine sand and trace of lignite
 100'-102' Silt, dark brown, micaceous
 102'-110' Silt, dark brown, micaceous with clay
 110'-125' Clay, brown, with very fine sand and silt
 125'-128' Silt, dark brown, slightly micaceous
 128'-150' Silt, brown, slightly micaceous with some very fine sand
 T. D.: 150'

Drill Hole No. 238. Elevation 265'
 Location: NE¼, Sec. 17, T. 18 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Sand, light tan, very fine, micaceous
 10'-20' Sand, tan, fine to very fine with clay
 20'-40' Sand, tan, fine to very fine with a trace of clay
 40'-50' Sand, gray-brown, very fine, silty, micaceous
 50'-60' Sand and silt, micaceous, with a trace of lignite
 60'-70' Sand, very fine, silty, micaceous
 70'-80' Silt, brown, micaceous, with trace of lignite
 80'-90' Silt, brown, lignitic, with very fine sand
 90'-105' Silt, brown, with very fine sand and trace of lignite
 105'-115' Silt, dark brown, micaceous with very fine sand, trace of lignite and clay
 115'-120' Silt, dark brown, micaceous with very fine sand
 120'-145' Silt, brown to dark brown, micaceous, with very fine sand and trace of lignite
 145'-150' Silt, brown to dark brown, micaceous with very fine sand
 T. D.: 150'

Drill Hole No. 239. Elevation 278'
 Location: SW¼, Sec. 5, T. 18 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-10' Clay, light tan to reddish brown, with very fine sand
 10'-20' Sand, fine to very fine, reddish brown, iron cemented in places
 20'-34' Sand, very fine, iron cemented in places, with some clay and silt
 34'-46' Sand, very fine, micaceous and lignitic
 46'-50' Clay, brown, micaceous, with lignite stringers
 50'-60' Clay, brown, with very fine sand
 60'-65' Silt, brown, slightly micaceous
 65'-70' Clay, brown, silty, micaceous
 70'-75' Silt, with very fine sand and dark brown clay
 75'-95' Clay, dark brown, slightly lignitic and micaceous
 95'-104' Silt, dark brown, lignitic, with trace of lignite and very fine sand
 104'-110' Clay, brown, slightly micaceous and lignitic

110'-120' Clay, dark brown, slightly micaceous, lignitic, with very fine sand
 120'-133' Clay, dark brown, slightly micaceous, with very fine sand and silt
 133'-150' Silt, brown, with brown clay
 T. D.: 150'

Drill Hole No. 240. Elevation 312'
 Location: SE¼, Sec. 33, T. 17 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-15' Sand, reddish brown, very fine
 15'-20' Sand, reddish brown, very fine silty
 20'-30' Sand, light brown, very fine, silty
 30'-40' Sand, very fine, silty, with brown clay
 40'-45' Sand, fine to very fine, reddish brown
 45'-50' Sand and gravel
 50'-56' Sand, fine, with some pea-sized gravel and light tan clay
 56'-66' Sand, brown to dark brown, with lignitic clay binder and traces of lignite
 66'-67' Lignite, black, hard
 67'-80' Sand, dark brown to brown, fine to very fine, with traces of lignite and siderite @ 73'
 80'-90' Sand, very fine, brown, silty, micaceous
 90'-95' Silt, brown to dark brown, with very fine sand
 95'-100' Clay, brown, micaceous, with very fine sand
 100'-130' Silt, dark chocolate brown, with very fine sand and traces of lignite
 130'-150' Silt, chocolate brown, with traces of lignite and very fine sand
 T. D.: 150'

Drill Hole No. 241. Elevation 213'
 Location: NW¼, Sec. 22, T. 17 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-16' Clay, light tan to reddish brown with very fine sand, iron stained
 16'-17' Gravel, pea-size
 17'-20' Sand, reddish brown, fine to very fine, micaceous, some iron cemented
 20'-30' Sand, reddish brown, fine to very fine, with some iron cemented and traces of limonite
 30'-37' Sand, light tan to red brown, fine to very fine, with tan clay binder
 37'-40' Sand, dark brown, fine to very fine, micaceous, lignitic, with dark brown clay
 40'-50' Sand, dark brown, very fine, micaceous with dark brown clay
 50'-60' Silt, dark brown, micaceous, with dark brown clay
 60'-75' Clay, dark brown, silty, micaceous
 75'-82' Sand, very fine, dark brown, micaceous, w/dark brown clay
 82'-85' Silt, dark brown
 85'-87' Sand and silt, very fine, dark brown, micaceous
 87'-90' Clay, dark brown, silty and micaceous
 90'-115' Silt, dark brown, micaceous with very fine sand and dark brown clay and siderite layer @ 115'

115'-125' Silt and sand, dark brown, very fine, micaceous, with dark brown clay
 125'-130' Silt, dark brown, micaceous, with clay and very fine sand
 130'-150' Silt, brown, micaceous, with brown clay and siderite layer @ 139'
 T. D.: 150'

Drill Hole No. 242. Elevation 245'
 Location: SW¼, Sec. 10, T. 17 S., R. 28 W. County, Miller
 Logged by: G. L. Delavan 7/77.

0'-15' Sand, fine to very fine, brown
 15'-20' Clay, light reddish brown, micaceous, with very fine sand
 20'-30' Sand, fine to very fine, reddish brown, micaceous and glauconitic, with some gravel near 25'
 30'-50' Sand, brown, very fine, micaceous, silty, with thin iron cemented beds
 50'-55' Silt, dark brown, micaceous with clay
 55'-100' Clay, dark brown, micaceous, silty, with siderite @ 68'
 T. D.: 100'

Drill Hole No. 243. Elevation 373'
 Location: SW¼, Sec. 9, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'-20' Sand, fine to very fine, light brown, micaceous
 20'-25' Sand, fine to very fine, with light tan to reddish brown clay
 25'-28' Sand and clay, light tan to reddish brown
 28'-110' Clay, dark gray, slightly micaceous and silty
 110'-120' Clay, dark gray, slightly micaceous, fissile
 120'-150' Clay, dark gray, slightly micaceous and silty
 T. D.: 150'

Drill Hole No. 244. Elevation 365'
 Location: SE¼, Sec. 17, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'-50' Sand, reddish brown, fine to very fine, slightly micaceous
 50'-100' Clay, dark gray, slightly micaceous
 T. D.: 100'

Drill Hole No. 245. Elevation 396'
 Location: SW¼, Sec. 32, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'-14' Sand, tan to reddish brown, fine to very fine, with light tan clay
 14'-20' Clay, dark gray, micaceous
 20'-22' Clay, dark gray to brown
 22'-24' Lignite, black, firm
 24'-30' Clay, gray to brown, silty, micaceous, with very fine sand
 30'-37' Clay, brown, slightly micaceous
 37'-40' Lignite, black, soft, with some lignitic clay
 40'-55' Silt, light brown, with some interbedded lignitic clay and trace of lignite

ARKANSAS LIGNITE INVESTIGATIONS

55'- 60' Clay, brown, slightly micaceous, silty, with trace of lignite
 60'- 72' Clay, brown, slightly micaceous
 72'- 75' Lignite, black, very soft
 75'- 79' Clay, brown, slightly micaceous
 79'- 81' Lignite, black, very soft
 81'- 90' Clay, brown, micaceous
 90'- 93' Silt, brown, with trace of lignite
 93'- 97' Clay, brown, with trace of lignite

97'-110' Lignitic clay, dark brown to black, with stringers of lignite
 110'-117' Silt, brown, with very fine sand and trace of lignite
 117'-120' Clay, gray-brown, silty, with siderite at 117'
 120'-127' Silt, gray-brown, with trace of lignite
 127'-130' Silt, lignitic, dark brown, with stringers of lignite
 130'-140' Silt, light brown, with trace of lignite

Core interval No. 1: 20'-25'
 Recovered: 2' Lost: 3'
 10" lignite recovered with brown lignitic clay on top and bottom of lignite

Core interval No. 2: 36'-41'
 Recovered: 4'4" Lost: 8"
 36'-37'10" clay, gray brown, silty and micaceous
 37'10"-40'4" lignite, black, with uneven fracture
 40'4"-41' clay, gray brown, silty

Core interval No. 3: 40'-50'
 Recovered: 1' Lost: 9'
 No lignite recovered. Problems with core barrel; only clay recovered.

Core interval No. 4: 70'-79'4"
 Recovered: 9'4" Lost: 0"
 70'-71'3" clay, gray, silty, micaceous
 71'3"-73'1" lignite
 73'1"-79'4" clay, gray to brown, very fine sand and silt

Core interval No. 5: 79'4"-89'
 Recovered: 9'8" Lost: 0"
 79'4"-81'8" lignite
 81'5"-81'10" lignitic clay, with stringers of lignite
 81'10"-87'11" clay, gray, silty, micaceous, with very fine sand
 87'11"-88'10" sandstone, fine, light gray, with hackley fracture
 88'10"-89' sand, fine, light gray, slightly micaceous
 T. D.: 140'

Drill Hole No. 246. Elevation 355'
 Location: SW¼, Sec. 20, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 6' Sand, fine to very fine, red brown
 6'- 9' Clay, light gray, with very fine sand
 9'- 35' Sand, fine, light brown
 35'- 40' Clay, light brown, slightly micaceous
 40'- 77' Sand, fine, gray, with trace of carbonaceous material

77'- 87' Sand, fine, gray, with gray clay interbedded
 87'-100' Clay, dark gray, silty, micaceous
 T. D.: 100'

Drill Hole No. 247. Elevation 375'
 Location: NE¼, Sec. 29, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 10' Clay, mottled, gray-brown and red, with very fine sand
 10'- 27' Clay, light tan, with very fine sand
 27'- 30' Clay, dark brown, slightly micaceous, lignitic
 30'- 39' Clay, lignitic, micaceous, with lignite stringers
 39'- 48' Clay, gray-brown, slightly micaceous
 48'- 50' Lignite
 50'- 57' Clay, dark brown, lignitic, slightly micaceous
 57'- 72' Clay, gray-brown, slightly micaceous, with very fine sand
 72'-110' Silt, gray to light brown, slightly micaceous
 110'-146' Sand, very fine, gray-brown, slightly micaceous
 146'-150' Lignite, soft, black, sandy
 T. D.: 150'

Drill Hole No. 248. Elevation 358'
 Location: SE¼, Sec. 30, T. 13 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 10' Clay, red-brown, slightly micaceous, with very fine sand
 10'- 20' Sand, fine, red-brown to dark brown, slightly micaceous, with trace of lignite
 20'- 39' Clay, brown to gray-brown, slightly micaceous
 39'- 60' Sand, very fine, dark gray, micaceous, with dark gray clay
 60'- 77' Clay, dark gray-brown, slightly micaceous, with very fine sand
 77'-136' Sand, very fine, dark gray, slightly micaceous, with thin beds of dark gray clay
 136'-150' Silt, brown, with very fine sand
 T. D.: 150'

Drill Hole No. 249. Elevation 338'
 Location: SW¼, Sec. 25, T. 13 S., R. 25 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 6' Sand, very fine, red brown
 6'- 19' Clay, light tan to red brown
 19'- 21' Clay, black, lignitic, slightly micaceous
 21'- 26' Lignite, black, with uneven fracture
 26'- 31' Clay, gray-brown
 31'- 37' Sand, very fine, gray-brown
 37'- 50' Clay, brown, slightly micaceous, with very fine sand and trace of lignite @ 48'
 50'- 68' Clay, brown, slightly micaceous, with very fine sand
 68'- 70' Clay, dark gray, with lignitic clay and lignite stringers
 70'- 72' Clay, dark gray, and very fine sand
 72'-110' Clay, blue-gray, with very fine sand

Core interval 18'-26'
 Recovered: 5'4" Lost: 2'8"
 18'-19'2" washed out

19'2"-19'10" clay, black, very lignitic
 19'10"-21'6" clay, brown, slightly lignitic
 21'6"-22' clay, black, lignitic
 22'-22'8" lignite, black, soft
 22'8"-24'2" washed out
 24'2"-26' lignite, black, hard, conchoidal fracture
 T. D.: 110'

Drill Hole No. 250. Elevation 348'
 Location: NE¼, Sec. 35, T. 13 S., R. 25 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 10' Sand, very fine, red-brown, slightly micaceous, with interbedded clay and 1' of gravel @ 8'
 10'- 17' Sand, very fine, red-brown, slightly micaceous
 17'- 40' Sand, very fine, red-brown
 T. D.: 40'

Drill Hole No. 251. Elevation 398'
 Location: SW¼, Sec. 35, T. 13 S., R. 25 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 5' Sand, very fine, red-brown, with interbedded brown clay
 5'- 26' Clay, white to light tan, slightly micaceous
 26'- 30' Clay, gray-brown, slightly micaceous
 30'- 46' Clay, gray-brown, slightly micaceous, with very fine sand and interbedded red-brown clay
 46'-111' Sand, fine, brown, trace of carbonaceous material, with brown clay
 111'-114' Lignite, black, hard, with conchoidal fracture
 114'-115' Clay, lignitic black
 115'-117' Clay, brown, with interbedded black, lignitic clay
 117'-122' Clay, brown, slightly micaceous, with very fine sand
 122'-124' Clay, brown, with very fine sand and lignite stringers
 124'-125' Lignite, black and hard
 125'-128' Clay, brown, with very fine sand and lignite stringers
 128'-130' Clay, brown, slightly micaceous
 130'-139' Clay, brown, slightly micaceous, with trace of lignite
 139'-140' Lignite, black, hard
 140'-160' Clay, brown, slightly micaceous, with very fine sand and trace of lignite
 T. D.: 160'

Drill Hole No. 252. Elevation 365'
 Location: SE¼, Sec. 3, T. 14 S., R. 25 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 9' Sand, very fine, light red-brown, micaceous
 9'- 23' Clay, light tan, slightly micaceous, with very fine sand
 23'- 30' Clay, light tan to light brown, with very fine sand and dark brown, iron cemented sandstone layers
 30'- 30'6" Lignite, black, hard
 30'6"-39' Clay, gray, with very fine sand and trace of lignite
 39'- 52' Clay, dark gray to brown, lignitic, micaceous, with very fine sand and lignite stringers
 52'- 66' Silt, dark gray, slightly micaceous, with siderite @ 56'

ARKANSAS LIGNITE INVESTIGATIONS

66'- 77' Clay, gray-brown, slightly micaceous, with very fine sand
 77'- 84' Lignite, with some black lignitic clay
 84'- 90' Clay, dark brown, silty and lignitic
 90'- 110' Clay, brown, silty, with very fine sand
 110'- 130' Sand, dark brown, silty, slightly micaceous, with brown clay
 130'- 150' Silt, brown, with very fine sand

Core interval 76'-86'

Recovered: 8'8" Lost: 1'4"
 76'-77'5" clay, dark brown, very lignitic, waxy and slightly micaceous
 77'5"-79'7" lignite, black, hard
 79'7"-81'2" lignite, black, soft and friable
 81'2"-82'1" lignite and clay interbedded, dark brown to black, with very fine sand
 82'1"-83'9" clay, dark brown, very lignitic
 83'9"-84'8" lignite and clay interbedded, hard, dark brown to black
 84'8"-86" no recovery;
 bottom of core barrel spread 45" inches lignite for analysis from 77'5"-81'2"
 T. D.: 150'

Drill Hole No. 253. Elevation 381'
 Location: SW¼, Sec. 5, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 59' Sand, very fine, reddish brown, with some clay
 59'- 60' Lignite, black, soft, with some clay
 60'- 79' Silt, gray-brown, slightly micaceous, with thin lignite stringers
 79'- 81' Lignite, black, hard
 81'- 84' Clay, dark brown, silty, micaceous
 84'- 88' Clay and silt, gray-brown, slightly micaceous
 88'- 102' Sand, very fine, gray-brown, slightly micaceous
 102'- 150' Clay, gray-brown, slightly micaceous, with very fine sand and traces of lignite
 T. D.: 150'

Drill Hole No. 254. Elevation 335'
 Location: SW¼, Sec. 8, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 17' Sand, fine, gray-brown, glauconitic
 17'- 31' Clay, gray-brown, silty, slightly micaceous
 31'- 40' Clay, light tan, slightly micaceous, with trace of black lignitic clay
 40'- 46' Sand, very fine, light reddish brown
 46'- 102' Sand, fine, gray-brown, glauconitic
 102'- 117' Silt, gray-brown, micaceous, with very fine sand and trace of lignite @ 107'
 117'- 150' Clay, gray-brown, silty, micaceous, with very fine sand and trace of lignite
 T. D.: 150'

Drill Hole No. 255. Elevation 339'
 Location: NW¼, Sec. 20, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 8' Clay, dark reddish brown, with very fine cemented sandstone
 8'- 25' Clay, light tan, slightly micaceous, with very fine sand
 25'- 40' Clay, dark brown, silty, slightly micaceous
 40'- 47' Clay, dark brown, with very fine sand
 47'- 62' Sand, very fine, brown, slightly micaceous, with brown clay
 62'- 90' Clay, dark brown, silty, slightly micaceous
 90'- 98' Clay, dark brown, silty, slightly micaceous, with very fine sand
 98'- 120' Clay, gray, slightly micaceous, with very fine sand and trace of lignite @ 119'
 120'- 150' Clay, gray, slightly micaceous, with very fine sand and stringers of lignite up to 1'
 T. D.: 150'

Drill Hole No. 256. Elevation 345'
 Location: NW¼, Sec. 29, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 8' Clay, reddish brown, with very fine sand
 8'- 18' Clay, tan, slightly micaceous with very fine sand
 18'- 30' Clay, very dark brown, lignitic, slightly micaceous, with very fine sand
 30'- 62' Clay, dark brown, slightly micaceous, with very fine sand
 62'- 70' Sand, very fine, brown, with dark brown clay
 70'- 79' Clay, dark brown, slightly micaceous, with very fine sand and 8" siderite @ 73'
 79'- 116' Sand, brown, very fine, with 14" siderite @ 85'
 116'- 140' Clay, brown, slightly micaceous with very fine sand
 140'- 146' Clay, brown, slightly micaceous with very fine sand and trace of lignite
 146'- 150' Clay, gray, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 257. Elevation 330'
 Location: SW¼, Sec. 31, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 4' Sand, very fine, reddish brown
 4'- 12' Clay, brown, slightly micaceous with sand and 18" pea gravel
 12'- 23' Sand, brown, very fine, with clay binder
 23'- 50' Clay, very dark brown, slightly micaceous, silty, with very fine sand
 50'- 66' Clay, dark brown, silty, micaceous, with very fine sand and siderite layers
 66'- 90' Sand and silt, very fine, dark brown, slightly micaceous, with dark brown cemented sandstone layers and trace of lignite
 90'- 98' Sand and silt, very fine, dark brown, slightly micaceous
 98'- 117' Clay, dark brown, slightly micaceous, with very fine sand
 117'- 130' Sand, very fine, brown, micaceous, with siderite layer

130'- 150' Sand, very fine, brown, slightly micaceous, w/dark brown clay
 150'- 160' Silt, dark brown, with very fine sand and clay
 T. D. 160'

Drill Hole No. 258. Elevation 298'
 Location: SE¼, Sec. 6, T. 15 S., R. 24 W. County, Lafayette
 Logged by: G. L. Delavan 8/77.

0'- 14' Silt, reddish brown, with very fine sand
 14'- 22' Sand, very fine, reddish brown, with clay binder
 22'- 29' Clay, light brown, slightly micaceous, with trace of iron cemented sand
 29'- 34' Sand, very fine, brown, slightly glauconitic, with brown clay binder
 34'- 44' Clay, dark brown, silty, micaceous, with siderite layer
 44'- 53' Clay, dark brown, silty, micaceous, with very fine sand
 53'- 70' Sand, very fine, dark brown, silty, micaceous
 70'- 80' Sand, very fine, dark brown, silty, micaceous, with interbeds of dark brown iron cemented sandstone
 80'- 100' Sand, very fine, brown, with siderite layers
 100'- 130' Sand, very fine, brown, with traces of lignite
 130'- 150' Sand, very fine, brown, with dark brown, micaceous clay
 T. D.: 150'

Drill Hole No. 259. Elevation 275'
 Location: SW¼, Sec. 8, T. 15 S., R. 24 W. County, Lafayette
 Logged by: G. L. Delavan 8/77.

0'- 6' Sand, very fine, light tan
 6'- 10' Sand, very fine, light tan, w/clay
 10'- 18' Sand, very fine, brown, with pea gravel
 18'- 30' Sand, very fine, dark brown, silty
 30'- 85' Clay, dark brown, slightly micaceous, with very fine sand
 85'- 150' Silt, brown, with very fine sand and a few layers of dark brown clay and siderite
 T. D.: 150'

Drill Hole No. 260. Elevation 287'
 Location: SW¼, Sec. 21, T. 14 S., R. 24 W. County, Hempstead
 Logged by: G. L. Delavan 8/77.

0'- 10' Sand, very fine, reddish brown, with brown clay
 10'- 72' Sand, very fine, brown, slightly micaceous
 72'- 80' Sand, very fine, brown, slightly micaceous, w/dark brown clay
 80'- 85' Sand, fine to very fine, light brown, slightly micaceous
 85'- 89' Clay, dark brown to black, with lignite stringers up to 7" thick
 89'- 94' Clay, dark brown, slightly lignitic and micaceous
 94'- 105' Clay, light gray to brown, micaceous, slightly glauconitic, with very fine sand
 105'- 128' Sand, very fine, silty, gray, slightly micaceous and glauconitic
 128'- 150' Clay, gray-brown, silty, with traces of lignite
 T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 261. Elevation 328'
Location: SW¼, Sec. 22, T. 14 S., R. 24 W.
County, Hempstead
Logged by: G. L. Delavan 8/77.

0'-18' Sand, very fine, silty, reddish brown
18'-38' Sand, very fine, dark brown, slightly micaceous with trace of lignite
38'-50' Clay, gray to brown, silty, sandy and slightly micaceous
50'-92' Clay, brown, slightly micaceous with very fine sand
92'-150' Silt, brown, with very fine sand and brown clay and trace of lignite
T. D.: 150'

Drill Hole No. 262. Elevation 335'
Location: SE¼, Sec. 23, T. 14 S., R. 24 W.
County, Hempstead
Logged by: G. L. Delavan 8/77.

0'-17' Sand, reddish brown, very fine
17'-25' Clay, brown, silty, slightly micaceous
25'-30' Clay, brown, sandy, glauconitic
30'-40' Clay, brown, sandy
40'-72' Clay, brown to dark brown, silty, sandy, slightly micaceous, with siderite at 66' and 71'
72'-81' Sand, dark brown, very fine, with dark brown clay, slightly micaceous
81'-114' Sand, gray-brown, very fine, slightly micaceous, with gray-brown clay binder
114'-140' Clay, gray to dark brown, sandy, silty, slightly micaceous
140'-150' Clay, dark brown, sandy, silty, slightly micaceous, with trace of lignite
T. D.: 150'

Drill Hole No. 263. Elevation 321'
Location: SE¼, Sec. 17, T. 15 S., R. 24 W.
County, Lafayette
Logged by: G. L. Delavan 9/77.

0'-4' Sand, very fine, orange
4'-25' Sand, very fine, orange, with orange to reddish brown clay
25'-41' Sand, very fine, tan to reddish brown with clay binder
41'-52' Clay, dark brown, silty, slightly micaceous
52'-58' Clay, dark brown, sandy, with trace of lignite
58'-67' Sand, very fine, dark brown, slightly micaceous, with trace of lignite
67'-80' Sand, very fine, dark brown, with dark brown clay and trace of lignite
80'-91' Clay, dark brown, silty, micaceous with dark brown sand
91'-100' Sand, very fine, dark brown, lignitic, with dark brown clay binder
100'-109' Clay, dark brown, silty, slightly micaceous
109'-120' Sand, dark brown, very fine, silty, slightly micaceous
120'-130' Clay, dark brown, with dark brown, very fine sand interbedded with fissile, sandy clay
130'-150' Sand, dark brown, very fine, silty, with stringers of dark brown, slightly micaceous clay
T. D.: 150'

Drill Hole No. 264. Elevation 310'
Location: SE¼, Sec. 21, T. 15 S., R. 24 W.
County, Lafayette
Logged by: G. L. Delavan 9/77.

0'-5' Sand, very fine, brown, silty
5'-11' Sand, very fine, brown, silty with clay
11'-15' Clay, light tan to dark brown mottled, with iron stained sand
15'-25' Clay, gray-brown, sandy, slightly micaceous
25'-43' Clay, brown, slightly micaceous, with very fine, brown sand
43'-52' Silt, brown, sandy, slightly micaceous with brown clay and trace of lignite
52'-130' Sand, very fine, brown, slightly micaceous, with brown clay
130'-150' Sand and silt, brown, micaceous with brown clay and trace of lignite
T. D.: 150'

Drill Hole No. 265. Elevation 375'
Location: NW¼, Sec. 27, T. 15 S., R. 24 W.
County, Lafayette
Logged by: G. L. Delavan 9/77.

0'-4' Sand, very fine, dark reddish brown
4'-6' Sand and gravel, coarse sand, with large pea sized gravel
6'-20' Sand, coarse, reddish brown, with pea gravel
T. D.: 20'

Drill Hole No. 266. Elevation 290'
Location: NE¼, Sec. 1, T. 10 S., R. 20 W.
County, Clark
Logged by: G. L. Delavan 9/77.

0'-13' Clay, tan, slightly micaceous, with trace of black lignitic clay
13'-19' Clay, dark brown to black, slightly lignitic
19'-28' Clay, dark brown to black, very lignitic, with stringers of lignite
28'-30' Lignite, soft, black, interbedded with black clay
30'-31' Clay, black, lignitic
31'-36' Lignite, black, firm
36'-44' Clay, dark gray to brown, slightly micaceous
44'-57' Clay, gray, silty, slightly micaceous with thin lignite stringers
57'-80' Silt, gray, with trace of lignite and siderite

Core Interval 30'-36½'

Recovered: 6½' Lost: 0'

30' to 31'5" clay, gray, slightly micaceous
31'5" to 32'6" lignite, black, firm
32'6"-32'8" clay, dark brown, lignitic
32'8"-34'5" lignite, black, soft, friable
34'5"-34'10" clay, dark brown, lignitic, micaceous
34'10"-36'6" clay, gray, micaceous
T. D.: 80'

Drill Hole No. 267. Elevation 250'
Location: NE¼, Sec. 6, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delavan 9/77.

0'-9' Clay, reddish brown, silty,

9'-27' slightly micaceous
Sand, very fine, reddish brown, slightly micaceous
27'-37' Clay, light brown, slightly micaceous, sandy
37'-45' Clay, gray, silty, micaceous
45'-46' Lignite, black, firm
46'-62' Clay, gray, silty, micaceous, with trace of siderite
62'-63' Lignite, black, firm
63'-65' Clay, light tan to gray
65'-100' Clay, dark blue-gray
T. D.: 100'

Drill Hole No. 268. Elevation 235'
Location: NE¼, Sec. 2, T. 10 S., R. 20 W.
County, Clark
Logged by: G. L. Delavan 9/77.

0'-2' Sand, very fine, light tan to brown
2'-28' Clay, light brown, silty, slightly micaceous
28'-35' Clay, dark blue-gray, with silty brown clay
35'-70' Clay, dark blue-gray
T. D.: 70'

Drill Hole No. 269. Elevation 271'
Location: NW¼, Sec. 6, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delavan 9/77.

0'-2' Sand, light reddish brown, very fine
2'-18' Clay, light tan
18'-18½' Clay, black, very lignitic
18½'-20' Clay, tan to dark brown
20'-27' Clay, tan
27'-30' Clay, light brown, with trace of very fine sand
30'-35' Sand, very fine, brown
35'-36' Clay, dark gray to brown
36'-39' Lignite, black, soft, friable
39'-54' Clay, gray-brown, silty, slightly micaceous
54'-56' Clay, gray-brown, silty, with thin stringers of lignite
56'-72' Clay, gray-brown, with very fine sand, slightly micaceous
72'-75' Clay, gray, slightly micaceous, with trace of white clay
75'-100' Clay, dark blue-gray

Core Interval: 24'6"-29'9"

Recovered: 4'9" Lost: 6"

24'6"-25' washed out
25'-27' lignite, black, hard
27'-27'11" clay, very dark brown, with thin stringers of soft brown lignite
27'11"-29'2" clay, dark brown, sandy
29'2"-29'9" clay, brown, sandy, slightly micaceous
T. D.: 100'

Drill Hole No. 270. Elevation 225'
Location: SW¼, Sec. 32, T. 9 S., R. 19 W.
County, Clark
Logged by: G. L. Delavan 9/77.

0'-8' Sand, very fine, light brown, slightly carbonaceous with siderite bed @ 6'
8'-14' Clay, light brown, sandy, micaceous and carbonaceous
14'-15' Sand, very fine, brown
15'-28' Lignite, black, firm
28'-35' Clay, light brown

ARKANSAS LIGNITE INVESTIGATIONS

35'- 38' Lignite, black, firm
 38'- 44' Clay, gray and white interbedded
 44'- 49' Clay, gray, silty, slightly micaceous, with very fine sand
 49'- 51' Lignite
 51'- 66' Clay and silt, gray, slightly micaceous
 66'- 80' Clay, dark blue-gray

Note: Lignite came up drill hole in 2" - 3" chunks with sand and clay. After drilling hole No. 270-A, it was determined that the bit encountered several lignite logs in the sands and clays in Drill Hole No. 270. T. D.: 80'

Drill Hole No. 270-A. Elevation 225'
 Location: SW¼, Sec. 32, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 9/77.

0'- 2' Sand, very fine, light brown
 2'- 6' Clay, light brown, with very fine sand
 6'- 10' Clay, light tan, with very fine sand, with iron concretions
 10'- 16' Sand, very fine, light brown, with light tan clay
 16'- 19' Clay, light tan and light brown, slightly micaceous
 19'- 20' Clay, dark brown, with very fine sand and trace of lignite
 20'- 30' Clay, gray-brown, with very fine sand and trace of lignitic clay
 30'- 40' Clay, gray-brown, with interbedded dark-brown clay
 40'- 50' Clay, gray-brown, with very fine sand, slightly micaceous
 50'- 63' Clay, gray-brown, with very fine sand and silt
 63'- 70' Clay, dark blue-gray
 T. D.: 70'

Drill Hole No. 271. Elevation 235'
 Location: SW¼, Sec. 33, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 9/77.

0'- 2' Clay, reddish brown, slightly micaceous
 2'- 10' Clay, tan and reddish brown, with very fine sand
 10'- 33' Clay, brown to reddish brown, with very fine sand
 33'- 40' Clay, gray-brown, slightly micaceous, with very fine sand
 40'- 52' Clay, dark gray, with very fine sand
 52'- 61' Clay, dark gray, with gray very fine sand
 61'- 93' Sand, very fine, dark gray, with dark gray silt and clay
 93'-100' Clay, dark blue-gray
 T. D.: 100'

Drill Hole No. 272. Elevation 150'
 Location: NE¼, Sec. 33, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 9/77.

0'- 10' Clay, light brown, slightly micaceous
 10'- 63' Sand, fine to very fine, with gray and white clay
 63'- 70' Clay, dark blue-gray
 T. D.: 70'

Drill Hole No. 273. Elevation 200'
 Location: NE¼, Sec. 27, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 9/77.

0'- 2' Sand and clay, red to brown, with some gravel
 2'- 10' Clay, cream color, slightly micaceous, with trace of gravel at the top
 10'- 19' Clay, light brown, slightly micaceous, with very fine sand and siderite layer
 19'- 20' Clay, gray-brown, slightly micaceous
 20'- 21' Clay, dark brown, slightly micaceous
 21'- 23' Clay, very dark brown to black, lignitic
 23'- 30' Clay, light brown, slightly micaceous, with very fine sand
 30'- 50' Clay, gray to brown, slightly micaceous, with silt and very fine sand and trace of lignite
 50'- 53' Clay, very dark brown, trace of lignite
 53'- 60' Clay, gray-brown, slightly micaceous, trace of lignite
 60'- 61.5' Lignite
 61.5'- 63' Clay, gray-brown
 63'- 80' Clay, dark blue-gray
 T. D.: 80'

Drill Hole No. 274. Elevation 180'
 Location: SE¼, Sec. 26, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 9/77.

0'- 2' Sand, very fine, light brown, trace of gravel
 2'- 12' Clay, light brown to gray, with very fine iron-stained sand
 12'- 25' Clay, light tan, slightly micaceous
 25'- 27' Lignite, black and hard
 27'- 34' Clay, gray-brown, slightly micaceous
 34'- 39' Clay, gray, slightly micaceous with very fine sand
 39'- 44' Clay, gray-brown, slightly micaceous
 44'- 45' Lignite, black, soft
 45'- 49' Clay, gray-brown
 49'- 53' Clay, gray, slightly micaceous, with very fine sand
 53'- 63' Clay, gray, with interbedded very fine sand and siderite layer
 63'- 67' Clay, dark brown, lignitic, with lignite stringer
 67'- 87' Clay, gray-brown, slightly micaceous, with very fine sand
 87'- 94' Clay, gray-brown, slightly micaceous, with very fine sand and lignitic clay
 94'-107' Clay, gray, with interbedded, very fine sand
 107'-117' Clay, light blue-gray, with white sandy clay
 117'-123' Clay, white, sandy, slightly micaceous
 123'-130' Clay, dark blue-gray
 T. D.: 130'

Drill Hole No. 275. Elevation 276'
 Location: SE¼, Sec. 25, T. 9 S., R. 19 W. County, Clark
 Logged by: G. L. Delevan 10/77.

0'- 20' Sand, very fine, reddish brown, silty, with traces of iron cemented sand, and white clay

20'- 33' Sand, very fine, light brown, silty, with thin beds of white clay
 33'- 36' Clay, orange, slightly micaceous
 36'- 56' Clay, gray, slightly micaceous with very fine sand and silt
 56'- 59' Clay, dark brown and black, lignitic
 59'- 62' Lignite, black and soft
 62'- 64' Clay, dark brown
 64'-100' Clay, gray-brown, slightly micaceous, with very fine sand and thin layers of siderite
 100'-130' Clay, gray-brown, slightly micaceous, with very fine sand, traces of lignite and siderite
 130'-150' Clay, gray-brown, slightly micaceous, with very fine sand and siderite

Core Interval 58'-66'

Recovered: 8' Lost: 0'

58'-59'11" lignite, black, hard, waxy
 59'11" - 62'2" lignite, black, soft, friable
 62'2" - 62'4" clay, dark brown, lignitic, with very fine sand
 62'4"-65'1" clay, gray-brown, slightly micaceous, with very fine sand
 65'1"-66' sand, gray, fine-grained, slightly micaceous
 T. D.: 150'

Drill Hole No. 276. Elevation 247'
 Location: SW¼, Sec. 29, T. 9 S., R. 18 W. County, Clark
 Logged by: G. L. Delevan 10/77.

0'- 28' Sand, light reddish brown, fine to very fine
 28'- 36' Sand, fine to very fine, tan, with trace of lignite and brown clay
 36'- 44' Clay, brown, slightly micaceous with very fine sand
 44'- 51' Clay, gray, slightly micaceous, with very fine sand and trace of light blue clay
 51'- 57' Sand, gray, fine to very fine, slightly micaceous and lignitic
 57'- 64' Clay, gray-brown, silty, slightly micaceous
 64'- 65' Clay, dark brown, lignitic
 65'- 69' Lignite, black, firm
 69'- 86' Clay, gray-brown, silty, slightly micaceous, with very fine sand and trace of lignite
 86'- 95' Clay, gray, slightly micaceous, silty
 95'-106' Clay, gray-brown, silty, slightly micaceous
 106'-109' Lignite, black, soft
 109'-112' Clay, brown, slightly micaceous, with very fine sand
 112'-124' Silt, brown, slightly micaceous
 124'-131' Sand, gray, very fine, silty, with gray clay binder
 131'-150' Clay, gray-brown, silty, slightly micaceous, with trace of lignite

Core Interval 63' - 70'

Recovered: 5'7" Lost: 1'5"

45" lignite recovered
 T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 277. Elevation 235'
Location: NW¼, Sec. 32, T. 9 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 8' Sand, very fine, silty, reddish brown
8'- 27' Clay, dark brown, with very fine sand and trace of lignite
27'- 70' Sand, fine to very fine, light brown
70'-100' Sand, fine to very fine, light gray, with trace of lignite
T. D.: 100'

Drill Hole No. 278. Elevation 230'
Location: NW¼, Sec. 4, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 11' Sand and clay, light brown, slightly micaceous
11'- 30' Clay, very dark brown, slightly micaceous and lignitic, with very fine sand
30'- 60' Clay, dark brown, slightly micaceous, silty
60'- 80' Silt, brown, with clay and very fine sand
80'-101' Silt, brown, sandy, with trace of lignite
101'-135' Sand, fine to very fine, light gray, micaceous, with gray clay binder
135'-150' Clay, gray, slightly micaceous, with very fine sand and trace of lignite
T. D.: 150'

Drill Hole No. 279. Elevation 196'
Location: SW¼, Sec. 33, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 14' Sand, very fine, light brown, slightly micaceous
14'- 18' Gravel, small cobble to large pea size
18'- 27' Sand, light orange brown, very fine, with trace of pea gravel and coarse sand
27'- 36' Clay, dark brown, micaceous and lignitic
36'- 69.5' Clay, gray, silty, slightly micaceous
69.5'-74' Lignite, black, firm
74'-109.5' Clay, gray-brown, slightly micaceous
109.5'-113' Lignite, black, soft
113'-150' Clay, gray-brown, slightly micaceous
T. D.: 150'

Drill Hole No. 280. Elevation 177'
Location: SW¼, Sec. 3, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 6' Sand, very fine, light orange with orange clay
6'- 16' Sand, very fine, light brown, slightly micaceous, with brown clay
16'- 36' Clay, dark brown, slightly lignitic and micaceous, with very fine sand and traces of lignite and pyrite
36'- 38' Lignite, black, firm
38'- 45' Clay, gray-brown, silty, micaceous

45'- 49' Clay, gray-brown and dark brown, silty and micaceous
49'- 55' Clay, light gray
55'- 76' Clay, gray, silty
76'- 79' Siltstone, blue-gray, with calcareous cement
79'- 90' Clay, gray, slightly micaceous, with trace of very fine sand
90'- 94' Clay, blue-gray, slightly micaceous, with very fine sand
94'-105' Clay, gray-brown, slightly micaceous, with silt and trace of lignite
105'-107' Clay, blue-gray, silty, micaceous, with very fine sand
107'-109' Clay, dark brown, with trace of lignite
109'-115' Clay, brown, silty
115'-115.5' Lignite, black, soft
115.5'-150' Clay, brown, silty, micaceous
T. D.: 150'

Drill Hole No. 281. Elevation 222'
Location: NE¼, Sec. 10, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 27' Sand, very fine, light brown, micaceous, w/trace of tan clay
27'- 40' Clay, dark brown, micaceous, with trace of lignite
40'- 55' Clay, dark brown, with interbedded, very fine brown sand
55'-105' Clay, brown and dark brown, silty, micaceous, with very fine sand
105'-124' Clay and sand, brown, micaceous, with traces of lignite and lignitic clay
124'-140' Clay, gray, silty, micaceous
140'-150' Clay and sand, light gray, micaceous, with trace of lignite
T. D.: 150'

Drill Hole No. 282. Elevation 150'
Location: SW¼, Sec. 11, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 7' Sand, very fine, reddish brown
7'- 9' Clay, brown to light brown, fissile, with silt partings
9'- 31' Clay, dark brown, micaceous, silty, with trace of lignite
31'- 37' Sand, fine, dark brown, with thin, sandy lignite stringers
37'- 53' Clay and sand, brown, micaceous, with trace of sandy lignite
53'- 64' Clay, brown, silty, micaceous
64'- 92' Clay, gray, micaceous
92'- 96' Clay, dark brown to black, lignitic
96'-102' Clay, gray-brown, micaceous
102'-110' Clay, gray, with dark brown to black clay, and trace of lignite
110'-122' Clay, gray, silty, with trace of siderite
122'-128' Clay, brown, with very fine sand and trace of lignite
128'-140' Clay, gray, micaceous, with very fine sand
140'-150' Clay, gray, with thin stringers of lignite
T. D.: 150'

Drill Hole No. 283. Elevation 134'
Location: SW¼, Sec. 16, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 9' Clay, tan, micaceous with very fine sand

9'- 12' Sand, tan, very fine
12'- 14' Gravel
14'- 18' Clay, brown, with very fine sand
18'- 22' Clay, tan, micaceous
22'- 33' Clay, light blue to light brown, micaceous
33'- 46' Clay, gray-brown, silty, micaceous
46'- 47' Clay, dark brown
47'- 48' Lignite, black, soft
48'- 50' Clay, gray-brown, with trace of lignite
50'-117' Clay, gray, silty, micaceous, with very fine sand
117'-119' Siltstone, dark gray
119'-150' Silt, gray-brown, with gray clay, very fine sand, and trace of lignite
T. D.: 150'

Drill Hole No. 284. Elevation 172'
Location: NE¼, Sec. 2, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 3' Sand, very fine, light brown
3'- 32' Clay, light tan, micaceous, with very fine sand and ironstone concretions
32'- 45' Clay, blue gray, silty, micaceous
45'- 51' Clay, brown to dark brown
51'- 52' Lignite, black, soft
52'- 54' Clay, brown
54'- 62' Clay, light blue-gray, micaceous
62'- 78.5' Clay, gray-brown, silty, micaceous
78.5'-79.5' Lignite, black, soft
79.5'- 95' Sand, fine to very fine, gray-brown, with gray-brown, micaceous clay
95'- 97' Clay, dark brown, with very fine sand and traces of lignite
97'-112' Clay, light brown, silty, micaceous, with interbedded very fine sand
112'-138' Clay, gray-brown, sandy, micaceous, with stringer of siderite
138'-150' Clay, dark blue-gray
T. D.: 150'

Drill Hole No. 285. Elevation 190'
Location: NW¼, Sec. 36, T. 9 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 10/77.

0'- 32' Clay, gray to brown, micaceous
32'- 35' Lignite, black, firm
35'- 38' Sand, fine, with gray clay binder
38'- 56' Clay, gray-brown, with very fine sand and traces of lignite
56'- 62' Clay, gray-green, silty, micaceous
62'- 63' Clay, brown, micaceous
63'- 79' Clay, gray-green, micaceous, with very fine sand and trace of lignite
79'- 92' Clay, brown, micaceous
92'-101' Clay, gray, micaceous, with very fine sand
101'-108' Sand, gray, fine to very fine, micaceous, with gray clay binder
108'-120' Clay, gray, micaceous, with very fine sand and trace of lignite
120'-138' Clay, gray-brown, silty
138'-144' Sand, fine to very fine, gray, micaceous, with gray clay binder
144'-150' Clay, gray, micaceous, with very fine sand and trace of siderite

ARKANSAS LIGNITE INVESTIGATIONS

Core Interval 31' - 37'

Recovered: Lost:

6' 0'
31' - 33'7" sand, very fine, gray, with gray clay binder
33'7" - 33'11" clay, gray-brown, with very fine sand and stringer of lignite
33'11" - 34'1" clay, black, lignitic
34'1" - 34'4" lignite and clay, black and friable
34'4" - 37' lignite, black, firm
T. D.: 150'

Drill Hole No. 286. Elevation 220'
Location: NW¼, Sec. 25, T. 9 S., R. 19 W. County, Clark
Logged by: G. L. Delevan 10/77.

