RESULTS OF LIGNITE TEST DRILLING

In

HODGEMAN COUNTY

August 7-11, 1972

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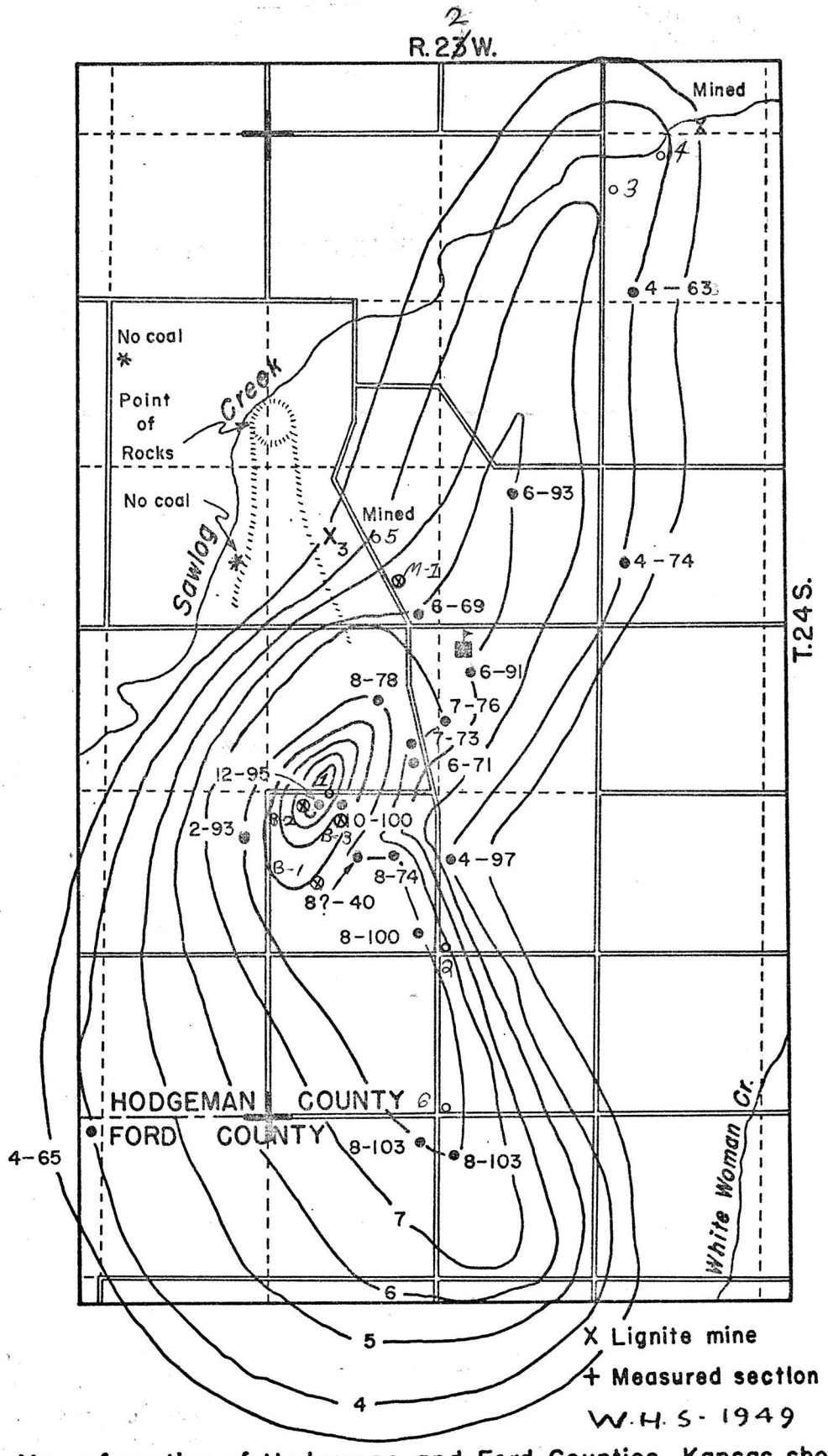
Introduction:

In 1949, Walter H. Schoewe developed an isopach map of an alleged lignite reserve in northern Ford and southern Hodgeman counties (Fig. 1) from hole data supplied to him by local landowners, Charles P. Berend and George O. Wade. According to Schoewe, they got this data by watching and talking to well drillers and seismograph crews over the years. (See Appendix A with previous correspondence and drill records 1949-1963). If this data was correct, a lignite reserve of 20,000,000 - 105,000,000 tons was indicated. A proximate analyses (Appendix C) of a sample from a hole drilled before 1948 in NE corner, NW¼, Sec. 30, T.24S., R.22W. which was sent to the Survey indicated that the material was of sub-bituminous quality (11,628 BTU/lb.).

In 1963, four test holes were drilled by the KGS in the thickest area of the alleged deposit in order to verify its existence. One hole in Sec. 18 showed no lignitic material to 80 feet; two holes in Sec. 30 indicated coal traces at 60 feet and 84 to 107 feet respectively. A third hole in Sec. 30 which was subsequently cored indicated coal traces at 85-86 feet, 91 feet, 94 feet, 91-100 feet and a good showing of coal between 100-102 feet (Appendix A). Fragments of lignite (present at the Geological Survey) from the 100-102 feet zone were recovered from the deepest zone. However, only about 3 inches of coal was recovered in coring. After these four holes were drilled there was still some question as to whether extensive lignite deposits existed in Ford and Hodgeman counties due to the limited areal extent of drilling, lack of outcrops and questions concerning washing away of the soft lignite during drilling and coring.



