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COAL GEOLOGY OF THE NEW ENGLAND-MOTT AREA: BILLINGS, STARK, SLOPE, HETTINGER, AND ADAMS COUNTIES, NORTH DAKOTA

By

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To convert	Multiply by	To obtain
feet	0.3048	meters (m)
miles	1.609	kilometers (km)
ft/mi	.1894	meters/kilometers (m/km) (or parts/1000)
tons (short)	.9071847	metric tonnes (t)
Btu/lb	2.326	kilojoule/kilogram (kJ/kg)

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INTRODUCTION

This report on the geology of lignite beds in part of southwestern North Dakota (pl. 1) is part of the U.S. Geological Survey's program to map and evaluate the Federal coal resources of the Williston basin. The U.S. Geological Survey released several open-file reports on various areas in the basin in 1976, 1977, and 1978, and additional reports are being prepared.

Information on the extent, thickness, quality, and correlation of coal beds is presented using data derived from drill-hole geophysical and lithologic logs, coal outcrops, and coal analyses. There are at least nine laterally extensive lignite beds within the Fort Union Formation (Paleocene) in this part of the Williston basin. Each bed is more than 5 ft thick over extensive areas. Generally, the dip is 20-30 ft/mi to the northeast. The coal beds that may have the most potential for strip mining are the Coal Bank Creek bed in the vicinity of Havelock, and the Harmon bed near Mott.

PREVIOUS WORK

Wilder and Wood (1902, p. 159-161) studied the coal exposures along the North Fork of the Cannonball River for approximately 10 mi in each direction from New England. They also examined the Rainy Buttes and Coal Bank Creek areas. Lloyd (1914) mapped the Cannonball River lignite field in the southeastern part of the Williston basin. Leonard, Babcock, and Dove (1925) described the lignite deposits and the locations of mines in parts of the study area, and Brant (1953) estimated coal reserves and production. Lithologic descriptions for water wells were obtained from Trapp (1971) for Stark and Hettinger Counties and from Croft (1974) for Adams and Bowman Counties.

From 1971 to 1975 Baukol-Noonan, Inc., in conjunction with a consortium of power companies, carried out an exploratory drilling program in the New England, Regent, and Mott areas. The data have been released to the USGS and make up the bulk of this report. Although geophysical logs were not run, the driller's logs appear to be very reliable where the USGS drilling has twinned some of the holes.

DEVELOPMENT AND ACCESS

Beginning about 1900, many small-scale strip mines were developed to meet local needs for coal (pl. 1); however, these mines are now abandoned. According to Brant (1953, p. 50), total lignite mined in Hettinger County prior to 1951 was 716,003 tons, of which 187,783 tons were mined from 1941 to 1950. The following mines are believed to have been the larger ones of the study area:

Mine	Bed name	Coal thickness (feet)	Location T.N.	R.W.	Section	
Roger	Hansen	5.7	131	92	31	SE¼
Cooper	Hansen	3.7	131	92	35	NW¼
Lambie	Harmon	6.5-8.5	132	91	33	SE¼
Watson	Harmon	12	132	93	28	NW¼
Merry	Harmon	10	132	93	34	CEL
Rumph	Hansen	5	133	92	30	CW½
Cannonball Coal Co.	Coal Bank Creek	9.5	134	95	5	SW¼
Regent	Coal Bank Creek	8	134	95	9	SE¼
Weinandy	Coal Bank Creek	11	134	96	2	NE¼
New England Coal Co.	Coal Bank Creek	10	135	96	28	SE¼
Albrecht	Fryburg	6	136	96	33	CNE¼
Aaby Light & Power Company	Fryburg	8	136	97	21 22	SE¼ SW¼

Coal could be transported from the area by the spur track of the Chicago, Milwaukee, St. Paul and Pacific Railroad, which passes through Mott, Regent, and Havelock, and ends at New England, or by the Burlington Northern, Inc. railway, which terminates at Mott (pl. 1).

PHYSIOGRAPHY

Most of the study area is gently rolling prairie interrupted sporadically by boulder-covered ridges, clinker-capped buttes, and stream valleys. The area is drained by the Cannonball River and its tributaries (pl. 1). The general slope of the land is to the east.

STRATIGRAPHY

The Fort Union Formation (Paleocene) consists of the Cannonball, Ludlow, Tongue River, and Sentinel Butte Members. According to Cvancara (1976, p. 1), the marine Cannonball Member, the lowest unit,

is composed of dark-gray mudstone and, to a lesser extent, poorly consolidated sandstone. Concretions are common in the sandstone. The Cannonball is thickest (385 ft) in southeastern Hettinger County (Cvancara, 1976, p. 10).

The nonmarine Ludlow Member, hundreds of feet thick, consists of light-gray, light-yellow, and buff sandstone, dark organic-rich claystone, and lignite, and is laterally correlative to and interfingers with the Cannonball Member (Moore, 1976, p. 10).

The nonmarine Tongue River Member, conformably overlying the Cannonball and Ludlow, is exposed in the southeastern and central parts of the study area (Carlson, 1969). This member is approximately 246-328 ft thick along the southern flank of the Williston basin (Royse, 1970, p. 26) and consists of sandstone, siltstone, claystone, lignite, and some small lenses of limestone (Jacob, 1976, p. 10). The lower 100 ft consists of poorly consolidated yellow and gray sandstone.

The nonmarine Sentinel Butte Member, overlying the Tongue River Member is composed of sandstone, siltstone, claystone, lignite, and limestone, and is slightly more consolidated than the Tongue River (Jacob, 1976, p. 28). According to Royse (1970, p. 26), the Sentinel Butte is about 246-328 ft thick along the southern flank of the Williston basin. The Sentinel Butte occurs in most of the northwestern part of the study area (Carlson, 1969).

Royse (1967, abs.), in his study of the Tongue River-Sentinel Butte contact, stated that the contact "* * * is characterized by three criteria: a lignitic horizon (HT Butte bed) at the top of the

Tongue River sequence; a basal sandy unit in the Sentinel Butte sequence; and a marked change in color between buff-yellow Tongue River sediments below and somber-gray Sentinel Butte sediments above."

The nonmarine Golden Valley Formation (Paleocene and Eocene), conformably overlying the Sentinel Butte, is present in parts of T. 136 N., Rs. 96 and 97 W., T. 137 N., Rs. 95-98 W., and T. 138 N., Rs. 95-98 W. (Carlson, 1969). The formation consists of mudstone, claystone, micaceous sandstone, and lignite. It reaches a maximum preserved thickness of 180 ft (Hickey, 1972, p. 106).

The nonmarine White River Group (Oligocene), unconformably overlying the Golden Valley Formation, is present in T. 137 N., Rs. 97 and 98 W., and T. 138 N., Rs. 97 and 98 W. (Carlson, 1969). The White River Group also caps East and West Rainy Buttes (T. 135 N., R. 98 W.) and several smaller buttes in Tps. 136 and 137 N., R. 95 W.

The White River Group is divided into the Chadron and overlying Brule Formations. Denson and Gill (1965, p. 9) reported that in the Williston basin the Chadron and Brule have a combined average thickness of about 250 ft. The lower part of the Chadron is composed of a basal conglomerate and arkose, 5-100 ft thick, containing pebbles and cobbles of chert, petrified wood, and crystalline rocks. The crystalline rocks are welded tuff, quartz, granite, and rhyolite. Fine-grained tuffaceous sandstone, siltstone, and shale overlie the basal clastic unit. The Brule Formation is composed of massive, fine-grained, nodular claystone interbedded with thin layers of sandstone and conglomerate.

STRUCTURE

The New England-Mott area lies on the southern flank of the Williston basin. The dip of Fort Union Formation coal beds in this vicinity ranges from horizontal to 100 ft/mi. Although these beds may have an undulated structure locally, they have a regional dip of 20-30 ft/mi to the northeast.

COAL

The locations of coal correlation sections and drill holes are shown on plate 1 and coal correlation sections are on plates 2, 3, and 4. A generalized coal section, with thicknesses of interburden and commonly used bed names, is in table 1. Drill-hole data are listed in table 3 at the end of this report.

Hansen bed.--This bed is very erratic in thickness and occurrence (pls. 5, 6) and reaches a maximum thickness of 16 ft. In the southeast, this bed occurs as thick pods several miles across, which is probably the result of both depositional and erosional patterns.

The analysis reported for the Hansen bed (table 2) is probably for the Harmon bed, as indicated by drill-hole correlations and projected outcrop (pls. 7, 8).

Harmon bed.--This is the most continuous and most easily correlated bed in the area (pls. 7, 8). In the southeast, it may have multiple splits or may occur as a single bed 8-13 ft thick (pl. 8). In the vicinity of Regent, the bed has fewer splits and attains a maximum thickness of 26.5 ft. Average thickness in the drill holes is 10.4 ft. An analysis of this bed is given in table 2.

Table 1.--Generalized coal section and correlation of coal bed names from previous reports

	Generalized coal section/interburden range and average	This report	Wilder and Wood (1902)	Lloyd (1914)	Leonard and others (1925)	Hares (1928)	Brant (1953)
FORT UNION FORMATION	Sentinel Butte Member						
	 35-110 ft avg.∿70 ft	Lehigh			Lehigh (p. 144)		
	 35-110 ft avg.∿50 ft	Heart River			Heart River (p. 143)		
	 30-145 ft avg.∿70 ft	Fryburg			Fryburg (p. 141)	HT Butte (p. 39, 50)	
	Tongue River Member						
	 3-100 ft avg.∿50 ft	HT Butte					
	 40-120 ft avg.∿85 ft	Coal Bank Creek	cited (P. 161)		Coalbank Creek (p. 90) Coalbank (p. 91)	Meyer (p. 47)	H (p. 50)
	 50-130 ft avg.∿75 ft	Garner Creek				Garner Creek (p. 47)	E (p. 48)
	 22-166 ft avg.∿90 ft	Nomad					
	 13-100 ft avg.∿45 ft	Harmon			Haynes (p. 88)	Harmon (p. 47)	D (p. 48)
	 ∿100 ft above base of Tongue River	Hansen		Haynes (p. 252)		Hansen (p. 47)	C (p. 48)

Table 2.--Analyses of coal samples, as received, from the New England-Mott area

[Values in percent except heating value]

Location	Mine name	Bed	Proximate				Ultimate	Heating value Btu/lb	Source
			Moisture	Volatile matter	Fixed carbon	Ash	Sulfur		
T.134 N.,R.95 W., sec. 5 SW¼	Cannonball Coal Co.	Coal Bank Creek	40.98	25.28	28.68	5.06	0.88	6,247	Leonard and others (1925, p.191-195)
T.134 N.,R.95 W., sec. 5 NW¼	Arnold	Coal Bank Creek	39.66	26.80	27.42	6.12	2.06	6,280	Do.
T.134 N.,R.95 W., sec. 6 SE¼	Jackson	Coal Bank	41.00	25.97	28.61	4.42	.65	6,285	Do.
T.134 N.,R.96 W., sec. 2 NE¼	Weinandy	Coal Bank Creek	43.47	23.82	24.89	7.82	1.67	5,720	Do.
Do	Weinandy	Coal Bank Creek	39.53	27.26	27.71	5.50	.55	6,262	Do.
T.135 N.,R.96 W., sec. 22 2540 ft FNL, 2450 ft FEL	None (core hole)	Coal Bank Creek	37.89	26.45	25.67	9.99	3.69	6,417	Written commun., Lien and Sons, Inc., and M. Brown, 1976 (see p. 13)
T.135 N.,R.96 W., sec. 27 2600 ft FNL, 180 ft FWL	None (core hole)	Coal Bank Creek	41.30	26.89	25.90	5.91	.91	6,502	Do.
T.132 N.,R.91 W., sec. 34	Crary	Hansen (Harmon)[1]	30.9	30.7	25.7	12.7	1.0	6,411	Brant (1953, p.5)
T.132 N.,R.93 W.,	Watson	Harmon	36.4	27.4	30.4	5.8	1.2	7,180	Written commun., Fischer, 1928, U.S.Bur. Mines Lab.No.A 45699

[1]Drill-hole correlations indicate this is the Harmon bed.

Nomad bed.--Above the Harmon bed is the Nomad bed (pl. 9), previously unnamed. The stratigraphic interval between it and the Harmon varies widely (22-166 ft). In approximately 1.7 mi the Harmon-Nomad interburden changes from 130 ft at drill-hole 56 to 163 ft at drill-hole 75. This bed ranges in thickness from 0 to 12 ft and averages 5 ft in 24 drill holes. To the southeast, the bed splits and pinches out in the subsurface.

Garner Creek bed.--This bed is 90 ft above the Harmon in the central area and 200 ft above it to the northwest. The Garner Creek bed is tentatively correlated with a bed in some of the uplands in the Mott area (pl. 10). In some locations this bed occurs as a single seam, attaining a maximum thickness of 13 ft, but generally is split into two to four benches.

Coal Bank Creek bed.--In the Havelock area this bed (pls. 11, 12) lies an average of 180 ft above the Harmon; in the northwest the interval increases to 320 ft. The bed averages 7 ft in thickness in the drill holes and reaches a maximum thickness of 14 ft (pl. 13). Analyses for this bed are shown in table 2.

