MIRL Report No. 88

Characterization and Washability Studies of Raw Coal from the Little Tonzona Field, Alaska

by

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Introduction

Coal occurs in an isolated exposure of Tertiary, non-marine sedimentary rocks along the southwest bank of the Little Tonzona River, near Farewell, Alaska. The Little Tonzona River coal field is located approximately 150 air miles northwest of Anchorage, Alaska, and 210 air miles southwest of Fairbanks, Alaska; near the boundaries of Denali National Park. The Alaska Railroad and the Parks Highway are approximately 100 air miles from the coal field at their nearest point. The village of McGrath, on the Kuskokwim River, is located approximately 90 miles to the west (1).

An impressive outcrop of coal-bearing Tertiary sediments is exposed for a distance of more than 275 feet on the west bank of the Little Tonzona River (Figure 1). More than seven coal beds, ranging in thickness from 3 feet to 30 feet, with a cumulative thickness of over 134 feet, are interbedded with clay beds up to 40 feet thick. The clays are fine textured, extremely plastic, light grey to nearly white bentonites and/or tonsteins.

Doyon Ltd., an ANSCA Native Corporation, holds land selections covering the inferred limits of the coal field. During 1980 and 1981, Doyon entered into exploration agreements with McIntyre Mines Inc. of Nevada. The two season exploration program took place from June 1, 1980 through August 22, 1980 and from May 27, 1981 through August 22, 1981. During the 1980 field season, geologic mapping, prospecting, stratigraphy, trenching and bulk sampling of all coal outcrops were performed. This produced a total of 34 samples, which were taken for analysis. In 1981, six diamond drill holes with a cumulative length of 2,935 feet were completed. Core recovery was close to 90%, and a total of 147 coal samples, which represented 802.8 cumulative feet of coal, were taken for analysis.

The exploration program confirmed a strike length of over 3 miles to the southwest from the main river bank exposure. Northward extension is unknown at this time. Although outcrop exposure is poor away from the river banks, burnout zones resulting from past coal bed fires form a resistant, recognizable on strike feature in the relatively unindurated Tertiary sequence. The appearance of these burnout zones along strike is often the only surface indication of the buried coal-bearing strata. Well preserved plant fossil impressions in the baked clays date the deposit as probable Miocene (2).

Coal characterization and washability studies were performed on all coal samples by the Mineral Industry Research Laboratory of the University of Alaska Fairbanks. This work was conducted under the direction of Dr. P.D. Rao, Professor of Coal Technology.

(a)

(b)

Figure 1: Coal outcrop on the west bank of the Little Tonzona River. Aerial view (a) and from ground level (b).

In the river bank exposure, the coal rank tends to decline up-section, to the northwest, as the coal beds become younger. The younger beds are thinner and more lignitic. Analyses averages for the 147 samples taken in 1981 are shown in Table I.

Table I. Analyses of Little Tonzona Coal Samples Taken in 1981 (2).

	Basis			
	Equilibrium Moisture		Dry, Ash Free	
Property	Average	Range	Average	Range
Moisture %	31.73	20.15 - 37.17	--	--
Volatile Matter %	32.40	22.81 - 39.76	56.00	50.44 - 64.31
Fixed Carbon %	25.71	14.24 - 47.35	43.86	39.06 - 67.47
Ash %	10.31	3.52 - 36.31	--	--
Heating Value Btu/lb	6,707	3,671 - 7,601	11,574	10,295 - 12,117
Total Sulfur %	1.04	0.28 - 1.85	2.47	0.83 - 3.36

Little Tonzona coal is ranked as subbituminous-C. The 147 coal samples had an average heating value of 6,707 Btu/lb and averages of 31.73% moisture, 32.40% volatile matter, 25.71% fixed carbon, 10.31% ash and 1.04% total sulfur on an equilibrium bed moisture basis. Although the sulfur content of Little Tonzona coal is high for an Alaskan Tertiary coal, it is similar in other ways to other coals of the same age and rank from within the state (Table II).