Map of portion of Hodgeman and Ford Counties, Kansas showing

FIGURE 1

area of alleged lignite coal reserve lands.

• 4-63 thickness of lignite and depth below surface (1948 Test Holes)

⊗ - 1963 KGS Test Holes
o - 1972 KGS Test Holes
} See logs in Appendices A & B for exploration

Objectives and Methods:

The objective of the 1972 test drilling in this area was to drill widely spaced holes throughout the alleged lignite reserves to determine the true thickness and extent of the lignite. If sections of economically significant deposits were located, the drill rig was to be moved over a few feet from the drill hole and the appropriate section cored. The Kansas Geological Survey's Failing 1250 drill rig was used to drill 5¼ inch diameter holes.

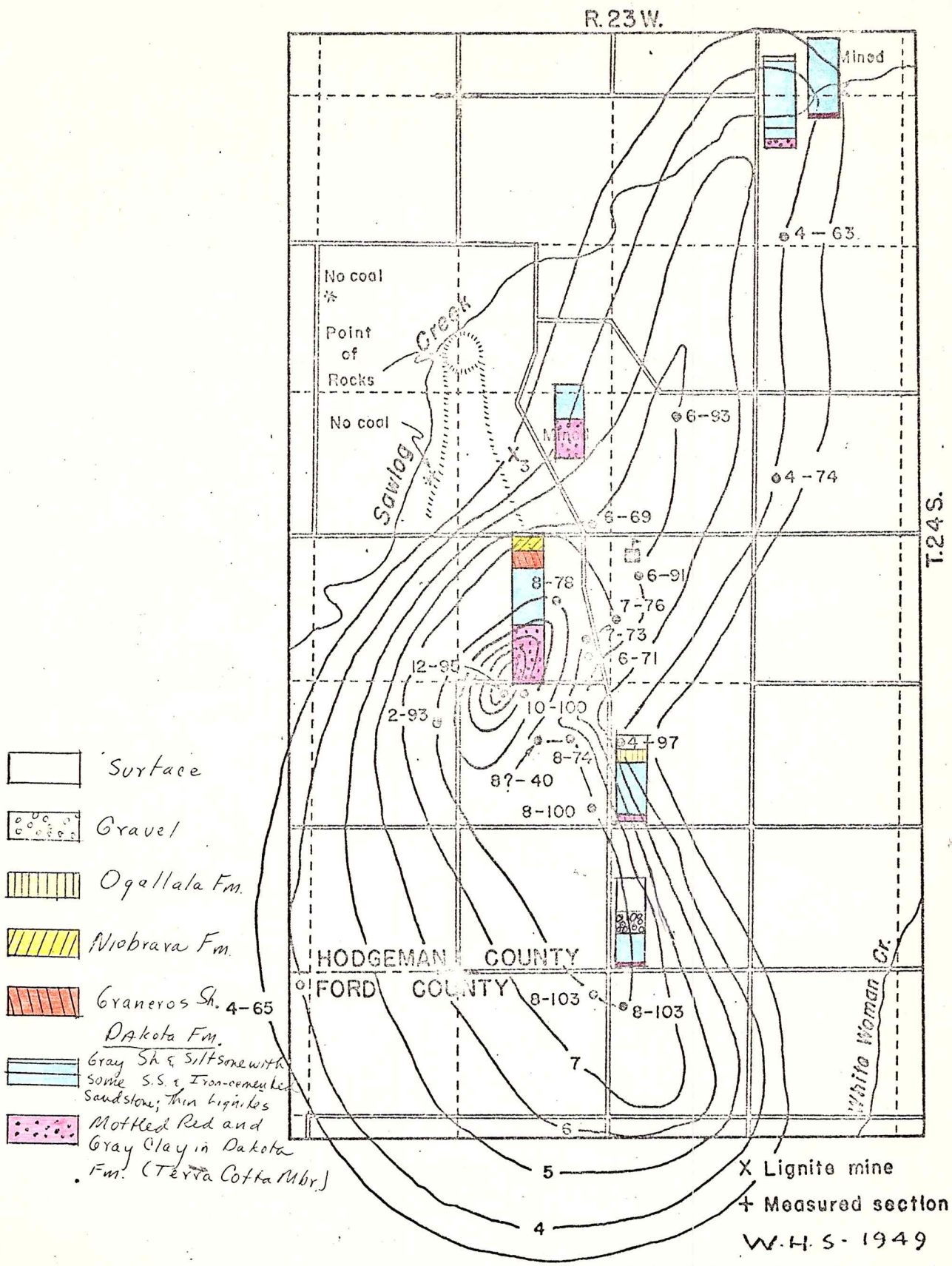
No topographic maps are available for the area except on an 1889 map at a scale of 1:125,000.