0' - 18' Sand, fine to very fine, red and brown, with clay and iron cemented sand
18' - 27' Clay, gray, silty and micaceous
27' - 29' Lignite, black, soft to firm
29' - 31' Clay, gray, with very fine sand
31' - 33' Lignite, black, hard
33' - 75' Clay, gray, silty, micaceous
75' - 82' Clay, gray-brown, silty, micaceous
82' - 90' Silt and clay, with stringers of very fine sand, lignite, lignitic clay and siderite
90' - 110' Silt and very fine sand, with trace of brown clay
110' - 150' Clay, gray, micaceous, with very fine sand

Core Interval 26'6" - 34'8"
Recovered: Lost:
8'2" 0'

26'6" - 28'2" clay, gray-brown, micaceous, silty
28'2" - 28'3" clay, dark brown, lignitic
28'3" - 32'9" lignite, black, firm to friable
32'9" - 33'7" clay, gray-brown, silty
33'7" - 34'4" lignite, black, soft and friable
34'4" - 34'8" lignite, black, hard
T. D.: 150'

Drill Hole No. 287. Elevation 210'
Location: SW¼, Sec. 20, T. 9 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 10/77.

0' - 2' Sand, very fine, light brown
2' - 12' Clay, light brown, micaceous, with very fine sand
12' - 32' Clay, gray, micaceous, silty
32' - 34' Lignite, black, hard
34' - 38' Clay, gray, with lignite stringers up to 6" thick
38' - 40' Lignite, black, soft
40' - 53' Clay, light brown, silty
53' - 66' Clay, gray, silty, micaceous
66' - 82' Clay, gray-brown, micaceous, silty, with trace of lignite
82' - 91' Clay, gray, silty and micaceous
91' - 97' Clay, gray, silty, with dark brown clay
97' - 102' Clay, gray, with interbedded lignite stringers
102' - 114' Clay, brown, with trace of lignite

114' - 119' Clay, gray, silty, with trace of dark brown clay
119' - 120' Siltstone, dark gray, hard
120' - 134' Clay, light gray, micaceous
134' - 137' Clay, dark brown, micaceous, with trace of lignite and very fine sand
137' - 150' Clay, gray-brown, silty, with traces of dark brown clay
T. D.: 150'

Drill Hole No. 288. Elevation 265'
Location: NW¼, Sec. 29, T. 9 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 22' Clay, light tan, with interbedded very fine sand
22' - 32' Clay, brown, silty and micaceous
32' - 47' Sand, very fine, brown, with brown clay binder and trace of lignite
47' - 64' Clay, brown, with interbedded very fine sand and trace of lignite
64' - 77' Sand, fine to very fine, light gray, micaceous, with gray clay binder
77' - 86' Clay, brown, with fine to very sand
86' - 88' Lignite, black, soft to firm
88' - 106' Sand, fine to very fine, gray, micaceous
106' - 111' Clay, gray-brown, micaceous
111' - 116' Lignite, black, soft, friable
116' - 130' Clay, brown, silty
T. D.: 130'

Drill Hole No. 289. Elevation 155'
Location: SE¼, Sec. 17, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 9' Clay, gray, with very fine sand
9' - 15' Gravel
15' - 20' Sand and gravel, with very fine sand
20' - 21' Lignite, black, soft
21' - 26' Clay, gray-brown, with very fine sand and trace of lignite
26' - 28' Lignite, black, hard
28' - 29' Siderite
29' - 35' Clay, gray, silty
35' - 41' Lignite, soft, friable
41' - 48' Clay, gray, silty
48' - 60' Silt, brown
60' - 70' Sand and silt, very fine, brown
70' - 95' Clay, gray, silty, with very fine sand, trace of lignite and brown clay
95' - 100' Clay, gray, silty
100' - 120' Clay, gray-brown, with very fine sand
T. D.: 120'

Drill Hole No. 290. Elevation 165'
Location: NW¼, Sec. 20, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 14' Clay, light tan to light orange, micaceous
14' - 36' Gravel
36' - 41' Lignite, black, firm
41' - 65' Sand, very fine, brown, silty, with traces of siderite
65' - 100' Sand and silt, very fine
100' - 110' Silt, brown, with trace of light brown clay
110' - 120' Sand and silt, brown

Core Interval 31' - 38'

Recovered: Lost:

3'5" 3'7"
31' - 31'11" clay, black, very lignitic
31'11" - 32'5" clay and lignite, black
32'5" - 34'5" lignite, black, hard
T. D.: 120'

Drill Hole No. 291. Elevation 156'
Location: SW¼, Sec. 28, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 26' Clay, tan to light brown, micaceous, with some iron stain
26' - 26'3" Gravel
T. D.: 26'3"

Drill Hole No. 292. Elevation 135'
Location: NE¼, Sec. 16, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 10' Clay and sand, light brown
10' - 18' Sand, medium, gray, with trace of gravel
18' - 38' Gravel, with traces of lignite
38' - 50' Sand, coarse, and gravel
50' - 62' Sand and silt, brown, with trace of brown clay
62' - 65' Lignite, soft, black, with some very fine brown sand
65' - 87' Sand, fine to very fine, brown with thin stringers of lignite
87' - 106' Sand, very fine, and silt, brown
106' - 150' Sand, fine to coarse, and gravel
T. D.: 150'

Drill Hole No. 293. Elevation 136'
Location: NW¼, Sec. 13, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 14' Clay, light orange, with reddish brown very fine sand
14' - 20' Sand, medium, light red-brown
20' - 30' Gravel
30' - 42' Clay, brown, micaceous, sandy
42' - 60' Sand, fine to very fine, brown, with dark brown clay binder
60' - 70' Clay, brown, with fine sand
70' - 102' Clay and silt, brown, with traces of lignite
102' - 103' Lignite, black, soft to firm
103' - 120' Clay, light gray, sandy
120' - 132' Sand, very fine and light gray clay
132' - 135' Lignite, black, soft, friable
135' - 147' Clay, gray, with trace of siderite
147' - 150' Clay, gray
T. D.: 150'

Drill Hole No. 294. Elevation 150'
Location: SE¼, Sec. 20, T. 10 S., R. 18 W. County, Clark
Logged by: G. L. Delevan 11/77.

0' - 18' Sand, very fine to fine, light brown
18' - 27' Gravel
T. D.: 27'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 295. Elevation 137'
Location: NW¼, Sec. 27, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 11/77.

0'- 15' Clay, light gray, with very fine sand
15'- 24' Gravel
24'- 25' Clay, orange, iron stained
25'- 31' Sand, medium to fine, brown, with trace of gravel
31'- 40' Clay, brown, silty
40'- 57' Silt, brown, with trace of sand
57'- 80' Sand, fine to very fine, with trace of brown clay
T. D.: 80'

Drill Hole No. 296. Elevation 135'
Location: SE¼, Sec. 13, T. 10 S., R. 18 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 17' Clay, brown, with very fine sand
17'- 18' Sand, medium to fine, brown with trace of gravel
18'- 34' Gravel
34'- 37' Clay, dark brown, micaceous
37'- 45' Clay, dark brown, fissile, micaceous, lignitic
45'- 49' Sand, medium to fine, dark brown
49'- 60' Clay, dark brown, micaceous
60'-108' Clay, dark brown, micaceous, with very fine sand and stringers of siderite
108'-120' Clay, dark brown, micaceous, sandy
120'-133' Clay, dark brown, with very very fine sand and trace of lignite
133'-142' Clay, light gray, with trace of very fine sand and siderite
142'-150' Silt, light gray, with very fine sand
T. D.: 150'

Drill Hole No. 297. Elevation 190'
Location: SW¼, Sec. 13, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 14' Sand, fine, mottled red and brown, with iron cemented silty sand
14'- 20' Clay, white, sandy
20'- 27' Clay and very fine sand, white
27'- 39' Clay, light gray, with fine sand
39'- 47' Clay, light gray, with very fine sand
47'- 48' Clay, brown, with very fine sand
48'- 51' Clay, dark brown
51'- 55' Lignite, black, firm, with some lignitic clay
55'- 56' Clay, dark brown
56'- 60' Clay, dark gray
60'- 68' Clay, light gray, with very fine sand and trace of lignite
68'- 75' Clay, gray, with lignite stringers
75'- 95' Clay, gray-brown, micaceous, with trace of lignite

95'-101' Clay, brown, silty
101'-102' Siltstone, gray
102'-120' Clay, gray-brown, micaceous, silty
120'-125' Clay, gray-brown, micaceous

Core Interval 50' - 60'

Recovered: 10' Lost: 0'

50' - 50'10" clay, gray to brown, micaceous and lignitic
50'10" - 55'4" lignite, black, firm, with a 3" black lignitic clay stringer
55'4" - 55'6" dark brown clay and very fine sand
55'6" - 58'1" sand, light brown, very fine
58'1" - 60' sand, brown, interbedded with gray clay
T. D.: 125'

Drill Hole No. 298. Elevation 229'
Location: NW¼, Sec. 13, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 6' Sand, very fine, and dark reddish brown clay
6'- 13' Gravel with fine sand
13'- 18' Clay, dark gray-brown, micaceous, with very fine sand
18'- 22' Lignite, black, hard
22'- 24' Clay and very fine gray sand
24'- 30' Sand and gray clay
30'- 39' Clay, gray, micaceous
39'- 48' Clay, greenish gray, trace of lignite
48'- 54' Clay, gray-brown, micaceous, with very fine sand
54'- 69' Clay, dark gray to brown, with very fine sand and trace of lignite
69'- 70' Clay, brown, and lignite
70'- 83' Clay, gray-brown
83'-85'6" Lignite, black, hard
85'6"-102' Clay, gray, micaceous, with very fine sand and stringers of siderite and lignite
102'-107' Clay, greenish gray
107'-114' Clay, brown, micaceous, with very fine sand
114'-130' Clay, greenish gray
130'-150' Clay, gray to brown

Core Interval 18'6" - 23'

Recovered: 4'6" Lost: 0'

18'6" - 22'4" lignite, soft to hard, with silt partings
22'4" - 23' clay, dark brown, with very fine sand
T. D.: 150'

Drill Hole No. 299. Elevation 246'
Location: SE¼, Sec. 15, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 11' Clay, tan, with iron stained sandstone
11'- 19' Gravel
19'- 20' Clay, dark brown, very lignitic

20'- 26' Lignite, soft, friable, with interbedded lignitic clay
26'- 32' Clay, gray to brown
32'- 35' Clay, orange
35'- 40' Clay, gray to brown, micaceous
40'- 60' Clay, gray, silty, micaceous, with traces of lignite and siderite
60'- 70' Clay, light gray, silty, with stringers of lignite
70'- 80' Clay, gray to brown, with stringers of lignite
80'-100' Clay, brown, silty, with trace of lignite and siderite
100'-110' Clay, brown
T. D.: 110'

Drill Hole No. 300. Elevation 240'
Location: NW¼, Sec. 22, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 13' Sand and clay, reddish brown
13'- 24' Clay, gray to tan, mottled, with very fine sand
24'- 29' Gravel
29'- 30' Clay, brown to dark brown
30'- 33' Lignite, black, soft
33'- 45' Clay, gray to brown, with very fine sand
T. D.: 45'

Drill Hole No. 301. Elevation 255'
Location: NE¼, Sec. 18, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 16' Sand, fine to very fine, reddish brown, with brown clay binder
16'- 23' Sand and clay, light tan to orange brown mottled, with iron cemented sand
23'- 26' Clay, orange and gray, micaceous, with very fine sand
26'- 39' Clay, gray, micaceous, with very fine sand
39'- 52' Clay, gray, silty, micaceous, with trace of lignite
52'- 66' Clay, gray, silty
66'-67'6" Lignite, black, firm
67'6"-80' Clay, gray, with very fine sand and trace of lignite
80'-115' Clay, gray to brown, micaceous, silty with very fine sand
T. D.: 115'

Drill Hole No. 302. Elevation 255'
Location: NE¼, Sec. 20, T. 10 S., R. 19 W.
County, Clark
Logged by: G. L. Delevan 12/77.

0'- 25' Clay, light brown to gray, trace of gravel
25'- 50' Clay, dark gray to gray, silty, with very fine sand
50'- 70' Clay, dark gray, silty
70'- 80' Sand, fine to very fine, gray, with gray clay binder
80'-100' Sand, fine to very fine, and gray clay
100'-120' Sand, fine to very fine, with gray clay and trace of lignite
T. D.: 120'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 303. Elevation 360'
Location: SW¼, Sec. 7, T. 13 S., R. 23 W.
County: Hempstead
Logged by: G. L. Delavan 2/78.

0'- 17' Clay, tan and reddish brown, silty
17'- 32' Clay, gray-brown, carbonaceous, slightly micaceous, with very fine sand
32'- 38' Clay, gray-brown, carbonaceous, fissile, with very fine sand
38'- 43' Clay, gray-brown, and very fine sand
43'- 70' Clay, gray-brown, slightly micaceous, fissile, with very fine sand
70'- 75' Clay, slightly micaceous, gray-brown, with very fine sand
75'-100' Clay, dark gray
T. D.: 100'

Drill Hole No. 304. Elevation 288'
Location: NE¼, Sec. 33, T. 13 S., R. 23 W.
County: Hempstead
Logged by: G. L. Delavan 3/78.

0'- 8' Clay, gray, with very fine sand
8'- 23' Clay, gray, slightly micaceous with very fine sand and trace of lignite
23'- 25' Clay, gray and brown
25'- 27½' Clay, dark brown
27½'-29' Lignite, black, firm
29'- 32' Clay, gray-brown
32'- 34½' Lignite, black, soft to firm
34½'-37' Clay, gray brown, slightly micaceous with very fine sand
37'- 50' Clay, gray-brown
50'- 67' Clay, gray-brown, with interbedded very fine sand
67'- 70' Clay, gray, with very fine sand
70'- 90' Clay, gray-brown, slightly micaceous with very fine sand
90'- 97' Clay, gray-brown
97'-101' Clay, brown to dark brown, with trace of lignite and siderite
101'-105' Clay, gray, with interbedded very fine sand
105'-120' Clay, gray, with trace of lignite
120'-130' Clay, gray, with very fine sand
130'-150' Clay, gray-brown, slightly sandy with trace of lignite

Core Interval 27'6" - 37'6"

Recovered: 5'3" Lost: 4'9"

27'6" - 32'3" no recovery
32'3" - 33'9" clay, gray, slightly micaceous
33'9" - 33'11" gray clay and fine sand
33'11" - 34'2" clay, dark brown, and lignite stringers
34'2" - 36'9" lignite, black, firm to soft, slightly silty
36'9" - 37'6" sand, fine, gray, slightly micaceous

T. D.: 150'

Drill Hole No. 305. Elevation 320'
Location: SE¼, Sec. 29, T. 13 S., R. 23 W.
County: Hempstead
Logged by: G. L. Delavan 3/78.

0'- 11' Sand and clay, light orange to red brown, fine to very fine
11'- 17' Clay, tan, with iron stain

17'- 19½' Clay, dark brown to black, lignitic
19½'-20' Lignite, black
20'- 21½' Clay, dark brown
21½'-24' Lignite, black, firm
24'- 28' Clay, dark brown to brown
28'- 35' Clay, gray-brown
35'- 43' Clay, gray-brown, with interbedded fine gray, micaceous sand
43'- 69' Clay, gray, with trace of brown clay
69'- 72' Clay, dark brown to black
72'- 72½' Lignite
72½'-77' Sand, gray, with gray clay
77'- 93' Clay, gray-brown, with traces of gray sand
93'-113½' Sand and gray clay
113½'-115' Lignite, black, soft
115'-130' Clay, gray-brown
130'-130½' Lignite, black, soft
130½'-135' Clay, gray-brown
135'-147' Clay, white to blue-gray
147'-150' Clay, blue-gray

Core Interval: 20' - 27'3"

Recovered: 7'3" Lost: 0

20' - 20'5" lignite, black, firm
20'5" - 20'7" clay, dark brown
20'7" - 21'4" clay, gray-brown
21'4" - 21'7" clay, dark brown to black
21'7" - 23'9" lignite
23'9" - 23'11" clay, dark brown to black
23'11" - 24'3" clay, gray-brown
24'3" - 26'4" clay, brown to dark brown with very fine sand
26'4" - 27'3" sand and clay, gray-brown, very fine
T. D.: 150'

Drill Hole No. 306. Elevation 375'
Location: SE¼, Sec. 18, T. 13 S., R. 23 W.
County: Hempstead
Logged by: G. L. Delavan 3/78.

0'- 6' Clay, reddish brown, with very fine sand
6'- 15' Clay, white to tan
15'- 27' Clay, gray-brown, slightly micaceous, silty
27'- 28' Clay, dark brown, lignitic
28'- 29' Lignite, black, firm
29'- 29½' Clay, dark brown
29½'-34' Clay, gray
34'- 41' Clay, gray-brown
41'- 60' Clay, gray, with very fine sand
60'- 64' Sand, gray, very fine
64'- 90' Clay, gray-brown, with very fine sand and traces of siderite
90'-101' Clay, gray, with fine sand
101'-110' Clay, dark blue-gray
T. D.: 110'

Drill Hole No. 307. Elevation 325'
Location: SE¼, Sec. 19, T. 13 S., R. 23 W.
County: Hempstead
Logged by: G. L. Delavan 3/78.

0'- 17' Clay, reddish brown
17'- 21' Clay, dark brown
21'- 21½' Lignite
21½'-28' Clay, dark brown, with trace of lignite
28'- 33½' Sand, fine to very fine, with gray-brown clay stringers
33½'-34½' Lignite, black, firm

34½'-36' Clay, gray-brown, with lignite stringers
36'- 47' Clay, gray-brown, with very fine sand
47'- 55' Sand, very fine, gray, slightly micaceous, with trace of siderite
55'- 73' Clay, gray-brown, silty
73'- 74½' Lignite, black, firm
74½'-82' Clay, dark gray-brown
82'- 95' Clay, light gray and greenish-gray
95'-110' Clay, dark blue-gray
T. D.: 110'

Drill Hole No. 308. Elevation 388'
Location: NW¼, Sec. 35, T. 13 S., R. 23 W.
County: Nevada
Logged by: G. L. Delavan 3/78.

0'- 9' Sand and clay, reddish brown, fine, iron stained
9'- 15' Clay, light tan, slightly micaceous, with very fine sand
15'- 27' Clay, dark brown, micaceous, with very fine sand
27'- 40' Clay, brown, with trace of siderite
40'- 43' Clay and sand, very fine, dark brown, slightly micaceous
43'- 60' Clay, brown, silty, micaceous
60'- 73' Sand, very fine, brown, with interbedded dark brown clay
73'- 81' Clay, brown, micaceous, with very fine sand
81'- 89' Sand, fine, brown, micaceous, with trace of brown clay
89'-114' Clay, brown, silty, micaceous
114'-146' Sand, fine, brown, micaceous with trace of lignite
146'-150' Clay, tan, with fine sand
T. D.: 150'

Drill Hole No. 309. Elevation 300'
Location: NE¼, Sec. 1, T. 14 S., R. 23 W.
County: Nevada
Logged by: G. L. Delavan 3/78.

0'- 9' Clay, reddish brown, with fine sand
9'- 19' Clay, light brown, micaceous with fine sand
19'- 20' Clay, dark brown to black, with dark brown iron stained sand
20'- 85' Sand, fine to very fine, brown, micaceous, with traces of clay and stringers of siderite
85'- 97' Clay, dark brown, with very fine sand
97'-130' Clay, brown, silty, micaceous
130'-150' Clay and sand, brown, very fine interbedded
T. D.: 150'

Drill Hole No. 310. Elevation 310'
Location: SE¼, Sec. 35, T. 13 S., R. 23 W.
County: Nevada
Logged by: G. L. Delavan 3/78.

0'- 5' Clay and sand, reddish brown
5'- 12' Clay, white, micaceous, with fine sand
12'- 18' Clay, dark brown, slightly micaceous, with very fine sand
18'- 22' Clay, brown
22'- 36' Clay, dark brown, silty, micaceous
36'- 88' Sand, fine to very fine, light brown, slightly micaceous, with thin stringers of carbonaceous clay and lignite

ARKANSAS LIGNITE INVESTIGATIONS

88'-90' Clay and sand, brown
 90'-92½' Lignite, black, firm
 92½'-94' Clay, dark brown to black with very fine sand
 94'-117' Clay, brown, slightly micaceous with fine sand
 117'-150' Sand, fine, greenish-gray, slightly micaceous, glauconitic
 T. D.: 150'

Drill Hole No. 311. Elevation 345'
 Location: SE¼, Sec. 6, T. 14 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-4' Clay, reddish brown
 4'-12' Clay, tan, with very fine sand
 12'-65' Clay, brown to dark brown, silty, micaceous, with very fine sand
 65'-73' Clay, brown, silty, micaceous
 73'-83' Clay, dark brown, with very fine sand
 83'-92' Sand, fine, dark brown, micaceous and carbonaceous
 92'-139' Clay, dark brown, with very fine sand, slightly micaceous and trace of siderite
 139'-150' Sand, dark brown, fine, micaceous
 T. D.: 150'

Drill Hole No. 312. Elevation 330'
 Location: SE¼, Sec. 32, T. 13 S., R. 22 W.
 County: Nevada
 Logged by G. L. Delevan 3/78.

0'-23' Clay, tan to reddish brown, with very fine sand
 23'-45' Clay, brown to dark brown, lignitic, micaceous, with very fine sand
 45'-78' Sand, fine to very fine, brown, clay and sand, fine to very fine, dark brown, micaceous
 78'-130' Sand, very fine, brown, slightly micaceous
 130'-150' Sand, very fine, brown, slightly micaceous
 T. D.: 150'

Drill Hole No. 313. Elevation 360'
 Location: NW¼, Sec. 33, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-8' Clay, light gray, with very fine sand
 8'-15' Sand, very fine, light brown, slightly micaceous
 15'-60' Clay, dark brown, slightly micaceous with very fine sand and traces of lignite
 60'-72' Clay, dark brown, with very fine sand and stringer of siderite
 72'-93' Sand, very fine, dark brown, carbonaceous, micaceous, with stringer of siderite
 93'-110' Clay, dark brown, silty, micaceous
 110'-132' Sand and clay, very fine, brown, slightly micaceous
 132'-150' Clay, brown, with very fine sand
 T. D.: 150'

Drill Hole No. 314. Elevation 400'
 Location: SW¼, Sec. 27, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-10' Sand, medium to fine, reddish brown
 10'-21' Sand, very fine, reddish brown, with tan clay
 21'-40' Clay, brown to dark brown, micaceous with very fine sand
 40'-64' Clay, brown, micaceous, with very fine sand
 64'-67' Clay, gray and brown, micaceous
 67'-110' Clay, brown, slightly micaceous with very fine sand
 110'-120' Clay and sand, very fine, brown, micaceous
 120'-130' Clay, brown, micaceous, with very fine sand
 130'-150' Sand, very fine, brown, micaceous, with brown clay
 T. D.: 150'

Drill Hole No. 315. Elevation 326'
 Location: SW¼, Sec. 22, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-30' Sand, fine to very fine, micaceous, brown
 30'-35' Sand and clay, gray-brown, very fine, micaceous
 35'-45' Clay, dark brown, with very fine sand
 45'-60' Clay, dark brown, micaceous
 60'-100' Clay, brown to dark brown, micaceous, with very fine sand
 100'-150' Sand, fine to very fine, brown, slightly micaceous, with traces of brown clay
 T. D.: 150'

Drill Hole No. 316. Elevation 340'
 Location: SE¼, Sec. 16, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-25' Sand, reddish brown, very fine, micaceous, with stringers of brown clay
 25'-37' Sand, light brown, very fine micaceous
 37'-48' Clay, gray-brown, micaceous
 48'-125' Clay, brown, slightly micaceous with very fine sand and silt
 125'-135' Clay, brown, slightly micaceous, silty
 135'-150' Sand, fine to very fine, slightly micaceous with trace of brown clay
 T. D.: 150'

Drill Hole No. 317. Elevation 326'
 Location: NE¼, Sec. 17, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-22' Sand, fine to very fine, orange-brown, with stringers of tan clay
 22'-25' Clay, gray-brown
 25'-58' Sand, fine, light gray, with gray clay binder and trace of lignite
 58'-60½' Lignite, black and hard
 60½'-64' Clay, gray-brown, with very fine sand
 64'-67' Lignite, black, soft
 67'-68' Clay, gray-brown
 68'-71' Lignite, black, firm
 71'-73' Clay, dark brown
 73'-79' Sand, fine, light brown, with trace of brown micaceous clay

79'-100' Clay, brown, micaceous, with very fine sand and trace of siderite
 100'-100½' Lignite, soft
 100½'-127' Clay, dark brown, and gray fine sand
 127'-130' Clay, dark brown
 130'-150' Clay, gray-brown, slightly micaceous

Core Interval 58' - 66'

Recovered: 4'11" Lost: 3'1"

58' - 58'4" lignite, black, hard
 58'4" - 61'5" lignite, black, soft
 61'5" - 62'1" clay, brown, with very fine sand
 62'1" - 62'11" lignite, black, soft
 62'11" - 66' no recovery
 Core barrel spread, drill seemed to be in lignite at bottom.

Core Interval 66' - 74'

Recovered: 5' Lost: 3'

66' - 66'4" clay, brown to dark brown, slightly micaceous
 66'4" - 67'4" lignite, black, hard
 67'4" - 70'7" lignite, black, soft
 70'7" - 71' clay, dark brown
 71' - 74' no recovery, probably sand. Core barrel did not jam.
 T. D.: 150'

Drill Hole No. 318. Elevation 360'
 Location: SW¼, Sec. 8, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-17' Clay, tan, slightly micaceous, with interbedded very fine sand
 17'-41' Clay, gray-brown, slightly micaceous, with trace of fine sand
 41'-42½' Lignite, black firm
 42½'-65' Clay, light gray-brown, micaceous, with trace of fine sand
 Lignite, black, firm
 65'-66' Clay, light gray-brown, micaceous, with siderite stringer
 66'-72' Clay, light brown, slightly micaceous, with very fine sand and stringers of lignite and siderite
 72'-110' Clay, gray-brown, silty, micaceous
 110'-125' Clay, light blue-gray, micaceous
 125'-130' Clay, gray-brown, silty, micaceous, with siderite stringer
 130'-150' Clay, gray-brown, silty, micaceous, with siderite stringer
 T. D.: 150'

Drill Hole No. 319. Elevation 380'
 Location: SW¼, Sec. 12, T. 13 S., R. 23 W.
 County: Nevada
 Logged by: G. L. Delevan 3/78.

0'-8' Clay, reddish orange, with very fine sand
 8'-13' Clay, buff, with iron stain and very fine sand
 13'-21' Clay, buff, micaceous, with very fine sand
 21'-46' Sand, light reddish brown, very fine, micaceous, with gray-brown clay
 46'-69' Clay, gray, micaceous, with very fine sand

ARKANSAS LIGNITE INVESTIGATIONS

69'-73' Clay, brown to dark brown
 73'-83' Clay, gray, with trace of lignite
 83'-89' Sand, very fine, gray, micaceous carbonaceous, with gray clay binder
 89'-95' Clay, dark brown to brown, with trace of lignite
 95'-102' Sand, very fine, gray, micaceous
 102'-116' Clay and sand, very fine, gray, slightly micaceous
 116'-118½' Lignite, black, firm
 118½'-130' Clay, gray-brown, with very fine sand
 130'-134' Clay and sand, very fine, micaceous, gray
 134'-138' Clay, gray
 138'-140' Clay, dark brown to black
 140'-142' Lignite, black, soft
 142'-150' Clay, dark gray-brown, micaceous
 T. D.: 150'

Drill Hole No. 320. Elevation 362'
 Location: NW¼, Sec. 11, T. 13 S., R. 23 W.
 County: Nevada
 Logged by: G. L. Delavan 3/78.

0'-38' Sand, reddish brown
 38'-42' Lignite, black, soft, with black clay
 42'-52' Clay, brown to dark brown
 52'-53' Lignite, black, firm
 53'-58' Clay, white
 58'-60' Clay, dark blue-gray
 60'-80' Clay, dark blue-gray, with siderite stringers

Core Interval 35' - 43'

Recovered: 7'5" Lost: 7"

35' - 38½' lignite
 38½' - 42'5" clay, gray, waxy, with scattered chunks of lignite
 42'5" - 43' no recovery
 T. D.: 80'

Drill Hole No. 321. Elevation 341'
 Location: SW¼, Sec. 3, T. 13 S., R. 23 W.
 County: Nevada
 Logged by: G. L. Delavan 3/78.

0'-13' Clay, gray-brown, with iron stain
 13'-17' Clay, buff to light brown
 17'-23' Clay, dark gray
 23'-50' Clay, dark blue-gray
 T. D.: 50'

Drill Hole No. 322. Elevation 319'
 Location: SW¼, Sec. 7, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: G. L. Delavan 3/78.

0'-11' Sand, fine, light brown, with traces of brown clay and lignite
 11'-24' Clay, light brown to buff
 24'-33' Clay, gray, slightly micaceous with very fine sand and siderite stringers
 33'-34' Lignite, black, firm
 34'-37' Clay, dark brown
 37'-70' Clay, gray, micaceous, with very fine sand and siderite stringers

70'-82' Clay, gray
 82'-82½' Lignite
 82½'-89' Clay, brown, silty and micaceous
 89'-93' Sand, very fine, gray
 93'-102' Clay, brown, micaceous, silty
 102'-107' Clay, black, lignitic
 107'-127' Clay, brown, with trace of siderite
 127'-150' Clay, dark blue-gray, with stringers of siderite
 T. D.: 150'

Drill Hole No. 323. Elevation 405'
 Location: NW¼, Sec. 23, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-5' Sand and clay, white
 5'-20' Sand, fine, brown, with red clay
 20'-70' Sand, brown, fine, with dark gray clay
 70'-104' Clay, brown to dark gray, plastic
 104'-120' Sand, very fine, dark gray, with lignite streaks
 120'-140' Clay, gray, brown, stiff
 140'-150' Clay, brown, sandy, with lignite fragments in clay
 T. D.: 150'

Drill Hole No. 324. Elevation 390'
 Location: SW¼, Sec. 24, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-5' Sand and clay, white
 5'-25' Clay, dark gray, waxy
 25'-35' Clay, white, silty, with fine sand
 35'-40' Lignite and clay
 40'-100' Clay, dark gray, waxy
 100'-150' Clay and sand, gray, very fine, glauconitic

Core Interval 35' - 45'

Recovered: 3' Lost: 7'

35' - 45' recovered 1½' gray clay and 1½' gray sand with clay partings

T. D.: 150'

Drill Hole No. 325. Elevation 395'
 Location: SE¼, Sec. 24, T. 13 S., R. 22 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-10' Sand and clay, white, plastic
 10'-20' Clay, white, plastic
 20'-30' Clay, brown, stiff
 30'-40' Clay, brown, stiff, with sand
 40'-70' Fine sand and brown clay interbedded
 70'-85' Sand, fine, brown
 85'-110' Clay, brown, with lignite partings
 110'-115' Sand, brown, fine
 115'-130' Clay, brown, with fine sand and lignite partings
 130'-150' Sand, brown, fine, with clay partings
 T. D.: 150'

Drill Hole No. 326. Elevation 370'
 Location: SE¼, Sec. 19, T. 13 S., R. 21 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-5' Surface clay and ironstone
 5'-25' Clay, green
 25'-45' Clay, green, sandy
 45'-85' Clay, dark brown
 85'-110' Clay, green, with lignite partings
 110'-150' Clay, green, with trace of sand
 T. D.: 150'

Drill Hole No. 327. Elevation 390'
 Location: SE¼, Sec. 20, T. 13 S., R. 21 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-10' Surface clay and sand
 10'-50' Clay, brown, stiff
 50'-75' Clay, brown, w/lignite partings
 75'-100' Clay, gray-brown, plastic
 100'-135' Clay, brown, plastic
 135'-150' Clay, brown, with trace of sand
 T. D.: 150'

Drill Hole No. 328. Elevation 350'
 Location: NE¼, Sec. 28, T. 13 S., R. 21 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-5' Surface clay, white
 5'-15' Clay, black, stiff
 15'-25' Clay, black, plastic
 25'-50' Clay, black, sandy, plastic
 50'-65' Clay, greenish black, sandy, plastic
 65'-90' Clay, brown, plastic
 90'-125' Clay, black, plastic
 125'-150' Sand, fine, glauconitic, with black plastic clay
 T. D.: 150'

Drill Hole No. 329. Elevation 330'
 Location: SW¼, Sec. 26, T. 13 S., R. 21 W.
 County: Nevada
 Logged by: O. A. Wise 3/78.

0'-10' Surface clay, white
 10'-20' Clay, light gray, stiff
 20'-30' Sand, fine, with gray clay
 30'-40' Clay, black, stiff
 40'-75' Sand, fine, with green clay and trace of lignite
 75'-95' Clay, green, stiff, glauconitic, silty
 95'-110' Sand, very fine, green, with green plastic clay
 110'-135' Clay, green, plastic, glauconitic
 135'-136' Siderite
 T. D.: 136'

Drill Hole No. 330. Elevation 300'
 Location: SW¼, Sec. 25, T. 13 S., R. 21 W.
 County: Nevada
 Logged by: G. L. Delavan 4/78.

0'-5' Clay, reddish brown, w/fine sand
 5'-45' Sand, very fine, white to light tan, with traces of brown and white clay
 45'-53' Sand, fine, gray, with traces of brown clay
 53'-60' Clay, gray-brown, micaceous with very fine sand
 60'-90' Sand, very fine, light gray, with trace of brown clay
 90'-105' Sand and clay, light brown, micaceous
 105'-150' Clay, brown, silty, micaceous, with very fine sand
 T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 331. Elevation 245'
Location: SE¼, Sec. 30, T. 13 S., R. 20 W.
County: Nevada
Logged by: G. L. Delevan 4/78.

0'-25' Sand and clay, light reddish-brown, fine to very fine, slightly micaceous
25'-55' Clay and sand, gray-brown, slightly silty, micaceous
55'-65' Sand, light gray-brown, fine to very fine, slightly micaceous
65'-116' Sand, gray, fine, slightly micaceous
116'-150' Sand and clay, gray to brown, fine to very fine, slightly micaceous.
T. D.: 150'

Drill Hole No. 332. Elevation 320'
Location: SE¼, Sec. 29, T. 13 S., R. 20 W.
County: Nevada
Logged by: G. L. Delevan 4/78.

0'-24' Sand, light reddish brown, fine, slightly micaceous with thin stringers of tan clay
24'-28' Clay, light tan, with trace of very fine sand
28'-32' Clay, gray-brown, very fine sand, slightly micaceous
32'-45' Clay, brown, slightly carbonaceous, slightly micaceous
45'-61' Clay, gray-brown, with very fine sand, slightly micaceous
61'-76' Clay, brown, with very fine sand, slightly micaceous
76'-88' Clay, gray-brown, with trace of very fine sand and silt
88'-93' Clay, brown, very fine sand and silt, slightly micaceous
93'-110' Clay, gray-brown, very fine sand and silt, slightly micaceous
110'-135' Clay, gray, slightly micaceous, slightly silty
135'-150' Sand, gray, very fine, slightly micaceous, with trace of lignite
T. D.: 150'

Drill Hole No. 333. Elevation 348'
Location: NE¼, Sec. 33, T. 13 S., R. 20 W.
County: Nevada
Logged by: G. L. Delevan 4/78.

0'-25' Sand, light reddish-brown, very fine, clay
25'-42' Sand, light brown, very fine with trace of tan clay
42'-57' Clay, gray-brown, very fine sand, silty, slightly micaceous and carbonaceous
57'-62' Clay, brown, slightly micaceous
62'-88' Clay, gray-brown, very fine slightly micaceous
88'-102' Clay, brown, silty, slightly micaceous
102'-120' Clay, gray-brown, slightly micaceous
120'-125' Clay, brown, very fine sand and silt, slightly micaceous
125'-150' Clay, gray-brown
T. D.: 150'

Drill Hole No. 334. Elevation 323'
Location: NW¼, Sec. 3, T. 14 S., R. 20 W.
County: Nevada
Logged by: G. L. Delevan 4/78.

0'-12' Clay, light brown to brown, with very fine sand

12'-33' Clay, gray-brown, very fine, slightly micaceous
33'-41' Clay, brown, with very fine sand, slightly carbonaceous and micaceous
41'-51' Clay and sand, gray, very fine, slightly micaceous
51'-70' Clay, brown, very fine sand and silt, slightly micaceous
70'-77' Clay, gray, slightly micaceous
77'-120' Sand, gray-brown, very fine, silty, slightly micaceous, very slight trace of lignite
120'-150' Sand, gray-brown, very fine, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 335. Elevation 310'
Location: SE¼, Sec. 35, T. 13 S., R. 20 W.
County: Nevada
Logged by: G. L. Delevan 4/78.

0'-2' Sand, light brown, very fine
2'-10' Clay, light brown to tan
10'-43' Clay, gray to gray-brown
43'-49' Sand, gray, fine to very fine, with trace of lignite
49'-55' Clay and sand, gray
55'-55'6" Lignite, black, soft to firm
55'6"-61' Clay, brown
61'-78' Clay, gray-brown, very fine sand and silt, slightly micaceous
78'-150' Sand, light gray, medium, with trace of gray clay
T. D.: 150'

Drill Hole No. 336. Elevation 355'
Location: SW¼, Sec. 31, T. 13 S., R. 19 W.
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-24' Sand, orange, medium to fine
24'-32' Clay, brown, very fine sand and silt, slightly micaceous
32'-50' Clay, gray brown, silty, very slightly micaceous
50'-61' Clay, gray, very fine sand and silty, slightly micaceous
61'-73' Sand, light gray-brown, very fine
73'-85' Sand and clay, light gray-brown slightly micaceous
85'-87' Lignite and clay, dark brown to black, soft
87'-95' Sand, light brown, fine to very fine, slightly micaceous
95'-101' Sand and clay, light brown, very fine, slightly micaceous
101'-150' Clay, light gray-brown, silty, slightly micaceous with slight trace of lignite
T. D.: 150'

Drill Hole No. 337. Elevation 298'
Location: NW¼, Sec. 5, T. 14 S., R. 19 W.
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-12' Sand, red to brown, very fine with trace of tan clay
12'-25' Clay, brown, very fine sand
25'-34'6" Clay, gray, very fine sand
34'6"-35'6" Lignite, black, firm
35'6"-43' Clay, gray
43'-61' Sand, light brown, fine
61'-80' Clay, brown, very fine sand, silty, slightly micaceous
80'-108' Clay, gray-brown, very fine sand, slightly micaceous
108'-112' Sand, light-brown, very fine
112'-117' Sand and clay, gray-brown, fine
117'-125' Clay, gray-brown

125'-128' Sand, reddish-brown, fine to very fine
128'-150' Sand and clay, gray-brown, very fine, slightly micaceous
T. D.: 150'

Drill Hole No. 338. Elevation 297'
Location: SE¼, Sec. 4, T. 14 S., R. 19 W.
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-12' Sand, reddish brown, very fine
12'-41' Clay, brown, very fine sand, silty, slightly micaceous
41'-45' Clay, gray
45'-46' Lignite and clay, black, soft
46'-67' Clay, gray, with sand, fine and trace of siderite
67'-75' Sand and clay, gray, very fine
75'-150' Clay, gray, very fine sand, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 339. Elevation 339'
Location: NE¼, Sec. 3, T. 14 S., R. 19 W.
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-25' Sand, reddish-brown, fine, with trace of white clay
25'-46' Clay, gray, with very fine sand, slightly micaceous
46'-47' Lignite and clay, black, soft
47'-60' Clay, gray, with interbedded dark brown clay, slightly micaceous
60'-135' Clay, gray, very fine sand, silty, with trace of lignite and siderite
T. D.: 135'

Drill Hole No. 340. Elevation 250'
Location: SW¼, Sec. 36, T. 13 S., R. 19 W.
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-5' Sand, reddish brown, fine, iron cemented
5'-8' Clay, tan, very fine
8'-26' Clay, gray-brown, very fine slightly micaceous
26'-35' Clay, gray, with very fine sand, slightly micaceous
35'-45' Sand, gray, fine
45'-54' Clay, gray-brown, with trace of dark brown clay
54'-55' Lignite and clay, black, soft
55'-68' Clay and sand, gray-brown, fine
68'-80' Clay, gray-brown, silty
80'-80'8" Lignite and clay, black to dark brown
80'8"-95' Clay, gray-brown
95'-96'6" Lignite and clay, black
96'6"-145' Clay, light gray-brown, firm, with trace of siderite
T. D.: 145'

Drill Hole No. 341. Elevation 259'
Location: NE¼, Sec. 31, T. 13 S., R. 18 W.,
County: Ouachita
Logged by: G. L. Delevan 4/78.