J. H. Rawlins (written commun., 1976) stated that "a 1/4-inch vertical seam of pyrite" is responsible for the high sulfur content (3.69 percent) for the coal samples in T. 135 N., R. 96 W., sec. 22 (table 2).

HT Butte bed.--The HT Butte bed is as much as 100 ft above the Coal Bank Creek bed in drill-hole 47 in T. 135 N., R. 99 W., and as little as 3 ft above it in drill-hole 69 in T. 137 N., R. 99 W.

The average interburden is approximately 50 ft as determined from drill-hole data. Bed thickness averages 6 ft in the drill holes. A maximum thickness of 13 ft occurs in sec. 24, T. 138 N., R. 99 W. Structure contour and coal isopach maps are on plates 13 and 14.

Fryburg bed.--The Fryburg bed overlies the HT Butte bed. The interburden averages about 70 ft and ranges from 30 to 145 ft. The thickness of the coal averages 7.4 ft in the drill holes. Structure contour and coal isopach maps of this bed are on plates 13 and 14.

Heart River bed.--The Heart River bed, approximately 50 ft above the Fryburg, averages 6.7 ft in thickness in the drill holes. The coal isopach map and structure contour map are on plates 13 and 14.

Lehigh bed.--The Lehigh bed is generally about 70 ft above the Heart River bed. Its average thickness in drill holes is 6.7 ft. Coal isopachs and structure contours for this bed are shown on plates 13 and 14.

SUMMARY

There are at least nine laterally extensive lignite beds in the Fort Union Formation in southwestern North Dakota. These beds have a regional dip of 20-30 ft/mi northeast. The coal beds that may have the most potential for strip mining are the Harmon bed in the Mott area and the Coal Bank Creek bed in the Havelock area.

REFERENCES CITED

Brant, R. A., 1953, Lignite resources of North Dakota: U.S. Geological Survey Circular 226, 78 p.

Carlson, C. G., 1969, Bedrock geologic map of North Dakota: North Dakota Geological Survey Miscellaneous Map 10, scale 1:1,000,000.

Croft, M. G., 1974, Ground-water basic data for Adams and Bowman Counties, North Dakota: North Dakota Geological Survey Bulletin 65, Pt. 2, 294 p.

Cvancara, A. M., 1976, Geology of the Cannonball Formation (Paleocene) in the Williston basin, with reference to uranium potential: North Dakota Geological Survey Report of Investigation 57, 22 p.

Denson, N. M., and Gill, J. R., 1965, Uranium-bearing lignite and carbonaceous shale in the southwestern part of the Williston basin--A regional study: U.S. Geological Survey Professional Paper 463, 75 p.

Hares, C. J., 1928, Geology and lignite resources of the Marmarth field, southwestern North Dakota: U.S. Geological Survey Bulletin 775, 110 p.

Hickey, L. J., 1972, Stratigraphic summary of the Golden Valley Formation (Paleocene-Eocene) of western North Dakota, in Ting, F. T. C., ed., Depositional environments of the lignite-bearing strata in western North Dakota: North Dakota Geological Survey Miscellaneous Series no. 50, p. 105-122.

Jacob, A. F., 1976, Geology of the upper part of the Fort Union Group (Paleocene), Williston Basin, with reference to uranium: North Dakota Geological Survey Report of Investigation 58, 49 p.

Leonard, A. G., Babcock, E. J., and Dove, L. P., 1925, Lignite deposits of North Dakota: North Dakota Geological Survey Bulletin 4, 240 p.

Lloyd, E. R., 1914, The Cannonball River lignite field, Morton, Adams, and Hettinger Counties, North Dakota: U.S. Geological Survey Bulletin 541, pt. 2, p. 243-291.

Moore, W. L., 1976, The stratigraphy and environments of deposition of the Cretaceous Hell Creek Formation (reconnaissance) and the Paleocene Ludlow Formation (detailed), southwestern North Dakota: North Dakota Geological Survey Report of Investigation 56, 40 p.

Royse, C. F., Jr., 1967, Tongue River-Sentinel Butte contact in western North Dakota: North Dakota Geological Survey Report of Investigation 45, 53 p.

_____ 1970, A sedimentologic analysis of the Tongue River-Sentinel Butte interval (Paleocene) of the Williston basin, western North Dakota: Sedimentary Geology, v. 4, no. 1, p. 19-80.

Trapp, Henry, Jr., 1971, Ground water basic data, Hettinger and Stark Counties, North Dakota: North Dakota State Water Commission, County Ground Water Studies 16, pt. 2, 455 p.

Wilder, F. A., and Wood, L. H., 1902, Report on the lignite by counties, in North Dakota Geological Survey Biennial Report 2, v. 1, no. 1: p. 159-161.

Table 3.--Compilation of drill-hole data in the New England-Mott area

Explanation

Hole Number

1 — Drill-hole number used in this report

(4970)[2] — Original designation of drill hole--superscript indicates sources of drill-hole data:

[1]U.S. Geological Survey
[2]North Dakota State Water Commission
[3]Oil and gas logs
[4]Trapp, 1971
[5]Croft, 1974
[6]Maurice Brown, consultant, and Pete Lien & Sons., Inc. Rapid City, S. Dak.

Bed Name

Ha — Abbreviation for coal bed--beds listed in descending stratigraphic sequence:

L	Lehigh
HR	Heart River
Fb	Fryburg
HT	HT Butte
CB	Coal Bank Creek
GC	Garner Creek
No	Nomad
Hr	Harmon
Ha	Hansen

T.D. — Total depth

283[7] — [7]Indicates depth to which log was interpreted

Hole locations are shown on plate 1. All measurements are in feet; to convert to meters, multiply by 0.3048.

Data for holes 100-570 were derived from driller's logs provided by Baukol-Noonan, Inc., Minnkota Power Cooperative, Inc., Dairyland Power Cooperative, Northern States Power Company, and Minnesota Power and Light Company, and published with permission. Coal-bed correlations are the author's. Local coal beds less than 1 ft thick were omitted.

Holes 5, 6, 8, 21, 24, 26, 27, and 35, and A-Y are water wells completed by cable tool methods.

The remaining holes were logged by gamma-ray methods.

Wherever a U.S. Geological Survey drill hole (with gamma-ray log) twins another hole, the data from the USGS hole are shown. Where a company drill hole (holes 100-570) twins a water well, the company data are used.

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev of Coal top	Total Depth (T.D.)
1	SE Cor	2530	8	Hr	2477	140
(4970)[2]	5-131-92		2	Ha	2424	
2	60'FNL-15'FWL	2600	9	Hr	2521	200
(G-306-20)[1]	18-131-92		3	Ha	2465	
3	2480'FNL-35'FWL	2595	2.5	Hr	2576	160
(G-306-21)[1]	22-131-92		1 rock			
			1.5	Hr		
			8 rock			
			2	Hr		
			2 rock			
			1	Hr		
			6 rock			
			2	Hr		
			1 rock			
			4	Hr		
			7	Ha	2501	
			18 rock			
			2			
			15 rock			
			1			
4	20'FNL-400'FWL	2660	140 rock			140
(G-306-19)[1]	6-131-93		Not deep enough			
5	700'FEL-300'FSL	2556	9	Hr	2458	193
(WW)[4]	6-132-92		14 rock			
			8	Ha	2435	
			3 rock			
			3			
6	2000'FNL-300'FEL	2510	8	Hr	2485	68
(WW)[4]	7-132-92		1 rock			
			1	Hr		
			7	Ha	2442	
7	SE Cor	2510	3		2503	160
(4968)[2]	8-132-92		4	Hr	2464	
			1 rock			
			1	Hr		
			4.5	Ha	2446	
8	NE Cor	2569	3		2563	225
(WW)[4]	9-132-92		8	Hr	2472	
			1 rock			
			2	Hr		
			1		2437	
			2	Ha	2407	

Note: A 5-ft coal bed crops out near the top of a small butte 700 ft south of this drill hole. The elevation on the top of this bed was measured as 2650.

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T.D.
9 (4969)[2]	SW¼NW¼NW¼ 28-132-92	2455	6	Hr	2448	79
10 (4965)[2]	SW¼SW¼SW¼ 10-132-93	2525	8	Hr	2495	160
			2	Ha	2408	
11 (G-306-17)[1]	10'FNL-60'FEL 12-132-93	2596	8	Hr	2496	240
			2 rock			
			2	Hr		
			6	Ha	2466	
12 (4966)[2]	NW¼NW¼NW¼ 21-132-93	2510	3	Hr	2506	60
13 (G-306-18)[1]	20'FNL-135'FWL 34-132-93	2550	2	Ha	2471	140
			3 rock			
			2	Ha		
			1 rock			
			2	Ha		
14 (G-306-15)[1]	150'FSL-15'FEL 6-132-94	2660	2		2625	280
			3 rock			
			2			
			2	CB?	2598	
			5	GC?	2533	
			2		2475	
			1	Hr	2440	
			11 rock			
			4	Hr	2428	
15 (G-306-16)[1]	40'FNL-12'FWL 24-132-94	2620	3	GC?	2595	260
			6	Hr	2519	
			7 rock			
			2	Hr		
			4 rock			
			8	Hr		
16 (4967)[2]	NE¼NE¼NE¼ 25-132-94	2540	2	Hr	2529	39
			1 rock			
			2	Hr		
			6.5 rock			
			11	Hr		
17 (4964)[2]	SW¼SW¼SW¼ 29-133-92	2560	1.5	Hr	2510	239
			2 rock			
			2	Hr		
			5	Ha	2445	
			2		2378	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T.D.
18 (G-306-12)[1]	2360'FNL-on W.line 10-133-95	2600	4	CB	2523	280
			3	GC?	2440	
			1 rock			
			1	GC?		
			2		2423	
			4		2410	
			2	Hr	2359	
			3 rock			
			8	Hr		
			7 rock			
			1	Hr		
19 (G-306-14)[1]	60'FSL-20'FEL 24-133-95	2620	2		2591	260
			3	CB	2578	
			4	GC?	2532	
			4		2476	
			4 rock			
			2			
			4	Hr	2418	
20 (G-306-13)[1]	21'FSL-48'FEL 30-133-95	2686	3		2674	320
			9 rock			
			2			
			8 rock			
			2			
			3	CB?	2619	
			3	Hr	2466	
			6 rock			
			2	Hr		
21 (WW)[4]	300'FNL-900'FWL 6-133-96	2760	4	CB?	2645	212
22 (G-969-23)[1]	NE Cor 8-133-96	2731	2		2699	200
			24 rock			
			3	CB?	2673	
			3		2582	
23 (G-969-22)[1]	NW Cor 34-133-96	2664	3	CB?	2636	200
			3	Hr	2478	
24 (WW)[4]	900'FNL-800'FWL 10-133-97	2687	6.5		2656	95
25 (USBR DH51-5)[4] (cored)	SW¼SE¼SW¼ 32-134-93	2426	2.3		2396	118.5
			4	Hr	2350	
26 (Mott no. 1)[4]	SE¼SW¼SE¼ 35-134-93	2380	3		2273	384

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
27	SE¼SW¼NE¼	2465	3	CB	2431	546
(Regent no. 1)[4]	13-134-95		3	Hr	2287	
			13.6 rock			
			20.7	Hr	2270	
			5.8		2131	
			4		2107	
28	135'FNL-25'FWL	2510	5	CB	2449	340
(G-306-11)[1]	24-134-95		1	GC	2378	
			23	Hr	2300	
			3	Ha	2222	
29	1980'FNL-660'FWL	2590	4	CB	2536	283[7]
(Stang no. 1)[3]	30-134-95		8	Hr	2338	
			14 rock			
			9	Hr		
30	1980'FNL-1980'FWL	2561	4	CB	2491	266[7]
(Olson OJI no.1)[3]	34-134-95		7	Hr	2316	
			3 rock			
			11	Hr		
31	SW¼SW¼NW¼	2535	11.5	CB	2477	100
(4960)[2]	1-134-96					
32	25'FNL-65'FWL	2594	9	CB	2551	360
(G-306-8)[1]	8-134-96		9	Hr	2369	
			4 rock			
			5	Hr		
			19 rock			
			2	Hr		
			3	Ha	2283	
33	NW¼NE¼NW¼	2575	8	CB	2563	160
(4961)[2]	8-134-96					
34	60'FNL-320'FEL	2615	2		2572	380
(G-306-10)[1]	24-134-96		3	CB	2558	
			23 rock			
			6	CB	2532	
			1	GC	2480	
			11	Hr	2353	
			1 rock			
			6	Hr		
			1 rock			
			2	Hr		
			1 rock			
			1	Hr		
35	NE¼SE¼NE¼	2704	6	CB?	2652	135
(WW)[4]	7-134-97					

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev of Coal top	T. D.
36 (G-306-7)[1]	10'FNL-8'FWL 26-134-97	2706	3		CB	2688	500
			8	rock			
			4		CB		
			1			2637	
			2		GC	2521	
			2		GC	2496	
			2			2460	
			2	rock			
			2				
			1		Hr	2391	
			19	rock			
			3		Hr	2371	
			2		Ha	2270	
			2	rock			
			2		Ha		
37 (G-969-25)[1]	SW¼SW¼NW¼ 24-134-98	2760	4		CB	2732	500
			2			2560	
			3		GC	2503	
			1			2473	
			2.5		Hr	2409	
			6.5	rock			
			4.5		Hr		
			3.5	rock			
			2		Hr		
			7	rock			
			2		Hr		
			10	rock			
			3		Hr		
			2		Ha	2288	
38 (4959)[2]	NE¼NW¼NE¼ 9-135-96	2570	3		HT	2529	160
			10		CB	2436	
39 (G-306-9)[1]	25'FNL-25'FWL 23-135-96	2585	10		CB	2463	400
			3		GC	2432	
			1		GC	2420	
			1		Hr	2335	
			3	rock			
			6		Hr	2331	
			9	rock			
			2		Hr		
			6		Ha	2287	
40 (no. 1)[6]	2600'FNL-180'FWL 27-135-96	2550	11.4		CB	2526	98