Results:

Six holes were drilled: two near the northern edge of the alleged deposit adjacent to an area along Sawlog Creek in which 3 feet of lignite was believed to have been mined in the late 1800's; one in the center region adjacent to a second mined area; one in the thickest area of the deposit; and two in the lower half of the alleged deposit close to the Ford and Hodgeman County line. (See Appendix B for records.) These holes ranged in depth from 120 to 250 feet.

Every hole contained traces of lignite (some for extensive lengths of section; e.g. hole #1,3, & 5) in the form of minor amounts of cuttings. These cuttings were relatively hard for lignite and displayed little of the fibrous, woody nature typical of this material. Hole #3 in the NE¼, SW¼, Sec. 4, T.24S., R.22W. produced a good showing of lignite between 120 and 121 feet below the surface. No coring was necessary.

As suggested by Schoewe in his 1949 letter (see Appendix A) the immediate overburden of the most prominent coaly zone is a very hard non-cemented, sandstone. The generalized stratigraphy based on the 1972 drill holes is shown in Figure 2.



Map of portion of Hodgeman and Ford Counties, Kansas showing area of alleged lignite coal reserve lands.

4-63 thickness of lignite and depth below surface

Fig 2 - Generalized Stratigraphic Section

Conclusions:

No lignite beds were discovered which were judged to be of economic value. The meager amounts of lignite cuttings recovered do not verify the presence of the thick beds indicated by the data given to Schoewe in 1949. The large thicknesses through which lignite traces were found, especially in holes #1, 3 & 5 are probably the result of periodic lignite stringers of approximately an inch in thickness and/or the washing of the soft lignite cuttings from the walls of the drill hole into cuttings from deeper zones.

Lignite deposits in the Dakota Formation apparently occur as lenses associated particularly with alluvial channels (a good example of this can be seen in the outcrop north of Ellsworth, Kansas on highway 156 immediately south of the intersection with I-70. Further exploration for economic deposits would be warranted where extensive channels or alluvial valleys are known to exist in this formation. Otherwise there appears to be little chance of finding extensive deposits of lignite in Kansas. On the basis of the lignite test drilling in Ford and Hodgeman counties, no further exploration is recommended in that area.

APPENDIX A

Previous Correspondence and Drill Records

1949-1963

To Dr Schoewe

Dodge Cit y, Kansas
July 22, 1949

Special Report - LIGNITE

A deposit of 20,000,000 tons of coal (lignite) underlie the surface in southern Hodgeman and nor thern Ford Coun ties. Known locations range 7 miles long and 3 miles wide. Known thickness ranges from 4 feet to 12 feet. Preliminary analysis by the State Geological Survey, analysis of a very small sample, indicate good quality. The deposit is located from 4 to 8 miles from the main line of the Santa Fe. Depth of deposit ranges from 15 feet to 81 feet.

The immediate overburden seems to be an iron cemented sandstone. It is very hard and causes trouble to drillers. Sandstone with hard iron concretions are found in the area. It is reported that churn drills bounce off this seam like drilling on metal. It wears down drill bits. A layer of loosly cemented sand stone is above this ironstone layer but separated by probably 10 to 15 feet. In one location Kiowa shale seemed to rest on the sand stone.

Two locations were inspected where mining operations were conducted years ago. First mining was in 1878 by James Mc Dermott. He mined coal in a draw now covered by about 18 feet of silt. Coal was taken from the banks of Sawlog for blacksmith use about 30 years ago. This location now is covered by 10 feet of water and muck. In this location there is a seam of sandstone high on the hillside and it seems to be cemented with considerable iron. There were some iron cemented loose sandstone in the stream bed of sawlog.

The lignite seam is immediately over the water bearing strata and good wells are found in the area.

I examined this area yest erday with:
Chas P. Berend, Farmer and restaurant owner
Geo. O Wade, Farmer
Geo. W. Mollitor, Farmer etc. and President of First Natl Bk.
All of Spearville.
Mollitor is reported to be worth 1½ million dollars. He has agreed to aid with financing Berend and Wade on the purchase of some more property if this lignite tests out all right.

I am enclosing two maps. One shows the general area in relation to Dodge City and Spearville. The other map shows the sections where it is known deposits exist. The deposits all seem to be east or south of Sawlog. I drove all over this area with these men. They pointed out wells and other locations where lignite had been found. Berend and Wade have been watching this for several years, have talked to well drillers and seismograph crews and, according to their story some of the drillers have talked to them and told them there was a seam of coal underground, giving them depth and thickness. The two want no publicity about this. I told them, however, if KIDC and the State Geological Survey helped them with development we could not keep it a secret from persons that might ask us for information, but also we probably would not publish any facts except in the normal course of reports. This was satisfactory to them.

Following information was furnished by Berand and Wade and mainly by Wade. Section numbers can be followed on the map enclosed. Exact locations of wells were not noted because I was trying to establish the extent of the deposit.

Section 4, Twp 24, Rge 23, SW. Lignite was mined 30 years ago in the stream bed of Sawlog Creek. Seam reported to be 4 feet. Was dug from below sandstone. Probably now covered by 10 feet of water and silt. It was mined along the south bank. It was used for blacksmith coal. Reported to make a very hot fire.