0'-6' Sand, reddish brown, fine, iron cemented
6'-16' Clay, tan, with very fine sand
16'-40' Clay, gray, very fine sand, silty
40'-60' Clay, light gray, with trace of dark brown clay and lignite

ARKANSAS LIGNITE INVESTIGATIONS

60'- 72' Clay and sand, gray, very fine
 72'- 80' Clay, gray-brown, slightly micaceous
 80'- 87' Sand, gray, fine, with trace of lignite
 87'- 89'6" Lignite, black, soft
 89'6"-105' Clay, gray to light gray
 105'-107' Lignite and clay, black, soft
 107'-118' Clay, gray
 118'-120' Lignite, black, soft, clayey
 120'-150' Sand, gray, very fine
 T.D.: 150'

Drill Hole No. 342. Elevation 240'
 Location: SE¼, Sec. 32, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 5' Clay, reddish-brown, very fine sand
 5'- 17' Clay, white to tan, very fine sand, silt
 17'- 24' Clay and sand, gray, very fine
 24'- 30' Clay, gray-brown, very fine sand, slightly micaceous
 30'- 41' Clay and sand, gray, very fine
 41'- 48' Clay, light gray-brown
 48'- 50'6" Lignite, black, firm
 50'6"-60' Clay, brown, w/very fine sand
 60'- 70' Clay, light gray-brown
 70'- 71' Lignite, black, firm
 71'- 80' Clay, gray-brown
 80'-137' Clay, light gray, silty
 137'-150' Sand, light gray, very fine

Core Interval 50'-55'

Recovered: 46" Lost: 14"

50'-52'3" lignite, black, firm, with few silt partings
 52'3"-52'7" lignite and clay, black to dark brown
 52'7"-53'10" clay, gray to brown, with very fine sand, slightly micaceous and carbonaceous
 53'10"-55' no recovery
 T. D.: 150'

Drill Hole No. 343. Elevation 288'
 Location: SE¼, Sec. 33, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 15' Sand, reddish-brown, fine, slightly iron cemented
 15'- 24' Clay, gray, with very fine sand, slightly micaceous
 24'- 31' Clay, gray, silty
 31'- 36' Clay, gray-brown, and dark-brown interbedded
 36'- 80' Clay, light gray, very fine sand, silt, slightly micaceous
 80'-116' Sand and silt, light gray, very fine
 116'-150' Clay, gray-brown, with trace very fine sand, silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 344. Elevation 197'
 Location: NW¼, Sec. 35, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 4' Sand, reddish brown, very fine
 4'- 12' Clay, tan, iron stained, with very fine sand

12'- 20' Clay, tan
 20'- 35' Clay, gray
 35'- 36' Clay, black, lignitic
 36'- 38'6" Lignite, black, soft, clayey
 38'6"-53' Sand, light gray-brown, fine, slightly micaceous
 53'- 72' Clay, gray, very fine sand and silt, slightly micaceous with 2" siderite @ 57'
 72'- 83' Sand, light gray, very fine, w/gray clay, slightly micaceous
 83'-125' Clay, gray, silty, with trace of lignite and brown clay
 125'-150' Sand, gray, very fine, slightly silty with trace of gray clay
 T. D.: 150'

Drill Hole 345. Elevation 141'
 Location: NW¼, Sec. 36, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 6' Clay and sand, reddish brown, very fine
 6'- 17' Clay, tan, very fine sand, slightly iron stained
 17'- 24' Clay and sand, gray, very fine, slightly silty
 24'- 37' Clay, light gray-brown, very fine sand and silt, slightly micaceous
 37'- 80' Sand, light gray, fine
 T. D.: 80'

Drill Hole No. 346. Elevation 145'
 Location: NE¼, Sec. 25, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 23' Sand and clay, light reddish-brown, very fine
 23'- 27' Sand and clay, very fine, with trace of dark brown clay and iron cemented sand
 27'- 94' Sand, light brown to brown, fine to very fine, with trace of lignitic clay and lignite stringers
 94'-107' Clay, brown to dark brown, very fine sand, with lignite stringers
 107'-135' Clay, gray-brown, with very fine sand and silt
 135'-140' Sand, brown, very fine, with trace of brown clay
 140'-150' Clay, gray-brown
 T. D.: 150'

Drill Hole No. 347. Elevation 138'
 Location: SE¼, Sec. 36, T. 13 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 4' Clay, light reddish-brown, very fine sand, slightly micaceous
 4'- 18' Clay, light brown to tan, very fine sand, slightly micaceous
 18'- 25' Clay, gray, very fine sand and silty, slightly micaceous
 25'- 37' Sand, gray, very fine, with trace of gray clay
 37'- 65' Clay, gray-brown, very fine sand, slightly micaceous
 65'- 77' Sand, gray, very fine, with trace of gray-brown clay
 77'- 95' Clay, brown to dark brown, slightly lignitic, with trace of lignite @ 80'
 95'-103' Clay, gray-brown
 103'-104' Lignite and lignitic clay, black
 104'-136' Clay, gray-brown, very fine sand and silt, slight trace of lignite

136'-138'6" Lignite and clay, black, soft
 138'6"-150' Clay, white, with very fine sand and silt
 T. D.: 150'

Drill Hole No. 348. Elevation 187'
 Location: SE¼, Sec. 1, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 3' Clay, reddish-brown and tan, very fine sand and silt
 3'- 8' Clay, tan, iron stained, very fine sand
 8'- 25' Clay, gray-brown, very fine sand and silt, slightly micaceous
 25'- 40' Sand, light gray to brown, fine to very fine, slightly micaceous with trace of gray-brown clay
 40'- 56' Clay, gray-brown, very fine, slightly micaceous
 56'- 62' Sand, light brown, very fine
 62'-130' Clay, gray-brown, with very fine sand and silt
 130'-150' Silt, brown, with trace of very fine sand and clay
 T. D.: 150'

Drill Hole No. 349. Elevation 180'
 Location: NE¼, Sec. 11, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 12' Clay, reddish-brown, very fine sand, slightly micaceous
 12'- 50' Sand, light brown to tan, very fine, with trace of brown clay, slightly micaceous
 50'- 75' Sand and clay, brown, very fine, slightly micaceous
 75'-102' Clay, gray-brown, very fine sand and silt, slightly micaceous, slightly carbonaceous
 102'-140' Sand, light brown, very fine, with trace of lignite stringers
 140'-142' Lignite, black, firm
 142'-150' Clay, brown, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 350. Elevation 230'
 Location: NW¼, Sec. 14, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 6' Clay, reddish brown, very fine sand, iron stained
 6'- 13' Clay, tan, very fine sand, iron stained
 13'- 17' Clay, gray-brown, slightly micaceous
 17'- 40' Clay, brown, very fine sand, slightly micaceous
 40'- 50' Sand, gray-brown, very fine
 50'- 60' Clay, brown, very fine sand and silt, slightly micaceous
 60'- 70' Clay, dark gray-brown, very fine sand and silt, slightly micaceous
 70'- 87' Clay and sand, brown, fine
 87'-120' Clay, brown, silty
 120'-150' Clay, gray-brown to brown
 T. D.: 150'

Drill Hole No. 351. Elevation 248'
 Location: SW¼, Sec. 23, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 6' Sand and clay, light reddish-brown, very fine, slightly micaceous

ARKANSAS LIGNITE INVESTIGATIONS

6'- 11' Clay, tan, slightly micaceous with very fine sand
 11'- 26' Clay, gray-brown, with very fine sand, slightly micaceous
 26'- 30' Sand, gray to brown, very fine
 30'- 80' Clay, brown, with very fine sand, slightly micaceous
 80'-150' Clay, gray-brown, very fine sand and silt, slightly micaceous with a trace of siderite
 T. D.: 150'

Drill Hole No. 352. Elevation 285'
 Location: NW¼, Sec. 27, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 5' Clay, light brown, with very fine sand, slightly micaceous
 5'- 12' Clay, gray-brown, with very fine sand, slightly micaceous
 12'- 20' Clay, gray-brown, silty
 20'- 40' Clay, light gray-brown, with very fine sand and silt
 40'- 70' Clay and sand, gray, very fine slightly micaceous
 70'- 90' Clay, gray-brown
 90'- 94' Clay and sand, gray-brown, slightly micaceous
 94'-128' Clay, dark gray-brown, with very fine sand, slightly micaceous
 128'-140' Sand, gray, very fine, with a trace of siderite
 140'-150' Clay, brown, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 353. Elevation 270'
 Location: SE¼, Sec. 29, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 13' Clay, light brown, with very fine sand, slightly micaceous
 13'- 30' Clay, gray-brown, with very fine sand, slightly micaceous
 30'- 38' Clay, light gray-brown, very fine sand, slightly micaceous
 38'- 45' Clay, brown, with very fine sand, slightly micaceous
 45'- 54' Clay and sand, brown, with very fine sand and silt, slightly micaceous
 54'-120' Clay, brown, with very fine sand and silt, slightly micaceous, with a trace of siderite
 120'-140' Silt, brown
 T. D.: 140'

Drill Hole No. 354. Elevation 267'
 Location: NE¼, Sec. 31, T. 14 S., R. 18 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 8' Clay, tan, with very fine sand, iron stained
 8'- 30' Clay, brown, with very fine sand and silt, slightly micaceous
 30'- 50' Clay, dark gray-brown, with very fine sand
 50'- 62' Clay and sand, gray-brown, very fine
 62'- 92' Clay, gray-brown, with very fine sand and silt
 92'-142' Sand, light brown, with very fine sand and silt
 142'-150' Clay, gray brown to dark brown with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 355. Elevation 220'
 Location: SE¼, Sec. 36, T. 14 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 9' Sand, reddish brown, fine
 9'- 13' Clay and sand, tan, very fine
 13'- 20' Sand, gray, very fine
 20'- 30' Sand and clay, gray-brown, very fine, slightly micaceous
 30'- 45' Clay, brown, with very fine sand slightly micaceous, with a trace of lignite
 45'- 51' Clay, gray-brown
 51'- 51'6" Lignite, black, soft
 51'6"-55' Clay, brown, slightly micaceous
 55'- 70' Clay, gray-brown, with very fine sand, slightly micaceous
 70'- 78' Clay, dark brown, silt, slightly micaceous
 78'- 83' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 83'- 84' Lignite, black, firm
 84'- 97' Clay, gray-brown
 97'- 97'6" Lignite, black, soft
 97'-106' Clay, brown to gray-brown, with very fine sand and silt, slightly micaceous
 106'-106'8" Lignite, black, firm
 106'8"-135' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 135'-150' Sand, light brown, very fine
 T. D.: 150'

Drill Hole No. 356. Elevation 250'
 Location: SW¼, Sec. 1, T. 15 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 6' Sand and clay, tan
 6'- 17' Clay, dark gray-brown, with very fine sand, slightly micaceous
 17'- 27' Clay, brown, with very fine sand and silt, slightly micaceous, slightly lignitic
 27'- 42' Sand, light brown, fine, with a trace of gray-brown clay
 42'- 51' Clay, light brown, with very fine sand, slightly micaceous
 51'- 87' Clay and sand, gray-brown, very fine
 87'-150' Sand, light gray, silty, very fine
 T. D.: 150'

Drill Hole No. 357. Elevation 218'
 Location: NW¼, Sec. 11, T. 15 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 80' Clay, brown, with very fine sand and silt, slightly micaceous
 80'- 90' Clay and sand, gray to brown, fine, slightly micaceous
 90'-150' Sand, light gray-brown, fine, slightly micaceous
 T. D.: 150'

Drill Hole No. 358. Elevation 287'
 Location: SE¼, Sec. 16, T. 15 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 12' Clay, tan, with very fine sand and silt, slightly micaceous, iron stained
 12'- 21' Clay, gray-brown, silty, slightly micaceous
 21'- 33' Clay, tan, with fine sand
 33'- 56' Clay, gray-brown, with very fine sand and silt, slightly micaceous

56'- 62' Clay, tan to light brown, with very fine sand
 62'- 98' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 98'-104' Sand, gray, fine, slightly micaceous
 104'-150' Clay and sand, brown, fine to very fine, slightly micaceous
 T. D.: 150'

Drill Hole No. 359. Elevation 248'
 Location: SW¼, Sec. 9, T. 15 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 22' Clay, light brown, with very fine sand and silt, slightly micaceous
 22'- 40' Clay, gray, with very fine sand and silt, with a trace of brown clay
 40'- 51' Clay and sand, gray, fine
 51'- 65' Sand and clay, gray, fine, slightly carbonaceous
 65'- 70' Sand and clay, gray-brown, fine, with a trace of lignite
 70'-100' Clay and sand, gray-brown, with very fine sand, slightly micaceous
 100'-125' Sand and clay, gray-brown, very fine
 125'-150' Clay, brown, silty, slightly micaceous with 3" of siderite at 128'
 T. D.: 150'

Drill Hole No. 360. Elevation 218'
 Location: NW¼, Sec. 4, T. 15 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 15' Sand, light gray, fine, slightly micaceous with a trace of tan clay
 15'- 19' Clay, light brown to tan, with very fine sand, slightly micaceous, with a trace of lignite
 19'- 33' Sand and clay, gray-brown, very fine, with a trace of siderite
 33'- 90' Clay and sand, gray-brown, very fine, interbedded, with a trace of siderite
 90'-110' Clay, light brown, with very fine sand and silt
 110'-150' Sand, light gray, fine, slightly micaceous
 T. D.: 150'

Drill Hole No. 361. Elevation 252'
 Location: NE¼, Sec. 32, T. 14 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0'- 28' Sand, light reddish brown, fine
 28'- 33' Clay, tan, very fine
 33'- 59' Clay, brown, with very fine sand and silt, with a trace of lignite
 59'- 62' Lignite, black, firm
 62'- 66' Clay, brown, with very fine sand and silt, slightly micaceous
 66'- 92' Clay, light gray-brown, with a trace of lignite
 92'-109' Sand, light brown, fine, with a trace of light gray-brown clay
 109'-132' Clay, light gray, with very fine sand, slightly micaceous
 132'-150' Sand, light gray-brown, fine

Core Interval 59'-66'

Recovered: 6'10" Lost: 2"

ARKANSAS LIGNITE INVESTIGATIONS

59' - 59'7" clay, gray-brown, with very fine sand and silt
 59'7" - 62'3" lignite, black, hard, with a few silt partings
 62'3" - 62'9" clay, dark brown to black, waxy, with very fine sand and silt
 62'9" - 65'10" sand, gray-brown, fine to very fine, with clay binder, slightly carbonaceous
 T. D.: 150'

Drill Hole No. 362. Elevation 318'
 Location: NE¼, Sec. 29, T. 14 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0' - 3' Sand, tan to light brown, very fine, iron stained
 3' - 17' Clay, gray, with a trace of very fine sand
 17' - 27' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 27' - 33' Clay, tan, slightly micaceous
 33' - 46' Clay, gray-brown, with very fine sand and a trace of lignite
 46' - 72' Clay and sand, gray-brown, very fine, slightly micaceous
 72' - 78' Clay, gray, with very fine sand
 78' - 78'4" Lignite, black, soft, clayey
 78'4" - 115' Clay and sand, gray-brown, silty, slightly micaceous with a trace of lignite
 115' - 150' Clay, light gray-brown, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 363. Elevation 285'
 Location: SE¼, Sec. 17, T. 14 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 4/78.

0' - 12' Sand, light brown, fine, with light reddish brown clay
 12' - 47' Clay, gray, with very fine sand, slightly micaceous
 47' - 90' Sand and clay, gray, very fine, slightly carbonaceous
 90' - 150' Sand, gray, very fine, slightly carbonaceous, slightly micaceous
 T. D.: 150'

Drill Hole No. 364. Elevation 296'
 Location: SE¼, Sec. 8, T. 14 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 8' Clay, tan, with very fine sand, slightly micaceous
 8' - 26' Clay, gray-brown, with very fine sand, slightly micaceous, slightly carbonaceous
 26' - 31' Sand, brown, very fine, with brown clay, slightly micaceous
 31' - 45' Clay, dark brown, with very fine sand and silt, slightly micaceous
 45' - 64' Sand and clay, brown, very fine, slightly carbonaceous
 64' - 100' Clay and sand, brown, very fine, slightly micaceous
 100' - 117' Clay and sand, dark gray-brown, with very fine sand, slightly micaceous, with 1½ feet of siderite @ 113'
 117' - 150' Clay, brown, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 365. Elevation 302'
 Location: SW¼, Sec. 33, T. 13 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 17' Sand, light reddish brown, fine, with a trace of tan clay
 17' - 22' Clay, light reddish brown, very fine sand, slightly micaceous
 22' - 30' Sand and clay, gray-brown, very fine, slightly micaceous
 30' - 35' Clay, brown, with very fine sand and silt, slightly micaceous
 35' - 53' Clay and sand, brown, very fine, slightly micaceous
 53' - 58' Sand, brown, very fine, silty with a trace of brown clay, slightly micaceous
 58' - 84' Clay, light gray-brown, w/very fine sand, and a trace of lignite
 84' - 103'6" Clay, gray, with very fine sand, slightly micaceous
 103'6" - 105' Lignite, black, soft
 105' - 106' Clay, lignitic, dark brown
 106' - 125' Sand, light gray-brown, very fine, silty, with a trace of gray-brown clay
 125' - 137' Sand and clay, light brown, very fine, silty
 137' - 150' Clay, brown, with very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 366. Elevation 237'
 Location: SW¼, Sec. 28, T. 13 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 6' Clay, mottled, reddish brown to light tan, with very fine sand
 6' - 20' Clay, gray-brown, with very fine sand, slightly micaceous
 20' - 80' Sand, buff, fine, with a trace of lignite
 80' - 139' Sand, light gray, fine to very fine, with a trace of lignite
 139' - 150' Clay, gray, with very fine sand, and a trace of lignite
 T. D.: 150'

Drill Hole No. 367. Elevation 263'
 Location: NW¼, Sec. 21, T. 13 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 6' Clay, light tan, slightly iron stained, with very fine sand
 6' - 10' Clay, light gray-brown
 10' - 17' Clay, light tan, w/very fine sand
 17' - 23' Sand, brown, with a trace of clay and lignite
 23' - 32' Clay, gray-brown, with very fine sand and silt
 32' - 41' Clay, brown, with very fine sand, slightly micaceous
 41' - 80' Clay, gray-brown, with very fine sand and silt, and a trace of lignite
 80' - 100' Silt, gray-brown, with a trace of clay and very fine sand
 T. D.: 100'

Drill Hole No. 368. Elevation 218'
 Location: NE¼, Sec. 16, T. 13 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 17' Sand, light reddish brown, with very fine sand and silt
 17' - 18' Clay, gray,
 18' - 24' Clay, light gray
 24' - 30' Clay, dark brown, with very fine sand and silt, slightly micaceous,

and a trace of lignite
 30' - 40' Clay, light gray, with interbedded dark brown clay, and a trace of lignite
 40' - 77' Sand, light brown, very fine, with interbedded sandy brown clay
 77' - 93' Clay, brown, with very fine sand and silt, slightly micaceous
 93' - 120' Sand and clay, light brown, very fine, slightly micaceous
 120' - 137' Sand, light brown, fine to very fine, with a trace of lignite throughout
 137' - 150' Clay, brown, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 369. Elevation 295'
 Location: NW¼, Sec. 3, T. 13 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 18' Sand, light reddish brown, very fine
 18' - 30' Clay, gray, with very fine sand
 30' - 64' Clay, light tan, with very fine sand, slightly micaceous, with a trace of gray clay
 64' - 100' Sand and clay, light tan, very fine
 100' - 150' Sand, light tan, very fine, slightly micaceous
 T. D.: 150'

Drill Hole No. 370. Elevation 312'
 Location: SE¼, Sec. 28, T. 12 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 41' Sand, light tan, fine
 41' - 45' Clay, light blue-gray, very fine, slightly micaceous
 45' - 48' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 48' - 86' Sand and clay, mottled tan, very fine, slightly micaceous
 86' - 120' Clay and sand, gray-brown, very fine, silty, slightly micaceous
 120' - 144' Sand, light gray-brown, fine, with a trace of gray-brown clay
 144' - 150' Clay, gray-brown, with interbedded fine sand
 T. D.: 150'

Drill Hole No. 371. Elevation 290'
 Location: NE¼, Sec. 22, T. 12 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 6' Sand, mottled, light orange to light brown, very fine
 6' - 8' Clay, tan, iron stained, with very fine sand
 8' - 65' Sand, light orange to brown, fine to very fine, slightly micaceous
 T. D.: 65'

Drill Hole No. 372. Elevation 360'
 Location: NW¼, Sec. 14, T. 12 S., R. 19 W.
 County: Ouachita
 Logged by: G. L. Delevan 5/78.

0' - 55' Sand, light orange to brown, very fine, with a trace of white clay
 55' - 72' Clay and sand, light tan to orange, very fine
 72' - 93' Clay, tan, with very fine sand and silt, slightly micaceous
 93' - 98' Clay and sand, tan, very fine, slightly micaceous

ARKANSAS LIGNITE INVESTIGATIONS

98'-150' Sand, light orangish brown, with very fine sand and silt
T. D.: 150'

Drill Hole No. 373. Elevation 145'
Location: SW¼, Sec. 27, T. 9 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 3' Sand, light reddish brown, very fine
3'- 18' Clay, light brown, with trace of gravel
18'- 36' Clay, gray
36'- 80' Clay, gray, slightly glauconitic with very fine sand, slightly micaceous
80'- 98' Clay, gray-brown, with very fine sand and silt, slightly micaceous
98'-122' Clay, gray, with very fine sand and silt, slightly micaceous
122'-123' Lignite and clay, dark brown to black, soft
123'-135' Clay, gray-brown, with very fine sand, slightly micaceous
135'-136' Lignite and clay, dark brown to black
136'-139' Clay, light brown, with very fine sand and silt
139'-150' Clay, brown
T. D.: 150'

Drill Hole No. 374. Elevation 220'
Location: NW¼, Sec. 23, T. 9 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 7' Sand, dark reddish brown, very fine
7'- 9' Clay, tan, slightly micaceous
9'- 28' Clay, light gray, slightly micaceous
28'- 40' Clay, light blue-gray, with very fine sand and silt, slightly micaceous with a trace of siderite
40'- 56' Clay and sand, light blue-gray, with very fine sand and silt, slightly micaceous
56'- 87' Clay, light blue-gray, slightly glauconitic, with very fine sand and silt
87'-121' Clay, gray, slightly glauconitic with very fine sand and silt with a trace of siderite
121'-138' Clay and sand, gray, very fine, slightly micaceous
138'-150' Clay, brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 375. Elevation 188'
Location: NW¼, Sec. 14, T. 9 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 2' Sand, reddish brown, very fine
2'- 19' Clay, gray to tan, with very fine sand and silt
19'- 38' Clay, light blue-gray, with a trace of very fine sand, slightly micaceous
38'- 52' Clay, gray, with very fine sand and silt, slightly micaceous with a trace of siderite
52'- 82' Clay, gray-brown, slightly micaceous
82'-108' Clay, gray, slightly micaceous with a trace of siderite

108'-150' Clay and sand, gray, very fine, silty, slightly glauconitic
T. D.: 150'

Drill Hole No. 376. Elevation 241'
Location: NE¼, Sec. 11, T. 9 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 28' Clay, light brown, with very fine sand, slightly micaceous
28'- 48' Clay, dark blue-gray, with very fine sand and silt, slightly micaceous
48'- 60' Clay, gray-brown, slightly micaceous
60'- 95' Clay, light gray-brown, slightly micaceous, with a trace of fossiliferous limestone
95'-150' Silt and clay, gray-brown, slightly micaceous with a trace of limestone
T. D.: 150'

Drill Hole No. 377. Elevation 198'
Location: NW¼, Sec. 1, T. 9 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 8' Clay, light brown to tan, with very fine sand and silt
8'- 32' Clay, buff, with very fine sand and silt, slightly micaceous
32'- 58' Clay, gray, with very fine sand and silt, slightly micaceous, with a trace of lignite
58'- 70' Clay, gray-brown, slightly micaceous
70'-101' Clay, gray, with very fine sand and silt with a trace of fossiliferous limestone
101'-120' Sand and clay, gray, silty, very fine, fossiliferous
T. D.: 120'

Drill Hole No. 378. Elevation 242'
Location: NW¼, Sec. 35, T. 8 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 7' Sand and clay, light reddish brown, with very fine sand
7'- 27' Clay, light tan to buff, slightly micaceous
27'- 65' Clay, gray, slightly glauconitic and slightly micaceous, slightly fossiliferous
65'-75' Sand, dark gray, very fine, silty, glauconitic, slightly fossiliferous
75'- 94' Clay, gray, silty, slightly micaceous
94'-132' Clay, gray-brown, slightly micaceous
132'-147' Clay, gray, with very fine sand and silt, slightly micaceous, and fossiliferous
147'-150' Sand, silty, very fine, slightly micaceous
T. D.: 150'

Drill Hole No. 379. Elevation 255'
Location: NE¼, Sec. 27, T. 8 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 18' Clay, buff, silty, slightly micaceous
18'- 29' Clay, light brown, silty, slightly micaceous
29'- 50' Clay, gray to gray-brown, slightly micaceous

50'- 64' Clay, gray, silty, with a trace of fossiliferous limestone
64'- 73' Clay, gray-brown, silty
73'- 84' Sand, dark gray, very fine, silty, glauconitic, slightly micaceous
84'- 88' Clay, dark gray, with very fine sand and silt, slightly glauconitic and slightly micaceous
88'- 93' Clay, gray, silty, slightly glauconitic and micaceous
93'-110' Clay, gray-brown, silty, slightly micaceous
110'-150' Clay, light gray-brown, slightly micaceous
T. D.: 150'

Drill Hole No. 380. Elevation 232'
Location: SE¼, Sec. 15, T. 8 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 4' Clay and sand, gray-brown, with very fine sand and silt, slightly micaceous
4'- 20' Clay, light brown to buff, with interbedded very fine sand, slightly micaceous
20'- 27' Clay, light gray-brown, slightly micaceous
27'- 51' Clay, gray, glauconitic, silty, with very fine sand, slightly micaceous
51'- 63' Sand, dark gray-green, silty, very fine, glauconitic
63'- 66' Clay and sand, dark gray, silty, glauconitic, very fine, slightly micaceous
66'- 82' Clay, dark gray, glauconitic with a trace of very fine sand, slightly micaceous
82'-125' Clay, gray-brown, slightly micaceous
125'-150' Clay, gray, with very fine sand and silt, slightly fossiliferous and micaceous
T. D.: 150'

Drill Hole No. 381. Elevation 282'
Location: NE¼, Sec. 10, T. 8 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 12' Clay, light brown to buff, slightly micaceous
12'- 40' Clay, gray, slightly micaceous
40'- 55' Sand and clay, dark gray-green, glauconitic, slightly micaceous with a trace of siderite
55'- 72' Clay, gray, with very fine sand and silt, slightly glauconitic and micaceous
72'- 83' Clay, light gray-brown, slightly glauconitic
83'- 88' Clay, gray, silty, slightly glauconitic
88'-103' Clay, light gray-brown
103'-128' Sand, dark gray, very fine, slightly glauconitic and micaceous
128'-150' Clay, gray, with very fine sand, slightly fossiliferous
T. D.: 150'

Drill Hole No. 382. Elevation 262'
Location: NW¼, Sec. 2, T. 8 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 12' Clay, light brown, silty, slightly micaceous

ARKANSAS LIGNITE INVESTIGATIONS

12'- 40' Clay, gray, slightly glauconitic, silty, slightly micaceous
 40'- 53' Clay, gray
 53'- 73' Sand, dark gray-green, glauconitic, silty, very fine
 73'-102' Clay, gray, with very fine sand and silt, slightly micaceous
 102'-150' Clay, light gray-brown, slightly micaceous
 T. D.: 150'

Drill Hole No. 383. Elevation 250'
 Location: NW¼, Sec. 7, T. 9 S., R. 10 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 6' Clay, light reddish brown, with trace of very fine sand
 6'- 24' Clay, light tan to buff, with very fine sand
 24'- 33' Clay, light brown, with very fine sand, slightly micaceous
 33'- 42' Clay, gray, with very fine sand and silt, slightly micaceous
 42'- 53' Clay, gray-brown
 53'- 76' Clay, gray, with very fine sand and silt, fossiliferous, slightly glauconitic, slightly micaceous
 76'-142' Clay, gray, with very fine sand and silt, slightly fossiliferous, slightly micaceous
 142'-150' Sand and clay, gray, silty, very fine
 T. D.: 150'

Drill Hole No. 384. Elevation 230'
 Location: NE¼, Sec. 3, T. 9 S., R. 11 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 4' Clay, reddish brown, with very fine sand
 4'- 13' Clay, tan to light brown, with a trace of very fine sand
 13'- 70' Clay, gray to gray-brown, slightly micaceous
 70'- 88' Clay, gray-brown, with very fine sand and silt, fossiliferous, slightly micaceous
 88'-102' Sand, gray, silty, very fine, slightly micaceous, slightly fossiliferous
 102'-114' Clay, gray, with very fine sand and silt, slightly micaceous
 114'-150' Clay, gray to gray-brown, slightly glauconitic, slightly micaceous, with a trace of siderite
 T. D.: 150'

Drill Hole No. 385. Elevation 235'
 Location: SW¼, Sec. 17, T. 9 S., R. 10 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 5' Clay, reddish brown, with very fine sand
 5'- 12' Clay, mottled tan, with very fine sand
 12'- 23' Clay, tan to buff, slightly micaceous
 23'- 32' Clay, reddish brown, with very fine sand, slightly micaceous
 32'- 52' Clay, gray-brown, silty, slightly micaceous
 52'- 58' Clay, gray, with very fine sand, slightly micaceous
 58'-105' Clay, gray-brown, silty, slightly micaceous
 105'-112' Clay, gray-brown, with very fine sand, slightly micaceous

112'-144' Clay and sand, gray, very fine slightly micaceous, slightly fossiliferous
 144'-150' Clay, gray-brown, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 386. Elevation 220'
 Location: SE¼, Sec. 20, T. 9 S., R. 10 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 14' Clay, mottled tan
 14'- 18' Clay, gray, with very fine sand and silt
 18'- 22' Sand, greenish-gray, very fine, silty, glauconitic, slightly micaceous
 22'-103' Clay, gray-brown, silty, slightly micaceous with a trace of siderite
 103'-113' Clay, gray-brown, with very fine sand, fossiliferous
 113'-150' Clay, gray-brown, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 387. Elevation 223'
 Location: NW¼, Sec. 16, T. 9 S., R. 10 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 9' Clay, light reddish brown, with very fine sand
 9'- 38' Clay, tan to light brown, slightly micaceous
 38'- 46' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 46'- 51' Sand, gray-green, glauconitic, silty, very fine, slightly micaceous
 51'- 63' Clay and sand, gray-brown, silty, very fine, slightly glauconitic
 63'-112' Clay, gray-brown, silty
 112'-120' Sand and clay, gray-brown, silty, very fine, slightly micaceous
 120'-150' Clay, gray-brown, with a trace of very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 388. Elevation 147'
 Location: NE¼, Sec. 33, T. 9 S., R. 11 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 27' Sand, light brown, fine, with some pea gravel
 27'- 53' Clay, gray-brown, with very fine sand and silt, slightly micaceous and slightly carbonaceous
 53'- 55' Clay, brown, with very fine sand, slightly micaceous, with a trace of lignite
 55'- 61' Clay, gray, with very fine sand, slightly micaceous
 61'- 71' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 71'- 72' Clay, brown, with very fine sand
 72'- 77' Clay, gray and brown, with very fine sand and a trace of lignite
 77'- 86' Sand, gray-brown, very fine, silty, with interbedded gray-brown clay
 86'- 93' Clay, gray-brown, with very fine sand and silt
 93'-96' Lignite and lignitic clay, dark brown to black, soft
 96'-114' Clay, gray, with very fine sand,

slightly micaceous with a trace of lignite
 114'-116' Clay, brown to dark brown, with very fine sand and a trace of lignite
 116'-136' Sand and silt, dark brown, very fine and a trace of lignite
 136'-150' Clay, light gray-brown
 T. D.: 150'

Drill Hole No. 389. Elevation 160'
 Location: NE¼, Sec. 5, T. 10 S., R. 11 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 12' Sand, light brown, fine, slightly micaceous
 12'- 15' Clay, gray-brown, with very fine sand
 15'- 28' Sand, fine to very fine, with pea gravel
 28'- 47' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 47'- 48' Lignite and clay, dark brown to black, soft
 48'- 88' Clay, gray-brown, with very fine sand and silt, slightly micaceous and a trace of lignite
 88'- 91' Clay, lignitic, black, with lignite, black, firm
 91'-132' Clay, light gray-brown, silty, with very fine sand, slightly micaceous and a trace of lignite
 132'-150' Clay, gray, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 390. Elevation 172'
 Location: SE¼, Sec. 6, T. 10 S., R. 11 W.
 County: Cleveland
 Logged by: G. L. Delevan 5/78.

0'- 22' Sand, light brown, fine, slightly micaceous
 22'- 38' Sand, light gray, medium to fine, slightly micaceous, with a trace of gray clay
 38'- 41' Lignite, black, firm to soft
 41'- 57' Clay, gray, silty, slightly micaceous
 57'- 59' Clay, gray, with interbedded dark brown clay, slightly micaceous
 59'-107' Clay, light gray, slightly silty, slightly micaceous
 107'-138' Clay, light gray-brown, with very fine sand and silt, slightly micaceous
 138'-150' Clay and sand, light gray-brown, very fine, slightly micaceous

Core Interval 37'6" - 42'6"
 Recovered: 4'10" Lost: 8"

37'6" - 38' clay, gray, silty, with gravel
 38' - 38'2" lignite, black, friable
 38'2" - 39'5" lignite, black, firm to friable
 39'5" - 40'7" lignite, black, friable
 40'7" - 41'0" lignite, with black to dark brown clay, and silt partings
 41'0" - 41'5" clay, gray-brown, with a trace of lignite and lignitic clay
 41'5" - 41'10" clay, gray-brown, silty, slightly micaceous
 T. D.: 150'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 391. Elevation 198'
Location: NE¼, Sec. 12, T. 10 S., R. 12 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 19' Clay, light tan to buff, with very fine sand, slightly micaceous
19'- 27' Clay, gray-brown, with very fine sand and silt, slightly micaceous
27'- 34' Sand, light gray, very fine
34'- 54' Sand, very fine, silty, slightly glauconitic, slightly micaceous
54'- 54'6" Lignite, black, firm
54'6"-57' Clay, black, lignitic
57'- 58' Clay, brown, with very fine sand and silt, slightly micaceous
58'-100' Clay, gray, silty, slightly micaceous
100'-131' Clay, gray, with very fine sand and silt, slightly micaceous
131'-135' Clay, dark brown to black, lignitic
135'-138' Clay, gray, with very fine sand and silt
138'-140' Clay, brown to dark brown, with a trace of lignite
140'-150' Clay, gray, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 392. Elevation 240'
Location: NW¼, Sec. 11, T. 10 S., R. 12 W.
County: Cleveland
Logged by: G. L. Delevan 5/78.

0'- 4' Sand and clay, light reddish brown, very fine
4'- 15' Clay, tan, with very fine sand, slightly micaceous
15'- 32' Sand, light gray-brown, fine to very fine
32'- 48' Clay, light gray-brown, with very fine sand, slightly micaceous, with a trace of lignite
48'- 58' Sand, gray, very fine, with light gray clay binder, slightly micaceous
58'- 64' Clay and sand, light gray-brown, very fine, slightly micaceous
64'- 74' Clay, light gray-brown, silty
74'- 74'6" Lignite, black, firm
74'6"-120' Clay and sand, gray, very fine, slightly micaceous
120'-127' Sand, very fine, with gray clay and a trace of siderite
127'-144' Clay, brown, with very fine sand and interbedded black and dark brown clay, and a trace of lignite
144'-150' Sand and clay, light gray, very fine, slightly micaceous
T. D.: 150'

Drill Hole 393. Elevation 251'
Location: NW¼, Sec. 10, T. 10 S., R. 12 W.
County: Cleveland
Logged by: G. L. Delevan 5/78,

0'- 3' Sand, light brown, very fine
3'- 15' Clay, light tan to buff, with very fine sand and silt, slightly micaceous
15'- 17' Clay and sand, light reddish brown, very fine, slightly micaceous
17'- 26' Clay, gray to gray-brown, silty, slightly micaceous
26'- 39' Sand, light gray, fine to very

fine, with light gray clay binder, slightly micaceous
39'- 62' Clay and sand, gray, very fine, with silty clay and a slight trace of lignite
62'- 63' Lignite, black, firm
63'- 90' Clay, gray to gray-brown, with very fine sand and silt, slightly micaceous and slightly carbonaceous and a trace of lignite
90'-115' Sand and clay, gray-brown, very fine, with a trace of siderite
115'-150' Clay, gray-brown, with interbedded dark brown clay, slightly micaceous
T. D.: 150'

Drill Hole No. 394. Elevation 180'
Location: NE¼, Sec. 17, T. 10 S., R. 12 W.
County: Dallas
Logged by: G. L. Delevan 5/78.

0'- 7' Clay and sand, gray, fine, slightly micaceous
7'- 37' Sand, light gray, medium to fine, with a trace of gravel
37'- 65' Clay, light gray-brown, with fine sand, slightly micaceous, silty, and a trace of gravel
65'- 80' Clay, brown, with interbedded dark brown clay and a trace of lignite
80'-150' Clay, gray, with very fine sand and silt, slightly micaceous
T. D.: 150'

Drill Hole No. 395. Elevation 197'
Location: SW¼, Sec. 17, T. 10 S., R. 12 W.
County: Dallas
Logged by: G. L. Delevan 5/78.

0'- 9' Clay and sand, gray to gray-brown, fine, slightly micaceous
9'- 20' Clay, gray, with very fine sand
20'- 33' Sand, light gray-brown, fine, slightly micaceous
33'- 42' Clay, gray, with very fine sand, slightly micaceous
42'- 48' Sand, fine, with gray clay binder, slightly micaceous and slightly carbonaceous
48'- 70' Clay, gray, with very fine sand and silt, with interbedded dark brown clay, slightly micaceous, and a trace of lignite
70'-150' Silt, gray-brown, with very fine sand, slightly micaceous with a trace of lignite
T. D.: 150'

Drill Hole No. 396. Elevation 236'
Location: NW¼, Sec. 24, T. 10 S., R. 13 W.
County: Dallas
Logged by: G. L. Delevan 5/78.

0'- 22' Sand, light brown, very fine, slightly micaceous, with a trace of tan clay
22'- 28' Clay, gray-brown, slightly silty and slightly micaceous
28'- 30'6" Clay, dark brown to black, lignitic, with a trace of black soft lignite
30'6"-38' Clay, light gray, with very fine sand and silt, slightly micaceous
38'- 48' Clay, gray-brown, silty
48'- 51' Clay, brown, with very fine sand and silt, slightly micaceous
51'- 87' Clay, light gray-brown, silty
87'-102' Clay, light gray, slightly silty and slightly micaceous

102'-130' Clay, brown, with very fine sand and silt, slightly micaceous, interbedded dark brown clay and a trace of lignite
130'-150' Clay, gray to brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 397. Elevation 252'
Location: SW¼, Sec. 23, T. 10 S., R. 13 W.
County: Dallas
Logged by: G. L. Delevan 6/78.

0'- 18' Clay, light brown to brown, with fine sand, slightly micaceous
18'- 33' Sand and clay, brown, fine to very fine, slightly micaceous, with silty clay
33'- 46' Clay, gray-brown, slightly micaceous, with a trace of siderite
46'- 48' Lignite and clay, black, firm
48'- 56' Clay, gray-brown, silty
56'- 62' Clay, light gray, with silt, slightly micaceous
62'- 75' Clay, gray-brown, with very fine sand and silt, slightly micaceous with a trace of siderite
75'- 81' Clay, dark brown, lignitic, silty, slightly micaceous
81'- 86' Clay, light gray-brown, with very fine sand, slightly micaceous
86'- 94' Sand, brown, very fine, silty
94'-101' Clay, gray-brown, with very fine sand and silt, slightly micaceous
101'-107' Clay, light gray, with very fine sand and silt, slightly micaceous
107'-113' Sand and clay, light gray, very fine
113'-128' Clay, gray-brown, with very fine sand and silt, slightly micaceous
128'-136' Clay, light gray, slightly silty
136'-140' Clay, brown to light brown, with very fine sand and silt, slightly micaceous, slightly carbonaceous
140'-150' Clay, gray-brown, silty
T. D.: 150'

Drill Hole No. 398. Elevation 248'
Location: SE¼, Sec. 31, T. 10 S., R. 12 W.
County: Dallas
Logged by: G. L. Delevan 6/78.