Table II. Comparative Analyses of Alaskan Tertiary Coals and the Little Tonzona Coal (3).

Coal Field	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	Total Sulfur %
Herendeen Bay	5.46	25.50	27.83	41.21	6,897	1.81
Chicago Creek	30.70	29.62	29.22	10.46	6,643	0.60
Nenana	26.39	33.25	28.27	12.08	7,058	0.26
Yentna	23.07	34.76	29.13	12.55	7,800	0.16
Unalakleet	19.84	41.45	29.73	8.98	8,741	0.44
Beluga	27.59	34.87	31.57	5.97	8,051	0.12
Little Tonzona	31.73	32.40	25.71	10.31	6,707	1.04

Alaska's 5.5 trillion tons of estimated coal resources comprise about half the United States' coal resources (4). Each one trillion tons of subbituminous coal contains the energy equivalent of approximately 5,500 years of Alyeska Pipeline production (@ 1.5 MM barrels/day). The locations of the major coal regions in Alaska are shown in Figure 2. The largest of Alaska's coal basins, estimated to be over 4 trillion tons, is the Northern Alaska Basin. It consists of a tremendous subbituminous coal deposit, which in areas overlies a rich bituminous deposit (4). The Cook Inlet-Susitna Basin, which is composed mainly of low-rank coals, may contain over a trillion tons (4). The remainder of the coal basins are small by Alaskan standards but still contain billions of tons of reserves. As an examples, the Nenana Basin, which boasts Alaska's only operating mine, the Usibelli Coal Mine, has "only" about 10 billion tons of proven reserves (4).

The outstanding feature of almost all Alaskan coals, regardless of rank, is their extremely low sulfur content (5). The majority of the Alaskan coals are already compliance coals. Many of the low-rank coals have sulfur levels below 0.2%. The latest three year average for the Usibelli subbituminous coal was 0.17%. In addition, many of the low rank coals (LRCs) have moderate ash levels and reactivities typically an order of magnitude higher than their bituminous counterparts.

Major reasons for the limited use of Alaskan coals include low population density, distance from high energy use areas, abundant more convenient energy forms (gas and oil) and mining and transportation costs. In addition, the low sulfur, highly reactive LRCs are plagued with the high moisture inherent to their rank. This has restricted the worldwide usage of most LRCs to mine mouth power generation. However, new technologies could expand international use of LRCs and provide a valuable Alaskan export to nations of the Pacific Rim.

The majority of this report consists of the characterization data for the 147 Little Tonzona coal samples taken from diamond drilling during the 1981 exploration program. A brief description of the Little Tonzona coal deposit geology in the next section is followed by the detailed protocol for coal characterization procedures.

Geology

Coal bearing rocks of the Farewell area were first mentioned in the literature in 1911, by Alfred H. Brooks of the U.S. Geological Survey, who traversed the areas in 1902 (6). The impressive coal exposure on the west bank of the Little Tonzona River (Figure 3) was first examined closely by Gary Player, a consulting geologist from Anchorage, Alaska, in August of 1970 (7). In August 1976, the outcrop area was revisited and sampled