NW¼ Section 18, Twp 24, Rge 22. Lignite was mined in the bed of a draw. Now covered by 18 feet of silt. First mined in this location in 1878 by James Mc Dermott. Seam reported to be 5½ feet thick. In this location there is a sandstone deposit that is loosely cemented like the Cheyenne sandstone of Kiowa and Barber counties. This deposit might be 20 or more feet above the lignite. A shale deposit, looking like Kiowa shale rests on the sandstone. There is an interesting layer of a light butter colored seam of shale, about 4 inches thick, about mid way in this shale deposit. I would have taken a sample but we were in a rainstorm and were wet through. I am curious about this stuff and sometime will send in a sample to the Survey for testing. This Kiowa(?) shale probably is 20 feet thick in this location. There were selenite crystals in the shale like in Kiowa county. There were iron concretions in the top part of the sandstone.

NE corner, NW¼, Section 30, Twp 24, Rge 22. Berend farm. Well shows 12 feet lignite. This is the location from which sample was taken that was analyzed by Survey. Seam is 95 feet from the surface. Location is on north side of hill. Well drilled in August 1947. Berend claims this sample was not washed before it was delivered to Survey. Wade says they have taken out chunks which showed no shale seams. Berend own 500 acres in this section. He and Wade would like to buy the northeast quarter. This quarter is lower land and would be better suited for strip coal mining.

Section 19, Twp24, Rge 22, Wade land. Seven feet of lignite in a well drilled 4 years ago. Seam 72 feet under the surface.

Section 20, Twp 24, Rge 22, Wade land. Five feet of lignite in well drilled 5 years ago. Seam 87 feet under surface.

Section 16, Twp 24, Rge 22. Six feet in well, 69 feet underground. Well drilled 4 years ago. Mellecker Estate.

Section 17, Twp24 Rge 22. Well 103 feet deep, 6 feet lignite, drilled 16 years ago. Neilson farm

Section 29, Twp 24, Rge 22. Well 147 feet deep, lignite at 91 feet, 5 foot seam. Linning Estate.

Section 35, Twp 24, Rge 23. Well in the northeast corner of NE¼. Five feet of lignite at 75 feet depth. Schaffer farm.

Now we move to Ford County. I did not go to this location.

Section 2, Twp 25, Rge 23. Well drillers found four feet of lignite at 65 feet.

In some of the sections mentioned by the men they pointed out several wells where lignite had been found. The terrain of the area is gently rolling to sharp in the stream valleys. Sawlog has cut sharply into the surface. I do not know if it has stopped at some hard formation. I would judge by the remarks of these men that the lignite is at or just below the bed of the stream. They say they have no evidence of lignite on the north or west of Sawlog creek.

The onlyway I could see to get samples would be to dig a shaft at some low point or to core drill. If a shaft were dug it probably would have to be 85 feet.

Wade and Berend were speculating on trying to get a core driller, whom they knew in Larned, to come there and drill for a share of any thing of value they found. They thought the man would come down and drill and keep his mouth shut. I told them if they did that the Survey might want to send a man out there to take samples.

Mullitor, who has lived in the area for many years, says coal burned in stoves about burned them out and that there was very little ash.

Wade said someone from Stanolind was there during the time Stanolind was looking for a location for the big plant and remarked they might move to that area if water and lignite were good.

Wade also mentioned he knew where there was a deposit 43 feet thick. Before I left I asked him about it and he gave me the location which is about 40 miles west. We will try to obtain more information about this.

It seems to me the data presented here is justification for the Survey to send someone to the area for a more detailed inspection and for a conference with these men. I should like to work with them.

George P. Weeks

cc - John C. Frye

November 6, 1962

Dr. Frank C. Foley
State Geological Survey

Dear Frank:

Recently Hornbaker and Hardy collected several samples of lignite from slump material in a former mining area south of Wilson, Ellsworth County, described in my report on the Cretaceous lignite, Bulletin 96, Part 2. After some discussion as to the possible exploitation of lignite in the area, I mentioned the possibility of testing or proving out the much more significant alleged lignite reserve area in southern Hodgeman and northern Ford Counties. Here, if the data are reliable there should be approximately 105,000,000 tons of high grade lignite, from 63 to 100 feet or so below the surface. The coal is asserted to range in thickness from 3 to 12 feet. Approximate analyses indicate a B.T.U. value of more than 10,000 on a moisture and ash free basis.

About the time I started field work for the lignite report in 1948, a sample of lignite from a test well was sent to the Survey for analysis. Runnels made the proximate analysis. Later when it became known that I was in the general lignite country, Mr. George Weeks, then of the Dodge City Chamber of Commerce contacted me and told me of the alleged lignite deposit in which several individuals as well as the Dodge City Chamber of Commerce were very much interested. Mr. Weeks was hopeful that the Survey would prove out the area by putting down a sufficient number of drilled or core holes. I was finally given a list of the test holes drilled by exploratory companies in search for oil and in which lignite was encountered. Through Mr. Weeks I also obtained data in regard to the thickness of the lignite and depth below the surface. This data was considered confidential. Later in company with Mr. Weeks and two other gentlemen who supplied the lignite data, I visited the area and spotted on a map the location of the holes more accurately than given on a very generalized map furnished by Mr. Weeks. The end product was the drawing of the enclosed isopachus map. A deal was finally proposed according to which (1) certain people would furnish data pertaining to the test holes, etc., (2) K.I.D.C. would pay for the drilling of the test holes to prove out the area, and (3) the Survey would supervise the drilling program, collect samples, run proximate analyses, etc. The deal did not materialize.