0'- 3' Sand and clay, reddish brown, with very fine sand
3'- 20' Clay, light tan to buff, slightly micaceous, with a trace of lignite and brown clay
20'- 27' Clay, light gray-brown, silty, slightly micaceous
27'- 48' Clay, gray to gray-green, with very fine sand and silt, slightly micaceous and slightly carbonaceous
48'- 52' Lignite, black, firm
52'- 53' Clay, black to dark brown, lignitic
53'- 63' Sand, gray, very fine, with clay binder, slightly micaceous
63'- 70' Clay, gray-brown, silty, slightly micaceous
70'- 82' Clay and sand, brown to dark brown, with very fine sand, slightly micaceous
82'- 93' Clay, gray-brown, slightly micaceous
93'- 97' Clay, gray, with very fine sand and silt, slightly micaceous, with a trace of siderite

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97'-107' Clay and sand, gray, very fine slightly micaceous, slightly carbonaceous
 107'-119' Sand, light brown, fine, slightly micaceous, slightly carbonaceous
 119'-150' Clay, light gray to gray, with very fine sand and silt, slightly micaceous, with interbedded gray-brown clay
 Core Interval 43'7"-48'7"
 Recovered: 10' Lost: 0'
 43'7" - 44'1" clay, gray brown with very fine sand and slightly micaceous
 44'1" - 44'10" lignite and clay, black, friable, with silty clay
 44'10" - 47'10" lignite, black, hard, waxy, with a few silt partings
 47'10" - 48'2" clay, black, lignitic, with very fine sand and silt
 48'2" - 48'7" clay, brown, with very fine sand, slightly micaceous, carbonaceous, with pyrite inclusions
 T. D.: 150'

Drill Hole No. 399. Elevation 90'
 Location: NE $\frac{1}{4}$, Sec. 25, T. 15 S., R. 14 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 10' Clay, light gray, with silt
 10'- 20' Clay, light gray, with silt, iron stained
 20'- 30' Sand, light gray, very fine, with clay
 30'- 35' Clay, gray to light gray, with very fine sand
 35'- 70' Gravel, pea to large pebble
 70'-100' Clay, gray to dark gray, with very fine sand, micaceous
 100'-115' Clay, gray, with very fine sand and silt, with a trace of lignite
 115'-120' Clay, gray to light brown, with a trace of pea gravel
 120'-150' Clay, gray, with very fine sand and silt, with a trace of lignite and a trace of siderite
 T. D.: 150'

Drill Hole No. 400. Elevation 106'
 Location: SE $\frac{1}{4}$, Sec. 18, T. 15 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 5' Clay, mottled, silty
 5'- 20' Clay, cream to tan, silty, with very fine sand
 20'- 70' Sand, cream, coarse to fine, with pea gravel
 70'- 80' Clay, gray, silty, micaceous
 80'-100' Silt, gray-brown, with clay and a trace of lignite
 100'-105' Clay, gray, silty, micaceous
 105'-110' Silt, brown, with clay, micaceous
 110'-115' Clay, gray-brown, with fine sand
 115'-150' Silt, brown, micaceous, with fine sand and a trace of lignite
 150'-165' Silt, gray, micaceous, with fine sand and a trace of siderite
 165'-175' Clay, brown, with silt
 175'-179' Silt, gray, with fine sand and siderite
 T. D.: 179'

Drill Hole No. 401. Elevation 110'
 Location: SE $\frac{1}{4}$, Sec. 7, T. 15 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 10' Clay, light brown, with very fine sand
 10'- 25' Clay, light gray, with very fine sand and silt
 25'- 50' Gravel, large to medium
 50'- 65' Clay, gray to light gray, with very fine sand
 65'- 75' Clay, gray to dark gray, with very fine sand and a trace of lignite
 75'- 90' Clay, gray, with interbedded pea gravel, very fine sand and a trace of lignite
 90'-100' Sand, very fine, with black clay, carbonaceous, with a trace of lignite
 100'-120' Sand, very fine, with gray clay and a trace of lignite
 120'-125' Sand, very fine, glauconitic
 125'-164' Clay, gray, with very fine sand, slightly glauconitic
 164'-185' Sand, very fine, glauconitic, with some gray clay
 185'-195' Clay, gray, with very fine sand, with a trace of siderite
 T. D.: 195'

Drill Hole No. 402. Elevation 120'
 Location: SE $\frac{1}{4}$, Sec. 6, T. 15 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 5' Clay, orange
 5'- 25' Sand, fine, with orange clay and silt binder
 25'- 40' Sand, medium to coarse, with pea gravel
 40'- 62' Gravel, with medium sand
 62'- 92' Clay, gray, with silt and a trace of lignite
 92'-100' Sand, fine
 100'-125' Silt, gray, with very fine sand and clay binder, with a trace of lignite
 125'-150' Silt, brown, micaceous, with fine sand
 150'-200' Silt, gray, with clay binder and a trace of fine sand
 T. D.: 200'

Drill Hole No. 403. Elevation 120'
 Location: NE $\frac{1}{4}$, Sec. 31, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 10' Sand, very fine to fine, with interbedded light gray to white clay
 10'- 80' Gravel, pea, with coarse to fine sand
 80'- 90' Clay, gray, slightly glauconitic with very fine sand
 90'-145' Clay, gray, with fine to large sand, with a trace of lignite
 145'-170' Clay, brown and gray interbedded, with very fine sand
 170'-180' Clay, gray, slightly glauconitic with very fine sand
 180'-185' Lignite, thin bedded, with fine sand
 185'-200' Clay, gray, with very fine sand
 T. D.: 200'

Drill Hole No. 404. Elevation 165'
 Location: SE $\frac{1}{4}$, Sec. 19, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 10' Clay, orange and white, with

fine sand
 10'- 35' Sand, with orange clay binder
 35'- 55' Sand, medium to coarse, with gravel
 55'- 60' Clay, brown, with interbedded brown silt, and a trace of lignite
 60'- 70' Clay, gray, silty, with a trace of lignite
 70'- 80' Silt, gray, with clay and very fine sand
 80'- 90' Silt, dark brown, with a trace of lignite
 90'-105' Silt, gray, with a trace of lignite and a trace of clay binder
 105'-135' Clay, gray, silty, with a trace of lignite
 135'-140' Clay, brown
 140'-145' Silt, gray, with very fine sand
 145'-150' Clay, gray, with silt
 150'-155' Clay, light gray, with silt
 155'-160' Silt, gray, with a trace of lignite
 160'-200' Clay, gray, silty, with a trace of lignite
 T. D.: 200'

Drill Hole No. 405. Elevation 160'
 Location: SE $\frac{1}{4}$, Sec. 18, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 10' Clay, light gray to tan, with very fine sand
 10'- 55' Gravel, with sand, coarse to fine
 55'- 68' Clay, gray, with very fine sand
 68'- 75' Lignite, with chocolate brown clay and very fine sand
 75'- 80' Sand, very fine to fine, with interbedded gray clay
 80'- 85' Sand, fine, with lignite stringers and some gray clay
 85'-100' Sand, coarse, with gray clay stringers
 100'-105' Clay, light brown to gray, with very fine sand
 105'-120' Clay, light gray, slightly glauconitic, with very fine sand
 120'-130' Clay, light gray to light blue, with interbedded very fine sand, silty
 130'-135' Clay, gray to light brown, with very fine sand
 135'-155' Clay, gray, with very fine sand
 155'-170' Clay, light brown, with very fine sand and a trace of lignite
 170'-180' Sand, very fine, with gray to light brown clay
 180'-190' Clay, light gray, with interbedded very fine sand
 190'-200' Clay, gray, with very fine sand
 T. D.: 200'

Drill Hole No. 406. Elevation 165'
 Location: NE $\frac{1}{4}$, Sec. 7, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 19' Sand, coarse, with pea gravel
 19'- 40' Silt, gray to brown, with a trace of lignite
 40'- 53' Clay, light brown, silty, with a trace of lignite
 53'- 95' Clay, gray, silty, with a trace of lignite and siderite
 95'-100' Silt, gray, with clay binder
 100'-140' Clay, gray, with silt
 140'-195' Silt, brownish gray, with very fine sand and a trace of lignite and siderite
 T. D.: 195'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 407. Elevation 150'
Location: NW¼, Sec. 6, T. 14 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Sand, medium to coarse, with gravel
10'- 25' Silt, gray, with clay binder
25'- 70' Clay, gray, with silt and a trace of lignite
70'- 75' Silt, brown and gray
75'- 90' Clay, brownish gray, with silt and a trace of lignite
90'-120' Clay, gray, with silt and a trace of lignite
120'-165' Clay, gray, with silt
165'-175' Silt, brown and gray, micaceous with gray clay
175'-190' Clay, gray, silty, with a trace of lignite
190'-200' Clay, grayish brown, with a trace of lignite
T. D.: 200'

Drill Hole No. 408. Elevation 150'
Location: NW¼, Sec. 2, T. 14 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Clay, gray, with fine sand
5'- 15' Gravel
15'- 20' Clay, lignitic, with very fine sand
20'- 40' Clay, chocolate brown, interbedded with gray clay and very fine sand
40'- 70' Clay, gray, with very fine sand, slightly glauconitic
70'- 90' Clay, light gray to light brown, with very fine sand
90'-110' Clay, gray, with very fine sand and a trace of siderite
110'-120' Clay, light gray, slightly glauconitic, with very fine sand
120'-130' Sand, very fine, with gray clay
130'-192' Clay, gray, with very fine sand, with a trace of lignite and siderite
T. D.: 192'

Drill Hole No. 409. Elevation 169'
Location: NW¼, Sec. 3, T. 14 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Sand, medium, mottled, with orange clay binder
10'- 20' Sand, medium to coarse, with pea gravel
20'- 32' Gravel, with sand, medium to coarse
32'- 45' Silt, dark brown, with a trace of lignite and gray clay
45'- 50' Clay, brown, with brown silt stringers
50'- 60' Sand, gray, fine, with silt
60'- 75' Clay, brown, with very fine sand
75'-125' Clay, gray, with silt and a trace of siderite
125'-185' Clay, brownish gray, silty
185'-190' Silt, brownish gray, with clay binder
190'-200' Clay, brownish gray
T. D.: 200'

Drill Hole No. 410. Elevation 175'
Location: NW¼, Sec. 4, T. 14 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 15' Clay, light tan, with very fine sand
15'- 20' Clay, white, with very fine sand
20'- 25' Clay, white, interbedded with chocolate brown clay and lignite
25'- 30' Clay, chocolate brown, with gravel and a trace of lignite
30'- 35' Lignite
35'- 45' Clay, gray, with very fine sand
45'- 90' Clay, brown, with very fine sand

Core Interval 30' - 40'

Recovered: 19" Lost: 101"

Top of core
6½" lignite, black, hard
4½" sand, very fine, light gray, micaceous
7" lignite, black, hard
1" clay, dark brown, lignitic

Core Interval 31' - 36'

Recovered: 32" Lost: 28"

Top of core
2" clay, gray, sandy
1" lignite, hard, fragments
2" clay, lignitic
27" clay, gray
T. D.: 90'

Drill Hole No. 411. Elevation 175'
Location: NE¼, Sec. 5, T. 14 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 8' Sand, very fine, with light tan clay
8'- 45' Gravel
45'- 50' Clay, light brown, with very fine sand
50'- 60' Clay, gray, with very fine sand
60'- 70' Sand, fine, with gray clay
70'-120' Clay, gray, with fine to very fine sand
120'-123' Siderite
123'-140' Clay, light gray, glauconitic with very fine sand
140'-150' Clay, light gray, slightly micaceous, with very fine sand
T. D.: 150'

Drill Hole No. 412. Elevation 176'
Location: NW¼, Sec. 6, T. 14 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 5' Silt, with iron sand concretions
5'- 25' Sand, medium, with orange clay
25'- 30' Sand, medium to coarse, with pea gravel
30'-100' Gravel, with medium to coarse sand and thin cream clay stringers
100'-120' Silt, dark brown, with lignite stringers
120'-150' Clay, gray, with silt
150'-160' Silt and very fine sand, brownish gray
160'-170' Silt, gray, with very fine sand
170'-175' Clay, gray, with silt

175'-186' Silt, gray, with very fine sand and clay binder
186'-189' Siderite
T. D.: 189'

Drill Hole No. 413. Elevation 155'
Location: SW¼, Sec. 36, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Clay, light tan to brown, with fine sand
5'- 15' Clay, light gray, with very fine sand
15'- 50' Gravel with coarse sand
50'- 85' Sand, coarse, with gravel
85'-100' Clay, gray, with very fine sand, slightly micaceous
100'-105' Clay, gray, glauconitic, with siderite @ 105'
T. D.: 105'

Drill Hole No. 414. Elevation 155'
Location: NW¼, Sec. 35, T. 13 S., R. 15 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Clay, silty, mottled
10'- 15' Gravel, with coarse sand
15'- 90' Gravel, with a few light tan, sandy clay stringers
90'- 90'6" Siderite
90'6"-100' Clay, brown, micaceous, silty
100'-200' Clay, gray, silty, with a trace of siderite
T. D.: 200'

Drill Hole No. 415. Elevation 150'
Location: NE¼, Sec. 33, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Sand, fine to medium, with red clay
5'- 20' Clay, red, with fine sand
20'- 40' Gravel
40'- 50' Clay, gray, with very fine sand and a trace of lignite
50'-110' Clay, gray, slightly glauconitic, with interbedded very fine sand and a trace of lignite
110'-115' Sand, fine
115'-150' Clay, gray, with very fine sand and silt, and a trace of siderite
150'-180' Clay, gray, slightly glauconitic with very fine sand and silt
180'-200' Clay, gray, with very fine sand and silt
T. D.: 200'

Drill Hole No. 416. Elevation 124'
Location: NW¼, Sec. 32, T. 13 S., R. 15 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 5' Silt, cream, with fine sand
5'- 22' Gravel
22'- 25' Clay, brownish gray, with silt
25'- 45' Clay, gray, silty, with a trace of lignite and siderite
45'- 50' Silt, gray-brown
50'-200' Clay, gray, silty, with very fine to fine sand and a trace of lignite
T. D.: 200'

Drill Hole No. 417. Elevation 124'
Location: SW¼, Sec. 30, T. 13 S., R. 15 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Silt, mottled, with very fine sand

ARKANSAS LIGNITE INVESTIGATIONS

10'-65' Gravel with coarse sand
65'-132' Clay, brownish gray, silty, with a trace of lignite
132'-200' Sand, tan, fine to medium, silty, with a trace of lignite and siderite
T. D.: 200'

Drill Hole No. 418. Elevation 125'
Location: SW¼, Sec. 24, T. 13 S., R. 16 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Clay, light tan, with fine sand
5'-25' Clay, light gray, with interbedded tan clay, very fine sand
25'-40' Gravel
40'-80' Clay, gray, with very fine sand, slightly micaceous
80'-150' Clay, gray, slightly glauconitic, with very fine sand and a trace of lignite and siderite
150'-160' Sand, fine, with gray clay
160'-180' Clay, gray, with very fine sand
180'-182' Siderite
T. D.: 182'

Drill Hole No. 419. Elevation 125'
Location: SW¼, Sec. 2, T. 13 S., R. 16 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Silt, mottled, with medium sand
5'-10' Clay, gray, with silt
10'-20' Silt, tan, with tan clay binder
20'-45' Gravel with medium sand
45'-55' Sand, gray, very fine, with silt and a trace of lignite
55'-70' Clay, gray, with very fine sand and a trace of lignite
70'-75' Clay, gray, silty
75'-80' Clay, brownish gray, silty and a trace of lignite
80'-85' Clay, gray, silty, with lignitic partings
85'-100' Silt, gray, glauconitic, with gray clay and fine lignitic sand interbedded
100'-115' Silt, brown, micaceous, with very fine sand
115'-165' Clay, brown, micaceous, silty, with a trace of lignite
165'-185' Clay, gray-brown, with fine sand and silt
185'-200' Clay, gray, silty, and a trace of lignite
T. D.: 200'

Drill Hole No. 420. Elevation 135'
Location: NW¼, Sec. 7, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Clay, tan to red, with medium sand
5'-10' Clay, red to white, with very fine sand
10'-80' Pea gravel with coarse sand
80'-100' Clay, gray, with medium sand and a trace of lignite
100'-120' Clay, gray to chocolate brown, with very fine sand, glauconitic, and a trace of lignite
120'-125' Clay, chocolate brown to gray
125'-130' Lignite
130'-135' Clay, brown, with lignite and very fine sand
135'-160' Clay, gray, slightly micaceous and glauconitic, with very fine sand
160'-170' Clay, gray-green, with very fine

sand and a trace of siderite
170'-175' Sand, fine, with gray clay
175'-200' Clay, gray, glauconitic, with very fine sand
T. D.: 200'

Drill Hole No. 421. Elevation 150'
Location: SE¼, Sec. 8, T. 13 S., R. 15 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Gravel and sand
5'-10' Silt, gray
10'-15' Silt, mottled
15'-20' Silt, light gray
20'-30' Gravel
30'-45' Clay, gray, silty, with a trace of lignite
45'-60' Silt, dark gray, with very fine sand, micaceous, with trace of siderite
60'-65' Silt, brown, with very fine sand, micaceous
65'-75' Clay, grayish brown, silty, and a trace of lignite
75'-95' Silt, grayish brown, with sand
95'-110' Clay, grayish brown, silty, and a trace of lignite
110'-175' Sand, gray, very fine, silty, and a trace of lignite
175'-185' Sand, gray, very fine
185'-190' Lignite 3½' - 4' in sand
190'-200' Sand, gray, very fine, silty
T. D.: 200'

Drill Hole No. 422. Elevation 165'
Location: NE¼, Sec. 9, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-10' Clay, tan, with very fine sand
10'-25' Pea gravel
25'-100' Clay, gray, with very fine sand, slightly micaceous
100'-130' Clay, gray, with very fine sand and a trace of lignite
130'-200' Clay, gray, slightly glauconitic, slightly micaceous, with very fine sand and a trace of siderite
T. D.: 200'

Drill Hole No. 423. Elevation 180'
Location: NE¼, Sec. 10, T. 13 S., R. 15 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Sand, coarse, with gravel
5'-20' Gravel, with tan to cream clay stringers
20'-30' Clay, gray, with silt
30'-40' Clay, gray brown, silty, with very fine sand
40'-55' Silt, gray, with very fine sand and a trace of lignite
55'-60' Clay, gray, silty
60'-70' Silt, gray, micaceous, with interbedded brown lignitic silt
70'-80' Silty, brown, micaceous
80'-105' Sand, gray, very fine, silty, with gray clay binder
105'-115' Silt, gray, with gray clay binder
115'-130' Sand, gray, very fine with silt
130'-133' Siderite
133'-200' Clay, gray, silty, with a trace of siderite
T. D.: 200'

Drill Hole No. 424. Elevation 200'
Location: NE¼, Sec. 11, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-10' Clay, red to tan, with fine sand

10'-15' Clay, red, with interbedded gravel
15'-50' Gravel, with interbedded tan clay and coarse sand
50'-60' Clay, gray, with very fine sand
60'-130' Clay, gray, glauconitic, slightly micaceous, with very fine sand and a trace of siderite
130'-160' Clay, gray, with very fine sand, slightly micaceous, and a trace of lignite
160'-180' Clay, gray to brown, with very fine sand and a trace of lignite
180'-200' Clay, gray, with interbedded fine sand
T. D.: 200'

Drill Hole No. 425. Elevation 140'
Location: NE¼, Sec. 12, T. 13 S., R. 15 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Sand, fine to medium, with tan clay
5'-25' Clay, gray, with fine to very fine sand
25'-40' Gravel with coarse sand
40'-50' Clay, gray, with interbedded medium sand
50'-80' Clay, gray, slightly glauconitic and micaceous, with very fine sand and a trace of lignite
80'-90' Clay, gray, slightly micaceous, with very fine sand
90'-100' Clay, gray, with a trace of lignite
100'-140' Clay, gray, slightly micaceous, with interbedded chocolate brown clay, very fine sand and a trace of lignite
140'-160' Clay, gray-brown, very fine sand
160'-180' Clay, gray, very fine sand, and a trace of lignite
180'-200' Clay, gray-brown, with very fine sand
T. D.: 200'

Drill Hole No. 426. Elevation 199'
Location: NW¼, Sec. 8, T. 13 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Sand, fine, silty, mottled
5'-10' Gravel, with white sandy clay stringers
10'-40' Gravel with medium sand
40'-200' Sand, tan, medium, with a trace of lignite
T. D.: 200'

Drill Hole No. 427. Elevation 219'
Location: NW¼, Sec. 9, T. 13 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-8' Silt, mottled, with clay binder
8'-45' Gravel, with white sandy clay stringers
45'-50' Clay, gray, silty, with very fine sand
50'-80' Silt, gray, with very fine sand, carbonaceous
80'-85' Clay, gray, silty, with very fine sand
85'-100' Silt, gray, with very fine sand
100'-125' Clay, gray, silty, with carbonaceous and sandy interbeds
125'-170' Sand, gray, fine to very fine, silty, with a trace of lignite
170'-175' Clay, gray, silty, with very fine sand
175'-200' Silt, gray, with very fine sand
T. D.: 200'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 428. Elevation 210'
Location: NW¼, Sec. 10, T. 13 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Sand, coarse, with red clay
5'- 15' Sand, coarse, with gravel
15'- 20' Sand, coarse, with a trace of brown clay and lignite
20'- 30' Clay, gray, with interbedded brown clay, very fine sand and a trace of lignite
30'- 50' Clay, gray, with very fine sand, slightly micaceous, and a trace of lignite
50'-140' Clay, gray, with very fine sand, glauconitic, and a trace of siderite
140'-150' Sand, very fine, with gray clay and a trace of lignite
150'-160' Clay, gray, with interbedded brown clay, very fine sand, and a trace of lignite
160'-185' Clay, gray, with interbedded fine to medium glauconitic sand and a trace of siderite and lignite
185'-190' Clay, brown, with very fine sand and a trace of lignite
190'- 200' Clay, gray, with interbedded brown clay and very fine sand
T. D.: 200'

Drill Hole No. 429. Elevation 224'
Location: NW¼, Sec. 11, T. 13 S., R. 14 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Clay, mottled, with fine sand
10'- 33' Pea gravel with medium sand
33'- 37' Clay, brown, with sand
37'- 50' Clay, gray, silty, micaceous with very fine sand
50'-100' Silt, gray, with very fine sand and interbedded brown clay, and a trace of lignite
100'-105' Clay, gray, silty, and a trace of lignite
105'-120' Sand, very fine, silty
120'-140' Silt, gray, with very fine sand and gray clay binder
140'-145' Clay, brown, silty, with very fine sand
145'-200' Silt, gray, with very fine sand and a trace of lignite
T. D.: 200'

Drill Hole No. 430. Elevation 230'
Location: NE¼, Sec. 12, T. 13 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Clay, tan to red, with fine sand
5'- 10' Clay, tan to gray, with fine to very fine sand
10'- 20' Clay, gray, with tan clay interbeds and very fine sand
20'- 25' Clay, tan, with medium to coarse sand
25'- 40' Gravel

40'- 50' Clay, brown to chocolate brown, with very fine sand and a trace of lignite
50'- 55' Clay, white to tan, with fine sand
55'- 60' Clay, gray, with interbedded chocolate brown clay and a trace of lignite
60'- 80' Clay, gray, with a trace of lignite and brown clay and very fine sand
80'- 130' Clay, gray, with very fine sand and interbedded chocolate brown clay with a trace of lignite
130'-140' Clay, gray, with sand, very fine, glauconitic
140'-150' Clay, gray, with interbedded chocolate brown clay, very fine, sand and a trace of lignite
150'-170' Clay, gray, slightly glauconitic with very fine sand
170'-190' Clay, gray, slightly lignitic with fine to very fine sand
190'-200' Clay, gray, slightly glauconitic with very fine sand
T. D.: 200'

Drill Hole No. 431. Elevation 255'
Location: SE¼, Sec. 6, T. 13 S., R. 13 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 10' Clay, light gray, with very fine sand
10'- 15' Clay, light gray, with very fine sand and interbedded tan clay
15'- 20' Clay, tan, with interbedded very fine sand
20'- 30' Clay, light gray, with very fine sand
30'- 40' Clay, light gray, with thin interbeds of ironstone
40'- 48' Clay, light gray, with very fine sand and interbedded brown clay
48'- 55' Lignite
55'- 60' Clay, light gray, with very fine sand
60'- 80' Clay, light gray to light blue, with very fine sand and silt and a trace of lignite
80'-100' Clay, light gray to blue, with very fine sand and silt
100'-120' Clay, gray, slightly glauconitic with interbedded chocolate brown clay and a trace of lignite
120'-130' Clay, gray, glauconitic, with very fine sand and a trace of siderite
130'-150' Clay, gray, with very fine sand and interbedded chocolate brown clay
150'-160' Clay, gray, with very fine sand
160'-170' Clay, gray, slightly glauconitic with very fine sand and a trace of siderite
170'-190' Clay, gray, with fine sand, with interbedded lignite and chocolate brown clay
190'-200' Clay, brown, with very fine sand and a trace of lignite

Core interval 143' - 151'

Recovered: 8' Lost: 0'

43' - 45'3" Lignite, black, firm to soft, with silt partings
45'3" - 49'8" Lignite, hard to firm, waxy, with a few silt partings
49'8" - 51' dark brown to black clay, with very fine sand, slightly micaceous

Core interval 151' - 157'

Recovered: 5' Lost: 1'

151'-156' Clay, gray, with very fine sand and silt, slightly micaceous
156' - 157' not recovered

T. D.: 200'

Drill Hole No. 432. Elevation 228'
Location: NE¼, Sec. 18, T. 13 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 15' Sand, medium, mottled, with clay binder
15'- 33' Pea gravel
33'- 50' Clay, gray, micaceous, silty
50'- 60' Clay, gray, silty, with interbedded brown clay and a trace of lignite and glauconite
60'- 80' Clay, gray and brown interbedded, and a trace of lignite
80'-110' Clay, gray, with very fine sand and a trace of lignite
110'-120' Silt, gray, with a trace of gray clay stringers
120'-125' Clay, gray, silty, with very fine sand
125'-130' Sand, gray, fine, with gray clay
130'-140' No sample
140'-170' Clay, gray, silty, micaceous, with a trace of lignite
T. D. 170'

Drill Hole No. 433. Elevation 220'
Location: NE¼, Sec. 19, T. 13 S., R. 13 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 10' Clay, white to tan, with fine sand
10'- 15' Clay, light gray to tan, with very fine sand
15'- 50' Gravel
50'- 55' Gravel, with gray clay interbeds
55'- 65' Clay, gray, with very fine sand
65'- 70' Clay, gray, slightly glauconitic with very fine sand
70'- 80' Clay, gray, slightly glauconitic, with very fine sand
80'- 90' Clay, gray-brown, with very fine sand and a trace of lignite

ARKANSAS LIGNITE INVESTIGATIONS

90'-110' Lignite and lignitic brown clay with very fine sand
 110'-120' Clay, gray, with fine sand, slightly glauconitic and micaceous
 120'-140' Clay, gray, slightly glauconitic with very fine sand
 140'-145' Clay, gray, with lignitic clay stringers and very fine sand
 145'-160' Clay, gray, glauconitic, with very fine sand
 160'-165' Siderite

Core Interval 84' - 94'

Recovered: 7' Lost: 3'

84' - 87' not recovered
 87' - 87'8" clay, light gray-brown, with very fine sand
 87'8" - 91'4" Lignite, black, soft
 91'4" - 92'9" Lignite, black, hard
 92'9" - 93'7" Lignite, dark brown to black
 93'7" - 93'9" Clay, dark brown, lignitic, with lignite stringers
 93'9" - 94' Clay, dark gray-brown, with a trace of lignite stringers
 T. D.: 165'

Drill Hole No. 434. Elevation 160'
 Location: SW¼, Sec. 29, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 5' Clay, light gray, with silt
 5'- 15' Pea gravel
 15'- 50' Silt, brownish gray, with gray clay binder and very fine sand with a trace of lignite
 50'- 60' Silt, light brown, with clay binder and very fine sand
 60'-200' Silt, light brown, with fine sand and a trace of lignite
 T. D. 200'

Drill Hole No. 435. Elevation 203'
 Location: SW¼, Sec. 30, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 5' Silt, brown, with medium sand
 5'- 35' Gravel
 35'- 90' Clay, cream, with white silty interbeds
 90'-165' Clay, cream, with silt and very fine sand
 165'-200' Sand, fine, with a trace of lignite
 T. D. 200'

Drill Hole No. 436. Elevation 205'
 Location: NW¼, Sec. 25, T. 13 S., R. 14 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 20' Clay, white to light gray, with fine sand
 20'- 45' Gravel, with some light gray clay partings
 45'- 60' Clay, gray to light gray, with iron stain and very fine sand
 60'- 80' Clay, gray to light gray, with very fine sand

80'- 90' Clay, gray, with fine sand and a trace of lignite
 90'-100' Clay, gray-brown, with very fine sand
 100'-120' Clay, gray-brown and red, with medium to coarse sand and a trace of lignite
 120'-130' Sand, fine, with gray clay
 130'-140' Clay, gray, with interbedded fine to very fine sand
 140'-175' Sand, fine, with gray to light gray clay
 175'-190' Clay, gray-brown, with very fine sand
 190'-200' Clay, gray, with very fine sand
 T. D.: 200'

Drill Hole No. 437. Elevation 205'
 Location: NW¼, Sec. 23, T. 13 S., R. 14 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 10' Sand, mottled, with clay binder
 10'- 19' Gravel
 19'-19'6" Lignite
 19'6"-30' Clay, brownish gray, with fine sand and silt
 30'- 40' Clay, dark brown, with a trace of lignite
 40'- 55' Clay, grayish brown, with silt and a trace of lignite
 55'- 65' Silt, grayish brown, with clay binder
 65'- 70' Clay, gray, with silt
 70'- 75' Lignite stringers 2' - 3' in gray silty clay
 75'- 80' Clay, brown, with silt
 80'- 85' Clay, gray, with silt
 85'- 92' Clay, brown, with lignite stringers approximately 1'6"
 92'-115' Clay, light gray, silty
 115'-130' Clay, gray, with silt
 130'-150' Clay, brownish gray, silty, with very fine sand and a trace of lignite
 150'-160' Clay, gray, with silt and a trace of lignite
 160'-200' Sand, fine to very fine, silty, with thin lignite stringers
 T. D.: 200'

Drill Hole No. 438. Elevation 200'
 Location: NW¼, Sec. 15, T. 13 S., R. 14 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'- 5' Clay, tan, with fine sand
 5'- 15' Gravel
 15'- 20' Clay, gray to tan, with interbedded chocolate brown clay and a trace of lignite
 20'- 25' Clay, gray-brown, with very fine sand and a trace of lignite
 25'- 30' Clay, gray, with very fine sand and a trace of lignite
 30'- 40' Clay, gray, with very fine sand
 40'- 45' Clay, gray to light gray, with very fine sand
 45'- 50' Clay, light gray, silty
 50'- 80' Clay, gray, with very fine sand, slightly micaceous
 80'- 90' Clay, gray, with very fine sand, slightly glauconitic
 90'-120' Clay, gray, with very fine sand
 120'-140' Clay, gray, slightly glauconitic, micaceous, with very fine sand and a trace of siderite
 140'-150' Clay, gray, with very fine sand
 150'-170' Clay, gray to dark gray, with very fine sand
 T. D. 170'

Drill Hole No. 439. Elevation 210'
 Location: NW¼, Sec. 29, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'- 5' Sand, fine
 5'- 50' Gravel, with tan clay and fine to very fine sand
 50'- 55' Clay, gray, slightly micaceous
 55'- 65' Clay, gray, slightly lignitic
 65'- 70' Clay, gray, with very fine sand, glauconitic
 70'- 72' Clay, gray
 72'- 75' Lignite
 75'- 80' Clay, gray, lignitic
 80'- 85' Clay, gray, micaceous
 85'-100' Clay, dark gray, with very fine sand
 100'-125' Clay, dark gray to blue, with a trace of lignite
 125'-200' Clay, gray, micaceous, with a trace of siderite and lignite
 T. D.: 200'

Drill Hole No. 440. Elevation 200'
 Location: NW¼, Sec. 4, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 5' Sand, mottled, medium, with silt
 5'- 10' Clay, cream, with silt
 10'- 20' Pea gravel, with coarse sand
 20'- 30' Clay, cream, with silt
 30'- 40' Clay, light tan, with silt
 40'- 45' Silt, dark brown, with very fine sand
 45'- 50' Silt, grayish brown, with very fine sand
 50'- 55' Clay, dark brown, with lignite zones
 55'- 60' Silt, light gray, micaceous
 60'- 85' Clay, grayish brown, with silt and a trace of lignite
 85'-100' Clay, gray, silty, micaceous, with a trace of lignite
 100'-200' Silt, gray, with very fine sand and gray clay binder, with a trace of lignite

Core Interval 49'6" - 54'6"

Recovered: 42' Lost: 18'

49'6" - 51' not recovered
 51' - 53'8" Lignite, black, soft
 53'8" - 54'6" Clay, light tan, silty
 T. D.: 200'

Drill Hole No. 441. Elevation 200'
 Location: SW¼, Sec. 3, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 10' Sand, mottled, fine, silty
 10'- 20' Gravel with coarse sand
 20'- 30' Clay, gray and brown interbedded, with a trace of lignite
 30'- 40' Clay, greenish-gray, glauconitic, silty
 40'- 45' Clay, greenish-gray
 45'- 65' Clay, greenish-gray, with interbedded light brown clay
 65'- 70' Clay, gray, with brown silt interbedded, and a trace of lignite
 70'- 80' Silt, brownish gray, with gray clay binder and a trace of glauconite
 80'- 95' Lignite, dark brown
 95'-100' Clay, dark brown

ARKANSAS LIGNITE INVESTIGATIONS

100'-110' Clay, greenish-gray, with interbedded light brown clay and a trace of glauconite
 110'-115' Clay, gray, with silt
 115'-120' Clay, gray and light brown interbedded
 120'-125' Silt, light brown, micaceous, with very fine sand
 125'-130' Clay, light brown, with silt
 130'-135' Clay, light brownish gray
 135'-140' Lignite, with light brown clay
 140'-145' Clay, light brown
 145'-150' Clay, light gray
 150'-160' Sand, very fine, with silt

Core Interval 80' - 90'

Recovered: Lost:
 10' 0'

80'-84' sand, light gray, very fine, with clay binder, with thin lignite partings
 84'-90' clay, light gray, with very fine sand and silt slightly micaceous and carbonaceous

Core Interval 90'-100'

Recovered: Lost:
 7' 3'

90'-93' not recovered
 93'-94'2" clay, light greenish-gray
 94'2" - 99'10" lignite, black, hard
 99'10" - 100' clay, dark brown, lignitic, with lignite

Core Interval 100'-106'6"

Recovered: Lost:
 0' 6'6"

Approximately 2' of lignite penetrated according to drillers' log. Bottomed in gray clay.

T. D.: 160'

Drill Hole No. 442. Elevation 208'
 Location: NW¼, Sec. 11, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'-5' Clay, sandy, with gravel
 5'-32' Gravel, with tan to gray clay, micaceous, with fine sand
 32'-35' Clay, gray
 35'-50' Clay, gray to light tan, micaceous, with a trace of lignite
 50'-70' Clay, gray, glauconitic with very fine sand and a trace of lignite
 70'-100' Clay, gray, with sand stringers and a trace of lignite
 100'-110' Clay, gray, micaceous
 110'-115' Clay, gray-brown, with approximately 1' of lignite
 115'-125' Clay, gray, with sand stringers and a trace of lignite
 125'-135' Clay, gray-brown to tan, micaceous, with very fine sand
 135'-150' Clay, greenish-gray, with a trace of lignite
 150'-165' Clay, gray, micaceous
 165'-200' Clay, gray to tan, with fine sand and a trace of lignite
 T. D.: 200'

Drill Hole 443. Elevation 208'
 Location: SE¼, Sec. 12, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'-10' Sand, mottled, very fine with silt
 10'-15' Sand, light gray, very fine, with silt
 15'-30' Pea gravel
 30'-35' Sand, dark brown, fine, with silt
 35'-45' Clay, greenish-gray, with a trace of glauconite and lignite
 45'-50' Silt, dark brown, with fine sand and a trace of lignite
 50'-55' Clay, gray, with interbedded light brown silt and a trace of lignite
 55'-70' Clay, gray, with silt
 70'-75' Clay, greenish-gray, with a few brown clay interbeds
 75'-80' Clay, gray, with silt
 80'-89' Silt, gray, with gray clay binder
 89'-89'6" Siderite
 89'6"-110' Silt, gray, with very fine sand
 110'-140' Clay, gray, silty, very fine sand and a trace of lignite
 140'-145' Silt, gray, with very fine sand
 145'-150' Clay, gray and brown interbedded, with silt
 150'-160' Clay, brownish gray, with a trace of lignite
 160'-190' Clay, brown, with a trace of lignite
 190'-200' Clay, gray, with silt
 T. D.: 200'

Drill Hole No. 444. Elevation 213'
 Location: SW¼, Sec. 7, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'-10' Clay, tan, sandy, with iron stain
 10'-18' Clay, gray and tan, with fine sand and silt
 18'-67' Gravel, with gray clay and fine sand
 67'-125' Clay, gray, with very fine sand, slightly micaceous
 125'-150' Clay, gray, with very fine sand and a trace of lignite
 150'-175' Clay, gray, with very fine sand
 175'-190' Clay, gray, with fine sand
 190'-200' Clay, gray to tan, with sand stringers
 T. D. 200'

Drill Hole No. 445. Elevation 216'
 Location: NW¼, Sec. 9, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'-10' Sand, mottled, medium to fine, silty, with a trace of light gray clay
 10'-30' Pea gravel
 30'-35' Clay, light gray to cream, with silt
 35'-50' Clay, brownish-gray, with silt
 50'-60' Clay, gray, with silt and a trace of glauconite and lignite
 60'-65' Clay, brown, with silt
 65'-70' Clay, brown and gray interbedded, with a few brown sand interbeds
 70'-90' Clay, greenish-gray, with a trace of glauconite
 90'-100' Clay, brown, with a trace of glauconite and lignite
 100'-105' Clay, greenish-gray
 105'-110' Clay, brown, with dark brown

silt and a trace of glauconite and lignite

110'-115' Clay, greenish-gray, with glauconite
 115'-135' Clay, gray, with silt and a trace of lignite
 135'-140' Clay, gray, with interbedded brown silt
 140'-150' Silt, brown, with brown clay binder and a trace of glauconite
 150'-155' Clay, brown, with a trace of glauconite and lignite
 155'-160' Clay, gray, with interbedded dark brown, lignitic silt
 160'-165' Silt, dark brown, lignitic
 165'-170' Clay, gray, with silt and a trace of lignite
 170'-180' Clay, gray, with a trace of dark brown clay interbedded, slightly glauconitic
 180'-200' Clay, light brown, with silt
 T. D.: 200'

Drill Hole No. 446. Elevation 212'
 Location: NE¼, Sec. 4, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'-5' Clay, brown, sandy, with gravel
 5'-35' Gravel and fine sand
 35'-40' Clay, gray, with very fine sand
 40'-45' Clay, gray to tan, with a trace of lignite
 45'-55' Clay, greenish-gray, with a trace of tan to brown clay, very fine sand, iron stained
 55'-60' Clay, gray, with very fine sand
 60'-70' Clay, gray, with gravel
 70'-75' Clay, gray, with very fine sand, glauconitic
 75'-95' Clay, gray, with very fine sand
 95'-100' Clay, gray, with fine sand
 100'-150' Clay, gray-brown to tan, with fine sand, iron stained
 150'-160' Clay, greenish-gray, with very fine sand
 160'-165' Clay, greenish-gray, with very fine sand and a trace of lignite
 165'-185' Clay, gray, with fine sand
 185'-200' Clay, gray to tan, with fine sand
 T. D.: 200'

Drill Hole No. 447. Elevation 205'
 Location: SW¼, Sec. 18, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'-10' Sand, mottled, medium to fine, with silt
 10'-29' Pea gravel
 29'-35' Clay, light brown, with silt
 35'-40' Sand, very fine, with silt
 40'-50' Clay, light brown, silty, with a trace of lignite
 50'-55' Sand, light brownish-gray, very fine, with silt
 55'-60' Clay, light brownish-gray, with a trace of lignite
 60'-65' Clay, dark brown, with lignite approximately 1' - 2' thick
 65'-70' Clay, light gray, with silt
 70'-75' Clay, greenish-gray, with silt
 75'-80' Clay, greenish-gray and brown interbedded, with a trace of lignite
 80'-85' Clay, brown, with a trace of lignite
 85'-100' Silt, greenish-gray, with gray clay binder and a trace of glauconite and lignite

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100'-110' Sand, greenish-gray, very fine micaceous, silty, with a trace of glauconite and lignite
 110'-125' Sand, light brown, fine, interbedded with dark brown lignitic silt
 125'-130' Clay, gray, with silt
 130'-135' Clay, dark brown, with a trace of lignite
 135'-145' Clay, brown, with silt and a trace of glauconite and lignite
 145'-150' Silt, brown, with very fine sand and a trace of lignite
 150'-155' Clay, brown, silty, with a trace of lignite
 155'-167' Clay, greenish-gray, silty, with a trace of lignite
 167'-169' Siderite
 169'-180' Clay, gray, with silt, and a trace of lignite
 180'-190' Silt, gray, with a gray clay binder
 190'-195' Silt, brown, with brown clay binder
 195'-200' Clay, brown, with silt
 T. D.: 200'

Drill Hole No. 448. Elevation 195'
 Location: SE¼, Sec. 19, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'- 5' Clay, light brown, silty, with sand
 5'- 8' Clay, light brown to tan, with fine sand and gravel
 8'- 28' Gravel with clay, light brown to tan, and fine sand
 28'- 35' Clay, gray
 35'- 50' Clay, gray, with fine to very fine sand and a trace of lignite
 50'- 55' Clay, tan to brown, iron stained with very fine sand and a trace of lignite
 55'- 60' Clay, greenish-gray, glauconitic with a trace of lignite
 60'- 70' Clay, greenish-gray, with very fine sand
 70'- 75' Clay, tan to light brown, with fine sand
 75'- 80' Clay, gray to greenish-gray, glauconitic, with very fine sand and a trace of lignite
 80'- 90' Clay, greenish-gray, with fine sand
 90'-105' Clay, gray-brown to tan, with fine sand and a trace of lignite
 105'-115' Clay, gray, with very fine sand
 115'-125' Clay, gray to tan, with very fine sand and a trace of lignite
 125'-140' Clay, gray, with very fine sand
 140'-145' Clay, greenish-gray, with very fine sand
 145'-150' Clay, gray to dark brown, with very fine sand and a trace of lignite
 150'-155' Clay, dark gray, with very fine sand
 155'-165' Clay, gray, with very fine sand
 165'-170' Clay, gray to dark brown, with very fine sand and a trace of lignite
 170'-175' Clay, reddish brown to dark brown, with very fine sand
 175'-190' Clay, greenish-gray, with very fine sand and a trace of lignite
 190'-200' Clay, gray, with very fine sand
 T. D.: 200'

Drill Hole No. 449. Elevation 201'
 Location: NE¼, Sec. 29, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 20' Sand, orange, medium to fine with silt
 20'- 55' Pea gravel, with coarse sand
 55'- 65' Sand, white, medium to fine
 65'- 90' Sand, white and orange, medium to fine, with a trace of lignite
 90'-125' Sand, fine to very fine, with silt, micaceous
 125'-130' Sand, orange, fine to very fine, with silt
 130'-180' Sand, gray, fine to very fine
 180'-200' Clay, gray, silty, with a trace of lignite
 T. D.: 200'

Drill Hole No. 450. Elevation 175'
 Location: NW¼, Sec. 33, T. 14 S., R. 12 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'- 5' Clay, reddish brown, with fine sand
 5'- 13' Gravel, with gray clay and fine sand
 13'- 30' Clay, light gray, with very fine sand
 30'- 35' Clay, light gray to gray, with very fine sand and approximately 2' of lignite
 35'- 40' Clay, light gray to gray, with very fine sand and a trace of lignite
 40'- 50' Clay, gray to light tan, with very fine sand, with a trace of siderite and lignite
 50'- 60' Clay, greenish-gray, glauconitic, with very fine sand
 60'-100' Clay, greenish-gray, with very fine sand
 100'-105' Clay, greenish-gray, glauconitic
 105'-120' Clay, dark greenish-gray, with very fine sand, glauconitic
 120'-125' Clay, gray, with very fine sand and a trace of lignite
 125'-145' Clay, greenish-gray, with very fine sand
 145'-185' Clay, gray, with fine sand
 185'-195' Clay, greenish-gray, with very fine sand, glauconitic
 195'-200' Clay, greenish-gray, with fine sand
 T. D.: 200'

Drill Hole No. 451. Elevation 218'
 Location: NW¼, Sec. 33, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 10' Sand, fine with gray clay binder
 10'- 37' Gravel
 37'- 60' Clay, cream, with silt
 60'- 75' Sand, cream, silty, with a trace of gray clay binder
 75'- 85' Clay, dark brown to black, with approximately 2' of lignite
 85'- 95' Clay, gray, with gray silt interbeds
 95'-105' Silt, gray, micaceous, with very fine sand and a trace of lignite
 105'-115' Sand, gray, silty, with approximately 1' of lignite

115'-120' Clay, dark brown, with lignite approximately 2'
 120'-130' Silt, brown, with very fine sand and a trace of lignite
 130'-200' Clay, light gray with very fine sand, silty, and a trace of lignite
 T. D.: 200'

Drill Hole No. 452. Elevation 205'
 Location: SE¼, Sec. 21, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: W. V. Bush 6/78.

0'- 10' Clay, reddish brown, sandy, with pea gravel
 10'- 30' Gravel, with tan to brown clay and fine sand
 30'- 35' Clay, gray, with very fine sand
 35'- 50' Clay, gray to tan, with very fine sand
 50'- 55' Clay, greenish-gray, with a trace of lignite
 55'- 60' Clay, greenish gray, with very fine sand, with approximately 1'6" lignite
 60'- 65' Clay, gray to tan, with salt and pepper sand, and a trace of lignite
 65'- 85' Clay, gray, with very fine sand
 85'- 90' Clay, gray, with a trace of dark brown clay and lignite
 90'-100' Clay, gray to dark brown, with very fine sand and a trace of tan clay
 100'-115' Clay, gray and dark brown interbedded, and a trace of lignite
 115'-150' Clay, gray, with dark brown stain
 150'-165' Clay, gray, with light tan clay and very fine sand
 165'-180' Clay, light gray, with fine sand and a trace of lignite
 T. D.: 180'

Drill Hole No. 453. Elevation 229'
 Location: SW¼, Sec. 15, T. 13 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'- 12' Clay, mottled, with medium to fine sand
 12'- 30' Pea gravel with medium to coarse sand
 30'- 40' Sand, tan to white, salt and pepper, medium to coarse
 40'- 80' Sand, salt and pepper, fine to medium, with a trace of lignite
 80'-105' Clay, gray, silty, with a trace of siderite and lignite
 105'-110' Silt, gray, with gray clay binder
 110'-125' Sand, salt and pepper, fine to medium
 125'-130' Clay, brown, with approximately 2' of lignite
 130'-135' Clay, brown
 135'-180' Clay, gray
 180'-200' Sand, gray, medium to fine

Core Interval 135' - 145'
 Recovered: 84" Lost: 36"
 135' - 139'6" sand, light greenish-gray, with thin lignite partings
 139'6" - 140' clay, dark greenish-gray, with very fine sand and silt, slightly lignitic
 140' - 142' lignite, black, hard
 142' - 145' not recovered
 T. D.: 200'

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Drill Hole No. 454. Elevation 218'
Location: SE¼, Sec. 10, T. 13 S., R. 13 W.
County: Calhoun
Logged by: W. V. Bush 6/78.