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
41 (4962)[2]	NE¼NE¼NE¼ 30-135-96	2550	10.5		CB	2512	57
42 (G-306-5)[1]	10'FSL-15'FWL 6-135-97	2650	2		HT	2614	500
			5		CB	2530	
			9	rock			
			4		CB		
			2		GC	2400	
			4		No	2342	
			6	rock			
			2		No		
			14		Hr	2270	
			1		Ha	2226	
			20	rock			
			1		Ha		
			30	rock			
			1		Ha		
43 (4958)[2]	NE¼NE¼NE¼ 14-135-97	2550	4.5		CB	2458	120
			1	rock			
			6.5		CB		
44 (G-306-6)[1]	200'FNL-6'FEL 27-135-97	2630	2		HT	2604	400
			6		CB	2524	
			2	rock			
			4		CB		
			3		No	2370	
			5	rock			
			4		No		
			11		Hr	2317	
			10	rock			
			2		Hr		
45 (4963)[2]	SE¼SE¼SE¼ 33-135-97	2685	3		HT	2621	160
			10.5	rock			
			2		HT		
			2			2571	
			6		CB	2553	
			1	rock			
			6		CB		
46 (Kirschman no.1)[3]	SE¼SE¼ 2-135-98	2643	198	no record			376[7]
			3		No	2368	
			13		Hr	2280	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T. D.
47	25'FSL-20'FEL	2757	3	Fb	2744	618
(G-306-3)[1]	4-135-99		5	HT	2708	
			6 rock			
			3	HT		
			5	CB	2593	
			3	GC	2535	
			18 rock			
			2	GC		
			3 rock			
			6	GC	2509	
			5	No	2436	
			16	Hr	2323	
			2		2288	
			3	Ha	2249	
			10 rock			
			7	Ha	2236	
48	SW¼SW¼NW¼	2765	5	HR	2711	280
(4950)[2]	1-136-98		8	Fb	2669	
			2		2571	
			2	HT	2518	
			6.5 rock			
			6	HT		
49	NE¼NE¼NE¼	2715	2		2672	218
(4951)[2]	5-136-98		8	Fb	2610	
			4	HT	2512	
50	NE¼NE¼NE¼	2670	3	Fb	2602	178
(4949)[2]	15-136-98		2 rock			
			3	Fb		
			4	HT	2524	
			5 rock			
			2.5	HT		
51	NW¼NW¼SW¼	2615	2.5	Fb	2595	120
(4948)[2]	15-136-98		4	HT	2515	
52	20'FSL-170'FEL	2629	2	HT	2583	500
(G-306-4)[1]	28-136-98		2	GC	2479	
			18 rock			
			3	GC		
			24 rock			
			2	GC		
			7	No	2331	
			15	Hr	2255	
			2	Ha	2213	
			13 rock			
			2	Ha		
			25 rock			
			4	Ha		

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T. D.
53	4460'FSL-500'FEL	2706	7	Fb	2642	593[7]
(Government 41-5)[3]	5-136-99		6	HT	2548	
			7	CB	2518	
			11	GC	2428	
			5	No	2331	
			17	Hr	2178	
			16	Ha	2128	
54	NE¼NE¼	2709	6	Fb	2631	599[7]
(Gardner 41-9)[3]	9-136-99		5	HT	2549	
			6	CB	2522	
			10	GC	2396	
			7	No	2253	
			19	Hr	2171	
			13	Ha	2123	
55	SE¼SE¼NE¼	2700	2		2667	180
(4952)[2]	15-136-99		8.5 rock			
			2			
			6	Fb	2618	
			6.5	HT	2533	
56	NE¼NW¼	2700	6	Fb	2653	525[7]
(Government 21-18)[3]	18-136-99		8	HT	2598	
			6	CB	2553	
			10	GC	2446	
			6	No	2342	
			20	Hr	2233	
			12	Ha	2187	
			4		2048	
			11 rock			
			6			
57	SE¼SE¼SE¼	2700	6	Fb	2660	152
(4953)[2]	20-136-99		7.5	HT	2592	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
58	25'FNL-2000'FWL	2740	1			2715	600
(G-306-2)[1]	24-136-99		8	rock			
			2				
			5		Fb	2683	
			2	rock			
			2		Fb		
			5	rock			
			5		Fb	2669	
			6		HT	2606	
			5		CB	2573	
			2		GC	2482	
			2	rock			
			2		GC		
			12	rock			
			3		GC		
			5	rock			
			3		GC		
			19		Hr	2238	
			11		Ha	2177	
59	SW¼SW¼NW¼	2770	5		Fb	2698	158
(4956)[2]	31-136-99		7.5		HT	2642	
60	NE¼NE¼NE¼	2676	10		HT	2625	90
(4954)[2]	33-136-99						
61	NE¼NE¼SE¼	2705	7.5		HT	2658	198
(4955)[2]	33-136-99		5.5		CB	2592	
62	SW¼SW¼SW¼	2705	4		HT	2654	158
(4957)[2]	36-136-99		6		CB	2567	
63	SE¼	2780	139	No record			653[7]
(Howie 34x-2)[3]	2-136-100		7		Fb	2633	
			8		HT	2565	
			6		CB	2525	
			12		GC	2401	
			6		No	2337	
			16		Hr	2172	
			14		Ha	2141	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
64	SW¼SE¼SE¼	∿2850	11		Fb	2775	611[7]
(4811)[2]	31-136-100		2			2744	
			4		HT	2690	
			12		GC	2518	
			6	rock			
			4		GC		
			8	rock			
			2		GC		
			16		Hr	2414	
			5		Ha	2334	
			9	rock			
			6		Ha		
			4			2243	
65	SE¼NW¼	2680	585	No record			757[7]
(Koppinger no.1)[3]	20-137-95		12		Ha	1935	
66	NW¼SW¼	2619	3		Fb	2425	842[7]
(Dukart no.1)[3]	15-137-96		2	rock			
			4		Fb		
			4		CB	2271	
			6			2223	
			13		GC	2163	
			4		No	2058	
			8		Ha	1910	
			5			1800	
67	NW¼SW¼	2736	687	No record			934[7]
(Deckers no.1-A)[3]	2-137-98		8		Hr	1894	
			3		Ha	1805	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
68 (G-306-1)[1]	50'FSL-12'FEL 26-137-98	2725	2		Fb	2563	700
			7	rock			
			3		Fb		
			18	rock			
			12		Fb	2533	
			6		HT	2463	
			6		CB	2423	
			2		GC	2311	
			18.5	rock			
			5.5		GC	2291	
			6	rock			
			3		GC		
			1	rock			
			2		GC		
			12		No	2183	
			6	rock			
			2		No		
			2		Hr	2095	
			4	rock			
			5		Hr		
			15	rock			
			13		Hr	2069	
69 (OE no.41-9)[3]	NE¼NE¼ 9-137-99	2667	8		Fb	2593	599[7]
			5		HT	2484	
			7		CB	2476	
			11		GC	2330	
			4		No	2241	
			8		Hr	2134	
			4		Ha	2072	
70 (U.S.A. McCauley no.2)[3]	SE¼SE¼SE¼ 9-137-100	2914	608	no record			732[7]
			12		Hr	2271	
			7		Ha	2189	
71 (Lucy Fritz no.1)[3]	C SE¼SE¼ 15-137-100	2841	577	no record			682[7]
			11		Hr	2254	
			8		Ha	2167	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
72	C SE¼NE¼	2843	5		HR	2790	672[7]
(Henry Fritz	22-137-100		10		Fb	2739	
no.2-4222)[3]			5		HT	2661	
			9		CB	2611	
			11		GC	2498	
			4		No	2435	
			12		Hr	2265	
			15		Ha	2186	
73	1320'FSL-660'FWL	2792	142	No record			409[7]
(GPE-BN no.1)[3]	23-136-101		5		No	2580	
			10		Hr	2488	
			4		Ha	2400	
			8	rock			
			5		Ha		
74	2406'FNL-1426'FEL	2757	4		Fb	2662	619[7]
(Howie no.1)[3]	2-136-100		6		HT	2595	
			8		CB	2564	
			9		GC	2430	
			5		No	2338	
			14		Hr	2185	
			13		Ha	2151	
75	1120'FSL-1245'FWL	2724	7		HT	2614	565[7]
(Federal-Larson	1-136-100		8		CB	2581	
no.1)[3]			11		GC	2476	
			5		No	2376	
			16		Hr	2208	
			12		Ha	2171	
76	660'FNL-1980'FWL	2769	6		CB	2728	437.5
(Arneson no.1)[3]	5-133-98		5	rock			
			3		CB		
			7		Hr	2399	
			8		Ha	2339	
77	SE¼SE¼SE¼	2469	7		Hr	2411	1040
(3627)[2]	28-132-91		2		Ha	2351	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T.D.
78 (NDSWC 4312)[5]	SW¼NW¼SW¼ 20-131-94	2500	Spudded below coal			1280
79 (H 52)[1]	1050'FSL-75'FWL 30-135-94	2535	1	CB	2369	520
			2 rock			
			3	CB		
			2	GC	2314	
			7	Hr	2202	
			2 rock			
			10	Hr		
			3 rock			
			2	Hr		
			3	Ha	2123	
80 (H 53)[1]	90'FSL-1000'FEL 24-135-96	2570	4	CB	2521	360
			5 rock			
			6	CB		
			2	GC?	2482	
			8	Hr	2408	
			6	Ha	2370	
81 (L 8)[1]	NE Cor 14-133-98	2760	2	HT	2740	520
			10 rock			
			2	HT		
			5	CB	2665	
			9 rock			
			3	CB		
			1	No	2526	
			15 rock			
			2	No		
			16 rock			
			1	No		
			7 rock			
			3	No		
			3	Hr	2446	
			12 rock			
			3	Hr		

Table 3--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev of Coal top	T. D.
82 (L 30)[1]	NW Cor 22-135-98	2771	4	CB	2594	540
			2	GC	2514	
			4	No	2411	
			13	Hr	2329	
83 (L 31)[1]	60'FWL-55'FNL 34-135-99	2850	5	Fb	2794	500
			4	No	2470	
			2		2436	
			14	Hr	2387	
			3+	Ha	2358	
84 (L 32)[1]	40'FWL-2470'FSL 14-135-100	2785	7	HT	2756	500
			3	CB	2652	
			3	GC	2582	
			12 rock			
			5	GC		
			6	No	2423	
			25	Hr	2393	
			2	Ha	2306	
			14 rock			
			5	Ha		
85 (L 33)[1]	54'FWL-375'FNL 30-135-100	2939	2	CB	2839	520
			2 rock			
			5	CB		
			2	GC	2760	
			27 rock			
			2	GC		
			4 rock			
			2	GC		
			26 rock			
			2	GC		
			2	No	2565	
			24	Hr	2541	
			2	Ha	2447	
			5 rock			
			3	Ha		