As the data was confidential I only referred to the area in my report, pages 99, 121-124. At my request all the correspondence was

directed to Dr. Frye, hence the Survey should have, in its files, all of the letters, as well as the proximate analysis made by Runnels.

I hope that some day this area (about 14 square miles) will be drilled to definitely establish whether there is a lignite deposit present verifying the data given. I call attention to pages 94 and 95 of my report dealing with uses of lignite, especially the last 7 or 8 lines on page 95. A special type of wax, sold on the market as montane wax, has been produced from lignite and should be added to the uses.

I felt that I should not release this information to Al except by way of you since formerly, at least, the location of test holes and data pertaining to the lignite was to be considered confidential.

Sincerely,

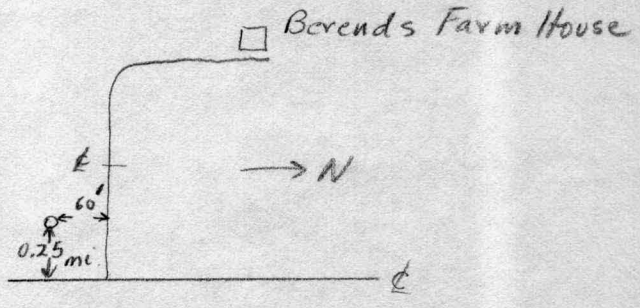
Walter H. Schoewe

WHS:mc

Lignite Exploration 7/25/63

Sec 30-T24S-R22W
Berend #1

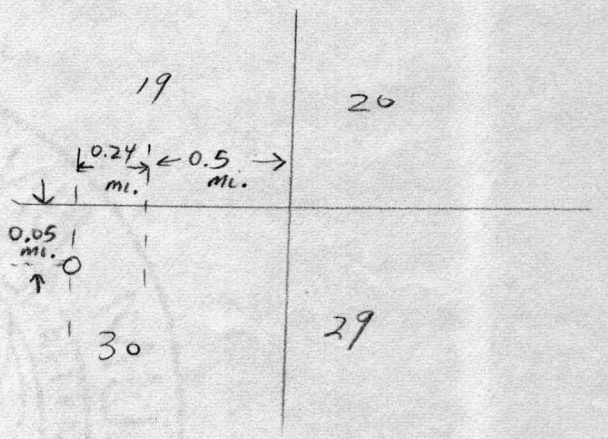
8:51 a.m.	
0 - 9'	Shale-medium gray
9 - 16'	Shale-medium gray
16½-20'	Gray sandstone layered with dk. shale with thin layers blue gray shale
20'-25'	"
25 - 30'	Sandstone - medium gray shale mostly shale - last 5' all shale - some slight clay
30 - 31'	"
31 - 40'	Light gray clay
47'	Thin streak bentonite? clay
40 - 50'	Light gray clay
50 - 52'	"
52'	Sandstone - brown
56'	Sandstone - brown
10:00a.m.	
60'	Coal showing, light gray clay
60 - 70'	Light grey clay
70 - 75'	Light grey clay
75 - 77'	Sandstone streaks
77 - 80'	Silty clay
80 - 82'	"
82 - 85'	Light grey clay to 85', increase in sand @ 85'
85 - 90'	"
90 - 95	Grey clay
95 - 98'	Red streaks - red increases to 98'
100'	"



7/25/63
NE¼Sec 30-T24S-R22W
Berend #2

2:00 p.m.

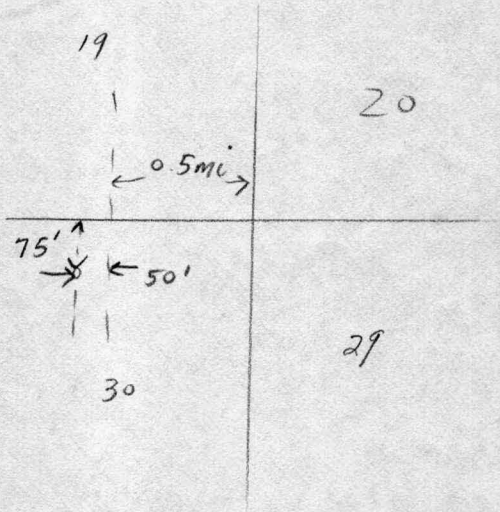
0 - 10'	Top clay
10'	Caliche
16 - 20'	Medium gray shale (Bentonite?)
20'	#1 sample
30'	#2 sample some sand
33'	3" sandstone, bedded shale and clay
40'	Bedded shale and clay
43'	Very hard shale?
43 - 50'	Bentonite and grey clay
50 - 60'	Grey clay and shale
60 - 66'	@ 66' hard material
66 - 70'	Several hard layers
70'	Medium grey clay
70 - 78'	shaly
78 - 80'	Light grey clay
80 - 84'	Light gray clay
84'	Slight coal?
84 - 90'	Dark grey clay, some small particles lignite
90-100'	More coal @ 100'
100-107'	Slight traces of coal, stop #107'



7/26/63
N½Sec 30-T24S-R22W
Berend #3

8:30a.m.