0'- 5' Clay, cream to tan, with iron stain and a trace of gravel
5'- 15' Clay, tan to reddish brown, with fine sand
15'-30' Clay, tan to light gray, sandy
30'- 50' Sand, salt and pepper, with gray clay
50'- 70' Clay, tan to reddish brown, with fine sand
70'- 75' Clay, light greenish-gray, glauconitic, with very fine sand
75'- 90' Clay, light greenish-gray, with very fine sand
90'-110' Clay, light gray, with a trace of lignite
110'-115' Clay, dark brown, silty, lignitic
115'-150' Clay, gray, with fine sand
150'-165' Sand, with gray clay
165'-175' Clay, tan to gray, with fine sand
175'-180' Sand, and gray clay, with a trace of lignite
180'-200' Clay, dark brown, lignitic, with sand
T. D.: 200'

Drill Hole No. 455. Elevation 280'
Location: SW¼, Sec. 2, T. 13 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 5' Sand, brown, with silt
5'- 25' Pea gravel
25'- 35' Clay, mottled pink and white
35'- 40' Clay, cream
40'- 45' Clay, light gray
45'- 50' Clay, brownish gray, with silt
50'- 55' Clay, brown, with a trace of lignite
55'- 60' Clay, gray and brown, with silt
60'- 65' Clay, dark brown, with a trace of lignite
65'- 70' Clay, light greenish gray
70'- 75' Clay, greenish-gray, glauconitic
75'- 80' Clay, light brown
80'- 85' Silt, greenish-gray, micaceous, with greenish-gray clay binder
85'- 90' Clay, dark brown
90'- 95' Clay, gray and brown interbedded
95'-105' Clay, gray, with silt
105'-110' Clay, dark brown, with approximately 1' of lignite
110'-117' Silt, greenish-gray, micaceous with clay binder
117'-135' Clay, gray, silty, glauconitic, with a trace of siderite and lignite
135'-150' Clay, brown, with a trace of lignite
150'-155' Clay, light gray
155'-160' Clay, light brown, silty
160'-165' Sand, fine, silty, with brown clay binder and approximately 6" - 1' of lignite
165'-170' Clay, brown, micaceous, with a trace of lignite
170'-180' Clay, dark brown, with lignitic silt
180'-185' Clay, brown, glauconitic with approximately 6" - 1' of lignite
185'-200' Clay, dark brown, with approximately 6" - 1' of lignite
T. D.: 200'

Drill Hole No. 456. Elevation 235'
Location: NW¼, Sec. 1, T. 13 S., R. 13 W.
County: Calhoun
Logged by: W. V. Bush 6/78.

0'- 5' Sand and clay, light gray to reddish brown, iron stained
5'- 15' Clay, light gray to reddish brown, with fine sand
15'- 20' Clay, light gray, with brown lignitic clay
20'- 35' Clay, bluish-gray, with brown lignitic clay
35'- 90' Clay, medium gray
T. D.: 90'

Drill Hole No. 457. Elevation 201'
Location: SW¼, Sec. 32, T. 12 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 25' Clay, light gray, with silt and very fine sand
25'- 30' Clay, light brown, with silt
30'- 35' Clay, gray, with silt
35'- 50' Clay, light brown, with silt
50'- 55' Clay, greenish-gray, glauconitic
55'- 75' Clay, greenish-gray, micaceous, silty, with a trace of lignite
75'- 90' Clay, brownish-gray, with silt
90'- 95' Clay, gray, with silt
95'-100' Clay, dark brown, with approximately 1' - 1'6" of lignite
100'-105' Silt, lignitic
105'-110' Clay, brownish-gray
110'-115' Clay, gray
115'-120' Clay, dark brown, with approximately 1' - 2' of lignite
120'-125' Clay, dark brown and gray interbedded
125'-140' Clay, gray, with silt
140'-155' Silt, dark brown, with approximately 2'6" of lignite
155'-170' Sand, gray, with silt and a trace of lignite
170'-175' Clay, gray, with silt and a trace of lignite
175'-200' Sand, tan, with silt and a trace of lignite

Core Interval 114' - 118'

Recovered: Lost:
38" 10"
114' - 114'6" lignite, black, hard
114'6" - 114'7" clay, black, lignitic
114'7" - 117'2" clay, greenish-gray, with very fine sand, slightly micaceous
117'2" - 118' not recovered
T. D.: 200'

Drill Hole No. 458. Elevation 165'
Location: SW¼, Sec. 28, T. 12 S., R. 12 W.
County: Calhoun
Logged by: W. V. Bush 6/78.

0'- 5' Sand, with cream clay
5'- 15' Sand and clay, tan, with a trace of gravel
15'- 20' Clay, tan to light gray, with fine sand
20'- 50' Clay, medium gray, with fine sand and a trace of siderite
50'- 65' Clay, gray, with brown lignitic clay, silty, with very fine sand
65'-100' Clay, gray, with very fine sand
100'-120' Clay, gray
120'-200' Clay, gray, with fine to very fine sand
T. D.: 200'

Drill Hole No. 459. Elevation 158'
Location: NW¼, Sec. 21, T. 12 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 10' Clay, light gray, with silt and fine sand
10'- 15' Sand, gray, medium to fine, with a trace of gravel
15'- 30' Clay, gray, with silt
30'- 35' Clay, light brown, with silt
35'- 45' Clay, brownish-gray, with silt
45'- 50' Clay, gray, silty, with a trace of dark brown, lignitic clay
50'- 65' Clay, gray, with silt
65'- 70' Clay, brown
70'- 95' Clay, brownish gray, with a trace of lignite
95'-100' Sand, gray, fine, with silt
100'-105' Clay, dark brown, with very fine sand and silt, with approximately 1'6" of lignite
105'-114' Clay, brownish gray, with fine sand
114'-120' Clay, gray, with a trace of siderite and lignite
120'-125' Clay, brown
125'-130' Clay, dark brown, with a trace of lignite
130'-135' Clay, brown and gray interbedded
135'-140' Sand, gray, fine, silty, with approximately 6" - 1' of lignite
140'-145' Clay, brown, with a trace of lignite
145'-160' Clay, brownish-gray, with silt and a trace of lignite
160'-200' Sand, gray, fine to very fine, silty, with a trace of lignite
T. D.: 200'

Drill Hole No. 460. Elevation 170'
Location: NW¼, Sec. 16, T. 12 S., R. 12 W.
County: Calhoun
Logged by: W. V. Bush 6/78.

0'- 5' Sand, with gray clay and gravel
5'- 10' Gravel, with sand
10'- 15' Clay, tan to gray, with fine sand and gravel
15'- 20' Clay, light gray, with fine sand
20'- 50' Clay, gray, with very fine sand
50'- 65' Clay, gray, with brown, silty lignitic clay
65'- 70' Clay, gray, with silty, brown, lignitic clay and approximately 1' - 2' of lignite
70'- 80' Clay, gray, with silty brown, lignitic clay and a trace of lignite
80'-100' Clay, greenish-gray, with very fine sand
100'-125' Clay, gray to light blue, with fine sand
125'-140' Clay, gray, sandy
140'-150' Clay, gray, with fine sand
150'-160' Clay, gray and brown interbedded, with very fine sand and silt
T. D.: 160'

Drill Hole No. 461. Elevation 219'
Location: NE¼, Sec. 8, T. 12 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 15' Clay, gray, with fine sand and silt
15'- 40' Pea gravel, with fine sand
40'-113' Sand, tan, salt and pepper, fine to very fine
113'-200' Clay, gray, with very fine sand and silt
T. D.: 200'

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Drill Hole No. 462. Elevation 195'
Location: NE¼, Sec. 5, T. 12 S. R. 12 W.
County: Calhoun
Logged by: W. V. Bush 6/78.

0'- 5' Gravel, reddish brown, with sand and tan clay
5'- 25' Sand and clay, light gray to tan, with a trace of gravel
25'- 45' Clay, tan, with fine sand
45'- 55' Clay and sand, salt and pepper
55'- 60' Clay, tan to light gray, with interbedded brown clay
60'- 65' Clay, tan, with salt and pepper sand
65'- 70' Clay, light gray to tan, with brown lignitic clay interbeds and a trace of lignite
70'- 75' Clay, gray, with very fine sand
75'-110' Clay, gray, sticky
T. D.: 110'

Drill Hole No. 463. Elevation 225'
Location: NW¼, Sec. 32, T. 11 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78,

0'- 10' Clay, mottled, with fine sand
10'- 20' Clay, cream
20'- 28' Clay, mottled, with silt
28'- 35' Clay, gray, with silt
35'- 45' Clay, dark brown, with approximately 1' to 2' of lignite
45'- 55' Clay, light greenish-gray, with glauconitic
55'- 60' Clay, gray, with silt
60'- 65' Clay, dark brown
65'- 70' Clay, brownish gray
70'- 75' Clay, chocolate brown, with a trace of lignite
75'- 80' Clay, brownish gray, with silt
80'- 85' Silt, with brownish gray clay binder
85'- 95' Clay, brownish gray, with silt
95'-115' Clay, gray, with silt
115'-120' Silt, gray, with gray clay binder
120'-125' Clay, gray, with silt
125'-135' Clay, greenish-gray, with silt
135'-185' Clay, brownish gray, with silt
185'-200' Clay, brown, with silt
T. D.: 200'

Drill Hole No. 464. Elevation 191'
Location: SW¼, Sec. 20, T. 11 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 13' Sand, tan, medium, with a trace of pea gravel
13'- 30' Silt, gray, with very fine sand, micaceous, with clay binder
30'- 85' Clay, gray, with very fine sand and silt
85'-114' Clay, light brown, with silt and a trace of dark brown clay interbeds
114'-200' Clay, brownish to greenish gray, silty, micaceous
T. D.: 200'

Drill Hole No. 465. Elevation 318'
Location: NW¼, Sec. 5, T. 11 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 5' Clay, mottled, with silt
5'- 30' Clay, tan, with silt

30'- 35' Clay, brown, with silt
35'- 40' Clay, greenish gray
40'- 55' Clay, gray and brown, interbedded
55'- 65' Clay, green, glauconitic
65'- 90' Clay, light brown, with a trace of greenish-gray clay and lignite
90'-110' Clay, light gray, with a trace of lignite
110'-115' Silt, dark brown, lignitic, with approximately 6" of lignite
115'-120' Clay, light brown
120'-130' Clay, brown and greenish gray interbedded
130'-170' Clay, greenish brown
170'-200' Clay, greenish brown, with very fine sand and silt, micaceous
T. D.: 200'

Drill Hole No. 466. Elevation 343'
Location: NW¼, Sec. 7, T. 11 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 28' Clay, tan, with a trace of silt
28'- 40' Clay, gray and brown interbedded
40'- 50' Silt, greenish-gray and brown, with clay binder
50'- 65' Clay, brown, silty, with a trace of lignite
65'- 75' Silt, green, glauconitic, with very fine sand
75'- 95' Clay, greenish-gray, glauconitic
95'-115' Clay, greenish-brown, glauconitic, with a trace of lignite
115'-120' Clay, gray
120'-130' Clay, brown, with approximately 1' of lignite
130'-145' Clay, gray
145'-160' Clay, light brown, with a trace of lignite
160'-165' Clay, greenish-gray
165'-170' Clay, dark brown, with approximately 1' of lignite
170'-175' Clay, brownish gray
175'-185' Clay, brownish gray, silty, with approximately 1' of lignitic silt
185'-200' Silt, brown, micaceous, with brown clay binder
T. D.: 200'

Drill Hole No. 467. Elevation 301'
Location: SE¼, Sec. 13, T. 11 S., R. 14 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 10' Clay, gray, with very fine sand
10'- 15' Clay, light gray, with very fine sand
15'- 20' Clay, light gray to tan, with very fine sand, iron stained
20'- 35' Clay, light brown, with very fine sand
35'- 40' Clay, chocolate brown, lignitic, with very fine sand
40'- 45' Clay, gray, with very fine sand
45'- 50' Clay, green, with very fine sand
50'- 55' Clay, greenish-blue, with very fine sand
55'- 60' Clay, green, with interbedded gray clay and very fine sand
60'- 65' Clay, dark gray, with very fine sand
65'- 70' Clay, light gray, with interbedded light brown clay and very fine sand
70'- 80' Clay, gray-brown, with very fine sand
80'- 90' Clay, light brown to brown, with very fine sand
90'-110' Clay, gray, slightly glauconitic, slightly micaceous, with very

fine sand
110'-115' Clay, gray, glauconitic, with interbedded lignitic clay and very fine sand
115'-125' Clay, gray, glauconitic, with fine sand
125'-135' Clay, gray, slightly glauconitic, with very fine sand
135'-150' Clay, gray, with fine to very fine sand interbedded
150'-170' Clay, gray, slightly glauconitic, with very fine sand
170'-185' Clay, gray, slightly glauconitic, with brown clay and very fine sand interbedded
185'-200' Clay, gray, with very fine sand
T. D.: 200'

Drill Hole No. 468. Elevation 260'
Location: SW¼, Sec. 19, T. 11 S., R. 13 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 5' Clay, light gray to tan, with very fine sand
5'- 25' Clay, light tan, with fine to very fine sand
25'- 35' Clay, light tan to light gray, with very fine sand
35'- 40' Clay, red, with very fine sand
40'- 45' Clay, light gray, with interbedded red clay, and very fine sand
45'- 50' Clay, light tan to light gray, with very fine sand
50'-55' Clay, light tan, with interbedded gray clay and very fine sand
55'- 80' Clay, gray, slightly glauconitic, with very fine sand
80'- 90' Clay, gray, glauconitic, micaceous, with very fine sand
90'-100' Clay, gray, glauconitic, with interbedded very fine sand
100'-200' Clay, gray, slightly glauconitic, with very fine sand
T. D.: 200'

Drill Hole No. 469. Elevation 265'
Location: NW¼, Sec. 31, T. 11 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'- 5' Sand, mottled, very fine with silt
5'- 25' Clay, cream to light gray, with silt
25'- 40' Clay, light brown, with silt
40'- 80' Clay, greenish-gray, with silt
80'-135' Clay, greenish-gray, with silt and interbedded hard, glauconitic fine sand
135'-180' Sand, fine, micaceous, glauconitic, with greenish-gray clay binder
180'-188' Clay, greenish-gray, micaceous, glauconitic, with fine sand
188'-200' Clay, brown, with silt
T. D.: 200'

Drill Hole No. 470. Elevation 257'
Location: NE¼, Sec. 6, T. 12 S., R. 13 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'- 20' Clay, light gray, with fine to very fine sand, iron stained
20'- 30' Clay, light gray to light brown, with very fine sand
30'- 40' Clay, light gray, with very fine sand

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40'-50' Clay, light gray, with interbedded very fine sand
 50'-55' Clay, light gray, with very fine sand
 55'-65' Clay, light gray, with interbedded orange clay and very fine sand
 65'-90' Clay, gray, with very fine sand
 90'-100' Clay, gray, slightly glauconitic with interbedded, very fine sand
 100'-140' Clay, gray, glauconitic, micaceous, with fine to very fine sand
 140'-145' Clay, gray, glauconitic, with interbedded very fine sand
 145'-150' Sand, very fine to fine, with gray clay, slightly glauconitic
 150'-200' Clay, gray, slightly glauconitic with very fine sand and a trace of siderite
 T. D.: 200'

Drill Hole No. 471. Elevation 240'
 Location: NE¼, Sec. 7, T. 12 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'-5' Sand, fine, with light tan clay
 5'-10' Clay, tan to gray, with very fine sand
 10'-15' Pea gravel
 15'-20' Clay, light brown, with very fine sand
 20'-25' Clay, light brown, with interbedded gray clay and very fine sand
 25'-30' Clay, green, with very fine sand
 30'-50' Clay, gray-green, with very fine sand and silt
 50'-55' Sand, fine, with gray clay
 55'-100' Clay, gray, with very fine sand and silt
 100'-110' Clay, gray, with interbedded fine to very fine sand
 110'-120' Clay, gray, slightly micaceous
 120'-180' Sand, fine
 180'-200' Clay, gray, slightly glauconitic, slightly micaceous with a trace of siderite and very fine sand
 T. D.: 200'

Drill Hole No. 472. Elevation 230'
 Location: NE¼, Sec. 18, T. 12 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'-20' Clay, gray to tan, with silt and very fine sand
 20'-45' Clay, gray, with silt
 45'-50' Clay, dark brown, with approximately 1' to 2' of lignite
 50'-60' Clay, gray, with silt
 60'-102' Clay, gray and brown, interbedded, silty
 102'-110' Clay, brown, with approximately 3' of lignite
 110'-115' Clay, brown
 115'-125' Clay, gray, with silt
 125'-130' Clay, dark brown, with approximately 1' to 2' of lignite
 130'-140' Clay, gray, with silt
 140'-145' Silt, gray, with very fine sand
 145'-155' Clay, brown, with lignite (possibly caved from above lignite zone)
 155'-180' Clay, gray
 180'-200' Clay, brown
 T. D.: 200'

Drill Hole No. 473. Elevation 262'
 Location: SW¼, Sec. 20, T. 12 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'-5' Clay, light gray, with very fine sand, iron stained
 5'-10' Sand, fine, with gray clay
 10'-20' Clay, gray, with chocolate brown clay interbedded, and very fine sand
 20'-25' Lignite and chocolate brown clay, with fine sand
 25'-30' Clay, gray, with very fine sand
 30'-35' Clay, gray to chocolate brown, with a trace of lignite
 35'-40' Clay, gray to brown, with very fine sand
 40'-80' Clay, gray, with very fine sand
 80'-90' Clay, gray, slightly glauconitic, with very fine sand
 90'-100' Clay, gray, slightly glauconitic with interbedded fine to very fine sand
 100'-105' Lignite and chocolate brown clay, with very fine sand
 105'-110' Clay, gray, glauconitic, with very fine sand
 110'-125' Clay, gray-brown, slightly glauconitic, with very fine sand
 125'-130' Clay, gray to brown, with very fine sand and a trace of lignite
 130'-135' Clay, gray, with very fine sand
 135'-145' Sand, fine, with gray clay
 145'-150' Clay, gray to brown, with very fine sand
 150'-160' Clay, brown, with fine sand
 160'-170' Clay, gray to brown, with very fine sand
 170'-180' Clay, gray, with very fine sand
 180'-190' Sand, fine, with gray clay
 190'-200' Clay, gray to brown, with fine to very fine sand
 Core Interval 24' - 30'
 Recovered: 50" Lost: 22"
 24' - 28'2" lignite, black, firm to hard
 28'2" - 30' not recovered
 T. D.: 200'

Drill Hole No. 474. Elevation 248'
 Location: SE¼, Sec. 30, T. 12S. R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'-5' Clay, gray to tan, very fine sand
 5'-10' Clay, tan to white, with very fine sand
 10'-20' Clay, white to light tan, with very fine sand
 20'-30' Clay, lignitic, with a trace of white clay and fine sand
 30'-45' Clay, gray, with very fine sand
 45'-50' Clay, gray, with very fine sand and a trace of lignite
 50'-70' Clay, gray, glauconitic, with very fine sand and a trace of lignite
 70'-95' Clay, gray, slightly glauconitic, with very fine sand
 95'-100' Clay, gray, with very fine sand and a trace of lignite
 100'-110' Clay, gray, with very fine sand
 110'-115' Clay, gray, with very fine sand and a trace of lignite
 115'-125' Clay, gray, slightly glauconitic, with very fine sand

125'-135' Clay, gray to brown, with very fine sand and a trace of lignite
 135'-150' Clay, gray to brown, slightly glauconitic, with very fine sand
 150'-170' Sand, fine, with gray clay, slightly glauconitic
 170'-175' Clay, gray, with very fine sand
 175'-200' Clay, gray to brown, interbedded, with very fine sand

Core Interval 23' - 29'6"

Recovered: Lost:

78" 0"

23'0" - 24' clay, gray-brown, with very fine sand and silt, slightly carbonaceous
 24' - 24'2" lignite, black, hard
 24'2" - 24'9" clay, brown to dark brown, with very fine sand
 24'9" - 25'8" lignite, black, firm
 25'8" - 26'4" clay, dark brown, lignitic, with a trace of lignite
 26'4" - 26'8" clay, lignitic
 26'8" - 29'6" clay, gray-brown, with very fine sand and silt, slightly micaceous
 T. D.: 200'

Drill Hole No. 475. Elevation 250'
 Location: SW¼, Sec. 32, T. 12 S., R. 13 W.
 County: Calhoun
 Logged by: J. M. Howard 6/78.

0'-15' Clay, tan, with silt and very fine sand
 15'-25' Clay, cream to tan, with silt
 25'-30' Clay, light brown
 30'-35' Clay, dark brown, with approximately 1' - 2' of lignite
 35'-40' Clay, brownish gray, with silt
 40'-50' Clay, greenish-gray, glauconitic
 50'-60' Clay, brownish gray
 60'-70' Clay, brown and gray interbedded, with approximately 1' - 1'6" of lignite
 70'-75' Clay, greenish-brown
 75'-80' Silt, with greenish-brown clay binder
 80'-90' Clay, gray, with silt and a trace of siderite
 90'-145' Clay, light brown, with a trace of lignite
 145'-155' Clay, brown, with approximately 3' - 4' of lignite
 155'-175' Clay, light brown
 175'-200' Clay, light brown to gray

Core Interval 143' - 150'

Recovered: Lost:

45" 39"

143' - 144' clay, gray-brown
 144' - 146' lignite, black, hard
 146' - 146'9" clay, brown to dark brown, with thin lignite stringers
 146'9" - 150' sand (not recovered)
 T. D.: 200'

Drill Hole No. 476. Elevation 142'
 Location: SE¼, Sec. 33, T. 14 S., R. 13 W.
 County: Calhoun
 Logged by: Dave Lumbert 6/78.

0'-10' Clay, tan, with fine sand

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10'-15' Clay, tan, with fine sand and pea gravel
15'-45' Gravel and fine sand
45'-62' Clay, gray, with fine sand
62'-65' Lignite and brown lignitic clay with fine sand
65'-75' Clay, brown, with very fine sand and a trace of lignite
75'-80' Clay, chocolate brown, with fine sand
80'-85' Pea gravel, with fine sand
85'-90' Clay, gray-brown, with very fine to fine sand
90'-95' Sand, fine, with gray-brown clay and a trace of lignite
95'-100' Clay, brown, with very fine sand
100'-110' Sand, fine, with brown clay
110'-130' Gravel and coarse sand
130'-140' Clay, gray-brown, with fine sand
140'-150' Sand, fine, with a trace of brown clay
150'-170' Clay, brown, with interbedded very fine sand
170'-200' Sand, very fine, with brown to gray clay
T. D.: 200'

Drill Hole No. 477. Elevation 135'
Location: SW¼, Sec. 34, T. 14 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Clay, light brown, with silt
5'-8' Clay, light gray, with fine sand
8'-25' Pea gravel, with medium sand
25'-39' Silt, greenish-gray, with clay binder, micaceous
39'-45' Clay, brown, with a trace of lignite
45'-55' Silt, gray-brown, micaceous, with clay binder
55'-60' Clay, grayish-brown
60'-65' Clay, greenish-gray, with silt
65'-70' Clay, dark brown, with approximately 1' to 1'6" of lignite
70'-75' Clay, brown
75'-90' Clay, brownish-gray
90'-95' Clay, gray, with silt
95'-100' Clay, brown, with silt
100'-110' Clay, brown, with silt and a trace of lignite
110'-115' Clay, brown, with very fine sand, micaceous
115'-125' Clay, brown, micaceous, with silt
125'-140' Sand, very fine, with gray silt
140'-150' Clay, gray, with silt
150'-165' Clay, brownish-gray, with silt
165'-170' Clay, brown, with silt
170'-200' Clay, brownish-gray, with very fine sand and silt
T. D.: 200'

Drill Hole No. 478. Elevation 133'
Location: SW¼, Sec. 35, T. 14 S., R. 13 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-5' Clay, gray, with fine sand and silt
5'-38' Pea gravel, with coarse sand
38'-50' Clay, gray, with silt and a trace of lignite
50'-90' Silt with gray, very fine sand
90'-125' Clay, gray, with very fine sand and silt
125'-155' Clay, gray, silty, with interbedded fine sand
155'-200' Sand, gray, fine, with interbedded gray, silty clay
T. D.: 200'

Drill Hole No. 479. Elevation 150'
Location: NW¼, Sec. 1, T. 15 S., R. 13 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Sand, fine, with tan clay
5'-10' Clay, tan, with fine sand
10'-25' Clay, light gray, with very fine sand, iron stained
25'-30' Gravel
30'-40' Clay, gray to brown, with very fine sand and a trace of lignite
40'-50' Clay, gray, with very fine sand, slightly glauconitic
50'-90' Clay, gray to blue-green, with very fine sand
90'-100' Clay, gray to light gray, with very fine sand
100'-105' Clay, gray, with very fine sand
105'-110' Clay, blue-green, with very fine sand
110'-120' Clay, green, glauconitic, with with very fine sand
120'-150' Clay, gray, with very fine sand
150'-165' Clay, brown, with very fine sand
165'-180' Clay, brown, with interbedded, fine to very fine sand
180'-185' Sand, fine, with brown to gray clay
185'-200' Clay, gray, with very fine sand
T. D.: 200'

Drill Hole No. 480. Elevation 151'
Location: NW¼, Sec. 6, T. 15 S., R. 12 W.
County: Calhoun
Logged by: J. M. Howard 6/78.

0'-18' Clay, tan to cream, with fine sand and silt
18'-25' Sand, tan, medium to fine
25'-30' Sand, tan, coarse to medium
30'-38' Pea gravel
38'-100' Clay, gray, with fine sand and silt, and a trace of lignite
100'-180' Clay, gray, with fine sand
180'-200' Clay, gray, with fine sand and approximately 1' of lignite
T. D.: 200'

Drill Hole No. 481. Elevation 155'
Location: NW¼, Sec. 5, T. 15 S., R. 12 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Clay, gray-brown, fine sand
5'-10' Clay, gray, fine sand, iron stained
10'-15' Clay, gray to tan, with very fine sand
15'-20' Clay, gray, with interbedded tan clay and very fine sand
20'-50' Gravel
50'-55' Clay, brown to gray, fine sand
55'-60' Clay, gray, with very fine sand, iron stained
60'-90' Clay, gray to brown, with fine to very fine sand
90'-110' Clay, gray-brown, slightly micaceous and glauconitic with very fine sand
110'-150' Clay, gray, with fine to very fine sand
150'-180' Clay, light gray to light tan, with very fine sand
180'-200' Clay, gray to light brown, slightly glauconitic, with very fine sand
T. D.: 200'

Drill Hole No. 482. Elevation 120'
Location: NW¼, Sec. 4, T. 15 S., R. 12 W.
County: Calhoun
Logged by: Dave Lumbert 6/78.

0'-5' Clay, red, with fine sand
5'-15' Clay, tan, with very fine sand
15'-20' Sand, fine, with tan clay
20'-25' Clay, tan, with very fine sand
25'-35' Gravel
35'-40' Clay, gray to brown, with very fine sand and a trace of lignite
40'-60' Clay, gray, slightly glauconitic, with very fine sand
60'-65' Sand, fine, with gray clay
65'-80' Clay, gray, slightly glauconitic, with very fine sand
80'-85' Clay, gray to brown, with very fine sand, slightly glauconitic
85'-100' Clay, gray, with very fine sand
100'-110' Clay, gray, with interbedded brown clay and very fine sand
110'-120' Clay, gray, with fine to very fine sand
120'-130' Clay, gray to brown, with fine sand
130'-140' Clay, light gray to light brown, slightly micaceous, with very fine sand
140'-154' Clay, light gray to dark gray, with very fine sand, slightly glauconitic and micaceous
154'-156' Siderite
156'-160' Clay, gray, with very fine sand, slightly glauconitic and micaceous
160'-165' Sand, fine, with gray clay
165'-170' Clay, light gray, with very fine sand
170'-180' Clay, brown to gray, with very fine sand
180'-190' Clay, brown to light brown, with very fine sand
190'-200' Clay, brown, with interbedded fine to very fine sand
T. D.: 200'

Drill Hole No. 483. Elevation 100'
Location: NE¼, Sec. 10, T. 15 S., R. 12 W.
County: Bradley
Logged by: Dave Lumbert 6/78.

0'-10' Clay, light brown, with very fine sand
10'-25' Pea gravel, with medium sand
25'-55' Clay, gray, glauconitic, with interbedded fine to medium sand and a trace of lignite
55'-65' Clay, gray, glauconitic, fine to very fine sand
65'-70' Clay, gray, slightly glauconitic with fine sand
70'-100' Clay, gray, slightly glauconitic, slightly micaceous, with very fine sand
100'-120' Clay, gray-brown, with fine sand and a trace of lignite
120'-200' Clay, gray, slightly glauconitic and micaceous, with fine to very fine sand
T. D.: 200'

Drill Hole No. 484. Elevation 163'
Location: SE¼, Sec. 11, T. 15 S., R. 12 W.
County: Bradley
Logged by: J. M. Howard 6/78.

0'-5' Clay, mottled, with silt and very fine sand
5'-20' Pea gravel, with red clay binder
20'-25' Clay, light brown, with silt

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25'-30' Sand, greenish-gray, very fine, glauconitic, silty
 30'-65' Clay, grayish-brown, silty, with a trace of siderite and lignite
 65'-70' Clay, brown
 70'-75' Clay, greenish-gray
 75'-80' Clay, brownish-gray, with interbedded glauconitic, fine sand and silt
 80'-85' Sand, greenish-gray, very fine, silty
 85'-86' Lignite, with dark brown silt
 86'-95' Clay, dark brown
 95'-100' Clay, brown
 100'-105' Clay, greenish-gray, with silt
 105'-110' Silt, with gray clay
 110'-125' Clay, brown, with silt
 125'-150' Clay, light grayish-brown
 150'-160' Clay, gray
 160'-170' Clay, gray, with very fine sand and silt
 170'-200' Sand, very fine, with silt and gray clay binder
 T. D.: 200'

Drill Hole No. 485. Elevation 190'
 Location: NE $\frac{1}{4}$, Sec. 12, T. 15 S., R. 12 W.
 County: Bradley
 Logged by: Dave Lumbert 6/78.

0'-5' Sand, brown to red,
 5'-10' Clay, brown to red, with fine sand
 10'-15' Sand, medium to coarse, with red clay
 15'-50' Gravel, with coarse sand
 50'-65' Clay, gray, with very fine to fine sand
 65'-100' Clay, gray, slightly glauconitic with very fine sand and a trace of siderite
 100'-110' Clay, gray to blue, with very fine sand
 110'-120' Clay, gray to brown, with very fine sand and a trace of lignite
 120'-150' Clay, gray to blue, with very fine sand and a trace of lignitic clay
 150'-160' Clay, light gray to light brown, with very fine sand
 160'-170' Clay, light gray interbedded with gray to blue clay, very fine sand and silt
 170'-180' Clay, light gray, with very fine sand and silt
 180'-190' Clay, light gray, with interbedded fine sand
 190'-200' Sand, fine, with gray clay
 T. D.: 200'

Drill Hole No. 486. Elevation 184'
 Location: NE $\frac{1}{4}$, Sec. 7, T. 15 S., R. 11 W.
 County: Bradley
 Logged by: J. M. Howard 6/78.

0'-10' Clay, mottled, with fine sand and silt
 10'-20' Pea gravel, with coarse sand
 20'-45' Clay, gray, with silt
 45'-50' Clay, brown, silty, with approximately 1'6" of lignite
 50'-60' Clay, gray
 60'-65' Clay, chocolate brown
 65'-70' Clay, light brown
 70'-80' Silt, greenish-gray, with very fine sand and glauconite
 80'-85' Clay, light brown
 85'-110' Clay, greenish-gray, with a trace of brown clay

110'-130' Clay, light brown
 130'-135' Clay, brown, with silt and a trace of lignite
 135'-150' Clay, gray
 150'-170' Sand, medium to fine, salt and pepper
 170'-180' Clay, grayish-tan
 180'-200' Sand, gray, medium to fine with a trace of lignite
 T. D.: 200'

Drill Hole No. 487. Elevation 168'
 Location: SE $\frac{1}{4}$, Sec. 5, T. 15 S., R. 11 W.
 County: Bradley
 Logged by: J. M. Howard 6/78.

0'-5' Clay, gray, with silt and fine sand
 5'-10' Pea gravel, with coarse sand
 10'-15' Clay, gray, with silt
 15'-20' Silt, brown, with clay binder and a trace of lignite
 20'-25' Clay, gray
 25'-30' Clay, greenish-gray
 30'-45' Clay, brownish-gray, with silt and a trace of lignite
 45'-55' Clay, greenish-gray
 55'-60' Clay, brownish-gray, with silt
 60'-65' Clay, brown, micaceous, with silt
 65'-75' Sand, fine, silty, with glauconite
 75'-80' Clay, dark brown, with a trace of lignite
 80'-85' Lignite, approximately 4', with a trace of brown clay
 85'-105' Clay, greenish-gray and brown interbedded, with glauconite
 105'-115' Silt, with brownish-gray clay binder
 115'-150' Clay, light brownish-gray, silty with a trace of lignite
 150'-155' Clay, light brown, with silt
 155'-175' Sand, very fine, with light brownish silt and clay binder
 175'-200' Clay, light brown, with very fine sand and silt
 T. D.: 200'

Drill Hole No. 488. Elevation 187'
 Location: NW $\frac{1}{4}$, Sec. 4, T. 11 S., R. 12 W.
 County: Calhoun
 Logged by: G. L. Delevan 6/78.

0'-27' Sand, light brown, very fine, silty
 27'-34' Pea gravel, with very fine sand and a trace of lignite
 34'-70' Clay, gray, with very fine sand and silt, micaceous
 70'-71' Clay, dark brown, with a trace of lignite
 71'-84' Clay, light gray, silty, slightly micaceous
 84'-91' Clay, light gray-brown, with interbedded dark brown clay
 91'-120' Clay, light gray-brown, with very fine sand and silt
 120'-138' Silt, light brown, with a trace of clay and lignite
 138'-150' Sand, brown, very fine
 T. D.: 150'

Drill Hole No. 489. Elevation 228'
 Location: NW $\frac{1}{4}$, Sec. 36, T. 10 S., R. 13 W.
 County: Dallas
 Logged by: G. L. Delevan 6/78.

0'-6' Sand, light gray-brown, very

fine, slightly micaceous
 6'-13'6" Clay, light brown, with very fine sand and silt
 13'6"-15' Lignite, black, firm
 15'-16'6" Clay, brown to dark brown
 16'6"-19' Lignite, black, firm
 19'-28' Clay, light gray-brown, with very fine sand and silt, slightly micaceous and carbonaceous
 28'-35' Clay, brown, with a trace of lignite
 35'-51' Clay, gray-brown, silty
 51'-57' Clay, greenish-gray, slightly glauconitic and micaceous
 57'-70' Sand, light gray-green, very fine, slightly glauconitic and micaceous
 70'-132' Clay, light gray-green, silty, slightly glauconitic, with siderite
 132'-150' Clay, light brown, with very fine sand, slightly micaceous and carbonaceous

Core Interval 10'6" - 14'1"

Recovered: 43" Lost: 0"

10'6" - 12'11" lignite, black, soft, with numerous silt partings
 12'11" - 13'2" clay, brown to dark brown, with very fine sand and thin lignite stringers
 13'2" - 14'1" sand, gray, very fine, with a trace of clay
 T. D.: 150'

Drill Hole No. 490. Elevation 241'
 Location: SE $\frac{1}{4}$, Sec. 36, T. 10 S., R. 12 W.
 County: Cleveland
 Logged by: G. L. Delevan 6/78.

0'-21' Clay, buff, slightly micaceous
 21'-100' Clay, gray, with very fine sand and silt, slightly micaceous
 100'-120' Sand, gray, very fine, with a trace of gray clay
 120'-138' Sand and clay, gray, very fine, slightly micaceous
 138'-140' Clay, lignitic, with a trace of lignite
 140'-150' Clay, gray, with a trace of lignite
 T. D.: 150'

Drill Hole No. 491. Elevation 280'
 Location: SW $\frac{1}{4}$, Sec. 5, T. 11 S., R. 11 W.
 County: Cleveland
 Logged by: G. L. Delevan 6/78.

0'-37' Clay, light brown to buff, slightly micaceous
 37'-42' Siderite
 42'-80' Clay, dark gray-brown, with very fine sand, slightly micaceous and carbonaceous
 80'-100' Clay, gray-brown, with very fine sand, slightly micaceous
 100'-110' Sand, gray-brown, very fine, slightly micaceous
 110'-122' Clay, brown, slightly micaceous with a trace of lignite
 122'-145' Clay, light gray-brown, with very fine sand, slightly micaceous
 145'-150' Clay, brown, with very fine sand and silt, slightly micaceous and a trace of lignite
 T. D.: 150'

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Drill Hole No. 492. Elevation 271'
Location: NW¼, Sec. 9, T. 11 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 5' Clay, reddish brown, with iron cemented sand and a trace of gravel
5'- 16' Carbonate, dark green, fossiliferous, hard, with interbedded green sand
16'- 35' Clay, dark gray-brown, slightly micaceous
35'- 40' Clay, brown, with very fine sand and silt, and a trace of lignite
40'- 65' Clay and sand, gray-brown, very fine, slightly micaceous
65'- 73' Clay, brown, with very fine sand and a trace of lignite and lignitic clay
73'-120' Clay and sand, gray to gray-brown, very fine, slightly micaceous
120'-140' Clay, dark gray-brown, slightly micaceous
140'-150' Sand, gray-brown, very fine, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 493. Elevation 294'
Location: NE¼, Sec. 16, T. 11 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 13' Sand, light orange, fine to very fine
13'- 29' Clay, buff to light tan, with very fine sand, slightly micaceous
29'- 57' Clay, gray-brown, with very fine sand, slightly micaceous and carbonaceous
57'- 64' Sand, gray-brown, very fine, slightly micaceous and carbonaceous
64'- 85' Clay, gray-brown to brown, with very fine sand, slightly micaceous
85'- 87' Clay, lignitic, dark brown to black, with a trace of lignite
87'- 89' Lignite, black, firm, with a trace of dark brown clay
89'- 91' Clay, dark chocolate brown, with a trace of lignite
91'- 95' Clay, brown, with thin lignite stringers
95'-108' Sand and silt, brown, very fine, with thin lignite stringers
108'-150' Clay, brown, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 494. Elevation 273'
Location: NW¼, Sec. 23, T. 11 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 5' Sand, reddish brown, very fine
5'- 27' Clay, buff, slightly micaceous
27'- 55' Clay and sand, buff, very fine, silty, slightly micaceous
55'- 80' Sand, light orange to brown, silty, very fine
80'-105' Clay, gray, with very fine sand, slightly micaceous, with a trace of lignite
105'-107' Clay, light blue-gray, with very fine sand and silt, slightly micaceous
107'-137' Clay, dark gray-brown, silty,

137'-150' slightly micaceous
Sand, gray, fine, slightly micaceous
T. D.: 150'

Drill Hole No. 495. Elevation 232'
Location: NW¼, Sec. 24, T. 11 S., R. 11 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 5' Sand, light brown, very fine, silty, with buff clay
5'- 13' Sand and clay, light brown to buff, very fine, silty, slightly micaceous
13'- 35' Clay and sand, gray-brown, very fine, silty, slightly micaceous and carbonaceous
35'- 39' Clay and sand, chocolate brown, very fine, slightly micaceous
39'- 61' Clay, light gray-brown, with very fine sand, slightly micaceous
61'- 63' Clay, lignitic, dark chocolate brown to black, with a trace of lignite
63'-110' Clay and sand, gray, very fine, slightly micaceous, with a trace of lignite
110'-122' Clay, gray-brown, with very fine sand, slightly micaceous
122'-123' Clay, lignitic, with a trace of lignite
123'-150' Clay, light brown, slightly micaceous, with very fine sand
T. D.: 150'

Drill Hole No. 496. Elevation 268'
Location: NW¼, Sec. 30, T. 11 S., R. 10 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 6' Sand, reddish brown, very fine, silty
6'- 37' Clay and sand, buff, fine to very fine, slightly micaceous
37'- 70' Clay, gray to gray-brown, with very fine sand and silt, slightly micaceous
70'- 71' Lignite and lignitic clay, black
71'- 96' Clay, gray-brown, with very fine sand, slightly micaceous
96'-121' Clay, brown, silty, slightly micaceous
121'-135' Sand and clay, gray-brown, very fine, slightly micaceous
135'-150' Clay, gray-brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 497. Elevation 228'
Location: SW¼, Sec. 29, T. 11 S., R. 10 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 9' Sand, reddish brown, with a trace of buff clay
9'- 35' Clay, brown, with very fine sand and silt, slightly micaceous
35'- 60' Clay, gray-brown, with very fine sand, slightly micaceous
60'- 75' Clay, brown, with very fine sand, slightly micaceous, with a trace of lignite and black clay
75'- 90' Clay and sand, brown, silty, very fine

90'-110' Clay, brown, very fine sand and silt, slightly micaceous
110'-125' Clay and sand, brown, very fine, slightly micaceous
125'-150' Clay, brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 498. Elevation 223'
Location: SW¼, Sec. 33, T. 11 S., R. 10 W.
County: Cleveland
Logged by: G. L. Delevan 6/78.

0'- 4' Sand, reddish brown, very fine
4'- 15' Clay, buff, slightly micaceous, with interbedded very fine sand
15'- 18' Clay, chocolate brown, with very fine sand, slightly micaceous
18'- 32' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
32'- 80' Clay, gray-brown, with very fine sand and silt, slightly micaceous
80'-150' Clay and sand, gray-brown, very fine, slightly micaceous
T. D.: 150'

Drill Hole No. 499. Elevation 176'
Location: SW¼, Sec. 3, T. 12 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 6/78.

0'- 5' Sand, reddish brown, silty, very fine
5'- 18' Clay, buff, with interbedded very fine sand
18'- 21' Clay, brown, with very fine sand and silt, slightly micaceous
21'- 35' Sand, gray-brown, silty, very fine, slightly micaceous
35'- 42' Clay, gray-brown
42'- 45' Clay, dark chocolate brown to black, with a trace of lignite
45'- 60' Clay, greenish gray, slightly silty
60'- 95' Sand, gray, fine to very fine, slightly micaceous, with a trace of clay
95'-121' Clay, gray-brown, slightly silty and micaceous, with very fine sand
121'-128' Clay, brown, slightly silty and micaceous
128'-150' Clay, gray to gray-brown, slightly micaceous
T. D.: 150'

Drill Hole No. 500. Elevation 183'
Location: SW¼, Sec. 11, T. 12 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 6/78.

0'- 13' Clay, light brown to orange-brown, slightly micaceous
13'- 25' Clay and sand, light gray-brown, very fine, slightly micaceous
25'- 39' Sand, light gray-brown, fine to very fine, slightly micaceous
39'- 46' Clay, light gray-brown, with very fine sand
46'- 49' Clay, brown, with very fine sand, slightly micaceous
49'- 61' Clay and sand, light gray-brown, very fine
61'- 65' Clay, chocolate brown, with very fine sand and a trace of lignite

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65'-90' Clay, gray, with very fine sand and silt, slightly micaceous
90'-103' Clay, gray, with dark brown clay, silty, slightly micaceous
103'-125' Clay, gray-brown, with very fine sand and silt, slightly micaceous
125'-150' Clay, gray-brown to brown, with very fine sand and silt, slightly micaceous
T. D.: 150'

Drill Hole No. 501. Elevation 161'
Location: SE $\frac{1}{4}$, Sec. 14, T. 12 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 6/78.

0'-13' Sand, reddish brown, very fine
13'-35' Clay and sand, gray-brown, very fine, slightly micaceous
35'-70' Clay, gray-brown, with very fine sand, slightly micaceous
70'-85' Clay and sand, gray-brown, very fine, slightly micaceous
85'-100' Clay, gray-brown, with very fine sand, slightly micaceous
100'-115' Clay and sand, gray-brown, slightly micaceous
115'-140' Clay, gray-brown, with very fine sand, slightly micaceous with a trace of dark brown clay
140'-150' Clay, gray-brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 502. Elevation 220'
Location: SE $\frac{1}{4}$, Sec. 24, T. 12 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 6/78.