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev of Coal top	T. D.
86 (L 45)[1]	60'FWL-50'FNL 20-136-100	2830	4	Fb	2790	660
			7	HT	2725	
			9	CB	2628	
			2		2578	
			12	GC	2496	
			3 rock			
			5	GC		
			2		2456	
			1	No	2416	
			13	Hr	2355	
			15	Ha	2280	
87 (3690)[2]	SW Cor 24-138-99	2620	4	Fb	2576	840
			13	HT	2458	
			3	GC	2365	
			37 rock			
			4	GC		
			9	No	2242	
			5	Ha	2089	
			5		1825	
88 (H 39)[1]	9'FEL-50'FNL 2-131-91	2505	5	Hr	2421	180
			1 rock			
			2	Hr		
			2	Ha	2368	
			7 rock			
			2	Ha		
89 (H 30)[1]	30'FEL-2050'FNL 4-131-91	2505	8.5	Hr	2443	200
			1	Ha	2392	
90 (H 29)[1]	1650'FWL-60'FNL 26-132-91	2545	5	GC	2526	200
91 (H 31)[1]	36'FEL-1320'FNL 20-132-91	2500	2	Ha	2388	260
			3		2280	
92 (H 32)[1]	25'FEL-380'FNL 26-132-92	2498	9	Hr	2457	260
			4 rock			
			2	Hr		
			2	Ha	2401	
93 (H 33)[1]	344'FWL-36'FSL 20-132-93	2570	4	Hr	2529	240
			2 rock			
			3	Hr		
			6 rock			
			11	Hr		
			2	Ha	2437	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev of Coal top	T. D.
94 (H 34)[1]	45'FWL-45'FNL 22-133-92	2435	6	Ha	2398	240
			1		2350	
			4 rock			
			2			
			8 rock			
			3			
95 (H 28)[1]	2590'FWL-55'FNL 34-133-91	2457	6	Hr	2403	200
			17 rock			
			3	Hr		
			3	Ha	2317	
96 (H 27)[1]	36'FWL-99'FSL 14-133-91	2412	8	Hr	2389	200
			3	Ha	2288	
			2		2234	
97 (H 35)[1]	860'FWL-58'FNL 2-133-91	2408	1		2315	220
98 (H 36)[1]	50'FWL-2580'FNL 24-134-91	2405	3		2392	380
			2 rock			
			2			
			2	Ha	2209	
			2		2132	
99 (Heck-State no.1)[3]	1980'FSL-1980'FWL 14-137-99	2738	7	Hr	2636	689[7]
			7	Fb	2589	
			6	HT	2495	
			5	CB	2469	
			10	GC	2319	
			6	No	2255	
			10	Hr	2109	
			4	Ha	2053	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
A	NE¼NW¼NW¼	∿2565	7		GC?	2538	202
(WW)[5]	8-131-92		3	rock			
			6		GC?		
			9		Hr	2465	
			7		Ha	2427	
B	SW¼NW¼NW¼	∿2475	11		Hr	2462	91
(WW)[5]	10-131-92		2		Ha	2431	
			4.5	rock			
			2		Ha		
C	SW¼NW¼NE¼	∿2480	4		Hr	2464	125
(WW)[5]	11-131-92		4.5	rock			
			1.5		Hr		
			5		Ha	2414	
D	SW¼NW¼NW¼	∿2495	1		Hr	2476	160
(WW)[5]	11-131-92		3	rock			
			1.5		Hr		
			1.5		Ha	2441	
			4.5	rock			
			3.5		Ha	2435	
E	NE¼NE¼NE¼	2535	12		Hr	2505	95
(WW)[5]	7-131-93		3	rock			
			5		Hr		
F	NE¼NE¼NE¼	2582	8		Hr	2552	126
(WW)[5]	10-131-93		2		Hr	2518	
G	NE¼NE¼NE¼	2549	10		Hr	2541	475
(NDSWC 8346)[5]	21-131-93						
H	SW¼SW¼NE¼	2480	12.5		Hr	2461	120
(WW)[4]	32-132-92		5		Ha	2407	
I	NW¼SW¼NW¼	2535	10		Hr	2527	160
(WW)[4]	28-132-93		3		Ha	2468	
			6	rock			
			3		Ha		
J	SW¼SW¼SW¼	2604	8		Hr	2543	285
(NDSWC 3673)[4]	29-132-94						

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness		Bed Name	Elev. of Coal Top	T. D.
K	SE¼SW¼NW¼	2393	111	rock			111
(WW)[4]	19-133-91						
L	NW¼NW¼NE¼	2386	1			2332	151
(WW)[4]	29-133-91		2.5		Ha	2324	
			2.5		Ha	2320	
M	NE¼SE¼SE¼	2473	14 (?)		Hr	2466	115
(WW)[4]	30-133-91		26.5	rock			
			1.2		Hr		
N	SW¼NW¼NE¼	2540	1		Hr?	2450	242
(WW)[4]	27-133-92		8		Ha	2398	
O	NE¼NE¼SW¼	2585	10		GC?	2575	203
(WW)[4]	35-133-92		2		GC?	2559	
			10		Hr	2436	
			3.5		Ha	2395	
P	SW¼SW¼SW¼	2475	2		Hr	2437	300
(NDSWC 3711)[4]	13-133-93		9	rock			
			1			2426	
			12	rock			
			2			2413	
Q	SW¼SW¼SW¼	2508	4.5		Hr	2463	140
(WW)[4]	24-133-93						
R	NE¼NE¼NE¼	2505	11		Hr	2462	200
(NDSWC 3526)[4]	26-133-93		8	rock			
			1		Hr		
S	SE¼NE¼NW¼	2515	5.5		Hr	2440	80
(WW)[4]	36-133-93						
T	SE¼SE¼SW¼	2576	2		GC?	2557	320
(NDSWC 3712)[4]	36-133-93		2		Hr	2463	
			11	rock			
			3		Hr		
			5		Ha	2366	
			4	rock			
			1		Ha		
			1			2337	
			3	rock			
			2				
			4			2287	

Table 3.--Continued

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal Top	T. D.
U	NW¼NW¼NW¼	2473	2.5	CB?	2432	157
(WW)[4]	3-133-94		4	GC?	2380	
			9.5	Hr	2334	
V	NE¼NE¼SE¼	2465	5.5	GC?	2429	165
(WW)[4]	4-133-94		1		2386	
			1		2301	
W	SW¼SW¼NE¼	2535	2	Hr	2420	340
(NDSWC 3716)[4]	25-133-94		3		2335	
X	NW¼NW¼NW¼	2567	1.5		2539	350
(WW)[4]	2-133-95		4	CB	2522	
			3	GC?	2442	
			3		2372	
			15	Hr	2347	
Y	SE¼NW¼NW¼	2420	4	GC?	2396	259.
(WW)[4]	27-134-94		13	Hr	2330	
			5	Ha	2276	
			9		2236	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
100	50'E NW Cor. 27-132-93	2505	7 coaly rock	Ha	2457	100
			3	Ha	2450	
101	50'W NE Cor. 33-132-93	2557	6.5	Hr	2551	120
			3.5	Ha	2461	
102	75'E NW Cor. 3-131-93	2625	11	Hr	2544	140
103	300'E NW Cor 15-131-93	2660	1		2615	140
			11.5	Hr	2570	
104	SW Cor 15-131-93	2575	9.5	Hr	2558	100
			1		2530	
			2	Ha?	2508	
105	105'E SW Cor 1-132-93	2569	8	Hr	2521	140
			2.5		2508	
			8	Ha	2462	
106	SE Cor 28-132-92	2464	2	Ha	2434	140
			5.8	Ha	2410	
			2		2402	
			1.5		2396	
			1		2380	
			1		2373	
107	100'W SE Cor 33-132-92	2475	9.5	Hr	2457	100
			1	Ha	2416	
			9	Ha	2414	
			1	Ha	2401	
108	150'W SE Cor 14-132-93	2488	1.5	Ha	2426	210
109	100'W SE Cor 11-132-93	2510	7.5	Hr	2476	160
			1	Ha	2406	
			2		2384	
110	150'W SE Cor 31-132-92	2503	11	Hr	2489	120
			1	Ha?	2446	
111	150'N SE Cor 5-131-92	2540	9.2	Hr	2493	120
			2 clay			
			1.8	Hr		
			3	Ha	2437	
112	400'W NE Cor 12-131-93	2530	7.5	Hr	2509	120
			2		2487	
			1.5		2478	
			1.5	Ha	2464	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
113	50'W SE Cor 3-131-93	2565	6	Hr	2554	151
			1	Hr	2527	
114	SE Cor 17-132-93	2510	3.5	Hr	2498	110
			8.2	Ha	2421	
115	700'E NW Cor 20-132-93	2545	8.5	Hr	2494	100
			2 rock			
			12	Hr		
			1		2457	
116	NE Cor 23-132-94	2620	3		2596	140
			8	Hr	2520	
			3 rock			
			2	Hr		
			4.5 rock			
			7.5	Hr		
117	SW Cor 11-132-94	2562	sand and gravel			40
118	150'S NE Cor 21-132-94		1		2554	140
			2.5	Hr	2526	
			4.5	Hr	2485	
119	100'E NW Cor 11-132-94	2569	3	Hr?	2495	180
			2	Hr?	2487	
			4 rock			
			1.5	Hr?		
			3		2457	
			2		2436	
120	SW Cor 32-133-93	2571	2		2522	140
			2		2491	
			4	Hr	2466	
			4.5	Hr	2449	
121	N ¼ Cor 25-133-93	2475	8	Ha	2429	100
122	NW Cor 3-132-93	2579	6	GC	2558	100
123	S ½ Cor 20-133-92	2480	5	Ha	2441	100
124	75'W SE Cor 23-133-92	2545	no coal			100
125	100'E NW Cor 27-133-92	2516	6	Ha	2404	120
126	SW Cor 6-131-91	2415	Spudded below coal			92

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
127	SW Cor 5-131-91	2450	3	Ha	2422	142
			1		2361	
			4 rock			
			1			
128	50'E SW Cor 3-131-91	2422	3	Ha	2400	100
129	100'W SE Cor 33-132-91	2445	8.5	Hr	2435	140
			0.5 clay			
			1	Hr		
			4	Ha	2386	
130	SE Cor 23-132-93	2480	1.5		2435	80
			3	Ha	2428	
131	100'N SE Cor 19-132-92	2475	0.2		2464	100
			1	Ha	2411	
132	SW Cor 29-132-92	2481	1.5	Hr?	2473	100
			2	Ha	2432	
			3.5 clay			
			2	Ha		
133	500'S NW Cor 15-131-92	2504	7	Hr	2482	120
			1.8	Ha	2419	
134	2600'S NE Cor 21-131-92	2600	2		2576	85
			2	Hr	2555	
			0.5 clay			
			6	Hr		
135	NE Cor 25-132-92	2509	10	Hr	2472	100
			0.5	Ha?	2437	
136	200'N SW Cor 5-132-92	2548	8	Hr	2495	140
			7	Ha	2438	
137	100'W NE Cor 9-132-92	2570	2.5	?	2561	180
			1		2495	
			9	Hr	2466	
			2	Ha	2409	
138	SE Cor 31-133-91	2520	9.5	Hr	2431	140
139	100'W NE Cor 35-133-92	2515	2.5	Hr	2475	140
			1 clay			
			6	Hr		
			1		2445	
			1		2432	
			3	Ha	2418	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
140	250'N SW Cor 21-132-91	2490	4.5	Hr	2401	120
			5	Ha	2386	
141	NW Cor 25-132-91	2515	1	?	2404	120
142	SW Cor 15-132-91	2466	1.5	?	2455	120
			1	?	2405	
			5 clay			
			2			
143	SW Cor 17-132-91	2555	1	?	2508	160
			1		2483	
			1.2		2415	
			2		2404	
144	100'FSL-1500'FEL 2-131-92	2480	1.2		2426	160
			1	Ha	2415	
			1 rock			
			1	Ha		
			2 sand			
			1	Ha		
145	150'E of W ¼ Cor 35-132-92	2475	5	Ha	2432	140
			1.5		2412	
			1		2395	
146	100'E SW Cor 35-132-92	2445	No coal			100
147	NW Cor 35-132-92	2450	3	Ha	2408	100
			9 clay			
			5	Ha		
			9 clay			
			2	Ha		
148	100'E NW Cor 35-131-92	2525	4	Ha	2476	140
			1.5		2430	
149	400'W NE Cor 35-132-92	2530	7.2	Hr	2490	180
			1	Ha	2413	
150	SE Cor 29-131-92	2532	1	Ha?	2509	120
			5 clay			
			1.5	Ha?		
			1		2490	
			1.5		2478	
			1		2465	
151	2600'W SE Cor 26-132-92	2470	2.5		2433	100
			2	Ha	2401	
			3 rock			
			1	Ha		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
152	3/4 mi W SE Cor 17-132-92	2465	4.5 1.5	Ha	2450 2365	140
153	SW Cor 16-132-92	2508	5.5 1.5 4	Ha	2442 2373 2363	160
154	100'E SW Cor 23-132-92	2460	3.5	Ha	2411	120
155	SW Cor 14-132-92	2536	3 7.5 clay 2.5 2	Hr Hr Ha	2471 2446	180
156	SW Cor 34-133-93	2557	2.5 4.5 clay 1.5 1.5	Hr? Hr?	2472 2392	260
157	NW Cor 27-133-93	2533	1 3.5		2437 2424	220
158	SW Cor 33-131-92	2542	4 1.5 2	Ha?	2496 2471 2458	140
159	NE Cor 29-131-92	2519	2 1.5	Ha	2487 2471	120
160	SE Cor 17-131-92	2531	7 1	Hr Ha?	2523 2477	200
161	NW Cor 23-131-92	2570	1 0.5 clay 6 1 clay 1 1 7 1	Hr Hr Hr Ha 	2530 2477 2471 2419	180
162	100'S NW Cor 11-131-92	2473	1 1.5	 Ha	2440 2425	80
163	NW Cor 15-133-93	2452	2.5 1	Hr	2386 2319	160
164	1200'N SE Cor 18-133-93	2555	2.5 1		2508 2469	110
165	SE Cor 19-133-93	2582	4 1.2 3	GC Hr	2541 2431 2417	200

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
166	NE Cor 18-133-93	2466	1.5		2433	99
			5	Hr	2403	
167	S ¼ Cor 13-133-94	2523	9	?	2488	160
			1 clay			
			3	?		
			1.5	Hr	2428	
			0.5 sand			
			1	Hr		
168	NW Cor 19-131-92		No coal			160
169	NW Cor 31-131-92	2578	2	Ha	2522	115
			1 clay			
			5	Ha		
			2		2491	
			2		2481	
170	NE Cor 13-131-93	2596	6.5	Hr	2513	100
171	SE Cor 11-131-93	2545	1	Hr	2529	160
			1		2506	
172	500'E NW Cor 24-131-93	2625	1	Hr	2563	240
			2 sand			
			8	Hr		
			1	Ha	2511	
173	NW Cor 32-134-94	2496	5.5	CB	2478	140
174	SW Cor 10-133-94	2536	4.2	GC?	2469	120
175	SE Cor 7-133-94	2538	4.2	CB?	2516	120
			5 clay			
			3.5	CB?		
			3.2	GC?	2471	
176	NE Cor 22-133-94	2554	6	GC	2521	180
			2		2507	
			2		2486	
			1		2419	
			4	Hr	2409	
177	1300'S NW Cor 35-133-94	2630	1		2447	240