0 - 10'	Soil - rock (caliche #1'), yellow clay - layered, clay lignite color at 10'
10 - 20'	Yellowish clay changing to grayish #20'
20 - 28'	Greyish yellow clay
28 - 30'	Grey shale
20 - 37'	Bentonite? #27'
37 - 40'	Streaks sandy shale
40 - 45'	Bentonite? @45'
45 - 49'	Hard layers in grey shale
50'	Hard sandy layer (1 foot thick)
55 - 60'	Soft grey shale (clay?)
60 - 62'	"
62'	Blue grey clay
62 - 70'	
70 - 78'	
79 - 80'	Hard sand streak - 1' brown
80 - 85'	Sandy shale
85 - 86'	Showing coal
86'	Dark grey brownish shale
87'	Right grey clay
87 - 90'	Light grey clay #2 sample
90 - 91'	"
91'	Slight coal showing
93'	Mostly sandstone
94'	Light grey clay - some coal

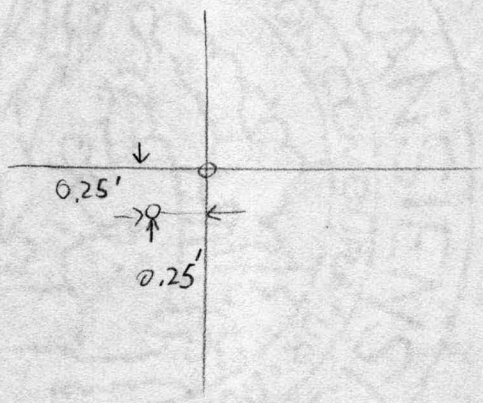


97 -	Sandstone
97 - 100'	Coal show
100 - 102'	Coal showing - good show # 102', caved to 110', no further coal than #102'

7/26/63
SE¼ Sec 18-T24S-R22W
Mooney #1

3:30p.m.

0 - 10'	Yellow sandy clay, change to grey clay at 10'
12'	Grey sandstone
14 - 18'	Medium grey clay
18 - 20'	Light grey clay
20 - 27'	Light grey clay
27'	Red & grey matted clay
27 - 30'	Red & grey matted clay
30 - 40'	Red & grey matted clay
40 - 42'	Red & grey matted clay
42 - 43'	Hard sandstone
43 - 50'	Red & grey matted clay, more red
50 - 60'	"



APPENDIX B

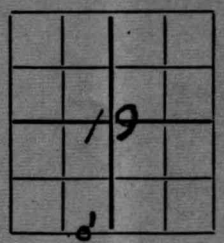
Drill Logs of 1972 Test Drilling

Owner Knobbe — SL ¼ SE ¼ SW ¼ sec. 19 T. 24S R. 22W

County Hodgeman — Date Aug. 7, '72 — Static Water Level

Topo. Sheet — Elev. — Depth — Yield

Location



Formation Record Hole #1

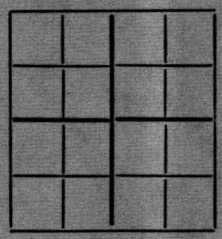
Ft.	From	To	Description
3	0	3	Surface
23	3	26	Niobrara; Bf+ Sh with thin siltstone + Ls. Beds
	26	50	Graneros; Blk Silty Sh. with thin Gray mont-morillonite zone
	50	57	Blk shale unit [illegible] Sh cuttings.
	57	68	Blk Shale
	68	71	Dk Gr Sandy Sl
	71	73	Quartzose ss with pyrite cuttings
	73	81	Dk silty clay with lignite cuttings at 79'
	81	104	Lt. Gr silty clay with Lignite cuttings at 90', 97', 2, 3' some Lt br siltstone streaks
	104	116	Sandy clay with thin sandstone streaks; lignite cuttings at top; more predominant Lignite cuttings at 109, 113, 119'
	116	124	Slightly sandy Mont-morillonitic; gray clay; Lignite cuttings
	124	125	Lignitic zone
	125	131	Sandy clay and thin Lt Gray sandstone streaks
	131	132	Lignitic zone
	132	152	Lt Gray silty shale with lignite cuttings at 132-147; 152
	152	171	Gray & Ochre mottled clay; lignite cuttings at 152, 165 169
	171	172	Ochre shale and sandstone
	172	205	Alternating shale and sandstone beds; gray, red and yellow; lignite cuttings at 177, 200

Owner _____ _____¼ _____¼ _____¼ sec. _____ T. _____ R. _____

County _____ Date _____ Static Water Level _____

Topo. Sheet _____ Elev. _____ Depth _____ Yield _____

Location _____



Formation Record Hole #1 Cont'd

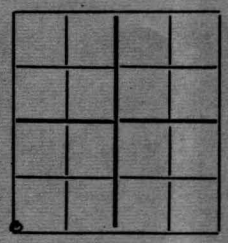
Ft.	From	To	Description
	205	206	Red Sh and S.S
	206	210	Alternating Sh and s.s.
	210	235	Gray montmorillonitic clay; slightly silty or sandy
	235	250	Gray montmorillonitic clay
		T.D.	