0'-37' Clay, buff, slightly micaceous
37'-39' Clay, light gray, silty, slightly carbonaceous
39'-60' Clay, gray-brown, with very fine sand, slightly micaceous
60'-130' Clay, gray-brown, with very fine sand, slightly micaceous
130'-150' Clay, gray-brown, with interbedded, very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 503. Elevation 162'
Location: SW $\frac{1}{4}$, Sec. 30, T. 12 S., R. 9 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-15' Sand and clay, light reddish brown, very fine, silty
15'-30' Clay, gray-brown, with very fine sand and silt, slightly micaceous
30'-40' Clay, brown, with very fine sand and silt, slightly micaceous
40'-64' Clay, gray-brown, with very fine sand and silt, slightly micaceous
64'-65' Clay, dark brown, lignitic
65'-75' Clay, light brown, with very fine sand and silt, slightly micaceous
75'-96' Clay, dark brown to black, lignitic, with a trace of lignite
96'-150' Clay, light brown, with very fine sand and silt, slightly micaceous
T. D.: 150'

Drill Hole No. 504. Elevation 240'
Location: NW $\frac{1}{4}$, Sec. 31, T. 13 S., R. 9 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-27' Clay, light orange, with very fine sand, slightly micaceous
27'-31' Sand, light orange to brown, very fine, silty, slightly micaceous
31'-40' Clay, light brown, with very fine sand, slightly micaceous
40'-45' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
45'-60' Clay, brown, with very fine sand and silt, slightly micaceous
60'-150' Clay, gray to gray-brown, slightly micaceous, with a trace of lignite
T. D.: 150'

Drill Hole No. 505. Elevation 220'
Location: SE $\frac{1}{4}$, Sec. 19, T. 13 S., R. 9 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-24' Clay, light orange, with very fine sand and silt
24'-28' Clay, light brown, with a trace of light brown, very fine sand
28'-34' Clay, gray-brown, with very fine sand, slightly micaceous
34'-37' Clay, brown, with very fine sand, slightly micaceous
37'-110' Clay, light brown, with very fine sand and silt, slightly micaceous
110'-114' Clay, brown, with very fine sand and silt, slightly micaceous with a trace of lignite
T. D.: 114'

Drill Hole No. 506. Elevation 229'
Location: SW $\frac{1}{4}$, Sec. 18, T. 13 S., R. 9 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-3' Sand, light reddish brown, very fine, silty, slightly micaceous
3'-23' Clay, buff, silty, slightly micaceous
23'-75' Clay, gray-brown, with very fine sand and silt, slightly micaceous
75'-100' Clay, brown, with very fine sand, slightly micaceous and a trace of siderite
100'-150' Clay, gray-brown, with very fine sand and silt, slightly micaceous
T. D.: 150'

Drill Hole 507. Elevation 232'
Location: SW $\frac{1}{4}$, Sec. 1, T. 13 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-4' Sand, light brown, very fine
4'-21' Clay, buff, with very fine sand
21'-24' Clay, brown, with very fine sand, slightly micaceous
24'-44' Clay, gray, with very fine sand and silt and a trace of lignite
44'-70' Clay and sand, gray-brown, very fine, slightly micaceous

70'-150' Clay, gray-brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 508. Elevation 270'
Location: NW $\frac{1}{4}$, Sec. 10, T. 13 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-6' Sand, light orange-brown, very fine, silty
6'-29' Clay, buff, silty, slightly micaceous
29'-36' Clay, gray, with very fine sand, slightly micaceous
36'-90' Clay, brown, with interbedded very fine sand, slightly micaceous with a trace of lignite
90'-103' Clay and sand, gray-brown, very fine
103'-114' Sand, gray-brown, very fine, slightly micaceous
114'-122' Clay, gray-brown, with very fine sand and silt, slightly micaceous
122'-123'6" Clay, black, lignitic, with black, soft lignite
123'6"-125' Clay, brown, silty, slightly micaceous, with a trace of lignite
125'-142' Clay, light gray, slightly micaceous
142'-145' Sand, light brown, very fine
145'-150' Clay, brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 509. Elevation 255'
Location: SW $\frac{1}{4}$, Sec. 9, T. 13 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-11' Sand, light brown, fine to very fine
11'-19' Clay, buff, with very fine sand and silt, slightly micaceous
19'-24' Clay, brown, with very fine sand, slightly micaceous
24'-30'6" Clay, gray-brown, with very fine sand, slightly micaceous
30'6"-31'6" Lignite, black, firm
31'6"-36' Clay, gray-brown to light gray, with very fine sand
36'-44' Clay and sand, light gray, fine to very fine, slightly micaceous
44'-54' Clay, gray-brown, with very fine sand and silt, slightly micaceous
54'-56' Clay, dark brown, with a trace of dark brown lignite
56'-72' Clay, gray-brown, with very fine sand and silt, slightly micaceous
72'-90' Sand and clay, gray-brown, very fine
90'-92'6" Lignite, black, firm, with black lignitic clay
92'6"-125' Clay, very light gray
125'-150' Clay, gray, with very fine sand and silt, slightly micaceous and a trace of siderite
T. D.: 150'

Drill Hole No. 510. Elevation 263'
Location: NW $\frac{1}{4}$, Sec. 8, T. 13 S., R. 10 W.
County: Bradley
Logged by: G. L. Delevan 7/78.

0'-9' Sand, light reddish brown, very fine, silty

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9'-22' Clay and sand, buff, very fine, silty, slightly micaceous
 22'-23' Lignite and lignitic clay
 23'-52' Clay, gray to gray-brown, with very fine sand, slightly micaceous
 52'-53' Lignite, black, soft
 53'-72' Sand and clay, brown, very fine, with a trace of lignite
 72'-74' Clay, light brown, slightly silty
 74'-76' Lignite and lignitic clay, black to dark brown, firm
 76'-80' Clay, light brown
 80'-87' Clay, light gray-green, with very fine sand and silt
 87'-133' Sand and clay, gray-brown, very fine, slightly micaceous
 133'-150' Clay, gray-brown, slightly silty and micaceous
 T. D.: 150'

Drill Hole No. 511. Elevation 228'
 Location: SW¼, Sec. 6, T. 13 S., R. 10 W.
 County: Bradley
 Logged by: G. L. Delavan 7/78.

0'-30' Clay, light brown, with very fine sand and silt, slightly micaceous
 30'-36' Clay and sand, light brown, very fine
 36'-89' Sand, gray, fine to very fine
 89'-90' Clay, dark chocolate brown to black, lignitic, with very fine sand
 90'-104' Sand, gray, fine to very fine, slightly micaceous
 104'-130' Clay, gray, slightly micaceous
 130'-137' Sand, gray, fine to very fine, slightly micaceous, with a trace of gray clay
 137'-150' Clay, gray, with fine sand, slightly micaceous and a trace of siderite
 T. D.: 150'

Drill Hole No. 512. Elevation 150'
 Location: SE¼, Sec. 4, T. 13 S., R. 9 W.
 County: Bradley
 Logged by: G. L. Delavan 7/78.

0'-12' Clay, gray-brown, with very fine sand, slightly micaceous
 12'-40' Clay, gray, with very fine sand and silt, slightly micaceous
 40'-50' Clay, dark gray-brown
 50'-132' Clay, gray, with very fine sand and silt, slightly micaceous
 132'-139' Clay and sand, gray-brown, very fine, silty
 139'-150' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 513. Elevation 137'
 Location: NW¼, Sec. 5, T. 13 S., R. 8 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-12' Sand, light orange-brown, very fine
 12'-17' Pea gravel
 17'-30' Clay, gray-brown, silty, slightly micaceous
 30'-40' Clay and sand, gray-brown, very fine
 40'-61' Clay, chocolate brown, with

very fine sand, slightly micaceous with a trace of siderite
 61'-128' Clay, gray-brown, with very fine sand, slightly micaceous
 128'-130' Sand, gray-brown, very fine, with gray-brown clay
 130'-135' Clay, gray-brown, with very fine sand, slightly micaceous
 135'-138' Clay, brown to chocolate brown, with very fine sand and silt
 138'-150' Clay, gray-brown, slightly micaceous
 T. D.: 150'

Drill Hole No. 514. Elevation 145'
 Location: NW¼, Sec. 33, T. 12 S., R. 8 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-8' Sand, light orange-brown, very fine with buff clay
 8'-19' Clay, light orange-brown, with very fine sand and silt, slightly micaceous
 19'-30' Clay, gray-brown, with very fine sand and a trace of siderite
 30'-64' Clay, dark gray-brown, with very fine sand, slightly micaceous
 64'-65' Clay, dark chocolate brown
 65'-69' Clay, brown, with very fine sand, slightly micaceous
 69'-105' Clay, gray, with very fine sand, slightly micaceous
 105'-108' Clay, brown, silty
 108'-150' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 515. Elevation 186'
 Location: SE¼, Sec. 27, T. 12 S., R. 8 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-7' Sand, light orange-brown, very fine, silty
 7'-22' Clay, light brown, with very fine sand and silt
 22'-98' Clay, brown to gray-brown, with very fine sand and silt, slightly micaceous
 98'-100' Clay, gray-brown, with a trace of siderite
 100'-150' Clay, brown, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 516. Elevation 211'
 Location: SW¼, Sec. 25, T. 12 S., R. 8 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-7' Sand, light brown, very fine, silty
 7'-30' Clay, light brown, with very fine sand and silt, slightly micaceous
 30'-120' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous with a trace of siderite
 120'-180' Clay, gray-brown, with very fine sand
 T. D.: 180'

Drill Hole No. 517. Elevation 225'
 Location: SE¼, Sec. 30, T. 12 S., R. 7 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-5' Sand, light brown, very fine, silty
 5'-22' Clay, light brown, with very fine sand and silt, slightly micaceous
 22'-50' Clay, gray-brown, slightly silty and micaceous
 50'-150' Clay, gray-brown, with very fine sand and silt, slightly micaceous with a trace of siderite
 T. D.: 150'

Drill Hole No. 518. Elevation 233'
 Location: SW¼, Sec. 28, T. 12 S., R. 7 W.
 County: Drew
 Logged by: G. L. Delavan 7/78.

0'-8' Sand, light brown, very fine slightly micaceous
 8'-37' Clay, brown to light brown
 37'-100' Clay, gray-brown, slightly silty and micaceous
 100'-150' Clay, gray, slightly silty and micaceous
 T. D.: 150'

Drill Hole No. 519. Elevation 270'
 Location: SW¼, Sec. 11, T. 13 S., R. 7 W.
 County: Drew
 Logged by: G. L. Delavan 8/78.

0'-9' Sand, light reddish brown, very fine, silty, with a trace of light brown clay
 9'-27' Clay and sand, light brown to buff, very fine, slightly micaceous
 27'-80' Clay, dark gray-brown, slightly micaceous
 80'-150' Clay, light gray-brown, silty with a trace of siderite
 T. D.: 150'

Drill Hole No. 520. Elevation 270'
 Location: SE¼, Sec. 15, T. 13 S., R. 7 W.
 County: Drew
 Logged by: G. L. Delavan 8/78.

0'-10' Clay, light brown, with very fine sand and silt
 10'-27' Clay, buff, with very fine sand and silt
 27'-150' Clay, dark gray-brown, slightly silty and micaceous with a trace of siderite
 T. D.: 150'

Drill Hole No. 521. Elevation 256'
 Location: NW¼, Sec. 26, T. 13 S., R. 7 W.
 County: Drew
 Logged by: G. L. Delavan 8/78.

0'-8' Clay, light buff
 8'-22' Clay, light gray-brown
 22'-150' Clay, dark gray-brown, slightly silty and micaceous
 T. D.: 150'

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Drill Hole No. 522. Elevation 245'
Location: SW¼, Sec. 26, T. 12 S., R. 7 W.
County: Drew
Logged by: G. L. Delavan 8/78.

0'- 8' Sand, light brown, very fine, silty
8'- 19' Clay, light brown, with very fine sand, slightly micaceous
19'-150' Clay, gray-brown, slightly silty and micaceous
T. D.: 150'

Drill Hole No. 523. Elevation 283'
Location: NE¼, Sec. 22, T. 12 S., R. 7 W.
County: Drew
Logged by: G. L. Delavan 8/78.

0'- 22' Clay, light brown, silty, slightly micaceous
22'- 39' Clay, gray-brown, with very fine sand, slightly micaceous
39'-150' Clay, gray-brown, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 524. Elevation 268'
Location: SE¼, Sec. 10, T. 12 S., R. 7 W.
County: Drew
Logged by: G. L. Delavan 8/78.

0'- 4' Sand, light brown, very fine, silty
4'- 30' Sand and pea gravel, light brown, very fine, silty
30'-150' Clay, gray-brown, silty, slightly micaceous
T. D.: 150'

Drill Hole No. 525. Elevation 208'
Location: SW¼, Sec. 14, T. 10 S., R. 13 W.
County: Dallas
Logged by: G. L. Delavan 8/78.

0'- 7' Sand, light brown, fine to very fine, slightly micaceous
7'- 16' Clay, light gray, with very fine sand
16'- 18' Gravel, large pebble to small pea
18'- 38' Clay, gray-brown, with very fine sand, silty
38'- 47' Clay, very light gray, slightly micaceous
47'- 48' Clay, dark gray-brown to brown, with a trace of lignite
48'- 53' Clay, gray-brown, slightly micaceous
53'- 69' Clay, very light gray, slightly micaceous
69'- 81' Clay, light gray-brown, with very fine sand, slightly micaceous
81'-116' Clay, gray-brown, with very fine sand and silt, slightly micaceous
116'-120' Sand, gray-brown, fine
120'-150' Clay, gray-brown, with very fine sand, slightly micaceous and a trace of siderite
T. D.: 150'

Drill Hole No. 526. Elevation 237'
Location: NE¼, Sec. 15, T. 9 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 24' Clay, buff, with very fine

24'- 26' sand and silt, slightly micaceous
Clay, light brown to gray-brown with very fine sand and silt, slightly micaceous
26'- 36' Clay, brown, with very fine sand and silt, slightly micaceous
36'- 75' Clay, gray, with very fine sand and silt, slightly micaceous with a trace of siderite
75'-100' Clay, gray-brown, silty, with a trace of lignite and lignitic clay
100'-130' Clay, gray, with very fine sand and silt, and a trace of lignite and lignitic clay
130'-150' Clay, gray, with very fine sand, slightly micaceous, with a trace of lignite
T. D.: 150'

Drill Hole No. 527. Elevation 240'
Location: SW¼, Sec. 3, T. 9 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 4' Sand, light brown, very fine, silty
4'- 19' Clay, light brown, silty, slightly micaceous
19'- 22' Lignite, black, firm
22'- 24' Clay, brown to dark brown, with a trace of lignite
24'- 65' Clay, gray, silty, slightly micaceous
65'-125' Clay, gray-brown, silty, slightly micaceous, with a trace of lignite and siderite
125'-150' Clay, light gray, slightly silty,

Core Interval 16'6" - 21'

Recovered: Lost:
30" 24"

16'6" - 18'6" lignite, black, soft with numerous silt partings
18'6" - 19' lignite, black, firm to hard
19' - 21' not recovered

T. D.: 150'

Drill Hole No. 528. Elevation 247'
Location: NE¼, Sec. 34, T. 8 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 17' Sand, very light brown, very fine, silty, slightly micaceous
17'- 19' Clay, very light brown, with very fine sand and silt
19'- 23' Clay, light brown, and lignite
23'- 30' Clay, dark chocolate brown, with very fine sand and silt, and a trace of lignite
30'- 40' Clay and sand, light brown to buff, very fine, and a trace of lignite
40'- 52' Silt and clay, gray-brown, slightly micaceous
52'- 90' Clay, gray-brown, silty, slightly micaceous
90'-110' Silt and sand, gray-brown, with a trace of gray-brown clay
110'-150' Sand and silt, gray-brown, very fine, slightly micaceous
T. D.: 150'

Drill Hole No. 529. Elevation 240'
Location: NE¼, Sec. 27, T. 8 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 4' Sand, light reddish brown, very fine, silty
4'- 12' Clay, light tan to buff, silty
12'- 14' Clay, brown to dark chocolate brown, silty
14'- 24' Clay, gray-brown, with interbedded dark brown clay
24'- 31' Clay, light gray, slightly micaceous
31'- 55' Clay, gray-brown, silty, slightly micaceous
55'- 72' Clay, gray-brown, with very fine sand, slightly micaceous
72'- 83' Clay, gray-brown
83'-100' Clay, gray-brown, with very fine sand, slightly micaceous
100'-115' Clay, gray-brown
115'-150' Clay, gray-brown, with very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 530. Elevation 233'
Location: NW¼, Sec. 22, T. 8 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 18' Clay, buff, with very fine sand, slightly micaceous
18'- 26' Clay, gray-brown, with a trace of silty brown clay
26'- 32' Clay, gray to gray-brown, silty
32'- 39' Clay, brown, with very fine sand, slightly micaceous with a trace of lignite
39'- 64' Clay, gray-brown, silty
64'- 66'6" Clay, black to dark chocolate brown, lignitic, with a trace of lignite
66'6"-82' Clay, light gray, with very fine sand and silt, slightly micaceous
82'-125' Sand, light gray, very fine, silty
125'-150' Clay, light gray-brown, silty
T. D.: 150'

Drill Hole No. 531. Elevation 220'
Location: NW¼, Sec. 15, T. 8 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 4' Sand, light brown, very fine, silty
4'- 22' Clay, light brown, with very fine sand and silt, slightly micaceous
22'- 45' Clay, brown, with very fine sand and silt, slightly micaceous
45'- 60' Clay and sand, gray-brown, very fine, silty, slightly micaceous
60'- 68' Clay, dark gray-brown
68'-109' Clay, gray, with interbedded very fine sand, slightly micaceous
109'-121' Sand, gray, fine to very fine
121'-150' Clay, gray-brown to brown, slightly micaceous
T. D.: 150'

Drill Hole No. 532. Elevation 250'
Location: SW¼, Sec. 3, T. 8 S., R. 13 W.
County: Cleveland
Logged by: G. L. Delavan 8/78.

0'- 8' Sand, light brown, very fine, silty, slightly micaceous

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8'- 18' Clay, light brown, silty, slightly micaceous
 18'- 28' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 28'- 33' Clay, gray-brown, with very fine sand and silt, and interbedded dark brown clay, with a trace of lignite
 33'- 43' Clay and sand, gray, very fine, silty
 43'- 50' Clay, gray to gray-brown, with very fine sand and silt, slightly micaceous
 50'- 57' Clay, gray, with very fine sand, slightly micaceous
 57'- 69' Clay, gray-brown, with very fine sand and silt, slightly micaceous
 69'- 70' Clay, gray-brown, with interbedded dark brown clay and a trace of lignite
 70'- 85' Sand, very fine, with a trace of gray clay
 85'-104' Clay, gray-brown, with a trace of dark brown clay
 104'-109' Clay, greenish-gray, silty, slightly micaceous
 109'-119' Clay, brown, with very fine sand and silt, slightly micaceous with a trace of lignite
 119'-150' Clay, gray, with very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 533. Elevation 182'
 Location: NW¼, Sec. 34, T. 7 S., R. 13 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 15' Clay, light tan, with very fine sand and silt
 15'- 20' Clay, light brown
 20'- 30' Clay, brown, slightly micaceous and silty
 30'- 40' Pea gravel
 40'- 75' Clay, gray-brown, slightly micaceous
 75'- 77' Lignite, black, firm, with a trace of dark chocolate brown clay
 77'- 87' Clay, gray-brown, slightly micaceous with a trace of light tan clay and lignite
 87'-110' Sand and clay, light gray-brown, very fine, silty, slightly micaceous
 110'-150' Sand, light brown to brown, very fine, silty
 T. D.: 150'

Drill Hole No. 534. Elevation 211'
 Location: NE¼, Sec. 19, T. 7 S., R. 13 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 17' Sand, light gray, very fine with light gray clay
 17'- 19' Clay, buff, slightly micaceous
 19'- 33' Clay, gray-brown, slightly silty and micaceous
 33'- 34' Lignite and dark chocolate brown lignitic clay
 34'- 54' Clay, greenish-gray, slightly micaceous, sandy
 54'- 56' Clay, chocolate brown, lignitic
 56'- 66' Clay, light gray-brown, slightly micaceous
 66'- 72' Sand, light gray-brown, very fine, silty
 72'- 94' Clay, greenish-gray, with very fine sand and silt, slightly micaceous

94'-100' Sand, greenish-gray, very fine, silty, slightly micaceous
 100'-113' Clay, greenish-gray, with very fine sand and silt, slightly micaceous
 113'-127' Clay, gray-brown, with very fine sand and silt and a trace of chocolate brown clay
 127'-150' Clay, light brown, with dark chocolate brown lignitic clay interbedded and a trace of lignite
 T. D.: 150'

Drill Hole No. 535. Elevation 236'
 Location: NW¼, Sec. 19, T. 7 S., R. 13 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 5' Sand, light brown, very fine, silty
 5'- 10' Clay, light brown, with very fine sand and silt, slightly micaceous
 10'- 15' Clay, brown, with very fine sand and silt, slightly micaceous with a trace of dark brown lignitic clay
 15'- 30' Clay, gray-green, with very fine sand, slightly micaceous
 30'- 70' Clay, gray-brown, with very fine sand and silt, slightly micaceous with a trace of dark brown clay and lignite
 T. D.: 70'

Drill Hole No. 536. Elevation 266'
 Location: NE¼, Sec. 26, T. 7 S., R. 14 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 3' Sand, light gray, very fine, slightly micaceous
 3'- 10' Clay, light brown, with very fine sand and silt, slightly micaceous
 10'- 20' Pea gravel
 20'- 34' Clay, light brown, with very fine sand and silt, slightly micaceous
 34'- 65' Clay, dark brown, with very fine sand and silt, slightly micaceous
 65'- 76' Clay, greenish-gray, with very fine sand, slightly silty and micaceous
 76'- 77' Lignite, black, hard
 77'- 85' Sand, greenish-gray, very fine, slightly micaceous
 85'-142' Clay, gray-brown, slightly silty, carbonaceous
 142'-150' Clay, greenish-gray, with very fine sand and silt, slightly micaceous, with a trace of lignite
 T. D.: 150'

Drill Hole No. 537. Elevation 330'
 Location: SE¼, Sec. 30, T. 7 S., R. 14 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 35' Sand, light brown, very fine, silty, slightly micaceous
 35'- 55' Clay, light brown, with very fine sand and silt, slightly micaceous
 55'- 70' Clay, gray-brown, with very

fine sand, slightly micaceous
 70'- 75' Clay and sand, gray, very fine, slightly micaceous
 75'- 92' Clay, gray-green, with very fine sand and silt, slightly micaceous with a trace of dark chocolate brown clay
 92'-107' Sand, gray, very fine, slightly micaceous
 107'-108' Lignite, black, soft
 108'-135' Clay, chocolate brown, silty, with a trace of lignite
 135'-143' Sand, gray-brown, very fine, slightly micaceous
 143'-150' Clay, gray-brown, with very fine sand, slightly micaceous
 T. D.: 150'

Drill Hole No. 538. Elevation 345'
 Location: NE¼, Sec. 36, T. 7 S., R. 15 W.
 County: Dallas
 Logged by: G. L. Delavan 8/78.

0'- 5' Sand, light reddish brown, very fine, silty, slightly micaceous
 5'- 55' Clay and sand, buff, very fine, with small pea gravel
 55'- 96' Clay and sand, gray-brown, very fine, with small pea gravel, slightly micaceous and silty
 96'-101' Sand, light brown, very fine
 101'-130' Clay and sand, gray-brown, very fine, with a trace of lignite
 T. D.: 130'

Drill Hole No. 539. Elevation 380'
 Location: NW¼, Sec. 35, T. 7 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 8/78.

0'- 12' Clay, buff, slightly silty and micaceous
 12'- 45' Sand, light gray, fine, slightly carbonaceous
 45'-103' Clay, gray, with fine sand and silt, slightly carbonaceous with a trace of siderite
 103'-150' Clay, gray, with very fine sand and silt, slightly micaceous
 T. D.: 150'

Drill Hole No. 540. Elevation 430'
 Location: NW¼, Sec. 34, T. 7 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 8/78.

0'- 25' Clay, light buff, slightly silty and micaceous
 25'- 46' Sand, very fine, silty
 46'- 78' Clay, gray-brown, with very fine sand and silt, slightly micaceous with a trace of siderite
 78'- 93' Clay, buff, with very fine sand and silt, slightly micaceous
 93'-150' Sand, buff, very fine, silty, slightly carbonaceous
 T. D.: 150'

Drill Hole No. 541. Elevation 470'
 Location: SE¼, Sec. 33, T. 7 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 8/78.

0'- 35' Pea gravel
 35'- 43' Clay, purple-red, with very fine sand and silt

ARKANSAS LIGNITE INVESTIGATIONS

43'-82' Sand, light orange-brown, fine
82'-103' Silt, light brown
103'-105' Clay, chocolate brown, with
very fine sand and silt, and a
trace of lignite
105'-108' Clay, light brown, with very
fine sand and silt, and a trace
of lignite
108'-123' Clay, greenish-gray, with very
fine sand and silt, and approxi-
mately 6" of black, hard lignite
123'-126' Silt, light brown, with a trace
of siderite
126'-137' Clay and silt, greenish-gray,
micaceous, with a trace of
lignite
137'-155' Clay, gray, with very fine
sand and silt, slightly mica-
ceous
155'-170' Clay, gray-brown, with very
fine sand and silt, slightly
micaceous
T. D.: 170'

Drill Hole No. 542. Elevation 460'
Location: NW¼, Sec. 3, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-18' Gravel and sand, large pebble
to large pea
T. D.: 18'

Drill Hole No. 543. Elevation 345'
Location: SW¼, Sec. 10, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-7' Clay, gray-brown, with very
fine sand and silt
7'-19' Sand, very fine, silty
19'-24' Lignite, black, hard
24'-26' Clay, chocolate brown
26'-30' Lignite, black, hard
30'-32' Clay, chocolate brown, lignitic
32'-42' Clay, gray-brown
42'-48' Sand
48'-60' Clay, buff to light brown,
with very fine sand and silt

Core Interval 20' - 26'6"

Recovered: Lost:
37" 41"

20' - 20'2" clay, buff
20'2" - 21'2" lignite, soft
21'2" - 22'1" clay, chocolate
brown, lignitic
22'1" - 23'1" lignite, black,
hard
23'1" - 26'6" not recovered

Core Interval 26'6" - 30'

Recovered: Lost:
42" 0"

26'6" - 27'4" clay, chocolate
brown
27'4" - 29'11" lignite, black,
hard
29'11" - 30' clay, lignitic

T. D.: 60'

Drill Hole No. 544. Elevation 285'
Location: NE¼, Sec. 21, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-15' Sand and clay, light gray,
very fine, silty, slightly mica-
ceous
15'-23' Clay, gray, with a trace of
interbedded chocolate brown
clay
23'-26' Clay, light gray
26'-58' Sand and silt, light gray, very
fine, with a trace of lignite
and siderite
T. D.: 58'

Drill Hole No. 545. Elevation 270'
Location: SE¼, Sec. 27, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-20' Sand and clay, buff-gray, very
fine, silty
20'-63' Clay, gray-brown, with very
fine sand and silt, slightly
micaceous
63'-150' Sand, very fine, silty, with
a trace of lignite
T. D.: 150'

Drill Hole No. 546. Elevation 265'
Location: SW¼, Sec. 34, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-10' Clay, buff to brown, with
very fine sand and silt
10'-15' Clay, buff, with very fine
sand and silt
15'-20' Clay, gray, with small pea
gravel and very fine sand
20'-149' Sand, light brown, very fine,
with a trace of lignite
149'-150' Clay, gray, with very fine
sand and silt
T. D.: 150'

Drill Hole No. 547. Elevation 280'
Location: SE¼, Sec. 3, T. 9 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-25' Sand, reddish brown, very
fine, slightly micaceous
25'-26' Clay, light buff, with very
fine sand and silt, slightly
micaceous
26'-80' Sand, light gray, very fine,
slightly micaceous, slightly car-
bonaceous
80'-144' Sand, light gray, very fine,
slightly micaceous, with light
buff clay partings
144'-144'10" Lignite, black, hard
144'10"-155' Sand, light gray, very fine,
slightly micaceous
155'-156' Lignite, black, hard
156'-165' Sand, light gray, very fine,
slightly silty
165'-177' Clay and sand, gray-brown,
very fine, and a trace of lignite
177'-180' Silt, with very fine sand, and
a trace of lignite
T. D.: 180'

Drill Hole No. 548. Elevation 310'
Location: SW¼, Sec. 11, T. 9 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-5' Clay, mottled buff to light
red, with very fine sand
and silt
5'-17' Sand, light gray, fine to very
fine, slightly micaceous, with
iron concretions
17'-23' Clay, buff to yellow, iron
stained
23'-29' Clay, light gray
29'-32' Sand, light gray, very fine
32'-59' Clay, gray
59'-60' Clay, light buff, with very
fine sand and silt
60'-65' Sand, light gray, very fine
65'-68' Clay, gray, with very fine
sand and silt
68'-74' Sand, light gray, very fine,
slightly micaceous
74'-120' Clay, dark gray, with very
fine sand and a trace of lignite
120'-144' Clay, chocolate brown, slightly
micaceous
144'-150' Clay, light greenish-brown, with
a trace of glauconite
T. D.: 150'

Drill Hole No. 549. Elevation 348'
Location: SW¼, Sec. 13, T. 9 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 8/78.

0'-4' Clay, mottled red to gray
4'-8' Pea gravel, large
8'-15' Clay, buff to light brown
15'-35' Clay, dark buff, with very
fine sand, slightly micaceous
35'-44' Clay, light gray, with very fine
sand and silt, slightly micaceous
44'-47' Sand, light gray, very fine,
slightly micaceous
47'-85' Sand and clay, light gray, very
fine, slightly micaceous
85'-100' Clay, light gray, with very fine
sand, slightly micaceous
100'-150' Clay, dark greenish-gray, with
very fine sand, slightly mica-
ceous and a trace of siderite
T. D.: 150'

Drill Hole No. 550. Elevation 340'
Location: SW¼, Sec. 24, T. 9 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'-6' Clay, gray-brown, with very
fine sand and silt, slightly
micaceous
6'-26' Clay, buff to light brown,
with very fine sand and silt,
slightly micaceous and a trace
of lignite
26'-30' Clay, dark brown, with very
fine sand and silt, slightly
micaceous
30'-63' Clay, greenish-gray, with very
fine sand and silt, slightly
micaceous
63'-66' Sand, light gray, very fine
66'-86' Clay, gray-brown, with very
fine sand, micaceous
86'-115' Sand, light gray, very fine
115'-127' Clay and silt, greenish-gray,
slightly micaceous and a trace
of lignite

ARKANSAS LIGNITE INVESTIGATIONS

127'-128' Sand, light gray, very fine
128'-139' Clay and silt, greenish gray, with very fine sand, micaceous, with a trace of lignite
139'-150' Clay, light greenish-gray, with very fine sand, slightly micaceous and a trace of lignite
T. D.: 150'

Drill Hole No. 551. Elevation 360'

Location: NW¼, Sec. 30, T. 9 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 6' Clay, mottled, sandy, fine to very fine
6'- 8' Gravel, small to large pea
8'- 12' Clay, mottled light gray, with fine to very fine sand
12'- 40' Sand, salt and pepper, fine, slightly micaceous with minor limonite and hematite stringers
40'- 55' Clay, gray, silty
55'- 64' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous
64'-125' Clay, dark gray, with very fine sand and silt, slightly micaceous and a trace of lignite
125'-150' Sand, very fine, with a trace of lignite
T. D.: 150'

Drill Hole No. 552. Elevation 350'

Location: NW¼, Sec. 32, T. 9 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 5' Clay, mottled, with very fine sand
5'- 6' Gravel, small to large pea
6'- 10' Clay, light buff, with very fine sand
10'- 16' Clay, light brown
16'- 20' Clay, dark brown, lignitic
20'- 27' Clay, greenish-gray, slightly silty
27'- 34' Sand, very fine
34'- 37' Clay, greenish-gray
T. D.: 37'

Drill Hole No. 553. Elevation 320'

Location: SE¼, Sec. 5, T. 10 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 34' Clay and sand, mottled light brown, very fine, slightly micaceous, with a trace of pea gravel
34'-115' Clay, dark gray, with light buff clay stringers, slightly silty and a trace of siderite
115'-118' Clay, greenish-gray, slightly silty and micaceous
118'-150' Clay, dark gray, slightly silty and micaceous
T. D.: 150'

Drill Hole No. 554. Elevation 330'

Location: NE¼, Sec. 9, T. 10 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 14' Clay, light buff to brown, slightly silty and micaceous, with minor limonite interbeds
14'- 18' Clay, chocolate brown, with very fine sand and silt, slightly micaceous, with a trace of

lignite
18'- 20' Clay, light chocolate brown, with very fine sand and silt, slightly micaceous
20'- 29' Clay, dark gray, with very fine sand and silt, micaceous
29'- 39' Clay, light green, with very fine sand and silt, slightly micaceous
39'- 43' Clay, light gray, slightly silty
43'- 47' Clay, very light green, slightly silty
47'- 54' Clay, light gray
54'- 56' Clay, chocolate brown, with a trace of lignite
56'- 64' Clay, light greenish-gray
64'- 67' Clay, dark greenish-gray, with very fine sand and silt, micaceous
67'-150' Clay, dark gray, with very fine sand and silt, micaceous, with a trace of lignite throughout
T. D.: 150'

Drill Hole No. 555. Elevation 310'

Location: SE¼, Sec. 10, T. 10 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 3' Sand and clay, mottled
3'- 4' Gravel, small to large pea
4'- 8' Clay, light brown, with very fine sand and silt, micaceous
8'- 10' Clay, dark gray-brown, with very fine sand and silt, micaceous
10'- 29' Clay and sand, dark gray, very fine, micaceous
29'- 36' Clay, dark gray, with very fine sand and silt, micaceous
36'- 77' Sand, greenish-gray, very fine, micaceous, with a trace of lignite
77'- 87' Clay, light buff to dark green, with very fine sand, micaceous and a trace of lignite
87'-150' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
T. D.: 150'

Drill Hole No. 556. Elevation 345'

Location: SE¼, Sec. 14, T. 10 S., R. 14 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 5' Clay, dark buff, with very fine sand, slightly silty
5'- 15' Clay, dark buff, with very fine sand and silt
15'- 20' Clay, medium gray
20'- 25' Clay, dark gray-brown
25'- 40' Clay, light greenish-gray, with very fine sand and silt
40'- 46' Clay, dark gray
46'- 48' Clay, dark chocolate brown, lignitic
48'- 80' Clay, medium greenish-gray, slightly silty
80'- 96' Clay, gray, with a trace of very fine sand and silt
96'- 98' Clay, dark chocolate brown, lignitic with a trace of lignite
98'-110' Clay, gray-brown, slightly silty
110'-125' Clay, light greenish-gray
125'-128' Clay, dark gray-brown, slightly carbonaceous
128'-129' Clay, light chocolate brown, lignitic, with a trace of lignite

129'-136' Silt, light brown
136'-140' Clay, light gray brown, with a trace of very fine sand and silt
140'-148' Clay, light greenish gray, with a trace of very fine sand and silt
148'-150' Clay, light chocolate brown, lignitic
150'-156' Silt, light brown
156'-160' Clay, medium greenish-gray, with a trace of very fine sand and silt
T. D.: 160'

Drill Hole No. 557. Elevation 300'

Location: SW¼, Sec. 18, T. 10 S., R. 13 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 15' Sand, fine to very fine, micaceous, with a trace of limonite
15'- 25' Clay and sand, light buff, very fine, micaceous
25'- 80' Clay and sand, dark gray, very fine, micaceous
80'-115' Clay and sand, dark greenish-gray, very fine, micaceous
115'-130' Clay, dark gray, silty, micaceous, with very fine sand
130'-146' Clay, light gray-brown, silty, slightly micaceous, with a trace of lignite
146'-150' Clay, gray, slightly silty
T. D.: 150'

Drill Hole No. 558. Elevation 245'

Location: SE¼, Sec. 17, T. 10 S., R. 13 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 25' Sand, white, medium to fine
25'- 28' Clay, orange, with very fine sand and silt, slightly micaceous
28'- 30' Clay, dark gray, with very fine sand and silt
30'- 32' Clay, dark gray-brown
32'- 34' Clay, chocolate brown, lignitic with a trace of lignite
34'- 37' Clay, light green, with very fine sand and silt, slightly micaceous
37'- 70' Silt, light buff to light brown, with very fine sand and a trace of lignite
70'- 92' Clay, light green, with a trace of very fine sand and silt
92'- 93' Clay, chocolate brown, lignitic
93'-107' Clay, light greenish-gray
107'-120' Clay, light brown, with a trace of very fine sand and silt, slightly micaceous
120'-123' Clay, light green, with very fine sand and silt, slightly micaceous
123'-130' Clay, chocolate brown, lignitic with a trace of lignite
130'-150' Silt, light brown, with a trace of very fine sand
T. D.: 150'

Drill Hole No. 559. Elevation 300'

Location: SE¼, Sec. 21, T. 10 S., R. 13 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 17' Clay, mottled light buff

ARKANSAS LIGNITE INVESTIGATIONS

17'-19' Clay, dark gray, slightly silty
 19'-20' Clay, chocolate brown, slightly silty
 20'-21' Lignite, with dark chocolate brown lignitic clay
 21'-28' Clay, light chocolate brown
 28'-32' Clay, light greenish-gray, slightly silty and micaceous
 32'-38' Clay, dark buff, with very fine sand and silt, slightly micaceous
 38'-42' Sand, brown, fine to very fine, micaceous
 42'-43' Clay, gray-brown, with very fine sand and silt, micaceous
 43'-44' Lignite, with dark brown lignitic clay
 44'-58' Clay and sand, light greenish-gray, fine to very fine, micaceous
 58'-64' Clay, light brown
 64'-69' Clay, dark gray, with very fine sand and silt, slightly micaceous
 69'-72' Clay, brown, slightly silty
 72'-96' Clay, light greenish-gray, with very fine sand and silt
 96'-97' Clay, brown, with a trace of very fine sand and silt
 97'-124' Clay, gray, with very fine sand and silt
 124'-128' Clay, light buff to gray, slightly silty
 128'-138' Clay, medium gray, with very fine sand and silt, micaceous
 138'-150' Clay, greenish-gray, with very fine sand and silt, micaceous
 T. D.: 150'

Drill Hole No. 560. Elevation 260'
 Location: SW¼, Sec. 18, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-5' Gravel, small pea to small pebble
 5'-6' Clay, limonite stained, slightly micaceous
 6'-12' Clay, dark buff, slightly silty
 12'-44' Clay, dark chocolate brown, slightly silty and micaceous, with 3" of siderite
 44'-50' Clay and sand, dark gray-brown, very fine to fine, micaceous with a trace of glauconite
 50'-55' Clay, dark chocolate brown, with a trace of lignite
 55'-75' Clay, dark gray-brown, silty, micaceous
 T. D.: 75'

Drill Hole No. 561. Elevation 330'
 Location: SW¼, Sec. 17, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-5' Clay, dark orange-red, with very fine sand and silt
 5'-6' Clay, bright orange, limonite stained
 6'-18' Clay, white, with very fine sand and silt, slightly micaceous
 18'-26' Clay, dark chocolate brown, with very fine sand and silt, micaceous
 26'-33' Clay, light gray-brown, with very fine sand and silt, micaceous
 33'-103' Clay, dark chocolate brown, with very fine sand and silt,

micaceous and a trace of lignite
 103'-110' Silt, dark chocolate brown
 110'-130' Clay, dark chocolate brown, with very fine sand and silt, micaceous
 130'-145' Silt, dark chocolate brown
 145'-150' Sand and clay, dark gray-brown, very fine, micaceous
 T. D.: 150'

Drill Hole No. 562. Elevation 300'
 Location: NE¼, Sec. 16, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-3' Gravel, small pea
 3'-20' Sand and clay, reddish-orange, very fine, silty
 20'-30' Clay, brown, with very fine sand and silt, micaceous, with a trace of siderite
 30'-60' Clay, dark gray to very light green, with very fine sand and silt, micaceous
 60'-90' Clay, dark brown, with very fine sand and silt, micaceous
 90'-100' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
 100'-128' Clay, dark brown, with very fine sand and silt, micaceous and a trace of lignite
 128'-140' Silt, dark brown, highly micaceous
 140'-150' Clay, dark brown, with very fine sand and interbedded silt, micaceous
 T. D.: 150'

Drill Hole No. 563. Elevation 285'
 Location: NW¼, Sec. 23, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-38' Sand, reddish orange, with buff-white clay stringers, fine to very fine
 38'-58' Sand and silt, light orange-brown
 58'-93' Sand and silt, light buff-white, very fine, with 3" of siderite
 93'-108' Sand and silt, dark gray, fine to very fine, micaceous, with 3" of siderite
 108'-150' Clay and sand, dark greenish-gray, very fine, highly micaceous and a trace of siderite
 T. D.: 150'

Drill Hole No. 564. Elevation 195'
 Location: NE¼, Sec. 24, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-4' Clay, light orange-brown, with very fine sand and silt, slightly micaceous
 4'-20' Gravel and sand, small pea
 T. D.: 20'

Drill Hole No. 565. Elevation 265'
 Location: SE¼, Sec. 24, T. 8 S., R. 17 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-45' Sand, red, very fine, with clay binder
 45'-122' Sand and clay, gray to buff,

fine to very fine, with a trace of lignite
 122'-155' Clay, dark brown, with very fine sand and silt, slightly micaceous and a trace of lignite
 155'-162' Silt and sand, light brown, very fine
 162'-164'6" Clay and silt, dark gray, with very fine sand and a trace of siderite
 T. D.: 164'6"

Drill Hole No. 566. Elevation 300'
 Location: SE¼, Sec. 19, T. 8 S., R. 16 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-25' Sand and clay, light buff to light orange-brown, very fine
 25'-45' Clay, gray, with very fine sand and silt, slightly micaceous
 45'-60' Clay, dark gray, with very fine sand and silt, slightly micaceous, with a trace of lignite
 60'-75' Sand and silt, light gray, very fine, slightly micaceous
 75'-154' Sand, light gray, very fine, slightly carbonaceous
 154'-156' Clay, light chocolate brown, lignitic
 156'-158' Lignite, black, soft
 158'-161' Siderite
 161'-170' Silt, gray-brown, with a trace of lignite
 T. D.: 170'

Drill Hole No. 567. Elevation 310'
 Location: SE¼, Sec. 29, T. 8 S., R. 16 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-10' Sand, light red, very fine, slightly micaceous
 10'-20' Clay, gray mottled reddish
 20'-50' Sand, white, fine to very fine
 50'-65' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
 65'-65'6" Lignite, black, hard
 65'6"-80' Silt, brown, with a trace of lignite
 80'-100' Clay, gray-brown, with very fine sand and silt, slightly micaceous with 3" of siderite
 100'-150' Silt, gray-brown, with very fine sand
 T. D.: 150'

Drill Hole No. 568. Elevation 243'
 Location: NW¼, Sec. 33, T. 8 S., R. 16 W.
 County: Dallas
 Logged by: T. Y. Suen 9/78.