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
178	200'N SW Cor 8-132-94	2640	4 2 24 rock 1 2.5 clay 1	CB? GC? Hr Hr	2602 2528 2502	240
179	SW Cor 21-132-94	2638	No coal 80 sand			80
180	N ¼ Cor 29-132-94	2660	3 3 clay 3.5	Hr Hr	2544	160
181	300'W NE Cor 6-131-94	2580	No coal			140
182	SE Cor 5-131-93	2670	10	Hr	2532	160
183	1200'S NE Cor 28-132-94	2584	9 2.5	Hr Ha	2540 2447	200
184	E ¼ Cor 4-131-94	2537	8 1 8.5 clay 2	Ha	2508 2455	140
185	150'E SW Cor 3-131-94	2532	1.5	Ha	2509	80
186	500'W NE Cor 10-131-94	2560	1.5	Ha	2509	90
187	1100'N SE Cor 9-131-94	2555	1 5.5 clay 2 2.5 clay 1.5		2522	120
188	NE Cor 33-131-94	2535	Spudded below coal			80
189	SW Cor 31-132-93	2660	8 1	Hr	2504 2494	180
190	W ¼ Cor 23-132-94	2625	1 7.5	Hr Hr	2517 2499	140
191	NE Cor 15-132-95	2692	2 3		2674 2637	95
192	500'E NW Cor 21-132-95	2690	Not drilled deep enough			88

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
193	NW Cor 31-132-93	2570	1.5	Hr	2520	100
			2.5 clay			
			1	Hr		
			1.5 clay			
			10.5	Hr	2514	
194	130'E NW Cor 25-133-93	2499	6.7	Hr	2473	160
			1.5		2455	
195	S ¼ Cor 25-133-93	2510	9	Hr	2468	160
			1.3		2445	
			2.5	Ha	2386	
196	SW Cor 30-133-92	2503	6.8	Ha	2451	160
			2.2		2378	
197	S ¼ Cor 30-133-92	2475	7.2	Ha	2427	140
			2.2		2403	
			3 clay			
			1.3			
			2.2		2363	
198	SW Cor 18 18-133-92	2531	2.5		2496	180
			5.5	Hr	2460	
			2.2	Ha	2425	
199	SE Cor 17-133-92	2452	4.5	Ha	2423	160
			1		2358	
			3		2348	
200	NW Cor 29-133-92	2481	2.2	Ha	2428	180
			1.5		2331	
201	SE Cor 30-133-92	2542	6.1	Hr	2501	160
			1		2484	
			1.1		2468	
			5.2	Ha	2438	
202	600'W SE Cor 29-133-92	2505	2.2	Hr	2493	160
			0.8 clay			
			3.9	Hr		
			0.2 clay			
			1.5	Hr		
			6.2	Ha	2430	
			1.8		2408	
203	S ¼ Cor 32-133-92	2589	8.5	Hr	2505	200
			4.2 clay			
			1.5	Hr		
			7.2	Ha	2475	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
204	SE Cor 33-133-92	2580	9.5 5.9	Hr Ha	2474 2446	160
205	3350'E SW Cor 34-133-92	2570	1.2 11.5	Hr Ha	2495 2441	160
206	350'S NW Cor 34-133-92	2570	2.2 6.1 0.2 clay 2.5 1.2 6.2 1	 Hr Hr Ha 	2539 2471 2452 2435 2375	200
207	1800'S NE Cor 28-133-92	2525	2.2 6.5 1.8	Hr Ha Ha	2471 2413 2390	160
208	3100'W NE Cor 28-133-92	2540	5.5 2.5 6.5 clay 1	Ha 	2421 2376 	180
209	1300'W NE Cor 30-133-91	2420	2 1	Ha 	2332 2309	140
210	300'W SE Cor 33-133-91	2455	6.6 1.2 2.2 0.2 clay 4.3	Hr Ha Ha	2436 2404 2344 	140
211	NE Cor 33-133-91	2406	2.8 1.2 clay 3.5	Ha Ha	2327 	120
212	SE Cor 32-133-91	2485	7.2 7.3	Hr Ha	2435 2344	160
213	NE Cor 32-133-91	2432	0.8 slack 5.9	 Ha	2412 2343	140
214	100'W NE Cor 31-133-91	2454	5.2 slack 3.2	Hr Ha	2445 2356	140
215	NE Cor 36-133-92	2496	9.2 6.2	Hr Ha	2444 2377	160
216	150'S NE Cor 10-132-92	2570	9.7 2.2	Hr Ha	2453 2387	200
217	75'W SE Cor 10-132-92	2580	9 2	Hr Ha	2458 2393	200

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
218	150'W SE Cor 9-132-92	2556	7.1	Hr	2484	180
			2.8	Ha	2418	
219	1900'E SW Cor 9-132-92	2540	3.7		2503	200
			1.2	Hr	2467	
			2.5	Ha	2432	
220	1600'W SE Cor 8-132-92	2505	1.5		2490	120
			7.2	Hr	2455	
			1		2435	
			4.2	Ha	2431	
221	320'S NE Cor 25-133-92	2430	1.2	Ha	2366	140
222	250'S NW Cor 26-133-92	2513	4.5	Ha	2390	160
223	SW Cor 26-133-92	2559	1		2503	200
			7.5	Hr	2456	
			5.2	Ha	2410	
224	∿2000'N SE Cor 35-133-92	2650	3.5		2619	220
			10.1	GC?	2601	
			10.2	Hr	2456	
225	SE Cor 36-133-92	2610	4	GC	2591	200
			6.5	GC	2579	
			3.1		2559	
			10.8	Hr	2443	
226	2640'W NE Cor 4-132-92	2580	1.5		2459	200
			9	Hr	2456	
			3.2	Ha	2421	
			2.2		2397	
227	SE Cor 10-132-93	2525	1.5		2501	160
			9	Hr	2487	
			5.5	Ha	2407	
228	E ¼ Cor 10-132-93	2539	5.7	Hr	2471	160
			4	Ha	2390	
			1 clay			
			1.2	Ha		
229	NE Cor 10-132-93	2544	8.9	Hr	2467	180
			4.8	Ha	2387	
230	80'E NW Cor 18-132-92	2500	7.6	Hr	2479	160
231	2050'W NE Cor 18-132-92	2485	7.9	Hr	2465	40

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
232	SW Cor 8-132-92	2480	8.2	Hr	2459	160
			1.2 clay			
			1.8	Hr		
			1.5	Ha	2428	
			5 clay			
			1.3	Ha		
			2.2		2362	
233	400'N SE Cor 18-132-92	2475	4	?	2371	160
234	E ¼ Cor 18-132-92	2500	6.2	Hr	2470	160
235	Center sec 18-132-92	2505	4.1	Hr	2456	140
236	SW Cor 25-132-93	2505	1.1	Ha	2462	160
			3 clay			
			1.2	Ha		
			0.2 clay			
			1.5	Ha		
237	SE Cor 25-132-93	2474	3.1	Ha	2444	160
238	NW Cor 1-131-93	2526	8.5	Hr	2502	160
			1.5		2479	
			2.5	Ha	2462	
239	90'E SW Cor 31-132-92	2500	2.1	Ha	2453	180
240	SW Cor 5-131-92	2543	9.2	Hr	2488	180
			1.5	Ha	2421	
241	1000'E NW Cor 4-131-92	2490	11	Hr	2448	180
			8	Ha	2396	
			4 clay			
			1			
			1		2376	
			1		2366	
			1.2		2355	
242	E ¼ Cor 32-132-92	2475	11	Hr	2464	180
			1.5	Ha	2420	
243	NW Cor 14-131-92	2552	9	Hr	2531	200
			1		2487	
			4.5	Ha	2478	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
244	SW Cor 23-131-92	2565	2 4.5	Hr Ha	2536 2494	200
245	SE Cor 24-131-92	2475	2.5 1	Ha	2441 2427	200
246	SW Cor 24-131-92	2468	1.5	Ha	2442	140
247	300'E SW Cor 8-131-92	2550	8.5 2.6	Hr Ha	2490 2460	180
248	SW Cor 20-131-92	2539	1	Ha	2494	160
249	W ¼ Cor 24-131-93	2670	1 1.5 clay 6 8	GC GC Hr	2649 2563	240
250	NW Cor 14-131-93	2602	3.5	Hr	2557	180
251	NW Cor 30-131-92	2612	9 1	Hr Ha	2536 2492	240
252	W ¼ Cor 19-131-92	2565	1.5	Hr	2551	120
253	150'E S ¼ Cor 19-131-92	2560	8.5	Hr	2537	40
254	400'E S ¼ Cor 30-131-92	2575	7.5 2 1.3	Ha	2524 2493 2477	220
255	SW Cor 17-131-92	2520	6 0.4 0.3	Hr Ha? Ha?	2509 2476 2468	80
256	SW Cor 9-131-92	2509	7.5	Hr	2490	160
257	NE Cor 27-132-94	2568	3 10 rock 2.5 4.5 rock 8 1 1 clay 4	Hr Hr Hr Ha Ha	2550 2439	180

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
258	100'S E ¼ Cor 27-132-94	2579	5	Hr	2545	220
			0.3 rock			
			5	Hr		
			1.5 rock			
			1.5	Hr		
			15 rock			
			1	Hr		
			1 rock			
			9.5	Hr	2515	
259	SW Cor 35-132-94	2546	2.5	Ha	2485	80
			4 rock			
			1	Ha		
260	SE Cor 35-132-94	2543	8.8	Hr	2523	100
			3	Hr	2502	
			2.5	Ha	2466	
			4.5 rock			
			8	Ha		
261	NE Cor 26-132-94	2573	8.1	Hr	2532	180
			2.2 clay			
			1.3	Hr		
			2 clay			
			11.1	Hr	2518	
			5.8	Ha	2435	
262	150'S NW Cor 13-131-94	2445	Spudded below coal			120
263	SW Cor 13-131-94	2483	Spudded below coal			140
264	SE Cor 26-132-94	2577	6.2	Hr	2548	200
			4.2 rock			
			2	Hr		
			4 rock			
			1.1	Hr		
			3 rock			
			2	Hr		
			0.8 rock			
			10.1	Hr		
			1		2473	
			0.8	Ha	2452	
			0.2 clay			
			1.5	Ha		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
265	W ¼ Cor 32-132-93	2583	2.2		2555	200
			7.2	Hr	2521	
			1.1	Ha	2472	
			5 rock			
			2	Ha		
266	1000'N SW Cor 29-132-93	2555	4.1	Hr	2536	220
			32 rock			
			13.2	Hr	2500	
			2.2	Ha	2428	
267	1100'E SW Cor 33-132-93	2635	9.8	Hr	2531	220
			2.2	Ha	2479	
268	NE Cor 32-132-93	2563	1.7	Hr	2520	200
			4.2 rock			
			9.1	Hr	2514	
			0.8		2477	
			0.3	Ha?	2460	
			0.5	Ha?	2452	
			0.2	Ha?	2424	
269	NE Cor 29-132-93	2565	1.3		2533	180
			11	Hr	2508	
			8	Ha	2447	
270	500'E NW Cor 29-132-93	2565	9	Hr	2526	200
			3 rock			
			1.5	Hr		
			0.5 clay			
			11	Hr	2512	
			0.5	Ha?	2438	
			0.3	Ha?	2429	
			0.5	Ha?	2419	
271	N ¼ Cor 30-132-93	2545	11	Hr	2511	200
			3 rock			
			2	Hr		
			6 rock			
			8	Hr	2489	
			2	Ha	2412	
272	600'W NE Cor 25-132-94	2555	8	Hr	2542	100
273	2700' E SW Cor 27-132-94	2524	2.5	Ha	2463	200
274	600'W SE Cor 28-132-94	2550	2	Ha?	2483	240

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
275	S ¼ Cor 34-132-94	2559	No coal			200
276	1300'W SE Cor 33-132-94	2570	10	Hr	2545	240
			1.5	Ha	2484	
277	SW Cor 33-132-94	2587	11	Hr	2551	200
			2	Ha	2490	
278	W ¼ Cor 4-131-94	2645	9	Hr	2556	140
			1.5	Ha	2510	
279	NE Cor 12-132-94	2534	3	Hr	2470	180
280	NE Cor 13-132-94	2544	8	Hr	2509	160
			22 rock			
			1	Hr	2479	
			5 rock			
			7	Hr	2473	
281	800'S NW Cor 12-132-94	2565	1.5		2488	200
			2.5 rock			
			2			
			2.5	Hr	2469	
			2.5 clay			
			3	Hr		
282	300'S NW Cor 13-132-94	2550	1.5		2492	200
			2.5	Hr	2486	
			5.8 rock			
			2.5	Hr		
283 and 284	NW Cor 9-132-93	2636	3		2594	260
			7.5	GC	2572	
			6	Hr	2492	
285	NE Cor 16-132-94	2579	1	GC?	2544	220
			2	Hr	2525	
			1.5		2500	
286	NW Cor 16-132-94	2627	2.5	Hr	2532	260
			1		2505	
287	2900'W SE Cor 18-132-94	2685	3	Hr	2534	240