Owner Gerritzen(?) leased by Hokerman? SW¼ SW¼ SW¼ sec. 29 T. 24S R. 22W

County Hodgeman Date 8-8-72 Static Water Level

Topo. Sheet Elev. Depth Yield

Location approx. 120 ft. south of SW See Corner



Formation Record Hole #2

Ft.	From	To	Description
	1	22	Surface: sandy clay with caliche cuttings
	22	42	Ogallala "Mother bed" cuttings
	42	48	Yellowish tan and limestone
	48	50	Sh; dark gray to black, with yellowish sh (ls)
	50	61	Sh: dark gray to black
	61	71	Sh: gray and black
	71	78	Sh; brownish gray; some lt. gray [(on ground)?]
	78	142	Sh; light gray interbedded with sandstone with lignite cuttings at 129'
	142	150	Red and gray mottled clay
		T.D.	

Owner Stoecker — NW 1/4 SW 1/4 NW 1/4 sec. 4 T. 24S R. 22W

County Hodgeman Date 8-9-72 — Static Water Level

Topo. Sheet — Elev. — Depth — Yield

Location Along pasture road below level of outcrop of sandstone of Dakota sandstone

Formation Record Hale #3

Ft.	From	To	Description
	1	18	Surface
	18	42	iron-cemented sandstone interbedded with light gray and yellowish gray clay - sandstone predominating; some dense ironstone bands
	42	68	Clay and sandstone cuttings - 50:50
	68	69	Dense iron-cemented sandstone - difficult to drill
	69	82	Yellowish gray clay with few lignite cuttings between 78 & 79'
	82	93	Lt. gray clay with few lignite cuttings at 85 & 86'; thin ironstone bands at 89 and 92'
	93	115	Yellow and gray clay with following amounts of lignite cuttings:
			93' - few cuttings
			100-105' - ~15% (lignite cutting - washed from above?)
			113 - few cuttings
	115	120	Sandstone
	120	121	lignite - good showing with abundant fragments
	121	124	clay with lignite cuttings
	124	141	Mainly Lt gray clay with large lignite cuttings at 125 & 138'
	141	165	Gray and ochre mottled clay
		TD	

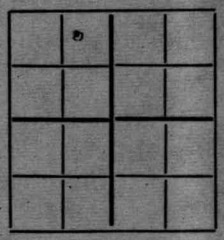
Owner Stoecker — W½ ¼ NE ¼ NW ¼ sec. 4 T. 24S R. 24W

County Hodgeman Date 8-9&10-72 — Static Water Level

Topo. Sheet — Elev. — Depth — Yield

Location So of No. section line along Sawlog Creek

Hole #4 - original site abandoned due to loss of soil



Formation Record

Ft.	From	To	Description
	0	19	Dakota Fm; Alt. w rotting sandstone and Lt Gy clay seams; dense iron-cemented sandstone layers at 9' and 15'
	19	27	Yellow clay, iron sandstone & Lt Gy S.S. cuttings
	27	45	Lt gray clay with hard lignite cuttings at 44'
	45	50	Dk gray clay with lignite cuttings
	50	65	Yellowish brn gravelly clay with lignite cuttings
	65	76	Dk gray clay with few lignite cuttings
	76	84	Hard sandstone ledge
	84	90	Sandstone and lignite cuttings clay cuttings with abundant at 84'. S.S. ledge at 88'
	90	135	Dk clay with iron sandstone layers especially at 98 & 102'; few lignite cuttings; at 117, 120' (especially at 120') & 126'
	135	TD	Terra Cotta clay

S½ SW NE

Owner Road

~~NW¼~~ ~~NW¼~~ SE¼ sec. 18 T. 22S R. 24

County Hodgeman Date 8-10-72

Static Water Level

Topo. Sheet Elev.

Depth Yield

Location E side of Road ~~near~~ ½ mile point

Formation Record Hole #5

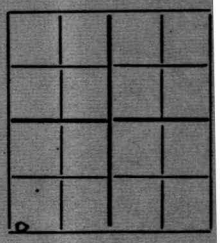
Ft. From	To	Description	
0	5	Mod. Grey clay.	
5	15	Alternating beds of clay	Dakota sandstone and dk. gray
15	21	Dark clay with	some sandstone interbed.
21	29	Dark grey to black between 26 & 29'	clay with lignite cutting
29	41	Lt gray clay with lignite cuttings	sandstone layers at 35 & 37'; at 35 & 39'
41	44	Dark gray clay	
44	67	Lt gray clay between 59 & 60'	with 10% lignite cuttings
67	111	Terra Cotta clay with sandstone layers at	lignite cuttings at 67, 89 & 105'; 99 & 107'
111	120	red shale predom	mating
120	TD	Yellow clay and	sandstone.
		Little SS in Dakota section here - mainly clay	