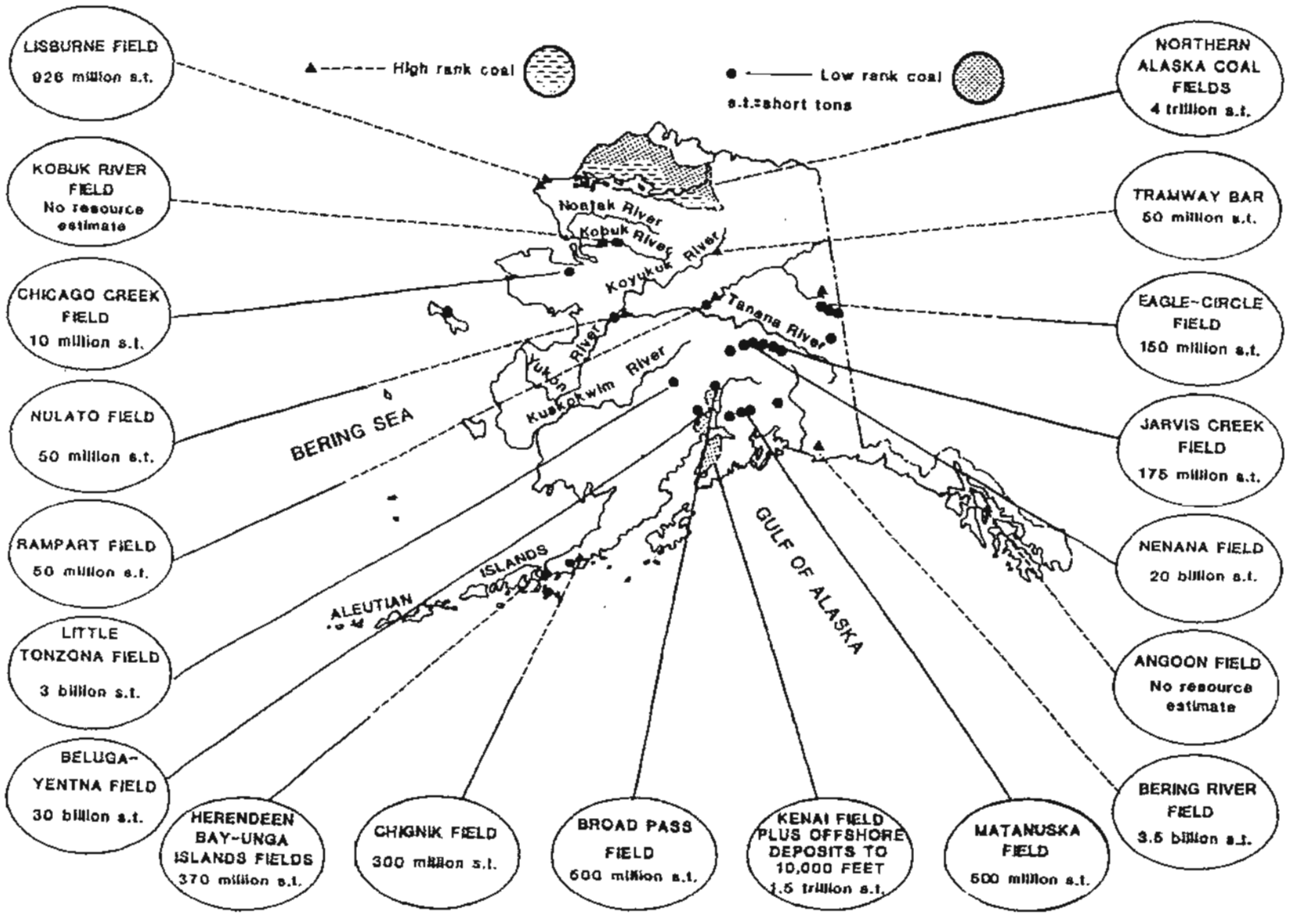

Figure 2. Coal resources of Alaska.