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
288	1250'N SW Cor 12-132-94	2550	8	Hr	2518	200
			5.5 rock			
			2	Hr		
			2.5 rock			
			7.5	Hr		
			1		2402	
			1.8		2393	
289	1200'N SW Cor 8-132-93	2550	2.1	Hr	2509	200
			6 rock			
			7.2	Hr	2501	
290	1300'S NW Cor 14-132-94	2570	1.5		2537	200
			4.1	Hr	2520	
			5.2	Hr	2497	
			0.3 rock			
			2.3	Hr		
			3.3		2468	
			1.5		2434	
			0.5 rock			
			2.3			
			1.5		2400	
291	300'E SW Cor 15-132-93	2500	5	Ha	2431	200
292	Sec. center 28-132-93	2537	10	Hr	2518	200
			5.5	Ha	2465	
293	SE Cor 27-132-93	2529	1		2466	200
			10 sand			
			3	Ha	2455	
294	S ¼ Cor 13-132-93	2490	2	Ha	2444	200
295	SW Cor 14-132-93	2480	4	Ha	2443	200
			1		2363	
296	2500'W NE Cor 33-133-93	2627	3	Hr	2469	220
			2	Hr	2455	
297	1500'W SE Cor 26-133-93	2520	5	Hr	2461	232
			1		2347	
298	SW Cor 18-132-93	2540	8	Hr	2508	240
			6 rock			
			2	Hr		
			2.5 rock			
			7.5	Hr	2490	
			1		2392	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
299	NE Cor	2415	2	Ha	2387	500
	22-133-92		2		1947	
300	1900'E SW Cor	2579	6	GC	2561	260
	36-133-93		4	Hr	2467	
			4.1	Ha	2370	
301	NE Cor	2596	1		2557	260
	12-132-93		7.1	Hr	2499	
			6	Ha	2469	
302	1000'N SW Cor	2535	1.8	CB	2502	500
	21-135-96		1.3 rock			
			11.5	CB	2499	
			3.5 rock			
			1.5	CB		
			1.3		2466	
			2		2450	
			2.3	Hr	2332	
			4.7 rock			
			12.2	Hr	2325	
			10.2	Ha	2286	
			7 rock			
			2.1	Ha		
			5 rock			
			2.8	Ha		
			1.8		2118	
303	520'N SE Cor	2575	9.5	Hr	2528	240
	1-131-94		2.5	Ha	2479	
304	SE Cor	2538	Spudded below coal			160
	15-131-95					
305	NE Cor	2478	5	Ha	2440	180
	27-132-93					
306	SE Cor	2604	6.1	Hr	2549	125
	29-132-94					
307	SW Cor	2460	1	Hr	2448	160
	22-132-92		7.1	Hr	2438	
308	150'N SW Cor	2460	7.5	Hr	2441	200
	21-132-92		1		2379	
309	100'N SE Cor	2495	2	Hr	2448	200
	23-132-92		1 clay			
			10	Hr		
			3 clay			
			1	Hr		
			2	Ha?	2422	
			1	Ha?	2385	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
310	NE Cor 23-132-92	2515	6	Hr	2466	160
			2 clay			
			1.5	Hr		
			2	Ha?	2440	
			1	Ha?	2399	
311	SW Cor 22-132-91	2547	2.5		2527	160
312	NE Cor 15-132-91	2446	5	Hr	2396	160
			1		2373	
			1		2305	
313	NW Cor 15-132-91	2441	3.5+	Hr	2429	140
314	SE Cor 15-132-91	2476	1.5		2404	140
315	NW Cor 16-132-91	2528	2.1		2511	180
			1.8		2383	
316	NW Cor 18-132-91	2628	6.5	GC	2577	200
			2.2	GC	2553	
317	SW Cor 18-132-91	2564	No coal			200
318	500'S NE Cor 18-132-91	2540	No coal			180
319	NE Cor 24-131-92	2456	No coal			140
320	NW Cor 24-131-92	2532	3	Hr	2515	180
321	350'S NE Cor 28-131-93	2600	8	Hr	2583	240
			1.5		2550	
			3	Ha	2533	
322	900'N SE Cor 28-131-93	2555	1		2531	240
323	SW Cor 15-131-92	2528	8	Ha	2483	200
			2		2450	
324	SW Cor 1-131-93	2542	2	Hr	2523	200
			4.5 rock			
			1.5	Hr		
325	SE Cor 16-132-92	2525	1	Hr	2447	220
			0.8	Hr	2435	
			3	Ha	2417	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
326	E ¼ Cor 4-131-92	2460	46-120 coarse sand			120
327	SW Cor 29-132-93	2554	12.8	Hr	2504	260
			1.1	Ha?	2422	
			2	Ha	2406	
328	NE Cor 30-132-91	2555	6.2	Hr	2437	140
329	NW Cor 32-132-91	2522	9	Hr	2447	140
			2 clay			
			1	Hr		
			0.2	Ha?	2401	
330	SE Cor 32-132-91	2460	2	Ha	2390	140
331	SW Cor 30-132-91	2465	7.5	Hr	2437	140
			3.4 clay			
			2	Hr		
			2		2359	
332	Sec. center 27-132-93	2500	1		2428	200
			1.5 clay			
			2.5			
333	W ¼ Cor 21-132-93	2516	3	Ha	2435	160
334	W ¼ Cor 22-132-93	2521	5	Ha	2437	160
335	W ¼ Cor 28-131-93	2532	Spudded below coal			160
336	SW Cor 1-131-94	2522	4	Ha	2478	160
337	900'E SW Cor 2-131-94	2515	No coal			120
338	SW Cor 19-132-94	2616	6	Hr	2549	210
339	SE Cor 20-132-94	2638	3	Hr	2549	260
			2	Hr	2527	
			1.2		2433	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
340	1000'N SE Cor 9-134-95	2512	7.8 1	CB	2481 2448	105
341	200'E SW Cor 7-134-95	2530	2.5 6.5	CB? CB	2525 2498	90
342	NE Cor 9-134-96	2594	10.5 1 1	CB	2550 2530 2496	120
343	W ¼ Cor 27-135-96	2550	10	CB	2522	45
344	1480'FNL-2640'FEL 27-135-96	2510	1 (spudded below CB)		2466	60
345	100'E NW Cor 14-135-96	2570	No coal			120
346	1000'W & 400'S NE Cor 10-135-96	2610	3 2.5	 HT	2587 2535	135
347	200'W NE Cor 22-135-96	2585	10	CB	2475	135
348	25'N SW Cor 17-135-96	2551	10	CB	2503	136
349	100'N SW Cor 19-135-96	2557	11	CB	2505	75
350	50'E SW Cor 36-135-97	2600	1 7 2 clay 7.5	 CB CB	2573 2549	90
351	500'W SE Cor 8-134-97	2686	11.5 1	CB	2636 2590	105
352	150'N SW Cor 2-134-97	2650	1 13	 CB	2624 2594	75
353	100'S NW Cor 24-134-97	2675	8.5	CB	2647	85

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
354	NW Cor 21-134-96	2670	1 2.5 4	 CB	2637 2609 2581	120
355	SE Cor 30-134-97	2737	2		2645	165
356	100'N SE Cor 19-135-95	2545	4 6 rock 5.5	CB CB	2524	46
357	100'S NW Cor 27-135-95	2570	1 6	 CB	2488 2471	136
358	SW Cor 27-135-95	2546	1 1.5 rock 1.5 9 1	 CB	2492 2468 2454	106
359	SE Cor 33-135-95	2530	3 5	 CB	2487 2467	106
360	1000'S NW Cor 2-134-95	2530	1 7	 CB	2453 2442	105
361	2200'E NW Cor 27-134-97	2700	2 4	CB CB	2664 2652	120
362	1584'E & 100'N SW Cor 21-134-97	2740	1 4 4	 CB CB	2693 2670 2656	100
363	600'E NW Cor 21-134-97	2715	4 1 rock 5	CB CB	2687	150
364	N ½ Cor 17-134-96	2625	1 4 5.5	 CB CB	2587 2572 2546	135
365	Insufficient location					
366	1200'N SW Cor 7-134-96	2630	4.5 3.5 clay 4.5	CB CB	2584	100
367	150'N SW Cor 23-135-97	2637	3.5 1.5	HT	2597 2573	100
368	NE Cor 23-135-97	2576	10.5	CB	2492	105

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
369	150'E SW Cor 29-135-96	2548	11	CB	2495	76
370	100'N SW Cor 6-135-96	2627	2		2613	106
371	3500'S NW Cor 12-135-97	2585	2		2554	100
372	3/4 mi S NE Cor 7-135-96	2580	10	CB	2465	151
373	E ¼ Cor 5-135-96	2614	3	HT	2558	120
374	SW Cor 25-134-97	2728	1.5		2697	165
			2.7	CB	2673	
			12.3 clay			
			4	CB	2658	
			2.5		2607	
375	SE Cor 17-135-97	2615	Not deep enough			20
376	100'N SE Cor 15-134-95	2484	4	CB	2473	140
			2		2457	
			1		2414	
377	300'S NW Cor 22-134-95	2515	1		2498	242
			4	CB	2481	
			0.3 clay			
			2.7	CB		
			25	Hr	2302	
			0.5 clay			
			1.5	Hr		
378	150'N SW Cor 17-134-95	2590	2		2527	161
			2	CB?	2512	
			2.5	CB	2497	
			0.2 clay			
			2.2	CB		
379	150'N SE Cor 1-134-96	2528	8	CB	2509	121
			1.5		2474	
			2		2438	
380	E ¼ Cor 1-134-96	2509	8.5	CB	2466	80
381	729'E SW Cor 6-134-95	2552	1	CB	2506	100
			9.5	CB	2502	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
382	50'N SW Cor 1-134-96	2556	1		2504	100
			11	CB	2486	
383	SW Cor 19-134-95	2587	2.5	CB?	2550	160
			1	CB	2534	
			3 clay			
			5	CB	2530	
			1		2511	
384	500'N SE Cor 25-134-96	2595	1		2569	140
			2.5	CB	2539	
			4		2519	
385	SW Cor 13-134-96	2585	1		2574	100
			3	CB?	2559	
			5.5	CB	2530	
386	NE Cor 35-135-96	2525	7	CB	2522	80
			1		2504	
387	1056'N SW Cor 25-135-96	2543	10	CB	2507	80
388	NE Cor 3-134-96	2533	6	CB	2522	170
			1		2503	
			2		2476	
389	355'E NW Cor 2-134-96	2550	11	CB	2522	60
390	E ¼ Cor 5-134-96	2590	2		2547	175
			10	CB	2521	
			1		2474	
391	SE Cor 23-134-97	2704	1	CB	2667	220
			0.5 clay			
			2	CB		
			1 clay			
			5.5	CB		
			1		2622	
			1		2611	
			1		2541	
			1		2526	
392	250'S & 450'E NW Cor 31-134-96	2725	1		2676	130
			2	CB	2631	
			2.5 clay			
			4.5	CB		
393	650'E SW Cor 30-134-96	2740	1		2689	180
			1.5	CB	2645	
			5 rock			
			3	CB		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
394	0.6 Mi SE Cor 5-134-97	2705	1	HT	2666	140
			4 clay			
			4	HT	2661	
			8 clay			
			2	HT		
			5.5	CB	2591	
			1 rock			
			4	CB		
395	600'S N ¼ Cor 22-135-98	2765	1		2736	140
			2		2695	
396	450'N&450'E of C 22-135-98	2800	2		2775	95
			2		2750	
397	500'N SW Cor 17-133-98	2755	13.5	CB	2726	140
			0.3 clay			
			1			
			3		2643	
398	300'W SE Cor 7-133-98	2740	15.5	CB	2715	?
399	1050'N SW Cor 23-135-97	2670	1		2660	210
			1.5		2629	
			2	HT	2613	
			6	CB	2528	
			5	CB	2520	
400	1700'E NW Cor 21-135-97	2640	0.5	HT?	2600	140
			1	CB	2536	
			1 clay			
			3	CB	2534	
			0.5 clay			
			1	CB		
			6.5 rock			
			3	CB		
401	520'N SE Cor 21-135-97	2710	No coal			75
402	2100'W SE Cor 21-135-97	2695	2		2682	180
			3	HT	2618	
			15 rock			
			1.5	HT		
			5.5	CB	2560	
			3.5 clay			
			3	CB		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
403	SW Cor 13-135-99	2920	1		2882	160
			2 rock			
			1			
			2		2814	
404	SE Cor 23-135-95	2572	1.5		2444	200
			7	CB	2402	
			0.5 clay			
			1	CB		
405	W ¼ Cor 13-135-95	2593	1.5		2575	120
			0.5 clay			
			4			
			1.5		2492	
406	SE Cor 3-135-95	2600	1.5		2582	160
			3 clay			
			1.5			
			1.5 clay			
			2.5			
			1 clay			
			4		2571	
			0.5 clay			
			3			
			2		2448	
407	300'N SW Cor 27-136-95	2650	2.5		2615	200
			3		2590	
			1.5		2570	
			2		2506	
408	NW Cor 9-135-95	2572	2		2534	180
			2		2481	
			2		2442	
			1	CB	2429	
			3 clay			
			2.5	CB	2425	
			3.5 clay			
			1	CB		
409	NE Cor 21-135-95	2595	2.5		2543	160
			2		2510	
			2		2489	
			2.5 clay			
			2			
			2.5	CB	2461	
			5 clay			
			2.5	CB		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
410	SW Cor 1-134-95	2468	6	CB	2429	140
411	SE Cor 26-135-95	2542	2		2466	220
			7.1	CB	2390	
			3		2345	
412	E ¼ Cor 27-135-95	2561	4	HT	2471	220
			6.2	CB	2438	
413	1400'S NE Cor 34-135-95	2550	1		2480	200
			7.5	CB	2446	
414	SW Cor 28-135-95	2541	1.5	CB	2497	240
			2.5 clay			
			5	CB		
			1.5	GC	2433	
			1		2365	
			7	Hr	2356	
			9.5 clay			
			2	Hr		
			1.5 clay			
			5	Hr		
415	SW Cor 4-134-95	2493	9.5	CB	2466	160
			1		2410	
			1		2402	
416	100'S NE Cor 16-134-95	2530	2	CB	2476	160
			0.2 clay			
			6.8	CB		
			6.5	?	2404	
417	600'FNL-300'FWL 14-134-96	2584	3.2	CB	2566	220
			3 rock			
			6.2	CB		
418	1300'N SW Cor 12-134-97	2660	10	CB	2613	220
			2.1		2475	
			15 clay			
			3		2458	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
419	1200'S NW Cor 18-135-96	2580	11.6	CB	2474	500
			2.2		2419	
			1.5		2371	
			3.5	GC	2307	
			3 clay			
			2.8	GC		
			13.3	Hr?	2214	
			3.8	Ha?	2166	
420	SW Cor 5-134-96	2594	10.5	CB	2556	440
			12	Hr	2377	
			4 rock			
			6	Hr		
			2		2337	
			5	Ha	2288	
421	NE Cor 35-135-97	2610	14	CB	2526	500
			3.5	GC	2440	
			3	No	2376	
			3 clay			
			3.3	No		
			4.5 clay			
			6	No	2362	
			13	Hr	2343	
			3		2152	
			4 clay			
			1			
422	NW Cor 35-135-97	2662	1.2		2620	200
			3.5	HT	2609	
			1		2559	
			7	CB	2553	
			5 clay			
			6	CB		
423	NW Cor 21-135-96	2560	11	CB	2475	220
			9 clay			
			1	CB		
			4 clay			
			3	CB		
424	NW Cor 22-135-96	2565	14	CB	2458	200
			1		2431	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
425	NE Cor 7-135-96	2578	10.5	CB	2435	260
			3.5 clay			
			1.5	CB		
426	NE Cor 15-135-97	2625	10.5	CB	2504	200
			3		2473	
			6 clay			
			1.3			
427	900'W NE Cor 23-135-96	2560	6		2501	200
			6	CB	2481	
			6 rock			
			3.8	CB		
			1.1		2446	
428	250'N SE Cor 15-135-97	2607	6	CB	2545	500
			3 clay			
			1	CB		
			2 clay			
			1.5	CB		
			7	Hr	2310	
			4 clay			
			15	Hr		
			2		2229	
			6		2129	
429	200'E SW Cor 27-135-97	2688	3	HT	2639	500
			2	HT	2618	
			6.5	CB	2589	
			13.5 clay			
			5	CB		
			1		2493	
			4	GC	2449	
			1.5	No	2381	
			11	Hr	2344	
			4.2	Ha	2293	
430	150'S NW Cor 12-134-97	2635	6	CB	2600	400
			11 clay			
			6.5	CB		
			3	GC	2472	
			8	Hr	2387	
			0.8 clay			
			1.5	Hr		
			1.5		2290	
			7.5 clay			
			1.2			