0'-7' Sand, red, fine to very fine
 7'-10' Clay, buff to dark gray, silty, with very fine sand, slightly micaceous
 10'-20' Sand and clay, dark brown, very fine, with a trace of lignite
 20'-28' Clay and sand, light chocolate brown, very fine, with a trace of lignite
 28'-43' Clay, light gray-brown, silty, slightly micaceous
 43'-74' Sand, white, very fine
 74'-80' Silt, gray, with very fine sand, slightly micaceous
 80'-110' Sand, white, very fine, silty, with a trace of lignite
 110'-111' Lignite, black, hard

ARKANSAS LIGNITE INVESTIGATIONS

111'-135' Silt and very fine sand, gray-brown, with a trace of lignite
135'-147' Silt, light gray, with a trace of lignite
T. D.: 147'

Drill Hole No. 569. Elevation 270'
Location: SE $\frac{1}{4}$, Sec. 27, T. 8 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 4' Sand and clay, red, very fine, silty
4'- 6' Gravel, small pea
6'- 7' Clay, light buff, with very fine sand and silt, slightly micaceous
7'- 25' Sand, white, very fine
25'- 50' Clay, white to buff, with very fine sand, slightly silty
50'- 65' Silt and sand, with a trace of lignite
65'- 85' Clay and sand, dark gray, very fine, silty, with a trace of lignite
85'- 98' Clay, chocolate brown, lignitic, with very fine sand and silt, slightly micaceous, with a trace of lignite
98'-100' Clay, dark gray, with very fine sand and silt, slightly micaceous
100'-128' Sand and silt, light brown, very fine, with a trace of lignite and lignitic clay
128'-145' Silt and sand, light brown, very fine, with a trace of lignite
145'-160' Sand, white, with a trace of lignite
T. D.: 160'

Drill Hole No. 570. Elevation 295'
Location: NW $\frac{1}{4}$, Sec. 36, T. 8 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 5' Clay and sand, mottled red, very fine
5'- 20' Clay, buff to gray,
20'- 27' Clay, gray-brown
27'- 39' Clay, dark greenish-gray
39'- 45' Clay, dark greenish-gray, with interbedded, thin chocolate brown clay
45'- 55' Clay, light greenish-gray
55'- 60' Clay, light greenish-gray, with thin interbedded, very fine sand
60'- 80' Sand, white, very fine
80'-115' Sand, light buff-mottled red, very fine, with thin buff clay interbeds
115'-148' Sand, and silt, light gray-brown, very fine, with a trace of lignite and siderite
T. D.: 148'

Drill Hole No. 571. Elevation 265'
Location: NW $\frac{1}{4}$, Sec. 32, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 6' Sand, gray, very fine, slightly micaceous
6'- 8' Clay and sand, gray, slightly micaceous
8'- 30' Sand, light gray, very fine
30'- 55' Sand, light gray, very fine, with thin interbedded yellow, buff, silty clay interbeds
55'-136' Sand, light gray, very fine

136'-137' silty, with a trace of lignite
137'-150' Lignite, black, soft
Sand and clay, dark gray, very fine, silty, slightly micaceous with a trace of lignite
T. D.: 150'

Drill Hole No. 572. Elevation 250'
Location: SE $\frac{1}{4}$, Sec. 33, T. 8 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 8' Gravel, small pea to large pebble
8'- 80' Sand, white, very fine, with thin buff clay interbeds
80'-130' Clay and silt, dark gray, with very fine sand and approximately 10" of black, soft lignite
130'-150' Sand, light brown, very fine, silty, with a trace of lignite
T. D.: 150'

Drill Hole No. 573. Elevation 285'
Location: SE $\frac{1}{4}$, Sec. 19, T. 8 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 9/78.

0'- 3' Sand and gravel, small to large pebble, with fine to very fine sand
3'- 10' Clay and sand, light orange, very fine
10'- 13' Gravel, large pebble
13'- 18' Clay, buff-white, with very fine sand and silt, slightly micaceous
18'- 95' Clay, brown, with very fine sand and silt, micaceous
95'-110' Clay, light greenish-gray, with very fine sand and silt, micaceous
110'-125' Clay, gray-brown, with very fine sand and silt, micaceous
125'-145' Clay, brown, with very fine sand and silt, micaceous
145'-148' Clay and sand, light greenish-gray, very fine, slightly glauconitic, micaceous, with a trace of siderite
T. D.: 148'

Drill Hole No. 574. Elevation 210'
Location: NW $\frac{1}{4}$, Sec. 31, T. 8 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 23' Sand and clay, light orange, very fine
23'- 35' Gravel, small pea to small pebble
35'- 46' Sand, light orange, very fine, slightly micaceous, with approximately 2" of lignite
46'- 85' Clay, chocolate brown, silty, slightly micaceous
T. D.: 85'

Drill Hole No. 575. Elevation 205'
Location: NE $\frac{1}{4}$, Sec. 6, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 5' Clay and sand, buff-light brown, very fine, slightly micaceous
5'- 18' Gravel, large pebble to small pea

18'- 30' Clay, chocolate brown, with very fine sand and silt, slightly micaceous
30'- 40' Silt, dark brown
40'- 50' Clay and silt, dark brown, with very fine sand, micaceous
50'- 75' Clay, dark chocolate brown, with very fine sand and silt, micaceous, and a trace of lignitic clay
75'- 85' Clay and silt, chocolate brown, micaceous
85'-115' Clay, gray-brown, silty, micaceous
115'-135' Silt, chocolate brown, micaceous, with a trace of lignite
135'-160' Silt and sand, light gray-brown, very fine, micaceous, with a trace of siderite
T. D. 160'

Drill Hole No. 576. Elevation 185'
Location: SE $\frac{1}{4}$, Sec. 7, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 3' Sand and clay, reddish orange, very fine
3'- 30' Gravel, small pea to large pebble
30'- 57' Clay, chocolate brown, micaceous
57'- 70' Silt and sand, dark chocolate brown, very fine, micaceous and a trace of lignite
70'- 71' Lignite, black, hard
71'- 95' Clay and sand, dark chocolate brown, very fine, micaceous
95'- 98' Clay, dark gray, with very fine sand and silt, micaceous
98'-117' Silt, dark chocolate brown, with very fine sand, micaceous, and a trace of lignite
117'-123' Clay, dark gray-brown, with very fine sand and silt, micaceous
123'-150' Silt, dark brown, with very fine sand, micaceous, and a trace of lignite
T. D.: 150'

Drill Hole No. 577. Elevation 160'
Location: NW $\frac{1}{4}$, Sec. 20, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 26' Sand and clay, light orange, very fine
26'- 40' Gravel, small pea to large pebble
40'- 58' Clay, chocolate brown, silty, micaceous, with 5" of siderite
58'- 97' Silt, chocolate brown, with very fine sand, micaceous, and a trace of lignite
97'-140' Silt and sand, chocolate brown, very fine, with a trace of lignite
140'-150' Silt, chocolate brown, and approximately 1' to 2' of lignite
T. D.: 150'

Drill Hole No. 578. Elevation 160'
Location: NE $\frac{1}{4}$, Sec. 29, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 2' Sand and clay, light orange, very fine
2'- 20' Clay and sand, buff-gray, very fine, slightly micaceous

ARKANSAS LIGNITE INVESTIGATIONS

20'-26' Gravel, small pea to large pebble
26'-40' Clay, gray-brown, with very fine sand and silt, micaceous
40'-150' Sand and silt, brown, very fine, with a trace of pea gravel and lignite
T. D.: 150'

Drill Hole No. 579. Elevation 280'
Location: SW¼, Sec. 33, T. 8 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-1' Soil, dark humus
1'-5' Sand and gravel, small pea, dark red, very fine to fine
5'-8' Gravel, small pea to small pebble, with 4" of siderite
8'-20' Sand, very fine, with limonite and small pea gravel interbeds
20'-38' Sand, orange, very fine, carbonaceous, slightly silty
38'-48' Clay, buff-white, with very fine sand, slightly micaceous and carbonaceous
48'-49' Sand, dark reddish black, iron cemented
49'-70' Clay, dark brown, with very fine sand and silt, slightly micaceous and a trace of lignite
70'-95' Clay and silt, chocolate brown, with very fine sand, micaceous and a trace of lignite and 5" of siderite
95'-105' Sand, gray-brown, with clay binder, silty, micaceous
105'-110' Clay, dark brown, with very fine sand, silty, micaceous
110'-150' Silt, dark brown, with very fine sand, micaceous, and thin brown clay stringers
T. D.: 150'

Drill Hole No. 580. Elevation 161'
Location: SW¼, Sec. 33, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-5' Clay, dark gray, with very fine sand and silt, slightly micaceous
5'-25' Clay, buff-gray, with very fine sand, iron stained, micaceous
25'-30' Gravel, large pebble to small pea, and coarse sand
30'-65' Gravel, very small pea to coarse sand, with 3" of siderite
65'-90' Silt, light brown, with small pea gravel
T. D.: 90'

Drill Hole No. 581. Elevation 156'
Location: SW¼, Sec. 4, T. 10 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-3' Sand, light reddish brown, very fine, slightly silty
3'-12' Clay and sand, light reddish orange, very fine
12'-25' Clay and sand, buff-white, very fine, slightly micaceous
25'-33' Sand, fine to very fine, iron stained
33'-35' Gravel, large pebble
35'-40' Gravel, small pea, with coarse sand
40'-42' Sand, light brown, very fine

to fine, with clay binder
42'-46' Sand, dark brown, very fine to fine, with clay binder
46'-62' Clay, dark gray-brown, with very fine sand and silt, micaceous
62'-70' Silt and sand, dark brown, very fine, slightly micaceous
70'-75' Clay and silt, dark gray, with very fine sand, slightly micaceous
75'-115' Clay, dark brown, with very fine sand, slightly silty, micaceous and a trace of lignite
115'-135' Sand, with dark greenish-gray clay binder, very fine, slightly glauconitic and micaceous
135'-150' Clay, light to dark brown, with a trace of very fine sand, slightly micaceous
T. D.: 150'

Drill Hole No. 582. Elevation 150'
Location: SE¼, Sec. 9, T. 10 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-47' Gravel, large pebble, with fine to medium sand, iron stained
47'-62' Clay, dark brown, finely micaceous
62'-75' Clay, dark gray-brown, finely micaceous, with a trace of glauconite
75'-82' Clay, dark gray-brown, with very fine sand and silt, finely micaceous
82'-89' Clay, light gray, finely micaceous
89'-96' Sand, dark gray, very fine to fine, slightly micaceous
96'-150' Clay, brown, slightly silty, coarsely micaceous with thin very fine sand stringers
T. D.: 150'

Drill Hole No. 583. Elevation 160'
Location: SE¼, Sec. 22, T. 10 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-6' Clay, light orange, finely micaceous
6'-10' Clay, red, with very fine sand, slightly micaceous
10'-13' Clay, light orange, with very fine sand, slightly micaceous
13'-38' Sand, light orange, fine to very fine, slightly micaceous
38'-40' Sand and gravel, light brown, medium to coarse, small pea
40'-50' Gravel, small pea, with medium to fine sand, iron stained
50'-80' Clay, dark gray-brown, finely micaceous, with very fine sand and silt, and 3" of siderite
80'-95' Clay, dark gray, finely micaceous, with a trace of glauconite
95'-108' Clay, light brown, with very fine sand and silt, finely micaceous
108'-115' Sand, dark gray, very fine, coarsely micaceous
115'-140' Clay, dark gray-brown, with very fine sand and silt, finely micaceous
140'-150' Sand and clay, dark greenish-gray, very fine, finely micaceous and a trace of glauconite
T. D.: 150'

Drill Hole No. 584. Elevation 142'
Location: SE¼, Sec. 27, T. 10 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-9' Clay, buff-white, with very fine sand and silt, iron stained
9'-11' Clay and sand, red, very fine, silty
11'-25' Sand, with small pea gravel
25'-37' Gravel, small to large pebble
37'-75' Clay, dark gray-brown, with very fine sand and silt, finely micaceous, slightly carbonaceous, with 7" of siderite
T. D.: 75'

Drill Hole No. 585. Elevation 125'
Location: NE¼, Sec. 3, T. 11 S., R. 17 W.
County: Ouachita
Logged by: T. Y. Suen 10/78.

0'-3' Sand, white, very fine, slightly micaceous
3'-7' Sand, with light brown clay binder, slightly micaceous
7'-10' Sand, white, fine, slightly micaceous
10'-17' Sand, light yellow, iron stained, fine, slightly micaceous
17'-25' Sand and gravel, fine, small pea to large pebble
25'-40' Sand, medium to fine, iron stained
40'-46' Sand, dark gray, fine, slightly micaceous
46'-64' Clay, dark gray, slightly micaceous
64'-73' Clay, light gray, slightly silty and micaceous, with a trace of glauconite
73'-78' Sand, with gray clay interbeds, fine, slightly micaceous, with 2" of siderite
78'-100' Clay, brown, finely micaceous, slightly silty
100'-125' Clay, gray-brown, finely micaceous, with very fine sand and silt, and coarse sand stringers
125'-150' Silt, dark gray, with medium sand, micaceous
T. D.: 150'

Drill Hole No. 586. Elevation 192'
Location: SW¼, Sec. 26, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'-2' Sand, dark gray, very fine, slightly micaceous
2'-17' Sand, light orange, very fine with clay binder, slightly micaceous
17'-55' Gravel, large pebble, with very fine sand
55'-90' Clay, dark gray-brown, with very fine sand and silt, finely micaceous, with a trace of glauconite and 5" of siderite
90'-102' Sand, dark gray-brown, with clay binder, very fine, glauconitic
102'-120' Clay, dark brown, with very fine sand and silt, finely micaceous, glauconitic, with 2" of siderite
120'-122' Sand, light greenish-gray, fine, glauconitic, slightly micaceous
122'-135' Clay and sand, dark greenish-gray, very fine, slightly micaceous, with a trace of glauconite
T. D.: 135'

ARKANSAS LIGNITE INVESTIGATIONS

Drill Hole No. 587. Elevation 250'
Location: SW¼, Sec. 36, T. 9 S., R. 17 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 1' Soil, black, loam
1'- 6' Sand, very fine, with red clay binder, slightly micaceous
6'- 10' Gravel, large pebble
10'- 20' Clay, red, with thin interbedded white clay seams, slightly micaceous
20'- 25' Sand, light orange, with clay binder, very fine, slightly micaceous
25'- 30' Sand, gray, with silt binder, very fine, finely micaceous
30'- 70' Clay, gray, silty, with a trace of lignite and siderite
70'- 77' Clay, buff-white, slightly silty, with a trace of lignite
77'- 95' Sand, gray, fine to very fine, slightly micaceous, with a trace of lignite
95'- 97' Clay gray, slightly micaceous
97'-103' Lignite, black, hard
103'-110' Sand, gray, very fine, finely micaceous
110'-118' Clay, gray, with very fine sand and silt, finely micaceous
118'-121' Lignite, black, soft
121'-122' Clay, buff-gray, with very fine sand and silt, slightly micaceous
122'-124' Lignite, black, soft
124'-130' Clay, dark brown, lignitic
130'-137' Clay, lignitic, with approximately 2" of lignite
137'-140' Clay, light buff-brown, with very fine sand and silt, slightly micaceous
140'-167' Sand, very fine, with white clay binder, slightly micaceous
167'-170' Clay, dark gray-brown, with very fine sand
Core Interval 97' - 107'
Recovered: 30" Lost: 90"
97' - 98' lignite, black, hard
98' - 98'7" lignite, black, soft
98'7" - 99'6" clay, lignitic
99'6" - 107' not recovered

Note: Driller's log indicated 7' of lignite penetrated

T. D.: 170'

Drill Hole No. 588. Elevation 270'
Location: SW¼, Sec. 5, T. 10 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 50' Gravel and sand, small pebble, fine to very fine, iron stained
50'- 60' Clay, white, with very fine sand and silt, and a trace of lignite

60'- 72' Clay, dark gray-brown, with very fine sand and silt, finely micaceous, and a trace of lignite
72'- 85' Silt, with dark gray clay stringers, very fine sand, finely micaceous, with a trace of lignite
85'- 90' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous, and a trace of lignite
90'-114' Sand, very fine, finely micaceous, silty, and a trace of lignite
114'-120' Clay, dark gray, with very fine sand and silt, slightly micaceous and 2" of siderite
120'-125' Sand, dark gray, very fine, silty, slightly micaceous
125'-138' Silt and sand, dark gray, finely micaceous, with a trace of lignite and lignitic clay
138'-150' Sand and silt, gray, very fine, slightly micaceous
T. D.: 150'

Drill Hole No. 589. Elevation 300'
Location: NE¼, Sec. 22, T. 10 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 6' Gravel, small pea to large pebble, with thin, red sandy clay interbeds
6'- 16' Clay and silt, red, with very fine sand
16'- 17' Gravel, small pea to small pebble, iron stained
17'- 19' Sand, light red, very fine to fine
19'- 22' Clay, light red, with very fine sand
22'- 23' Gravel, small pebble
23'- 35' Clay, light red, very fine sand, slightly micaceous
35'- 50' Gravel, small pea
50'- 59' Clay, white-buff, with very fine sand and silt
59'- 90' Clay, gray-brown, with very fine sand and silt, slightly micaceous, with a trace of lignite
90'-105' Silt, dark gray, with very fine sand, slightly micaceous, with approximately 4" of siderite
105'-121' Clay, dark gray, with very fine sand and silt, slightly micaceous
121'-135' Sand, dark gray, very fine, silty, slightly micaceous
135'-140' Silt and clay, white to buff, slightly micaceous
140'-150' Sand and silt, dark gray, slightly micaceous
T. D.: 150'

Drill Hole No. 590. Elevation 196'
Location: SW¼, Sec. 36, T. 10 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 7' Sand, with clay binder
7'- 17' Sand, fine to very fine, with clay binder and small pebble gravel
17'- 24' Sand and gravel interbedded, dark gray, silty, with 3" of siderite
24'- 55' Clay, dark gray, with very fine sand and silt, slightly micaceous and 1" of siderite
55'- 62' Sand, dark gray, with clay binder, slightly micaceous

62'- 65' Sand, dark brown, with clay binder, very fine, slightly micaceous
65'-103' Clay, gray, with very fine sand and silt, slightly micaceous, and a trace of lignite
103'-117' Clay, dark chocolate brown, lignitic, with very fine sand and silt, slightly micaceous and a trace of lignite
117'-135' Sand, dark tan, very fine to fine, slightly micaceous
135'-136' Lignite, black, hard
136'-150' Clay and silt, light greenish-gray, slightly micaceous
T. D.: 150'

Drill Hole No. 591. Elevation 270'
Location: NW¼, Sec. 25, T. 10 S., R. 16 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 4' Sand and gravel, light yellow-orange, fine to very fine, small pebble
4'- 6' Sand, light red, very fine to fine, with clay binder
6'- 7' Gravel, small pebble
7'- 13' Sand, light red, very fine, with clay binder
13'- 15' Sand, white-orange, fine
15'- 18' Gravel, small pebble
18'- 22' Sand, light red, fine, with clay binder
22'- 25' Clay, light orange, with very fine sand
25'- 28' Sand, light yellow, fine
28'- 30' Clay, light red, with very fine sand
30'- 50' Sand, light yellow, fine to very fine, with clay binder
50'- 56' Gravel, large pebble, with thin sand interbeds
T. D.: 56'

Drill Hole No. 592. Elevation 330'
Location: NW¼, Sec. 18, T. 10 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 28' Sand, dark to light red, fine to very fine, with clay binder
28'- 46' Sand, white to light red, fine
46'- 95' Clay, white, with very fine sand, slightly silty
95'-139' Sand, white, salt and pepper, fine to very fine, silty
139'-140' Limonite, with very fine sand and a trace of lignite
140'-143' Sand, gray, with gray clay binder, very fine, silty, slightly micaceous
143'-160' Clay, gray, with very fine sand and silt, slightly micaceous, slightly carbonaceous
160'-165' Sand, gray, very fine to fine, with gray clay binder
T. D.: 165'

Drill Hole No. 593. Elevation 243'
Location: NW¼, Sec. 8, T. 10 S., R. 15 W.
County: Dallas
Logged by: T. Y. Suen 10/78.

0'- 2' Sand, light tan, very fine
2'- 3' Clay, light orange, with very fine sand and silt
3'- 6' Gravel, small pebble
6'- 10' Sand, light gray to white, very fine

ARKANSAS LIGNITE INVESTIGATIONS

10'- 45' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous
 45'- 56' Sand, light greenish-gray, with clay binder, slightly micaceous
 56'- 65' Sand, dark gray, with clay binder, slightly micaceous, and a trace of lignite
 65'- 80' Sand, light brown, with clay binder, slightly silty and micaceous, with a trace of lignite
 80'- 94' Silt and sand, light to dark gray, very fine, slightly micaceous, with a trace of lignite
 94'-102' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
 102'-110' Sand, dark gray-brown, with clay binder, silty, slightly micaceous
 110'-125' Silt and sand, dark gray, very fine, slightly micaceous, with a trace of lignite
 T. D.: 125'

Drill Hole No. 594. Elevation 218'
 Location: SW¼, Sec. 33, T. 9 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 10/78.

0'- 20' Clay and sand, white-gray, with very fine sand and silt, slightly micaceous
 20'- 30' Gravel, small pea
 30'- 56' Sand, light tan, fine to medium, with a trace of pea gravel and lignite
 56'- 85' Clay, dark gray, with very fine sand and silt, slightly micaceous
 85'-113' Sand, very fine, with dark gray clay binder, finely micaceous and a trace of lignite
 113'-123' Silt, dark gray, with very fine sand, slightly micaceous
 123'-150' Sand, dark gray, very fine, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 595. Elevation 310'
 Location: NW¼, Sec. 27, T. 9 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 10/78.

0'- 15' Sand, red, very fine to fine, slightly silty and micaceous
 15'- 65' Clay, buff-white, with very fine sand and silt, slightly micaceous
 65'- 70' Sand, with buff-white clay binder, very fine, silty, slightly micaceous
 70'- 80' Sand, white, very fine, slightly salt and pepper, slightly micaceous
 T. D.: 80'

Drill Hole No. 596. Elevation 275'
 Location: SE¼, Sec. 15, T. 9 S., R. 15 W.
 County: Dallas
 Logged by: T. Y. Suen 10/78.

0'- 20' Sand, light tan, very fine to fine, with a trace of small pebble gravel
 20'- 35' Sand, light greenish-gray, salt and pepper, very fine to fine, with 4" of siderite
 35'-100' Clay, dark gray-brown, with very fine sand and silt, slightly

micaceous
 100'-106' Sand, dark gray, very fine, salt and pepper, silty, slightly micaceous
 106'-110' Silt, dark gray, with very fine sand, slightly micaceous
 110'-112' Sand, dark gray, very fine, salt and pepper, silty, slightly micaceous
 112'-140' Silt and sand, dark gray, very fine
 140'-145' Sand, dark gray, very fine, slightly micaceous
 145'-160' Silt and sand, dark gray, very fine, slightly micaceous, with a trace of lignite
 T. D.: 160'

Drill Hole No. 597. Elevation 260'
 Location: SE¼, Sec. 33, T. 4 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 11/78.

0'- 17' Sand, light reddish brown, very fine to fine, slightly silty, slightly micaceous
 17'- 65' Clay, dark gray, with very fine sand and silt, slightly micaceous and 2" of siderite
 65'- 75' Clay, light gray, slightly micaceous, with approximately 6" of lignite
 75'- 78' Clay, dark brown, with very fine sand and silt, slightly micaceous
 78'- 90' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous
 90'-120' Clay and sand, light greenish-gray, interbedded very fine, slightly micaceous, with a trace of lignite and glauconite
 120'-128' Clay, dark brown and light greenish-gray interbedded, with a trace of very fine sand and silt, slightly micaceous
 128'-135' Clay, dark green, with very fine sand and silt, finely micaceous and a trace of glauconite
 135'-145' Clay, light green, with very fine sand and silt, finely micaceous, with a trace of glauconite
 T. D.: 145'

Drill Hole No. 598. Elevation 285'
 Location: SW¼, Sec. 29, T. 4 S., R. 13 W.
 County: Grant
 Logged by: Dave Lumbert 11/78.

0'- 14' Clay, light gray and red interbedded, with fine sand
 14'- 20' Clay, medium to dark gray, with very fine sand
 20'- 35' Clay, gray and brown interbedded, with very fine sand
 35'- 50' Sand, fine, with gray clay interbeds
 50'- 70' Sand, very fine, silty
 T. D.: 70'

Drill Hole No. 599. Elevation 265'
 Location: SE¼, Sec. 19, T. 4 S., R. 13 W.
 County: Grant
 Logged by: Dave Lumbert 11/78.

0'- 6' Sand, fine
 6'- 10' Clay, light gray, with very fine sand

10'- 22' Sand and gravel, coarse, with red clay
 22'- 30' Clay, gray, with fine to very fine sand and a trace of lignite
 30'- 40' Clay, light gray, with interbedded fine sand
 40'- 50' Sand, fine, with gray clay interbeds
 50'- 70' Sand, very fine, silty
 70'- 80' Clay, gray, with interbedded very fine sand
 80'- 90' Clay, gray, with very fine sand and silt, and approximately 6" of lignite
 90'-100' Silt, with a trace of lignite
 100'-110' Silt with interbedded lignite and gray clay
 110'-150' Silt and gray clay
 T. D.: 150'

Drill Hole No. 600. Elevation 250'
 Location: NE¼, Sec. 24, T. 4 S., R. 14 W.
 County: Grant
 Logged by: Dave Lumbert 11/78.

0'- 10' Sand, very fine, with a trace of gray clay
 10'- 20' Sand, very fine
 20'- 26' Sand, fine with pea gravel
 26'- 35' Clay, gray, with very fine sand
 35'- 40' Sand, fine
 40'- 50' Clay, gray-brown, with interbedded fine sand
 50'- 60' Clay, green, with interbedded fine sand
 60'- 80' Sand, fine
 T. D.: 80'

Drill Hole No. 601. Elevation 300'
 Location: NE¼, Sec. 14, T. 4 S., R. 14 W.
 County: Grant
 Logged by: Dave Lumbert 11/78.

0'- 23' Sand, fine, with red clay
 23'- 30' Clay, light gray, with chocolate brown clay interbeds, and very fine sand
 30'- 60' Clay, gray, with very fine sand
 60'- 70' Clay, gray, with interbedded fine sand
 70'- 90' Sand, fine
 90'-100' Sand, lignitic, very fine
 100'-133' Sand, very fine
 133'-140' Clay, glauconitic, with very fine sand
 140'-142' Lignite
 142'-150' Clay, gray-brown, with interbedded very fine sand
 T. D.: 150'

Drill Hole No. 602. Elevation 331'
 Location: SE¼, Sec. 2, T. 4 S., R. 14 W.
 County: Grant
 Logged by: T. Y. Suen 11/78.

0'- 10' Sand and clay, light buff-gray, very fine, silty
 10'- 24' Clay, buff
 24'- 45' Clay, dark gray, slightly glauconitic
 45'- 59' Clay, dark gray-brown, with very fine sand, coarsely micaceous
 59'- 60' Clay, dark brown, with a trace of lignite
 60'- 75' Clay, light green, slightly silty
 75'- 80' Clay, dark buff

ARKANSAS LIGNITE INVESTIGATIONS

80'- 83' Sand, very fine
83'- 97' Clay, dark buff, silty
97'-100' Clay, dark brown, lignitic, with a trace of lignite
100'-107' Clay, gray, slightly silty
107'-110' Clay, dark brown, lignitic, with a trace of lignite
110'-130' Clay, dark buff, with very fine sand and silt
T. D.: 130'

Drill Hole No. 603. Elevation 338'
Location: SE¼, Sec. 34, T. 3 S., R. 14 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 5' Clay, light reddish orange, mottled, with very fine sand
5'- 25' Clay, light gray, with very fine sand, slightly silty
T. D.: 25'

Drill Hole No. 604. Elevation 340'
Location: NW¼, Sec. 34, T. 3 S., R. 14 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 3' Sand and clay, buff-red, mottled, very fine
3'- 23' Clay, dark buff, with limonite stain
23'- 33' Clay, dark gray, with a trace of dark gray-brown clay, slightly silty and micaceous
33'- 39' Sand, fine to very fine
39'- 72' Clay, dark gray, with very fine sand and silt, slightly micaceous
72'- 73' Clay, chocolate brown, slightly silty and micaceous, with a trace of lignite
73'- 85' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous
85'-100' Clay, light brown to dark buff, with interbedded light greenish-gray clay
100'-125' Clay, dark gray, slightly silty and micaceous
125'-130' Clay, light brown, with very fine sand, silty, slightly micaceous and a trace of lignite
130'-135' Clay, dark chocolate brown
135'-140' Clay, chocolate brown, with a trace of lignite
140'-150' Clay, light brown, slightly silty and micaceous, with a trace of very fine sand
T. D.: 150'

Drill Hole No. 605. Elevation 325'
Location: SE¼, Sec. 5, T. 5 S., R. 13 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 8' Sand, light tan to red, mottled, with clay binder, very fine
8'- 10' Sand, white, very fine
10'- 15' Sand, white, with clay binder, very fine
15'- 70' Clay, dark gray, with very fine sand, slightly silty and micaceous, with a trace of glauconitic and siderite
70'-120' Silt, dark gray, with very fine sand and 5" of siderite
120'-150' Clay, dark gray, with very fine sand and silt, slightly micaceous

and a trace of lignite
T. D.: 150'

Drill Hole No. 606. Elevation 238'
Location: SW¼, Sec. 6, T. 5 S., R. 13 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 15' Sand, light tan to red, mottled, with clay binder, very fine
15'- 25' Clay, light tan, with very fine sand and silt, slightly micaceous
25'- 30' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
30'- 85' Clay, dark greenish-gray, with very fine sand and silt, slightly micaceous, slightly carbonaceous, slightly glauconitic
85'- 90' Clay, light brown, with very fine sand and silt, slightly micaceous, slightly carbonaceous
90'-110' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous and slightly carbonaceous
110'-135' Sand, fine to very fine, salt and pepper, with 2" of siderite
135'-140' Clay and sand, light greenish-gray, fine, slightly micaceous
140'-150' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous with a trace of lignite
T. D.: 150'

Drill Hole No. 607. Elevation 275'
Location: NE¼, Sec. 2, T. 5 S., R. 14 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 16' Sand, light buff-white, very fine with clay binder, limonite stained
16'- 20' Clay, light buff, slightly silty and slightly micaceous
20'- 28' Clay, buff to light brown, with fine sand interbedded
28'- 30' Clay, dark gray, slightly silty and slightly micaceous
30'- 36' Clay, chocolate brown, lignitic with a trace of lignite
36'- 37' Lignite, black, hard
37'- 55' Clay, light gray-brown, slightly silty and micaceous
55'- 66' Clay, medium gray, with a trace of very fine sand and silt, slightly micaceous
66'-100' Sand, light gray, very fine, salt and pepper, with clay binder, slightly glauconitic and slightly micaceous
100'-150' Sand, light gray, fine to very fine, slightly micaceous, with a trace of lignite
T. D.: 150'

Drill Hole No. 608. Elevation 320'
Location: NE¼, Sec. 3, T. 5 S., R. 14 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 13' Clay, dark tan, with very fine sand and silt, slightly micaceous
13'- 15' Clay, chocolate brown, lignitic
15'- 22' Lignite, black, hard
22'- 35' Clay, dark tan to medium gray
35'- 40' Clay, lignitic, with a trace of

lignite
40'- 50' Sand, medium gray, very fine, finely micaceous, with a trace of lignite
50'- 60' Sand, medium gray to tan, very fine, salt and pepper, finely micaceous, with clay binder
60'- 69' Sand, light green, very fine, finely micaceous, with clay binder, slightly glauconitic
69'- 78' Clay, chocolate brown, lignitic, with a trace of lignite
78'- 85' Clay, dark gray-brown, with very fine sand and silt, slightly micaceous
85'- 90' Sand, light gray-brown, very fine, with clay binder
90'-105' Clay, light greenish-gray, with very fine sand and silt, slightly micaceous
105'-110' Sand, dark greenish-gray, very fine, finely micaceous

Core Interval 15' - 25'

Recovered: 69'
Lost: 51'

15' - 19'3" not recovered
19'3" - 19'9" clay, dark brown, lignitic, with very fine sand, and thin lignite partings
19'9" - 21'3" clay, light brown, with very fine sand and a trace of thin lignite partings
21'3" - 23'9" lignite, black, soft
23'9" - 25' clay, light greenish-gray, with very fine sand and silt, slightly micaceous

Core Interval 14'6" - 23'6"

Recovered: 60"
Lost: 48"

14'6" - 18'6" not recovered
18'6" - 20'9" clay, light gray-brown, with thin lignite partings
20'9" - 21'9" clay, light brown, with thin lignite partings throughout
21'9" - 22'11" lignite, black, hard
22'11" - 23'6" clay, light greenish-gray

Core Interval 15' - 25'

Recovered: 81"
Lost: 39"

15' - 18'3" not recovered
18'3" - 18'9" clay, light brown, with lignite partings
18'9" - 20' lignite, black, with thin brown clay partings
20' - 21'2" lignite, black, hard
21'2" - 21'5" clay, dark brown, lignitic
21'5" - 25' sand, light greenish-gray, with clay binder, micaceous
T. D.: 110'

Drill Hole No. 609. Elevation 270'
Location: NE¼, Sec. 4, T. 5 S., R. 14 W.
County: Grant
Logged by: T. Y. Suen 11/78.

0'- 4' Gravel, medium pea to small pebble

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4'-88' Sand, white, fine, salt and pepper, coarsely micaceous, with thin limonite seams
 88'-89' Clay, dark chocolate brown, lignitic
 89'-95' Clay, light greenish gray, with very fine sand and silt, slightly micaceous, with a trace of dark chocolate brown clay
 95'-107' Clay, dark green, with very fine sand and silt, slightly glauconitic and a trace of lignite and lignitic clay
 107'-130' Clay, dark tan, with very fine sand and silt, slightly micaceous
 130'-145' Sand, light tan, salt and pepper, fine to very fine
 145'-150' Sand and silt, light gray, very fine, slightly micaceous
 T. D.: 150'

Drill Hole No. 610. Elevation 290'
 Location: SE $\frac{1}{4}$, Sec. 6, T. 5 S., R. 14 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-8' Gravel, large to small pebble
 8'-12' Clay, light yellow-brown, with very fine sand and silt
 12'-17' Clay, dark tan, with very fine sand and silt, slightly micaceous
 17'-25' Sand, light gray, with clay binder, very fine, micaceous
 25'-32' Silt, light gray, with very fine sand, slightly micaceous
 32'-35' Sand, dark green, very fine, glauconitic, slightly micaceous
 35'-76' Clay, dark gray, with very fine sand and silt, finely micaceous
 76'-87' Sand, medium gray, salt and pepper, fine, micaceous
 87'-91' Clay, medium gray, with very fine sand, slightly micaceous
 91'-128' Sand, medium gray, salt and pepper, silty, fine, slightly micaceous
 128'-144' Clay and silt, light greenish-gray, with very fine sand, slightly micaceous, and a trace of lignite
 144'-145' Clay, dark chocolate brown, lignitic
 145'-147' Lignite, black, soft
 147'-150' Clay, light brown to dark tan, with a trace of very fine sand and silt, coarsely micaceous
 T. D.: 150'

Drill Hole No. 611. Elevation 270'
 Location: SE $\frac{1}{4}$, Sec. 1, T. 5 S., R. 15 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-7' Sand, light gray, very fine, with clay binder, slightly silty
 7'-12' Clay, light gray, with very fine sand and silt, slightly salt and pepper, and slightly micaceous
 12'-40' Gravel and coarse sand
 40'-50' Sand and silt, light gray, fine to coarse
 50'-57' Clay, dark greenish-gray, with very fine sand and silt, and a trace of lignite
 57'-58' Clay, chocolate brown, lignitic
 58'-59' Lignite, black, hard
 59'-95' Sand, light greenish-gray, very fine, with a trace of lignite

95'-100' Sand, light gray, slightly salt and pepper, very fine, with silt binder
 100'-110' Clay, light greenish-gray, with very fine sand and silt, and a trace of lignite
 110'-135' Sand, light gray, coarse, with a trace of clay binder
 135'-145' Sand, medium to fine, slightly micaceous
 145'-150' Sand, fine, with thin interbedded gray silt seams
 T. D.: 150'

Drill Hole No. 612. Elevation 210'
 Location: NE $\frac{1}{4}$, Sec. 2, T. 5 S., R. 15 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-20' Sand, light to dark brown, fine to very fine, with silty clay binder
 20'-25' Sand, dark brown, with silt binder
 25'-40' Sand, medium, with brown silt binder
 40'-49' Sand, dark brown, medium to granule, with silt binder
 49'-50' Clay, chocolate brown, lignitic with a trace of lignite
 50'-57' Clay, gray, slightly silty
 57'-60' Clay, medium brown, with very fine sand and silt
 60'-65' Clay, light greenish-gray, slightly silty
 65'-69' Lignite, dark brown, soft, with lignitic clay seams
 69'-93' Clay, light gray
 93'-100' Clay, light gray, with very fine sand and silt
 100'-110' Sand, dark gray, very fine, silty
 110'-150' Sand, light gray, slightly salt and pepper, fine, slightly micaceous and a trace of lignite
 T. D.: 150'

Drill Hole No. 613. Elevation 222'
 Location: NW $\frac{1}{4}$, Sec. 4, T. 5 S., R. 15 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-8' Clay, light yellow-brown, with a trace of very fine sand
 8'-12' Sand, very fine, with yellow-brown clay binder, slightly micaceous
 12'-32' Gravel, large pea to small pebble
 32'-47' Clay, dark gray, with very fine sand and silt
 T. D.: 47'

Drill Hole No. 614. Elevation 234'
 Location: SW $\frac{1}{4}$, Sec. 32, T. 4 S., R. 15 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

Location abandoned

Drill Hole No. 615. Elevation 235'
 Location: SW $\frac{1}{4}$, Sec. 30, T. 4 S., R. 15 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-14' Sand, yellow-brown, very fine, with clay binder

14'-20' Sand, white, very fine, with clay binder
 20'-43' Gravel and sand, small pea to granule
 43'-50' Gravel, large pebble, with fine to medium sand
 T. D.: 50'

Drill Hole No. 616. Elevation 285'
 Location: SE $\frac{1}{4}$, Sec. 10, T. 5 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-13' Sand, very fine to fine, with white to red mottled clay
 13'-15' Silt and sand, cream to white, very fine
 15'-50' Clay, dark gray, with very fine sand and silt, slightly micaceous, slightly glauconitic
 50'-90' Clay, medium to light gray, with very fine sand and silt, slightly micaceous and a trace of siderite
 90'-100' Sand, very fine to fine, with medium gray clay binder, silty, slightly micaceous and 4" of siderite
 100'-138' Silt, medium gray, with very fine sand, finely micaceous with a trace of siderite
 138'-139' Lignite, brown, soft, with lignitic clay seams
 139'-145' Clay, light gray, silty, with a trace of very fine sand
 145'-150' Clay, light green, with very fine sand and silt
 T. D.: 150'

Drill Hole No. 617. Elevation 265'
 Location: NE $\frac{1}{4}$, Sec. 22, T. 5 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-12' Sand, red, very fine, micaceous
 12'-25' Clay, dark gray, with a trace of very fine sand and silt, and a trace of siderite
 25'-35' Clay, dark gray, with very fine sand, slightly glauconitic
 35'-85' Clay, light gray, with very fine sand and silt, slightly micaceous and a trace of siderite
 85'-128' Clay, medium gray, with very fine sand and silt, slightly glauconitic and 6" of siderite
 128'-129' Clay, dark chocolate brown, lignitic
 129'-133' Clay, medium gray, with very fine sand, slightly micaceous
 133'-134' Clay, chocolate brown, lignitic
 134'-150' Clay, light gray, with very fine sand and silt
 T. D.: 150'

Drill Hole No. 618. Elevation 220'
 Location: SE $\frac{1}{4}$, Sec. 27, T. 5 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-6' Clay, medium brown and light tan interbedded
 6'-45' Clay, dark gray, with very fine sand and silt, slightly micaceous with a trace of glauconite and 2" of siderite
 45'-51' Sand, light gray, salt and pepper, fine

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51'-60' Clay, medium gray, slightly glauconitic and micaceous, with very fine sand
 60'-134' Clay, light gray, with siderite stringers @88' and 98'
 134'-135' Lignite, black, hard, with chocolate brown lignitic clay
 135'-145' Clay, light greenish-gray, with very fine sand
 145'-150' Clay, medium gray-green, with very fine sand
 T. D.: 150'

Drill Hole No. 619. Elevation 270'
 Location: SW¼, Sec. 34, T. 5 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-20' Sand and small pebble gravel, fine to very fine, with light brown to tan clay binder
 20'-45' Clay, medium gray, silty, with a trace of very fine sand, slightly carbonaceous
 45'-52' Clay and sand, fine, slightly silty, slightly carbonaceous
 52'-93' Sand, medium gray, very fine, silty, finely micaceous, with 2" of siderite
 93'-100' Clay, medium gray, with small to large pebble white gravel lenses and 2" of siderite
 100'-120' Clay, medium gray, with very fine sand and silt
 120'-129' Silt and sand, light gray, very fine, with white small pebble gravel lenses
 129'-136' Clay, chocolate brown, lignitic with a trace of lignite
 136'-150' Sand, very fine to fine, with gray clay and silt binder
 T. D.: 150'

Drill Hole No. 620. Elevation 260'
 Location: NW¼, Sec. 10, T. 6 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-8' Gravel, small pea to granule, with thin dark tan clay seams
 8'-55' Clay, dark gray, with very fine sand and silt, slightly micaceous, and a trace of siderite
 55'-60' Clay, medium gray, with very fine sand and silt, and a trace of lignite
 60'-85' Sand, light gray, fine, coarsely micaceous, with a trace of lignite
 85'-95' Clay, light cream to buff, slightly silty
 95'-150' Sand, medium gray, fine, coarsely micaceous
 T. D.: 150'

Drill Hole No. 621. Elevation 250'
 Location: NW¼, Sec. 15, T. 6 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-18' Gravel, small pea to small pebble, with a trace of light

tan clay
 18'-40' Clay, dark gray, with very fine sand and silt, slightly micaceous, slightly carbonaceous
 40'-52' Clay, medium gray, slightly silty, and slightly micaceous
 52'-65' Clay, light gray, with very fine sand, slightly micaceous
 65'-95' Clay, light greenish-gray, with very fine sand and silt, coarsely micaceous, and slightly glauconitic
 95'-125' Clay, light green, with very fine sand and silt, slightly glauconitic
 125'-127' Clay, chocolate brown, with a trace of lignite
 127'-140' Clay, light gray, silty, with a trace of very fine sand
 140'-150' Sand, very fine, with light green to light buff clay, silty, slightly micaceous
 T. D.: 150'

Drill Hole No. 622. Elevation 260'
 Location: NE¼, Sec. 22, T. 6 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-11' Clay, dark tan, with very fine sand and silt, slightly micaceous
 11'-15' Sand, white to light gray, fine to medium, with a trace of clay binder
 15'-23' Clay, light brown, with very fine sand, slightly micaceous
 23'-40' Clay, light gray, with a trace of very fine sand, silt, and lignite
 40'-46' Clay, light gray
 46'-48' Clay, light green, with very fine sand
 48'-50' Sand, very fine, with medium gray silt binder, slightly micaceous
 50'-85' Clay, gray to chocolate brown interbedded, with a trace of very fine sand and lignite
 85'-100' Sand, light gray-green, with clay binder, slightly micaceous
 100'-150' Sand, light gray, fine to very fine
 T. D.: 150'

Drill Hole No. 623. Elevation 240'
 Location: SE¼, Sec. 27, T. 6 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-10' Sand, very fine, with light gray to yellow-orange clay binder
 10'-17' Gravel, small pea, with coarse sand
 17'-25' Clay, medium gray
 25'-34' Clay, light green
 34'-45' Clay, light gray-brown, silty
 45'-53' Clay, brown, slightly silty
 53'-59' Clay, light green, slightly silty
 59'-60' Lignite, black, soft, with a trace of dark chocolate brown

lignitic clay
 60'-62' Clay, dark brown
 62'-63' Lignite, black, soft, with dark chocolate brown lignitic clay
 63'-67' Clay, dark gray-brown, slightly silty
 67'-75' Sand, medium gray, very fine to fine, slightly salt and pepper
 75'-80' Clay, light gray, slightly silty
 80'-110' Clay, light green and light brown interbedded, with very fine sand and silt, slightly micaceous
 110'-150' Sand, gray, very fine, slightly salt and pepper, with 7" of siderite
 T. D.: 150'

Drill Hole No. 624. Elevation 180'
 Location: NW¼, Sec. 3, T. 7 S., R. 13 W.
 County: Grant
 Logged by: T. Y. Suen 12/78.