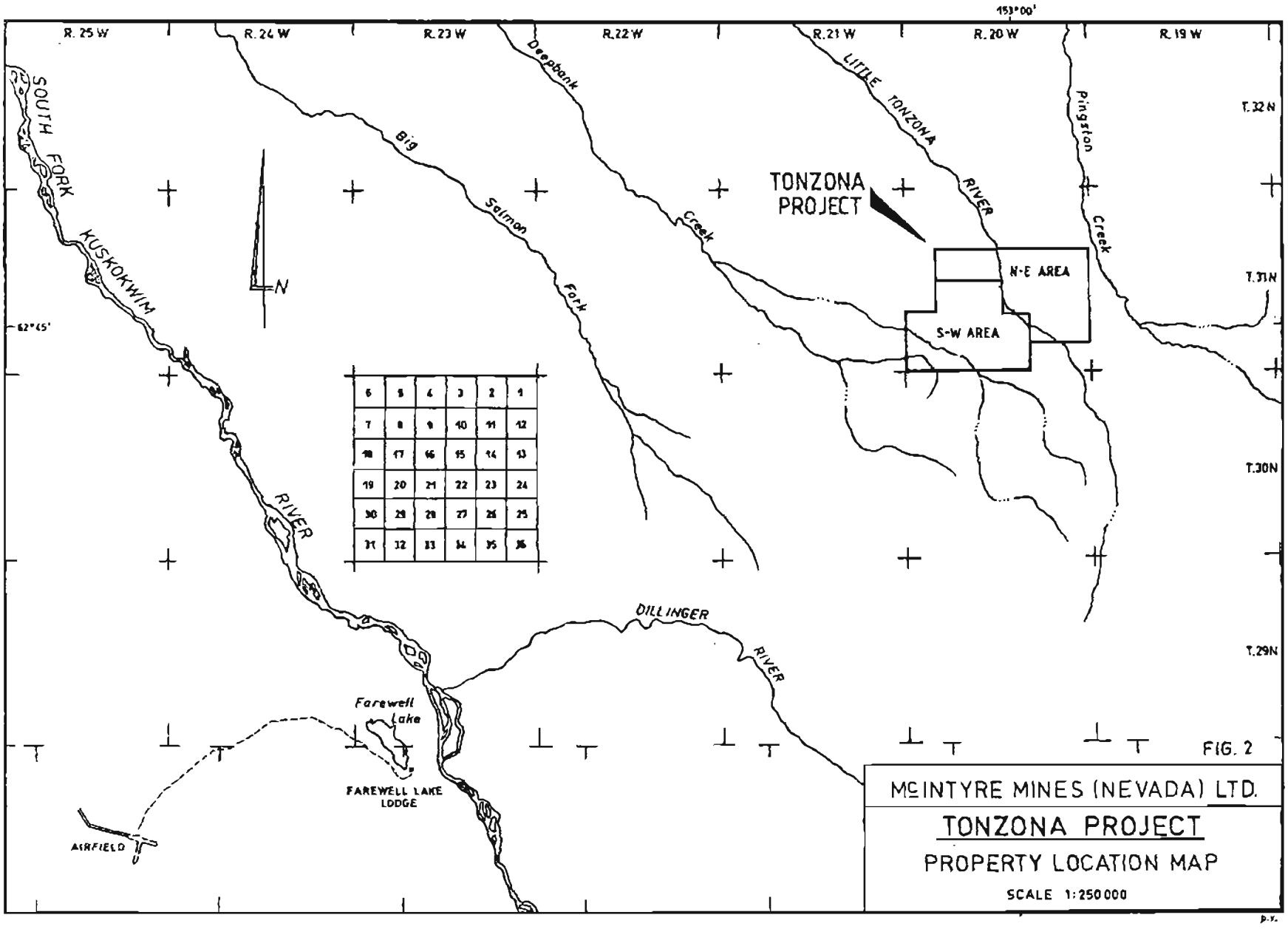

Figure 3. Location map of the Little Tonzona Coal Field. (1)

by Player in conjunction with geologists of C.C. Hawley and Associates, Inc., contractor to the U.S. Bureau of Mines, during a study of mineral resources of Federal D-2 lands being considered for inclusion in Denali National Park (7). In August of 1977, the U.S. Geological Survey performed a reconnaissance survey for coal in the Minchumina Basin and Farewell vicinity. The Little Tonzona coal outcrop was again visited and sampled (8). During the same summer, the deposit was examined by WGM Exploration, Inc., as part of a Doyon Ltd. project. A coal sample was collected 2.3 miles southwest along strike from the main river outcrop (9).

The Little Tonzona coal basin has a strike length of over 3 miles, from the river bank exposure, to the southwest (Figure 4). The coal beds range from 3 to 30 feet in thickness and are interbedded with clay seams. Dips as steep as 75° may be found, but the general range is between 45° and 70° NW. Up to 8 feet of glacial gravel deposits and a thin soil unconformably overlie the main coal exposure. Permafrost is present in the area but is discontinuous, depending upon the slope exposure (1,2).