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
431	3700'S and 870'W NE Cor 9-134-97	2690	1		2682	400
			6	CB	2644	
			3 clay			
			1.2	CB		
			9.7 clay			
			4.5	CB		
			1	GC	2461	
			7.3	Hr	2421	
			5 clay			
			5.2	Hr		
432	NW Cor 9-134-97	2710	2	HT	2671	200
			3 clay			
			5	HT	2666	
			7 rock			
			2.3	HT		
			4	CB	2600	
			8 clay			
			9	CB		
			2.5		2528	
433	300'S NE Cor 15-134-97	2650	9.1	CB	2632	200
434	NE Cor 18-134-96	2616	1.8		2593	200
			4.2	CB	2558	
			5 rock			
			5.5	CB		
			1		2471	
435	SE Cor 12-134-97	2593	5	GC	2446	200
			3	GC	2424	
			3 clay			
			6.1	GC		
436	NE Cor 12-134-97	2618	5.1	CB	2588	260
			11 clay			
			6	CB		
			1		2531	
			3	Hr	2399	
			1.5		2379	
437	900'W SE Cor 33-135-96	2556	10	CB	2532	200

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
438	E ¼ Cor 32-135-96	2569	11.5	CB	2519	200
439	SW Cor 10-134-96	2614	2		2574	200
			12 clay			
			3.5	CB?	2560	
			5.2	CB	2537	
			9.8 clay			
			2	CB		
			1	GC	2480	
440	NW Cor 25-135-96	2521	9.8	CB	2502	180
			7 rock			
			2	CB		
			10.2	Hr	2379	
441	NW Cor 30-135-95	2555	4.3	CB	2523	200
			0.8 clay			
			5.5	CB		
			2	GC	2471	
			3 clay			
			1.5	GC		
			11	Hr	2404	
			3.5	Ha	2363	
442	NW Cor 19-135-95	2561	8	CB	2524	200
			0.5 clay			
			3.5	CB		
			3.2	GC	2492	
			8	Hr	2386	
443	NW Cor 28-135-95	2581	1		2521	240
			8	CB	2511	
			5.5	GC?	2438	
444	NW Cor 20-135-95	2568	3.5	CB	2511	240
			3.5 rock			
			4	CB		
			3 rock			
			1.5	CB		
			3.5		2482	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
445	200'W NE Cor 18-135-95	2575	3	CB	2477	280
			3 clay			
			3	CB		
			1.5 clay			
			1.5	CB		
			1		2440	
			1.5		2379	
			2		2318	
			10 clay			
			3.5			
446	800'W NE Cor 14-135-96	2572	4.5	CB	2470	500
			0.8 rock			
			1.5	CB		
			2.1	GC	2439	
			1		2420	
			1.5	Hr	2371	
			0.5 rock			
			8.6	Hr		
			3.1	Ha	2236	
447	NW Cor 15-135-97	2644	8.8	CB	2526	240
			5.6	CB	2502	
448	SE Cor 15-134-97	2658	1.1+	CB	2651	200
			1		2625	
			6.2	GC	2519	
			5 clay			
			6.1	GC		
449	NE Cor 9-136-98	2675	2.5	Fb	2585	220
			2.5 clay			
			5	Fb		
			4	HT	2480	
			3 clay			
			3	HT		
450	200'N and 1200'W SE Cor 2-136-98	2725	0.5	HR	2707	100
			0.2 clay			
			1.2	HR		
			2 clay			
			5	HR		
			1		2669	
			4.5	Fb	2640	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
451	∿1500'W NE Cor 24-136-98	2663	0.4	HT?	2616	60
452	SW Cor 9-136-98	2663	3.5	Fb	2630	200
			1 clay			
			4	Fb		
			3		2559	
			2		2540	
			6.5	HT	2501	
453	500'S NE Cor 18-136-98	2635	3.5	HT	2573	160
			0.5 clay			
			1.5	HT		
			6.7	CB	2525	
454	700'S and 400'E NW Cor 8-136-98	2660	1.5	Fb	2643	80
			4	Fb	2633	
			2 clay			
			10	Fb		
455	100'N SE Cor 1-136-99	2670	2.6	Fb	2662	120
			1.7	Fb	2647	
			1.8 clay			
			11.7	Fb		
			3.8	HT	2572	
456	SW Cor 32-137-98	2733	1		2727	200
			1		2703	
			1		2675	
			6.4	Fb	2619	
457	1400'N SE Cor 17-136-97	2720	6.5	Fb	2694	160
			8.8	HT	2637	
			8 clay			
			1.5			
			1		2591	
458	NW Cor 9-136-97	2875	2.5	L	2800	177
			0.5 clay			
			1	L		
			2.5 clay			
			6.5	L		
			1.5		2770	
			7.5 sand			
			1			
			1		2724	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
459	300'N SE Cor 34-137-97	2761	2		2726	115
			7.5	HR	2689	
			6.5 clay			
			2	HR		
460	600'E SW Cor 28-137-97	2798	3 clinker	L	2797	180
			2		2733	
			7.5	HR	2707	
			1 clay			
			3	HR		
			6.5	Fb	2652	
			1 clay			
			2.5	Fb		
461	NW Cor 1-136-98	2808	7	HR	2731	240
			0.5 clay			
			1.5	HR		
			7.6	Fb	2688	
			3		2641	
462	150'N SE Cor 19-137-97	2790	6	L	2737	240
			0.2 clay			
			1	L		
			1		2682	
			7 clay			
			6	HR	2674	
463	NW Cor 31-137-97	2757	2.5		2735	180
464	1000'N SE Cor 14-137-98	2865	1		2824	240
			8.5		2818	
			6	L	2699	
			1		2663	
			6	HR	2652	
465	E ¼ Cor 15-137-98	2817	7.5	L	2702	140
466	NW Cor 5-136-98	2674	1.5	Fb	2640	240
			9.5	Fb	2625	
			6	HT	2518	
			4.5	CB	2483	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
467	400'S NW Cor 26-137-98	2740	5	L	2718	220
			1		2669	
			1	HR?	2613	
			1.5	HR?	2594	
			3	Fb	2559	
			5	Fb	2544	
			5	Fb	2538	
468	NE Cor 36-136-98	2629	2.5	HT	2604	100
469	SE Cor 16-136-98	2650	60 gravel			60
470	1100'S NE Cor 30-136-98	2653	4.5	Fb	2643	80
			5.5 clay			
			7.2	Fb		
471	600'N SE Cor 13-136-99	2720	2.5		2693	180
			1		2677	
			4.1 clay			
			1			
			5.5	Fb	2656	
			6.5	HT	2595	
			5.8	CB	2558	
472	W ¼ Cor 13-136-99	2715	1.5		2680	60
			1.2			
473	NW Cor 13-136-99	2693	1+	Fb	2673	160
			5	HT	2636	
			7.3	CB	2570	
474	200'S NW Cor 25-136-99	2685	5.9	Fb	2662	160
			7	HT	2603	
			0.5 clay			
			1	HT		
			7.1	CB	2548	
475	200'S NE Cor 36-136-99	2700	2.5		2693	160
			6 impure coal	Fb	2673	
			4	HT	2588	
			6 clay			
			1.4			

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
476	S ¼ Cor 29-136-98	2753	1		2727	200
			2.8		2706	
			2.8		2671	
			6.8	Fb	2654	
			1		2606	
			5.8	HT	2595	
			4.2 clay			
			1.5			
477	SW Cor 31-137-97	2726	1	HR	2672	160
			1 clay			
			2.5	HR		
			1	Fb	2620	
			10 clay			
			7	Fb	2609	
478	1300'E SW Cor 18-136-97	2650	8.3	HT	2555	180
			4	CB?	2536	
			4	CB?	2523	
479	100'N SW Cor 14-136-98	2650	3.5	Fb	2616	160
			4.4	Fb	2608	
			1.8		2545	
480	100'S NW Cor 17-136-97	2769	4.7	HR	2747	180
			1	Fb	2702	
			0.5 clay			
			1	Fb		
			0.5 clay			
			5.5	Fb	2699	
			1		2669	
481	500'N SE Cor 12-136-98	2663	1		2590	180
			3 clay			
			1			
			11 rock			
			2.5		2574	
			6.5	HT	2562	
482	3000'S NW Cor 26-137-97	2700	5.2	HR	2656	120
			1.4	Fb	2625	
			4.6 clay			
			7.5	Fb	2619	
483	NE Cor 36-137-97	2720	7	L	2692	120
			5.8	HR	2626	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
484	SW Cor 26-136-97	2670	3 3		2651 2621	130
485	S ¼ Cor 21-136-99	2722	1.5 1.5 clay 6.5 8 1	Fb Fb HT	2648 2590 2573	180
486	500'N SW Cor 10-136-99	2725	4.5 0.5 clay 1 8.5	Fb Fb HT	2624 2549	200
487	W ¼ Cor 17-136-98	2660	5.2 0.5 clay 3.2	HT HT	2583 	120
488	200'N SW Cor 31-136-99	2780	7.7 5.5	Fb HT	2691 2634	180
489	100'S NW Cor 31-136-99	2820	5.8	HR	2765	180
490	50'S NE Cor 25-136-100	2798	7.4 5.3	HR Fb	2763 2659	200
491	2700'W & 300'N E ¼ Cor 25-136-100	2800	5.8 0.3 clay 1.4 5	HR HR Fb	2761 2650	200
492	3850'W NE Cor 25-136-100	2825	7.4 5.5	HR Fb	2757 2674	200
493	3250'W NE Cor 25-136-100	2780	7.1	HR	2749	60
494	NE Cor 30-136-99	2731	1.3 5.3 9.6	 Fb HT	2682 2668 2611	160
495	1750'W & 100'S NE Cor 31-136-99	2730	5.5 8.5	Fb HT	2684 2625	140
496	400'W SE Cor 32-136-99	2705	7 6 2.1 clay 2.9	Fb HT HT	2679 2639 	180