Owner Road right-of-way — SW¼ SW¼ SW¼ sec. 32 T. 24S R. 22W

County Hodgeman — Date 8-11-72 — Static Water Level

Topo. Sheet — Elev. — Depth — Yield

Location 30' East of SW corner Sec 32



Formation Record — Hole #6

Ft.	From	To	Description
	0	16	Surface; sandy clay with caliche cuttings
	16	20	Lt gr and dk gr sandy clay with lignite cuttings - (from previous hole?)
	20	35	Lt olive clayey sand with some dk clay and caliche cuttings
	35	57	Lt pinkish tan sandy clay containing caliche chips and "water bed" fragments
	57	67	Lt pinkish tan sandy clay with some dark clay cuttings
	67	90	well rounded gr and pebbles; cobbles of quartz, granite and feldspar gravel
	90	101	Yellow and Lt gr. silty clay; weathered clay under gravel
	101	108	Dk Gray shale - Dakota bedrock with good coring
	108	109	Yellow clay
	109	119	Med gr clay with iron sandstone cuttings at 109; Lignite cuttings at 115'
	119	150	Alternating Lt gr and yellowish clay layers with iron-cemented ss; possibly some Terra cotta clay at 145'; Lignite cuttings at 119 and 127'

APPENDIX C

Proximate Analysis of Hodgeman County
Lignite made 1-14-48

1-14-48

Hodgeman Co. Lignite

Therm. Reading

Hr.	Min.	Temp.
9	5.0	76.13
	6.0	76.13
	7.0	76.14
	8.0	76.145
	9.0	76.145
	9.5	76.145
	10.0	76.145

Fuel – ash rise.

Benzoic acid added 0.3000 gm.

9	35.0	76.14
	36.0	76.148
	37.0	76.145
	38.0	76.146
	39.0	76.148 – fuel
	39.5	78.10
	40.0	80.65
	40.5	81.35
	41.0	81.84
	41.5	82.13
	42.0	82.33
	42.5	82.425
	43.0	82.472
	43.5	82.481
	44.0	82.502
	44.5	82.503 – max
	45.0	82.503
	46.0	82.502
	47.0	82.484
	48.0	82.478
	49.0	82.470
	50.0	82.463

Temp.

Original temp. 76.148 Final temp. 82.503

Therm cor. .013 .01

76.161 82.513

Temp. loss rate $\frac{82.503 - 82.463}{5.5} = .007$

Time of total rise = 5.5

Radiation cor. = 4.5 X .007 = 0.032° F

Final temp., corrected, = 82.545° F

Cont. cor.

Fuse wire	0.005° F
Ash	.015
Sulfur	0.030
Accelerator	0.000
Benzoic	2.313
Hydration 7.24	0.070
	2.633

Original temp 79.178

" corr. temp 76.161

" Rise 3.751

3100 X 3.751 = 11,628 BTU/lb

THE UNIVERSITY OF KANSAS
STATE GEOLOGICAL SURVEY
LAWRENCE

FRANK C. FOLEY
State Geologist and Director

WILLIAM W. HAMBLETON
Assoc. State Geologist and Assoc. Director

November 6, 1962

Dr. Frank C. Foley
State Geological Survey

Dear Frank:

Recently Hornbaker and Hardy collected several samples of lignite from slump material in a former mining area south of Wilson, Ellsworth County, described in my report on the Cretaceous lignite, Bulletin 96, Part 2. After some discussion as to the possible exploitation of lignite in the area, I mentioned the possibility of testing or proving out the much more significant alleged lignite reserve area in southern Hodgeman and northern Ford Counties. Here, if the data are reliable there should be approximately 105,000,000 tons of high grade lignite, from 63 to 100 feet or so below the surface. The coal is asserted to range in thickness from 3 to 12 feet. Approximate analyses indicate a B.T.U. value of more than 10,000 on a moisture and ash free basis.

About the time I started field work for the lignite report in 1948, a sample of lignite from a test well was sent to the Survey for analysis. Runnels made the proximate analysis. Later when it became known that I was in the general lignite country, Mr. George Weeks, then of the Dodge City Chamber of Commerce contacted me and told me of the alleged lignite deposit in which several individuals as well as the Dodge City Chamber of Commerce were very much interested. Mr. Weeks was hopeful that the Survey would prove out the area by putting down a sufficient number of drilled or core holes. I was finally given a list of the test holes drilled by exploratory companies in search for oil and in which lignite was encountered. Through Mr. Weeks I also obtained data in regard to the thickness of the lignite and depth below the surface. This data was considered confidential. Later in company with Mr. Weeks and two other gentlemen who supplied the lignite data, I visited the area and spotted on a map the location of the holes more accurately than given on a very generalized map furnished by Mr. Weeks. The end product was the drawing of the enclosed isopachus map. A deal was finally proposed according to which (1) certain people would furnish data pertaining to the test holes, etc., (2) K.I.D.C. would pay for the drilling of the test holes to prove out the area, and (3) the Survey would supervise the drilling program, collect samples, run proximate analyses, etc. The deal did not materialize.

As the data was confidential I only referred to the area in my report, pages 99, 121-124. At my request all the correspondence was

directed to Dr. Frye, hence the Survey should have, in its files, all of the letters, as well as the proximate analysis made by Runnels.

I hope that some day this area (about 14 square miles) will be drilled to definitely establish whether there is a lignite deposit present verifying the data given. I call attention to pages 94 and 95 of my report dealing with uses of lignite, especially the last 7 or 8 lines on page 95. A special type of wax, sold on the market as montane wax, has been produced from lignite and should be added to the uses.

I felt that I should not release this information to Al except by way of you since formerly, at least, the location of test holes and data pertaining to the lignite was to be considered confidential.

Sincerely,

Walter

Walter H. Schoewe

WHS:mc