The coal bearing units are truncated on the southern end by a NE - SW trending strand of the Farewell Fault, the major structural influence of the area. Although the coal and clay beds in contact with the fault trace are crushed and deformed, up-section to the north, away from the fault, the coal is nearly undisturbed, except for the steep dips. The fault trace apparently separates Tertiary sediments on the north side from Paleozoic limestones on the south side. Fault movement appears to have been south-side-up dip slip with a right-lateral component. This movement is the apparent cause of the severe dips where Tertiary strata abut the fault trace. These steep surface dips apparently flatten to the north at fairly shallow depth, according to drilling indications (1,2,11).

Laboratory Procedures

Coal characterization and washability tests were performed on all of the drill core samples submitted to MIRL in 1981. Characterization included proximate and ultimate analyses, Hardgrove grindability index tests, analyses of major oxides in the coal ash and ash fusibility measurements. Washability analyses were performed using representative splits of 3/4-inch x 100-mesh (0.15 mm) coal at 1.30, 1.40 and 1.60 specific gravities. All analyses were performed according to ASTM standards and procedures.

Coal samples were received at the laboratory in tightly sealed plastic containers and some samples showed visible surface moisture on the coal. Sample weights ranged from 4.5-30 pounds.

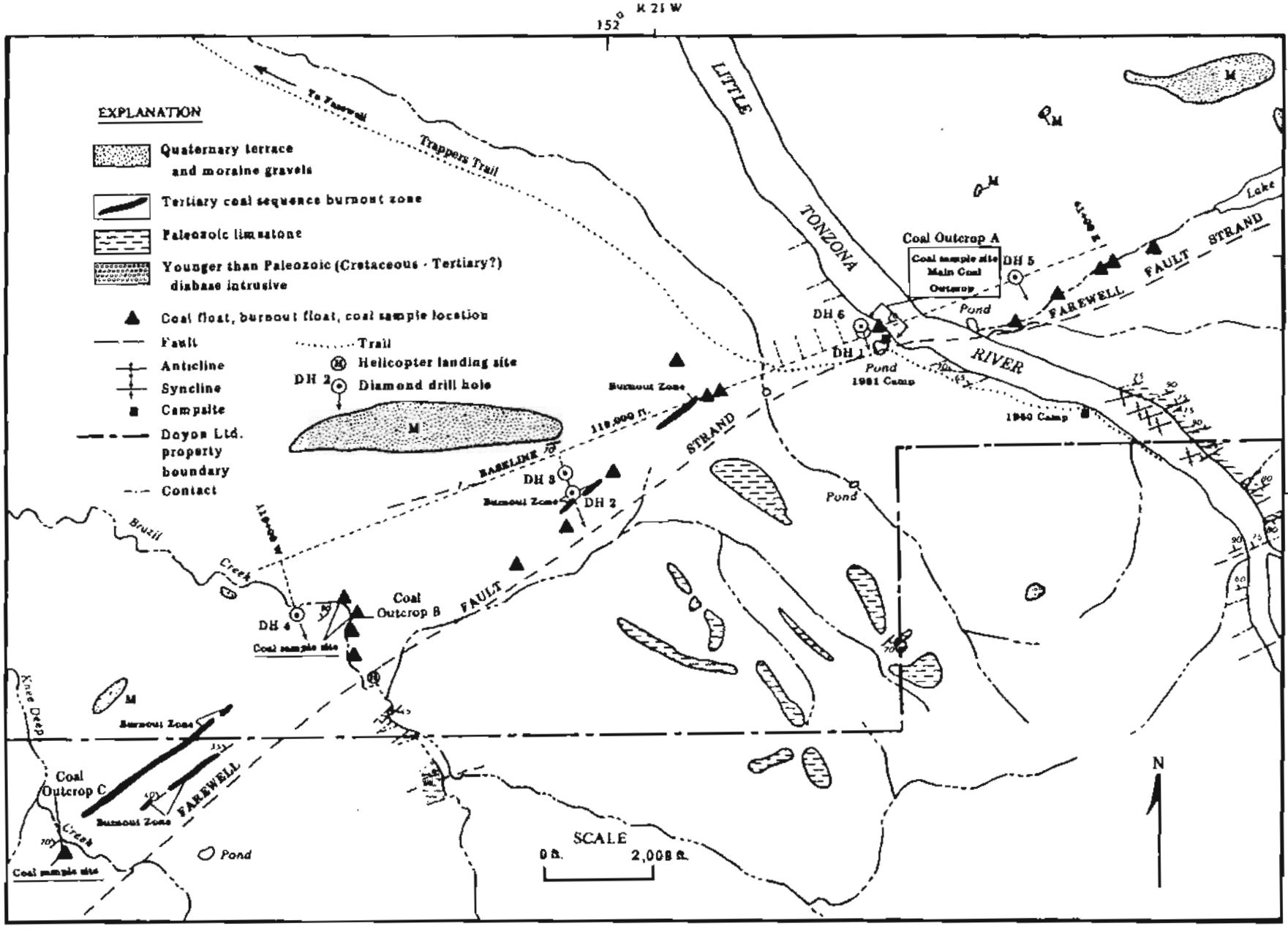

Figure 4. Generalized Geologic Map, Little Tonzona Coal Field. (1,2,10)

Figure 5 is a flowsheet of procedures used in the laboratory for processing the samples. The cores were first crushed in a jaw crusher to produce a minus 3/4 inch product, then riffled. Half the sample was screened at 100 mesh, and the 3/4 inch x 100 mesh fractions were used for washability studies. The other half of the sample was further crushed to minus 3/8 inch in a jaw crusher. 500 g samples were split out of the -3/8 inch coal and air dried for Hardgrove grindability index (HGI) tests. Moisture content was determined for the samples used for HGI determination. 