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
497	2850'W SE Cor 32-136-99	2750	5.5	Fb	2676	180
			5.6	HT	2608	
			2 sand			
			1.5	HT		
498	35'W and 325'S E ¼ Cor 31-136-99	2762	4	Fb	2712	180
			7.1	HT	2664	
			1		2636	
499	∿1800'W and 1650'N SE Cor 31-136-99	2810	5.2	Fb	2716	120
500	1300'W NE Cor 32-136-99	2725	4.5	Fb	2704	200
			7.5	HT	2644	
			0.5 rock			
			1	HT		
			1.5		2626	
			5.5	CB	2586	
			0.5 clay			
			1.7	CB		
			1		2530	
501	∿800'S and 30'W NE Cor 29-136-99	2690	6	Fb	2670	200
			9	HT	2601	
			4 clay			
			7.1	HT		
			1		2575	
			7.2	CB	2552	
502	∿750'S E ¼ Cor 29-136-99	2710	4.9	Fb	2678	200
			8	HT	2615	
			8 clay			
			1.5	HT		
			5.5	CB	2559	
			2.2 clay			
			7.2	CB		
503	800'S and 50'E of Center 29-136-99	2780	5.5	Fb	2695	120
504	150'E N ¼ Cor 29-136-99	2718	5.2	Fb	2680	180
			8.4	HT	2622	
			1.5		2590	
			4.5	CB	2574	
505	SE Cor 28-136-99 (not plotted)	2676	7.6	HT	2625	80
			2		2607	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
506	NW Cor 35-136-99	2687	1		2646	260
			6.3	HT	2614	
			0.7 rock			
			2.2	HT		
			8.2	CB	2556	
			2	GC	2501	
			1	GC	2470	
			2	GC	2459	
			2 clay			
			2.5	GC		
507	200'E N ¼ Cor 34-136-99	2700	1.5		2654	160
			6.2	HT	2636	
			2.5		2620	
			5.5	CB	2574	
508	600'N SE Cor 28-136-99	2680	6.3	Fb	2658	180
			7.1	HT	2601	
			0.5 rock			
			1.1	HT		
			1		2551	
			6.1	CB	2531	
509	NE Cor 4-135-99	2740	4.5	Fb	2711	240
			6.2	HT	2657	
			0.5 rock			
			1	HT		
			7.8	CB	2586	
510	200'E and 400'N of Center 4-135-99	2745	5.9	Fb	2704	200
			7.1	HT	2658	
			1 clay			
			1	HT		
			1	CB	2600	
			0.3 clay			
			3.7	CB		
			6 clay			
			1.1			
511	700'W SE Cor 4-135-99	2740	7.2	HT	2703	200
			7.5	CB	2584	
			4.5 clay			
			3	CB		
512	100'N of Center 34-136-99	2710	6.5	Fb	2690	220
			1.2		2634	
			1		2614	
			1	CB	2572	
			0.2 clay			
			6.8	CB		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
513	W ¼ Cor	2725	5	Fb	2703	180
	35-136-99		2		2660	
			5	HT	2643	
			1		2629	
			6.3	CB	2581	
514	600'E SW Cor	2760	5	Fb	2737	220
	35-136-99		1		2711	
			8	HT	2687	
			6	CB	2613	
			1.2		2546	
515	400'W & 800'N	2710	3.3 slack	Fb	2698	180
	SE Cor		1.1		2682	
	35-136-99		3	HT	2648	
			0.2 clay			
			2.8	HT		
			6 clay			
			1.5			
			1		2572	
			9.5	CB	2559	
516	1320'W & 300'S	2665	7.2	HT	2593	100
	NE Cor		2.2		2577	
	35-136-99					
517	80'W NE Cor	2675	1 slack		2667	200
	35-136-99		1		2647	
			6.2	HT	2596	
			3.8 clay			
			1.5	HT		
			9.8	CB	2542	
518	NE Cor	2635	1.1 slack		2627	160
	29-136-98		3.2	HT	2572	
			10 clay			
			2.8	HT		
			5.8	CB	2521	
519	50'N SE Cor	2660	5.1	Fb	2613	160
	29-136-98		4	HT	2559	
520	300'S of Center	2710	4.4	HR?	2671	240
	29-136-98		6.8	Fb	2625	
			5.4	HT	2566	
			0.3 clay			
			2.6	HT		
			6.2	CB	2527	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
521	Center	2665	6	Fb	2635	180
	30-136-98		1.1		2597	
			5.3	HT	2571	
			1.5 clay			
			2.2	HT		
			7.2	CB	2527	
522	2050'E & 225'N	2630	3.5	HT	2582	200
	SW Cor		4.1	HT	2567	
	20-136-98		7.8	CB	2531	
			2.2	GC	2471	
			2.1	GC	2439	
523	NW Cor	2656	6.4	HT	2596	200
	20-136-98		5.8	CB	2550	
			1		2488	
524	200'S NE Cor	2640	3.5 slack	Fb	2632	180
	20-136-98		2.8	HT	2569	
			0.2 clay			
			4	HT		
			5.1	CB	2520	
525	250'S N ¼ Cor	2662	3.6	Fb	2630	180
	20-136-98		2.4 clay			
			1	Fb		
			4.6	HT	2558	
			0.8 clay			
			1	HT		
526	1300'S NE Cor	2622				20
	20-136-98					Caving
527	950'S NE Cor	2620	4.5	HT	2580	60
	20-136-98		3.5 clay			Caving
			2	HT		
528	1300'E & 1300'S	2680	4	HT	2598	100
	NW Cor		1 clay			
	20-136-98		2	HT		
529	3200'S N ¼ Cor	2655	2	Fb	2646	180
	23-136-99		5.5	HT	2573	
			1 clay			
			6	HT		
			5.1	CB	2521	
530	1250'S N ¼ Cor	2665	6.2	Fb	2642	200
	23-136-99		7.8	HT	2573	
			6.2	CB	2524	
			0.8		2507	
			1.2 clay			
			1.3			

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
531	NE Cor	2686	4.5 slack	Fb	2668	240
	23-136-99		8.1	HT	2606	
			5.5	CB	2570	
			1		2477	
532	4400'S NE Cor	2650	4.2	HT	2596	100
	23-136-99		1 rock			
	(not plotted)		3.3	HT		
533	3900'S NE Cor	2668	2 slack	Fb	2651	220
	23-136-99		8.2	HT	2593	
			1.5		2557	
			5.2	CB	2546	
			1		2481	
			2 clay			
			1			
			2.5		2454	
534	800'S & 2150'W NE Cor	2715	2	Fb	2678	80
			4 rock			
	24-136-99		1.6	Fb		
			4 rock			
			2.8	Fb	2667	
			5.4	Fb	2647	
535	800'N & 800'E SW Cor	2630	4	HT	2571	140
			0.5 rock			
	19-136-98		5	HT		
			6.8	CB	2523	
			2 clay			
			1	CB		
536	Center	2695	1.2	Fb	2676	240
	19-136-98		3	Fb	2660	
			6.5 clay			
			3.5	Fb		
			3.5 clay			
			6.6	Fb		
			5.2	HT	2581	
			5.7	CB	2522	
537	4000'N SW Cor	2650	7.6	HT	2610	200
	18-136-98		8.8	CB	2573	
			2	GC	2475	
			1	GC	2467	
538	3160'S NW Cor	2655	6.8	HT	2571	160
	7-136-98		6.9	CB	2535	
539	Center	2641	6.6	HT	2584	160
	7-136-98		6.8	CB	2547	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
540	1600'S NE Cor 8-136-98	2742	1.4		2658	260
			11.1	Fb	2592	
			4	HT	2518	
			1.2 clay			
			2.8	HT		
541	500'S NW Cor 7-136-97	2750	1	HR	2730	240
			7.8	Fb	2689	
			0.5 clay			
			1	Fb		
			1.1		2674	
			3.8	?	2574	
			1	HT	2554	
			7.2	HT	2543	
542	2700'N SW Cor 6-136-97	2770	1.5		2737	300
			7.5	HR	2713	
			2.5 clay			
			1	HR		
			10.3	Fb	2663	
			2.2 clay			
			2.2	Fb		
			2.3		2532	
			2		2523	
			4	HT	2512	
			9.2	HT	2496	
543	Center 6-136-97	2820	7.4	HR	2726	120
			6 clay			
			1.2	HR		
544	SE Cor 6-136-97	2782	14.2	HR	2722	280
			7.1	Fb	2679	
			0.2 clay			
			2.7	Fb		
			1.5		2655	
			3.5	HT	2523	
			1.2 clay			
			5.2	HT		
545	1500'N SE Cor 7-136-97	2810	2.1		2763	240
			6.5	HR	2727	
			8.8	Fb	2686	
546	100'N Center 18-136-97	2675	3.6		2634	180
			1		2575	Caving
			4 clay			
			3.5	HT	2571	
			4 clay			
			6.2	HT		

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
547	1700'W E ¼ Cor	2670	1.5		2593	200
	19-136-97		5.5	HT	2570	
			2.2		2546	
			3.5	CB	2508	
548	Center	2735	7.8	Fb	2706	200
	17-136-97		1	HT	2570	
			1.1 clay			
			5.5	HT	2568	
549	2200'E SW Cor	2733	5.8	Fb	2691	120
	17-136-97		1.1		2630	
			1		2617	
550	1250'N SW Cor	2768	9.1	Fb	2696	120
	17-136-97		11 clay			
			1.2			
551	1700'E SW Cor	2800	2.2		2733	260
	9-136-97		6.3	HR	2703	
			8.8	Fb	2642	
			3 clay			
			1.2	Fb		
			3.2		2601	
			1.8		2552	
552	1/2 mi N SE Cor	2790	1.2		2775	180
	9-136-97		3.5		2722	
			5.1	HR	2697	
			8 clay			
			1.7			
			7.7	Fb	2625	
553	1900'W & 1600'N	2805	7.1	HR	2719	160
	SE Cor		9.5	Fb	2669	
	8-136-97		1.2		2648	
554	3600'E NW Cor	2892	1	L	2820	120
	9-136-97		1 clay			
			1	L		
			2 clay			
			1.5	L		
			0.5 clay			
			6.2	L	2813	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
555	2300'E & 1250'S NW Cor 4-136-97	2790	1.5	L	2780	240
			0.3 clay			
			2.1	L		
			1		2749	
			1.2		2723	
			2		2705	
			6.1	HR	2675	
			9	Fb	2622	
			1		2604	
			2.1		2560	
556	SW Cor 34-137-97	2885	2.3		2782	180
			2		2736	
557	50'E W ¼ Cor 34-137-97	2780	1.4		2744	180
			2.1		2724	
			5.5	HR	2691	
			3.5 clay			
			1.2	HR		
			9.5	Fb	2638	
			1.5 clay			
			1	Fb		
558	1100'E SW Cor 34-137-97	2890	4 clinker		2886	120
			1	L	2798	
			0.2 clay			
			8.8	L		
559	1250'S NE Cor 34-137-97	2720	7.1	HR	2678	180
			8	Fb	2629	
			1.2		2596	
			1.2		2562	
560	300'N S ¼ Cor 26-137-97	2740	1.5	L	2697	180
			6.9	HR	2653	
			7.5 clay			
			2.2	HR		
			8.1	Fb	2617	
			2.2		2588	
561	E ¼ Cor 32-137-97	2815	1.5		2739	240
			7.6	HR	2711	
			0.8 clay			
			1.5	HR		
			8.3	Fb	2659	
			1.2		2624	
			2.2		2600	

Table 3.--Continued (company data)

Hole Number	Location Sec-T.N.-R.W.	Surf. Elev.	Coal Thickness	Bed Name	Elev. of Coal top	T.D.
562	1700'E NW Cor 32-137-97	2790	6.1	HR	2728	180
			0.8 clay			
			1.2	HR		
			9	Fb	2679	
			1.3		2653	
			1.2		2614	
563	∿450'E W ¼ Cor 29-137-97	2800	8.6	L	2757	200
			10.5	HR	2707	
564	NE Cor 29-137-97	2745	8.6	L	2707	160
			9.7	HR	2664	
565	1000'S NE Cor 20-137-97	2780	1		2624	240
566	1400'W E ¼ Cor 17-137-97	2860	47 clinker		2859	120
			53 reddish yellow clay-very hard drilling		2808	
567	200'S of Center 20-137-97	2765	7.3	Fb	2593	200
			0.3 clay			
			1.5	Fb		
568	350'S of Center 19-137-97	2770	1	L	2749	200
			1.2		2704	
			7.5	HR	2666	
			1.2	Fb	2621	
			7.0 clay			
			7.5	Fb	2613	
569	1450'E SW Cor 18-137-97	2800	1		2773	220
			3.5	L	2746	
			2 clay			
			3.2	L		
			6.1	HR	2626	
			1.1		2585	
570	3850'N SE Cor 18-137-97	2865	No coal			140