0'-10' Sand and gravel interbedded
 10'-20' Clay, light tan to light gray, with thin bedded pebble gravel
 20'-30' Clay, light gray to tan, with very fine sand and silt, slightly micaceous
 30'-32' Sand, very fine, with light tan to cream clay binder, slightly silty
 32'-34' Clay, dark brown
 34'-43' Clay, light greenish-gray, slightly silty
 43'-44' Lignite, black, soft, with dark chocolate brown clay
 44'-47' Clay, light green, slightly silty
 47'-48' Lignite, black, soft
 48'-54' Clay, light green, slightly silty
 54'-58' Clay, dark chocolate brown, lignitic, with a trace of lignite
 58'-75' Clay, light green
 75'-90' Clay, light to medium green, with very fine sand and silt, finely micaceous, and 3" of siderite
 90'-125' Silt, light greenish-gray, with clay binder, very fine sand, finely micaceous, and a trace of lignite
 125'-150' Sand, light gray, very fine to fine, salt and pepper

Core Interval 46' - 51'

Recovered: 26"
 Lost: 34"

46' - 48'10" lignite, not recovered - ground up in core barrel.
 48'10" - 49'2" lignite, black, soft, with lignitic clay
 49'2" - 51' clay, light greenish-gray, slightly micaceous and glauconitic.

T. D.: 150'

APPENDIX C
Analyses of Arkansas Lignite

ARKANSAS LIGNITE INVESTIGATIONS

TABLE 1 - PROXIMATE AND ULTIMATE ANALYSES OF LIGNITE IN ARKANSAS

Locality Number ¹	Thickness (inches)	Site of sample ²	U. S. Bur. Mines lab No.	Condition ³	Proximate analyses				Ultimate analyses						Btu./lb.	Fusibility of ash (°F.)			Free swelling index No.	Source of analyses ⁴	Remarks
					Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Forms of Sulphur			Hydrogen	Carbon	Nitrogen	Oxygen	Initial deformation temperature	Softening temperature	Fluid temperature		
3	81	C	K-62639	1 2 3	41.8 26.2 44.9 64.4	14.4 24.9 35.6	17.6 30.2	0.3 0.6 0.8	0.01 0.01 0.02	0.02 0.03 0.04	0.30 0.51 0.74	7.1 4.2 6.0	29.0 49.8 71.4	0.4 0.8 1.1	45.6 14.4 20.7	5060 8680 12430	2410	2460	2570	A	NW¼, Sec. 18, T. 11 N., R. 4 E. Poinsett County
24	78	C	K-62641	1 2 3	43.7 21.8 38.7 58.4	15.6 27.6 41.6	18.9 33.7	0.5 1.0 1.5	0.00 0.00 0.00	0.08 0.13 0.20	0.47 0.83 1.25	7.0 3.7 5.6	24.9 44.3 66.8	0.5 0.8 1.2	48.2 16.5 24.9	4260 7560 11400	2360	2410	2530	A	NE¼, Sec. 18, T. 11 N., R. 4 E. Poinsett County
27	27	C	K-62644	1 2 3	44.2 25.9 46.3 58.9	18.0 32.4 41.1	11.9 21.3	3.0 5.4 6.8	0.50 0.90 1.14	1.44 2.58 3.27	1.06 1.90 2.42	7.4 4.5 5.7	29.5 52.9 67.2	0.4 0.8 1.0	47.8 15.1 19.3	5160 9250 11750	1990	2040	2090	A	SE¼, Sec. 9, T. 11 N., R. 4 E. Poinsett County
31	29	C	K-62640	1 2 3	34.7 26.2 40.1 66.2	13.3 20.4 33.8	25.8 39.5	0.3 0.5 0.9	0.01 0.01 0.02	0.01 0.02 0.04	0.32 0.49 0.82	6.5 4.0 6.7	27.3 41.8 69.1	0.4 0.6 1.1	39.7 13.6 22.2	4830 7390 12220	2360	2410	2530	A	SE¼, Sec. 18, T. 11 N., R. 4 E. Poinsett County
35	74	C	K-62642	1 2 3	36.8 21.7 34.3 61.9	13.3 21.1 38.1	28.2 44.6	0.4 0.6 1.1	0.01 0.01 0.02	0.01 0.01 0.02	0.37 0.58 1.05	5.8 2.8 5.0	23.1 36.5 65.8	0.6 1.0 1.8	41.9 14.5 26.3	3740 5910 10670	2630	2680	2730	A	SE¼, Sec. 31, T. 11 N., R. 4 E. Poinsett County
62	18	C	K-62643	1 2 3	41.6 17.8 30.5 56.6	13.6 23.3 43.4	27.0 46.2	0.5 0.9 1.7	0.03 0.04 0.08	0.14 0.24 0.45	0.38 0.65 1.21	6.3 2.8 5.3	20.4 34.9 64.8	0.3 0.6 1.1	45.5 14.6 27.1	3400 5820 10820	2580	2630	2680	A	SE¼, Sec. 28, T. 13 N., R. 4 E. Craighead County
68	18	C	K-62645	1 2 3	36.3 20.0 31.4 60.1	13.3 20.9 39.9	30.4 47.7	0.3 0.4 0.8	0.01 0.02 0.04	0.04 0.06 0.12	0.20 0.31 0.60	5.9 2.9 5.6	22.9 36.0 68.9	0.4 0.6 1.2	40.1 12.4 23.5	3910 6140 11740	2410	2460	2760	A	SE¼, Sec. 21, T. 14 N., R. 3 E. Craighead County
71	31	C	K-62646	1 2 3	40.1 20.1 33.6 51.0	19.3 32.2 49.0	20.5 34.2	1.0 1.7 2.5	0.09 0.14 0.22	0.45 0.75 1.14	0.46 0.77 1.17	6.5 3.3 5.1	27.5 45.8 69.7	0.4 0.7 1.1	44.1 14.3 21.6	4590 7660 11640	2250	2300	2350	A	SE¼, Sec. 21, T. 14 N., R. 3 E. Craighead County
73	60	C	K-63976	1 2 3	43.8 24.4 43.5 52.4	22.2 39.5 47.6	9.6 17.0	1.4 2.5 3.0	0.08 0.15 0.18	0.91 1.62 1.95	0.43 0.76 0.92	7.3 4.3 5.2	32.8 58.3 70.3	0.5 0.9 1.1	48.4 17.0 20.4	5620 9990 12040	2010	2050	2100	A	NE¼, Sec. 19, T. 14 N., R. 3 E. Craighead County

74	68	C	K-63977	1	19.4	32.0	24.4	24.2	1.0	0.05	0.50	0.42	5.3	39.7	0.7	29.1	6720	2380	2430	2530	A	SE 1/4, Sec. 18, T. 14 N., R. 3 E. Craighead County
				2		39.7	30.2	30.1	1.2	0.07	0.62	0.51	3.9	49.2	0.9	14.7	8340					
				3		56.8	43.2		1.7	0.10	0.88	0.74	5.6	70.4	1.2	21.1	11920					
28		C	K-63978	1	46.3	23.8	23.9	6.0	0.2	0.01	0.01	0.15	7.4	33.7	0.5	52.2	5550	2080	2110	2140	A	SE 1/4, Sec. 18, T. 14 N., R. 3 E. Craighead County
				2		44.3	44.6	11.1	0.3	0.01	0.02	0.27	4.2	62.7	1.0	20.7	10330					
				3		49.8	50.2		0.3	0.01	0.03	0.30	4.7	70.5	1.1	23.4	11620					
76	50	C	K-63979	1	45.3	21.5	17.8	15.4	0.8	0.01	0.01	0.74	7.1	27.3	0.4	49.0	4670	2350	2400	2510	A	NE 1/4, Sec. 19, T. 14 N., R. 3 E. Craighead County
				2		39.3	32.6	28.1	1.4	0.02	0.02	1.36	3.9	49.9	0.8	15.9	8540					
				3		54.7	45.3		1.9	0.03	0.03	1.89	5.4	69.4	1.1	22.2	11890					
12		C	K-63980	1	43.5	22.2	21.7	12.6	0.2	0.01	0.02	0.15	7.0	30.4	0.4	49.4	5010	2090	2140	2250	A	NE 1/4, Sec. 19, T. 14 N., R. 3 E. Craighead County
				2		39.3	38.5	22.2	0.3	0.01	0.03	0.27	3.8	53.9	0.7	19.1	8870					
				3		50.6	49.4		0.4	0.01	0.04	0.34	4.9	69.3	0.9	24.5	11410					
77	24	C	K-63981	1	35.9	23.3	13.4	27.4	0.3	0.01	0.06	0.24	6.3	24.1	0.4	41.5	4130	2910			A	SE 1/4, Sec. 16, T. 14 N., R. 3 E. Craighead County
				2		36.4	20.8	42.8	0.5	0.01	0.10	0.37	3.6	37.7	0.6	14.8	6440					
				3		63.7	36.3		0.8	0.02	0.17	0.65	6.3	65.8	1.1	26.0	11260					
78	12	C	K-63982	1	44.7	25.4	24.7	5.2	0.3	0.01	0.01	0.29	7.6	35.0	0.5	51.4	5990	2080	2110	2140	A	SW 1/4, Sec. 23, T. 14 N., R. 3 E. Craighead County
				2		45.9	44.6	9.5	0.6	0.02	0.02	0.52	4.7	63.2	0.9	21.1	10820					
				3		50.7	49.3		0.6	0.02	0.02	0.58	5.2	69.8	1.0	23.4	11950					
14	18	C	K-73195	1	38.6	25.5	21.6	14.3	0.7	0.01	0.16	0.52	6.9	33.1	0.6	44.4	5726	2555	2650	2755	A	SW 1/4, Sec. 28, T. 14 S., R. 21 W. Nevada County
				2		41.5	35.2	23.3	1.1	0.01	0.26	0.85	4.3	54.0	1.0	16.3	9330					
				3		54.2	45.8		1.5	0.02	0.34	1.11	5.6	70.4	1.3	21.3	12169					
35	35	C	K-73196	1	35.3	20.0	16.6	28.1	0.4	0.01	0.07	0.30	5.9	26.0	0.5	39.1	4390	2775	2800	2800	A	SW 1/4, Sec. 28, T. 14 S., R. 21 W. Nevada County
				2		30.9	25.6	43.5	0.6	0.01	0.11	0.46	3.0	40.1	0.8	12.0	6784					
				3		54.8	45.2		1.0	0.02	0.20	0.81	5.4	71.0	1.3	21.2	12006					
35	72	C	K-70601	1	41.4	30.6	18.8	9.2	0.5	0.01	0.02	0.47	7.9	36.5	0.5	45.4	6580	2080	2130	2180	A	NW 1/4, Sec. 10, T. 19 S., R. 20 W. Columbia County
				2		52.2	32.1	15.7	0.9	0.02	0.04	0.81	5.7	62.2	0.9	14.6	11226					
				3		62.0	38.0		1.0	0.03	0.05	0.96	6.7	73.9	1.1	17.4	13322					
36	42	C	K-70602	1	38.9	29.5	18.2	13.4	1.0	0.01	0.35	0.69	7.4	35.1	0.5	42.5	6384	2080	2260	2420	A	SE 1/4, Sec. 16, T. 19 S., R. 20 W. Columbia County
				2		48.3	29.8	21.9	1.7	0.01	0.58	1.13	5.1	57.5	0.8	13.0	10448					
				3		61.8	38.2		2.2	0.01	0.74	1.45	6.5	73.6	1.0	16.6	13374					
54	52	C	K-72716	1	38.4	31.8	19.2	10.6	0.4	0.01	0.10	0.33	7.4	37.4	0.6	43.6	6732	2305	2415	2505	A	NE 1/4, Sec. 32, T. 16 S., R. 15 W. Union County
				2		51.7	31.2	17.1	0.7	0.01	0.16	0.53	5.1	60.7	0.9	15.4	10930					
				3		62.4	37.6		0.9	0.01	0.19	0.64	6.1	73.3	1.1	18.6	13191					
55	36	C	K-72717	1	36.0	29.3	17.6	17.1	0.5	0.01	0.08	0.41	6.8	34.2	0.5	40.9	6142	2445	2545	2655	A	SW 1/4, Sec. 29, T. 16 S., R. 15 W. Union County
				2		45.8	27.6	26.6	0.8	0.01	0.13	0.64	4.4	53.4	0.8	14.0	9592					
				3		62.4	37.6		1.1	0.02	0.17	0.87	6.0	72.7	1.1	19.1	13076					
75	36	C	K-72719	1	39.0	30.2	21.8	9.0	0.5	0.01	0.12	0.34	7.2	37.6	0.6	45.1	6641	2100	2195	2295	A	SW 1/4, Sec. 12, T. 13 S., R. 18 W. Ouachita County
				2		49.6	35.6	14.8	0.8	0.01	0.19	0.55	4.8	61.6	1.0	17.0	10893					
				3		58.2	41.8		0.9	0.01	0.23	0.65	5.6	72.4	1.2	20.0	12789					
76	32	C	K-72720	1	40.8	27.7	21.7	9.8	0.4	0.01	0.09	0.33	7.5	35.3	0.6	46.3	6179	2415	2505	2605	A	SW 1/4, Sec. 2, T. 13 S., R. 18 W. Ouachita County
				2		46.8	36.7	16.5	0.7	0.01	0.16	0.56	5.0	59.7	1.0	17.1	10433					
				3		56.1	43.9		0.9	0.01	0.19	0.67	6.0	71.5	1.2	20.4	12501					
20		C	K-72721	1	41.4	29.2	21.5	7.9	0.5									2140	2245	2355	A	SW 1/4, Sec. 2, T. 13 S., R. 18 W. Ouachita County
				2		49.8	36.7	13.5	0.8													
				3		57.6	42.4		0.9													

See footnotes at the end of the table.

ARKANSAS LIGNITE INVESTIGATIONS

TABLE 1 -- PROXIMATE AND ULTIMATE ANALYSES OF LIGNITE IN ARKANSAS

Locality Number /1	Thickness (inches)	Site of sample /2	U. S. Bur. Mines lab No.	Condition /3	Air-drying loss	Proximate analyses				Ultimate analyses							Btu/lb.	Fusibility of ash (°F.)			Free swelling index No.	Source of analyses /4	Remarks
						Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Forms of Sulphur			Hydrogen	Carbon	Nitrogen	Oxygen	Initial deformation temperature	Softening temperature	Fluid temperature			
92	35	C	K-73197	1	14	37.9	30.2	19.1	12.8	0.5	0.02	0.04	0.46	7.0	35.7	0.5	43.5	2645	2755	2800	A	SW 1/4, Sec. 17, T. 3 S., R. 14 W. Saline County	
				2		48.7	30.7	20.6	20.6	0.8	0.03	0.07	0.75	4.5	57.5	0.7	15.8						
				3		61.3	38.7			1.1	0.03	0.09	0.94	5.7	72.4	0.9	19.9						
95	96	C	K-73198	1	11	40.2	30.8	19.2	9.8	0.5	0.02	0.06	0.45	7.1	36.2	0.5	45.8	2155	2265	2355	A	NW 1/4, Sec. 8, T. 3 S., R. 14 W. Saline County	
				2		51.5	32.1	16.4	16.4	0.9	0.03	0.10	0.76	4.4	60.5	0.8	16.9						
				3		61.6	38.4			1.1	0.04	0.12	0.90	5.2	72.4	1.0	20.3						
24		C	K-73199	1	30	47.9	23.4	20.3	8.4	0.6	0.01	0.06	0.50	7.5	30.9	0.4	52.2	2155	2245	2355	A	NW 1/4, Sec. 8, T. 3 S., R. 14 W. Saline County	
				2		44.9	39.0	16.1	16.1	1.1	0.03	0.11	0.97	4.2	59.3	0.8	18.5						
				3		53.6	46.4			1.3	0.03	0.13	1.15	4.9	70.7	1.0	22.1						
96	30	C	K-74073	1	26	35.4	14.5	7.3	42.8	0.3	0.03	0.08	0.21	5.6	13.3	0.3	37.6	2715	2800	2800	A	SW 1/4, Sec. 13, T. 4 S., R. 14 W. Grant County	
				2		22.5	11.3	66.2	66.2	0.5	0.05	0.13	0.32	2.5	20.6	0.4	9.6						
				3		66.6	33.4			1.5	0.14	0.37	0.95	7.5	61.1	1.3	28.5						
146	36	C	K-74072	1	28	38.4	33.5	19.1	9.0	0.6	0.02	0.08	0.48	7.9	38.1	0.5	43.9	2345	2455	2555	A	NE 1/4, Sec. 17, T. 19 S., R. 20 W. Columbia County	
				2		54.4	31.0	14.6	14.6	0.9	0.04	0.13	0.79	5.9	61.9	0.9	15.7						
				3		63.7	36.3			1.1	0.04	0.15	0.92	6.9	72.5	1.0	18.4						
147	25	C	K-74071	1	23	30.3	22.4	8.6	38.7	0.9	0.02	0.56	0.32	5.7	21.4	0.3	33.0	2720	2800	2800	A	SW 1/4, Sec. 17, T. 19 S., R. 20 W. Columbia County	
				2		32.2	12.2	55.6	55.6	1.3	0.03	0.81	0.45	3.4	30.7	0.4	8.7						
				3		72.5	27.5			2.9	0.07	1.81	1.02	7.7	69.0	0.9	19.6						
A.1	50	C	K-74280	1	34	40.3	32.2	21.6	5.9	0.5	0.01	0.13	0.38	7.9	39.4	0.6	45.7	2195	2310	2415	A	SW 1/4, Sec. 9, T. 19 S., R. 19 W. Columbia County	
				2		53.9	36.2	9.9	9.9	0.9	0.01	0.22	0.64	5.7	65.9	1.0	16.6						
				3		59.9	40.1			1.0	0.01	0.25	0.71	6.3	73.2	1.1	18.4						
S.3	65	C	K-74278	1	24	38.4	32.4	19.4	9.8	0.4	0.01	0.13	0.29	7.4	37.8	0.6	44.0	2120	2210	2300	A	NW 1/4, Sec. 11, T. 19 S., R. 20 W. Columbia County	
				2		52.7	31.5	15.8	15.8	0.7	0.01	0.21	0.47	5.1	61.5	0.9	16.0						
				3		62.6	37.4			0.8	0.01	0.25	0.56	6.0	73.0	1.1	19.0						
148	30	C	K-74074	1	30	38.8	27.8	16.5	16.9	1.0	0.03	0.29	0.73	7.2	32.3	0.5	42.0	2800	2800	2800	A	NW 1/4, Sec. 20, T. 19 S., R. 20 W. Columbia County	
				2		45.4	27.0	27.6	27.6	1.7	0.05	0.47	1.19	4.7	52.8	0.8	12.4						
				3		62.8	37.2			2.3	0.06	0.65	1.64	6.5	72.9	1.1	17.1						
158	59	C	K-74070	1	27	46.1	29.0	16.1	8.8	0.4	0.01	0.09	0.25	8.0	33.4	0.5	49.0	2065	2155	2255	A	SW 1/4, Sec. 1, T. 19 S., R. 20 W. Columbia County	
				2		53.9	29.9	16.2	16.2	0.7	0.03	0.18	0.46	5.4	62.0	0.9	14.9						
				3		64.3	35.7			0.8	0.03	0.21	0.55	6.4	74.0	1.1	17.8						

159	47	C	K-74075	1	26	39.9	25.7	16.3	18.1	0.4	0.03	0.08	0.29	6.8	29.9	0.6	44.1	5184	2555	2655	2745	A	NW¼, Sec. 6, T. 19 S., R. 19 W. Columbia County
				2		42.7	27.1	30.2	30.2	0.7	0.05	0.14	0.48	4.0	49.7	1.0	14.4	8631					
				3		61.2	38.8			0.9	0.07	0.19	0.69	5.7	71.2	1.5	20.6	12359					
160	43	C	K-74076	1	31	41.7	31.0	20.8	6.5	0.4	0.02	0.06	0.29	8.0	37.4	0.6	47.1	6740	2800	2800	2800	A	NW¼, Sec. 5, T. 19 S., R. 19 W. Columbia County
				2		53.3	35.5	11.2	11.2	0.6	0.04	0.11	0.51	5.7	64.2	1.0	17.2	11569					
				3		60.0	40.0			0.7	0.04	0.12	0.57	6.5	72.3	1.1	19.4	13025					
162	65	C	K-74276	1	19	33.6	30.9	18.5	17.0	0.4	0.01	0.13	0.30	6.9	36.2	0.6	38.9	6550	2655	2770	2800	A	NW¼, Sec. 4, T. 19 S., R. 19 W. Columbia County
				2		46.5	27.9	25.6	25.6	0.7	0.01	0.20	0.45	4.8	54.6	0.8	13.6	9865					
				3		62.5	37.5			0.9	0.02	0.26	0.61	6.5	73.3	1.1	18.2	13257					
163	72	C	K-74277	1	18	36.0	32.8	18.0	13.2	1.4	0.02	0.82	0.54	7.1	37.1	0.5	40.7	6673	2070	2165	2245	A	NE¼, Sec. 3, T. 19 S., R. 19 W. Columbia County
				2		51.2	28.2	20.6	20.6	2.2	0.03	1.28	0.85	4.8	58.0	0.8	13.6	10435					
				3		64.5	35.5			2.7	0.03	1.62	1.07	6.1	73.1	1.1	17.1	13142					
177	34	C	K-74279	1	20	27.6	13.6	10.6	48.2	0.4	0.01	0.34	0.09	4.4	13.0	0.3	33.7	2254	2495	2595	2700	A	NW¼, Sec. 2, T. 18 S., R. 19 W. Columbia County
				2		18.8	14.6	66.6	66.6	0.6	0.01	0.48	0.12	1.9	17.9	0.4	12.6	3115					
				3		56.1	43.9			1.8	0.03	1.42	0.36	5.6	53.6	1.2	37.6	9317					
187	38	C	K-77612	1	23	31.8	22.6	13.0	32.6	1.3	0.00	0.71	0.54	5.8	26.4	0.4	33.5	4681	2910	2910	2910	A	SW¼, Sec. 26, T. 17 S., R. 18 W. Union County
				2		33.1	19.1	47.8	47.8	1.8	0.00	1.04	0.79	3.4	38.7	0.7	7.7	6863					
				3		63.4	36.6			3.5	0.01	1.99	1.52	6.4	74.0	1.3	14.7	13144					
188	36	C	K-77613	1	32	38.5	25.8	15.2	20.5	0.4	0.10	0.02	0.33	6.9	28.6	0.5	43.1	5152	2710	2910	2910	A	NE¼, Sec. 36, T. 17 S., R. 18 W. Union County
				2		42.0	24.7	33.3	33.3	0.7	0.17	0.03	0.53	4.2	46.5	0.8	14.4	8376					
				3		63.0	37.0			1.1	0.25	0.04	0.80	6.4	69.7	1.2	21.6	12553					
226	65	C	K-77614	1	19	31.8	20.5	15.9	31.8	1.4	0.11	0.74	0.56	5.5	25.2	0.5	35.5	4335	2580	2630	2880	A	NW¼, Sec. 22 T. 19 S., R. 27 W. Miller County
				2		30.0	30.4	46.6	46.6	2.1	0.16	1.08	0.81	2.9	37.0	0.8	10.7	6356					
				3		56.3	43.7			3.9	0.30	2.03	1.53	5.4	69.3	1.4	20.0	11908					
245	30	C	K-77615	1	26	38.4	21.5	19.5	20.6	0.4	0.00	0.06	0.34	6.4	28.5	0.5	43.6	4995	2200	2350	2730	A	SW¼, Sec. 32, T. 13 S., R. 24 W. Hempstead County
				2		34.9	31.6	33.5	33.5	0.7	0.00	0.10	0.55	3.4	46.3	0.8	15.3	8115					
				3		52.5	47.5			1.0	0.00	0.16	0.83	5.1	69.6		23.0	12199					
22		C	K-77616	1	32	41.3	24.3	19.9	14.5	0.4	0.00	0.08	0.36	7.1	31.6	0.5	45.8	5573	2190	2250	2370	A	SW¼, Sec. 32, T. 13 S., R. 24 W. Hempstead County
				2		41.3	34.0	24.7	24.7	0.7	0.01	0.13	0.61	4.2	53.8	0.9	15.6	9488					
				3		54.9	45.1			1.0	0.01	0.17	0.81	5.6	71.5	1.2	20.7	12607					
25		C	K-77617	1	23	32.0	21.0	16.7	30.3	0.4	0.02	0.12	0.28	5.7	27.7	0.5	35.4	4680	2560	2680	2910	A	SW¼, Sec. 32, T. 13 S., R. 24 W. Hempstead County
				2		31.0	24.4	44.6	44.6	0.6	0.02	0.18	0.42	3.1	40.7	0.8	10.2	6885					
				3		55.9	44.1			1.1	0.04	0.33	0.75	5.6	73.5	1.4	18.5	12422					
249	30	C	K-77618	1	24	36.6	29.0	26.5	7.9	0.5	0.01	0.03	0.43	7.0	40.3	0.8	43.5	6946	2300	2350	2450	A	SW¼, Sec. 25, T. 13 S., R. 25 W. Hempstead County
				2		45.8	41.7	12.5	12.5	0.7	0.01	0.05	0.68	4.6	63.6	1.2	17.3	10960					
				3		52.3	47.7			0.8	0.01	0.05	0.78	5.3	72.7	1.4	19.8	12527					
252	45	C	K-78000	1	24	36.0	26.9	22.5	14.6	0.4	0.01	0.02	0.34	6.7	36.3	0.7	41.4	6228	2200	2250	2440	A	SE¼, Sec. 3, T. 14 S., R. 25 W. Hempstead County
				2		42.1	35.1	22.8	22.8	0.6	0.01	0.04	0.52	4.2	56.8	1.0	14.6	9739					
				3		54.5	45.5			0.7	0.01	0.05	0.68	5.4	73.6	1.3	18.9	12612					
266	31	C	K-78001	1	23	40.1	21.7	24.4	13.8	0.4	0.00	0.03	0.39	7.2	33.9	0.6	44.2	5915	2190	2230	2270	A	NE¼, Sec. 1, T. 10 S., R. 20 W. Clark County
				2		36.2	40.8	23.0	23.0	0.7	0.01	0.04	0.66	4.5	56.5	1.0	14.2	9869					
				3		47.0	53.0			0.9	0.01	0.06	0.86	5.8	73.4	1.3	18.5	12819					
269	36	C	K-78002	1	35	40.7	26.8	22.9	9.6	0.5	0.02	0.02	0.45	7.3	35.5	0.7	46.5	6205	2020	2050	2080	A	NW¼, Sec. 6, T. 10 S., R. 19 W. Clark County
				2		45.1	38.7	16.2	16.2	0.8	0.03	0.03	0.77	4.7	59.8	1.1	17.4	10461					
				3		53.8	46.2			1.0	0.04	0.03	0.91	5.5	71.4	1.3	20.8	12479					

See footnotes at the end of the table.

ARKANSAS LIGNITE INVESTIGATIONS

TABLE 1 -- PROXIMATE AND ULTIMATE ANALYSES OF LIGNITE IN ARKANSAS

Locality Number /1	Thickness (inches)	Site of sample /2	U. S. Bur. Mines lab No.	Condition /3	Proximate analyses				Ultimate analyses						Btu/lb.	Fusibility of ash (°F.)			Free swelling index No.	Source of analyses /4	Remarks
					Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Forms of Sulphur			Hydrogen	Carbon	Nitrogen	Oxygen	Initial deformation temperature	Softening temperature	Fluid temperature		
275	39	C	K-78003	1 25	38.3	22.3	20.1	19.3	0.2	0.01	0.01	0.17	6.5	31.0	0.6	42.5	2550	2600	2650	A	SE 1/4, Sec. 25, T. 9 S., R. 19 W. Clark County
				2	36.1	32.7	31.2	31.2	0.3	0.02	0.02	0.28	3.6	50.3	0.9	13.7					
				3	52.5	47.5			0.5	0.03	0.02	0.41	5.2	73.1	1.4	19.9					
276	42	C	K-78004	1 29	38.6	24.2	20.6	16.6	0.4	0.00	0.17	0.26	6.6	32.3	0.6	43.4	2680	2780	2910	A	SW 1/4, Sec. 29, T. 9 S., R. 18 W. Clark County
				2	39.5	33.4	33.4	27.1	0.7	0.00	0.28	0.43	3.8	52.6	0.9	14.8					
				3	54.1	45.9			1.0	0.00	0.39	0.59	5.3	72.2	1.2	20.3					
285	32	C	K-78005	1 28	41.7	26.3	23.4	8.6	0.6	0.00	0.09	0.49	7.3	35.6	0.7	47.3	2140	2160	2190	A	NW 1/4, Sec. 36, T. 9 S., R. 19 W. Clark County
				2	45.1	40.2	44.5	14.7	1.0	0.00	0.15	0.85	4.5	61.1	1.2	17.5					
				3	52.8	47.2			1.2	0.00	0.18	0.99	5.3	71.6	1.4	20.6					
286	96	C	K-78006	1 9	35.2	28.8	25.9	10.1	0.6	0.01	0.09	0.45	6.8	39.6	0.6	42.4	2080	2110	2140	A	NW 1/4, Sec. 25, T. 9 S., R. 19 W. Clark County
				2	44.5	39.9	15.6	15.6	0.8	0.02	0.14	0.69	4.4	61.1	0.9	17.2					
				3	52.7	47.3			1.0	0.02	0.16	0.82	5.2	72.3	1.1	20.4					
290	24	C		1 39.4	29.2	21.5	9.8	9.8	0.5	0.01	0.01	0.54	2.7	35.2	1.1	11.2	2260	2340	2410	A	NW 1/4, Sec. 20, T. 10 S., R. 18 W. Clark County. Analysis by Williams Brothers Laboratory.
				2	48.2	35.5	16.2	16.2	0.9	0.01	0.02	0.88	4.4	58.1	1.8	18.5					
				3	57.6	42.4															
297	54	C	K-79853	1 33	42.4	24.1	22.9	10.6	0.7	0.01	0.32	0.37	7.1	33.4	0.6	47.7	2430	2480	2780	A	SW 1/4, Sec. 13, T. 10 S., R. 19 W. Clark County
				2	41.8	39.9	18.3	18.3	1.2	0.02	0.56	0.65	4.1	57.9	1.1	17.3					
				3	51.1	48.9			1.5	0.03	0.69	0.79	5.0	70.9	1.3	21.2					
298	22	C	K-79854	1 33	46.2	24.1	22.1	7.6	0.5	0.01	0.10	0.37	7.5	33.3	0.6	50.5	2060	2110	2160	A	NW 1/4, Sec. 13, T. 10 S., R. 19 W. Clark County
				2	44.8	41.1	14.1	14.1	0.9	0.03	0.19	0.69	4.4	62.0	1.1	17.5					
				3	52.2	47.8			1.1	0.03	0.22	0.80	5.1	72.2	1.3	20.4					
299	24	C	K-79855	1 29	35.4	20.6	15.7	28.3	0.3	0.02	0.02	0.32	5.9	26.4	0.5	38.6	2580	2630	2840	A	NW 1/4, Sec. 13, T. 10 S., R. 19 W. Clark County
				2	31.9	24.3	43.8	43.8	0.5	0.02	0.03	0.49	3.1	40.8	0.8	11.0					
				3	56.7	43.3			1.0	0.04	0.05	0.87	5.5	72.6	1.3	19.6					
304	32	C	K-84800	1 19	40.1	24.8	23.4	11.7	0.4	0.01	0.03	0.32	7.0	35.8	0.7	44.6	2050	2100	2300	A	NE 1/4, Sec. 33, T. 13 S., R. 23 W. Hempstead County
				2	41.4	39.1	19.5	19.5	0.6	0.01	0.04	0.54	4.2	59.8	1.1	14.9					
				3	51.4	48.6			0.7	0.02	0.05	0.67	5.2	74.2	1.4	18.5					
305	31	C	K-84801	1 8	29.6	30.1	28.5	11.8	0.6	0.01	0.07	0.50	6.2	42.1	0.9	38.4	2130	2180	2300	A	SE 1/4, Sec. 29, T. 13 S., R. 23 W. Hempstead County
				2	42.7	40.5	16.8	16.8	0.8	0.02	0.10	0.71	4.2	59.8	1.2	17.2					
				3	51.3	48.7			1.0	0.02	0.12	0.85	5.0	71.9	1.5	20.7					

317	99	C	K-84802	1	10	33.0	25.0	23.4	18.6	0.5	0.01	0.05	0.43	5.8	34.1	0.6	40.4	5933	2250	2300	2410	A	NE¼, Sec. 17, T. 13 S., R. 22 W. Nevada County
				2			37.3	35.0	27.7	0.7	0.01	0.08	0.64	3.3	50.9	0.8	16.6	8852					
				3			51.7	48.3		1.0	0.02	0.11	0.89	4.5	70.3	1.2	23.0	12243					
320	40	C	K-84803	1	20	37.3	20.3	19.7	22.7	0.6	0.02	0.18	0.44	5.7	27.5	0.5	42.9	4678	2740	2840	2910	A	NW¼, Sec. 11, T. 13 S., R. 23 W. Nevada County
				2			32.4	31.4	36.2	1.0	0.02	0.28	0.71	2.5	43.9	0.9	15.5	7465					
				3			50.8	49.2		1.6	0.04	0.44	1.11	4.0	68.8	1.4	24.3	11705					
342	31	C	K-84804	1	20	39.9	28.1	20.1	11.9	0.3	0.01	0.01	0.29	7.2	35.0	0.6	45.0	6132	2250	2300	2350	A	SE¼, Sec. 32, T. 13 S., R. 18 W. Ouachita County
				2			46.7	33.5	19.8	0.5	0.01	0.02	0.48	4.6	58.3	1.0	15.8	10202					
				3			58.2	41.8		0.6	0.02	0.02	0.59	5.7	72.7	1.2	19.7	12726					
361	32	C	K-84805	1	24	41.0	29.0	23.0	7.0	0.3	0.01	0.01	0.27	7.5	37.3	0.8	47.1	6553	2130	2180	2280	A	NE¼, Sec. 32, T. 14 S., R. 19 W. Ouachita County
				2			49.2	38.9	11.9	0.5	0.02	0.02	0.46	5.0	63.2	1.3	18.1	11101					
				3			55.8	44.2		0.6	0.02	0.02	0.52	5.7	71.8	1.5	20.6	12605					
390	36	C	K-84806	1	10	31.5	29.8	20.6	18.1	0.5	0.00	0.13	0.40	6.4	36.0	0.8	38.2	6254	2230	2330	2390	A	SE¼, Sec. 6, T. 10 S., R. 11 W. Cleveland County
				2			43.6	30.0	26.4	0.8	0.01	0.19	0.58	4.2	52.6	1.1	14.9	9135					
				3			59.2	40.8		1.1	0.01	0.26	0.79	5.7	71.5	1.5	20.2	12414					
398	45	C	K-84807	1	19	37.7	29.2	15.0	18.1	0.4	0.01	0.02	0.41	7.1	31.0	0.5	42.8	5785	2250	2300	2500	A	SE¼, Sec. 31, T. 10 S., R. 12 W. Dallas County
				2			46.8	24.1	29.1	0.7	0.01	0.04	0.67	4.6	49.8	0.8	15.0	9281					
				3			65.9	34.1		1.0	0.02	0.05	0.94	6.5	70.2	1.2	21.1	13081					
410	19	C	K-88838	1	22	27.1	23.0	10.2	39.7	0.4	0.01	0.11	0.24	5.4	24.6	0.4	29.5	4361	2675	2785	2910	A	NE¼, Sec. 4, T. 14 S., R. 14 W. Calhoun County
				2			31.5	14.1	54.4	0.5	0.01	0.15	0.33	3.3	33.7	0.5	7.5	5979					
				3			69.1	30.9		1.1	0.02	0.33	0.73	7.3	74.0	1.1	16.5	13116					
431	80	C	K-84808	1	16	43.2	27.9	19.1	9.8	0.9	0.01	0.19	0.65	7.5	33.4	0.6	47.7	5902	2250	2290	2330	A	SE¼, Sec. 6, T. 13 S., R. 13 W. Calhoun County
				2			49.1	33.6	17.3	1.5	0.02	0.34	1.14	4.7	58.8	1.1	16.5	10387					
				3			59.4	40.6		1.8	0.03	0.41	1.38	5.7	71.1	1.4	19.9	12562					
433	71	C	K-88839	1	28	40.3	26.1	17.6	16.0	0.4	0.01	0.05	0.37	7.1	32.1	0.5	43.8	5595	2190	2300	2410	A	NE¼, Sec. 19, T. 13 S., R. 13 W. Calhoun County
				2			43.7	29.5	26.8	0.7	0.01	0.08	0.62	4.3	53.8	0.9	13.5	9367					
				3			59.7	40.3		1.0	0.02	0.11	0.85	5.9	73.5	1.2	18.4	12801					
440	32	C	K-88840	1	39	44.5	28.8	17.3	9.4	0.3	0.01	0.04	0.30	8.1	33.7	0.5	48.0	6125	2000	2110	2190	A	NW¼, Sec. 4, T. 14 S., R. 13 W. Calhoun County
				2			51.8	31.3	16.9	0.6	0.01	0.08	0.54	5.7	60.6	1.0	15.2	11030					
				3			62.3	37.7		0.7	0.01	0.09	0.64	6.8	73.0	1.2	18.2	13273					
441	68	C	K-88841	1	27	35.9	31.1	17.7	15.3	0.4	0.00	0.04	0.32	7.2	36.3	0.5	40.2	6566	2400	2520	2610	A	SW¼, Sec. 3, T. 14 S., R. 13 W. Calhoun County
				2			48.5	27.7	23.8	0.6	0.00	0.07	0.49	5.1	56.7	0.8	13.0	10246					
				3			63.6	36.4		0.7	0.00	0.09	0.65	6.6	74.5	1.0	17.1	13452					
453	24	C	K-88842	1	26	33.2	23.3	14.2	29.3	0.4	0.01	0.06	0.33	6.0	27.4	0.4	36.5	4823	2500	2610	2720	A	SE¼, Sec. 15, T. 13 S., R. 13 W. Calhoun County
				2			34.8	21.3	43.9	0.6	0.01	0.09	0.50	3.4	40.9	0.6	10.5	7220					
				3			62.1	37.9		1.1	0.02	0.16	0.89	6.1	73.0	1.1	18.6	12875					
473	50	C	K-84809	1	20	41.6	25.7	18.2	14.5	0.7	0.02	0.20	0.52	7.0	31.1	0.6	46.1	5520	2250	2300	2510	A	SW¼, Sec. 20, T. 12 S., R. 13 W. Calhoun County
				2			44.1	31.1	24.8	1.3	0.03	0.34	0.90	4.1	53.2	1.0	15.6	9451					
				3			58.6	41.4		1.7	0.04	0.45	1.19	5.5	70.7	1.4	20.7	12572					
489	29	C	K-84810	1	19	38.3	23.3	16.3	22.1	0.7	0.02	0.07	0.58	6.6	28.0	0.6	42.1	4945	2230	2280	2560	A	NW¼, Sec. 36, T. 10 S., R. 13 W. Dallas County
				2			37.8	26.4	35.8	1.1	0.03	0.11	0.95	3.8	45.3	0.9	13.0	8021					
				3			58.9	41.1		1.7	0.04	0.17	1.47	5.9	70.7	1.5	20.3	12502					

See footnotes at the end of the table.

ARKANSAS LIGNITE INVESTIGATIONS

TABLE 1 -- PROXIMATE AND ULTIMATE ANALYSES OF LIGNITE IN ARKANSAS

Locality Number /1	Thickness (inches)	Site of sample /2	U. S. Bur. Mines lab No.	Condition /3	Proximate analyses				Ultimate analyses						Btu/lb.	Fusibility of ash (°F.)			Free swelling index No.	Source of analyses /4	Remarks
					Moisture	Volatile matter	Fixed carbon	Ash	Sulphur	Forms of Sulphur			Hydrogen	Carbon	Nitrogen	Oxygen	Initial deformation temperature	Softening temperature	Fluid temperature		
527	30	C	K-88843	1 2 3	45.8 27.2 50.2 57.6	20.1 37.0 42.4	6.9 12.8	0.4 0.7 0.8	0.00 0.00 0.00	0.05 0.10 0.11	0.32 0.59 0.68	8.1 5.6 6.4	34.5 63.6 72.9	0.6 1.1 1.3	49.5 16.2 18.6	6077 11202 12846	2050	2170	2250	A	SW 1/4, Sec. 3, T. 9 S., R. 13 W. Cleveland County
543	54	C	K-88844	1 2 3	37.2 22.6 36.1 68.3	10.6 16.7 31.7	29.6 47.2	0.5 0.8 1.5	0.01 0.01 0.02	0.11 0.17 0.33	0.38 0.61 1.16	7.1 4.6 7.0	28.1 46.1 70.8	0.5 0.8 1.2	42.2 12.4 19.1	4122 6566 12439	2690	2800	2800	A	SW 1/4, Sec. 10, T. 8 S., R. 15 W. Dallas County
587	19	C	K-88845	1 2 3	39.0 23.7 38.9 59.8	16.0 26.1 40.2	21.3 35.0	0.7 1.1 1.7	0.01 0.01 0.02	0.66 1.08 1.66	0.02 0.03 0.05	7.1 4.6 7.0	28.1 46.1 70.8	0.5 0.8 1.2	42.2 12.4 19.1	4984 8170 12560	2400	2510	2590	A	SW 1/4, Sec. 36, T. 9 S., R. 17 W. Dallas County
608	30	C	K-88846	1 2 3	46.9 19.0 35.9 53.2	16.8 31.5 46.8	17.3 32.6	1.3 2.4 3.6	0.01 0.01 0.02	0.31 0.58 0.86	0.97 1.83 2.71	7.2 3.8 5.6	24.2 45.6 67.6	0.4 0.8 1.2	49.5 14.8 22.0	4169 7849 11637	2640	2750	2910	A	NE 1/4, Sec. 3, T. 5 S., R. 14 W. Grant County

1. See county location maps.
2. C, core sample.
3. 1, as received; 2, moisture free; 3, moisture and ash free.
4. A, laboratory report for Arkansas lignite investigations.

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