5 pound samples were split out of the -3/8 inch coal for raw coal analyses, then crushed to minus 14 mesh (1.41 mm). From the minus 14 mesh coal, samples were split for equilibrium moisture determination and 500 g samples were split for air dry loss determination and further pulverization to 60 mesh (0.25 mm). The pulverized coals were used for proximate and ultimate analyses. Coal samples combusted at 750°C yielded ashes, which were used for ash fusibility measurements and for determination of major oxides in the ash by x-ray fluorescence spectrometry.

Float-sink separations were made in 15 gallon containers at 1.30, 1.40 and 1.60 specific gravities using perchlorethylene - naptha mixtures as heavy liquid. The float-sink products were air dried, weighed, crushed, and pulverized. They were analysed for moistures, ash, heating value, total sulfur and pyritic sulfur. All weights and analyses were calculated on a moisture free basis.

Tables 2 through 7 show proximate and ultimate analyses of raw coals for the six drill holes. The analyses are presented on 1) equilibrium bed moisture basis, 2) as received basis, 3) moisture free basis and 4) moisture and ash free basis. Most samples had higher as received moisture than equilibrium moisture. The difference was the extraneous surface moisture introduced during drilling. Coal, as mined, would be expected to have moisture levels comparable to equilibrium moisture.

HGI values are presented in Tables 8 through 13. The distribution of major oxides in the coal ashes are shown in Tables 14-19 and the ash fusion temperatures are presented in Table 20 through 25. HGI averages within drill holes ranged from 30 to 38 with an overall average for all 147 samples of 35. These values indicate that raw coal from the Little Tonzona field would be relatively hard to grind or pulverize. The low sodium content of Little Tonzona coal ash indicates its low boiler fouling propensity. Likewise, the high calcium levels would also reduce the boiler fowling propensity of sulfur. The high calcium content would likely fix much of the sulfur in the ash and reduce sulfur emissions. Calculations using emperical formulas show that the ash will have intermediate slagging characteristics. This was also verified from the ash fusibility data.

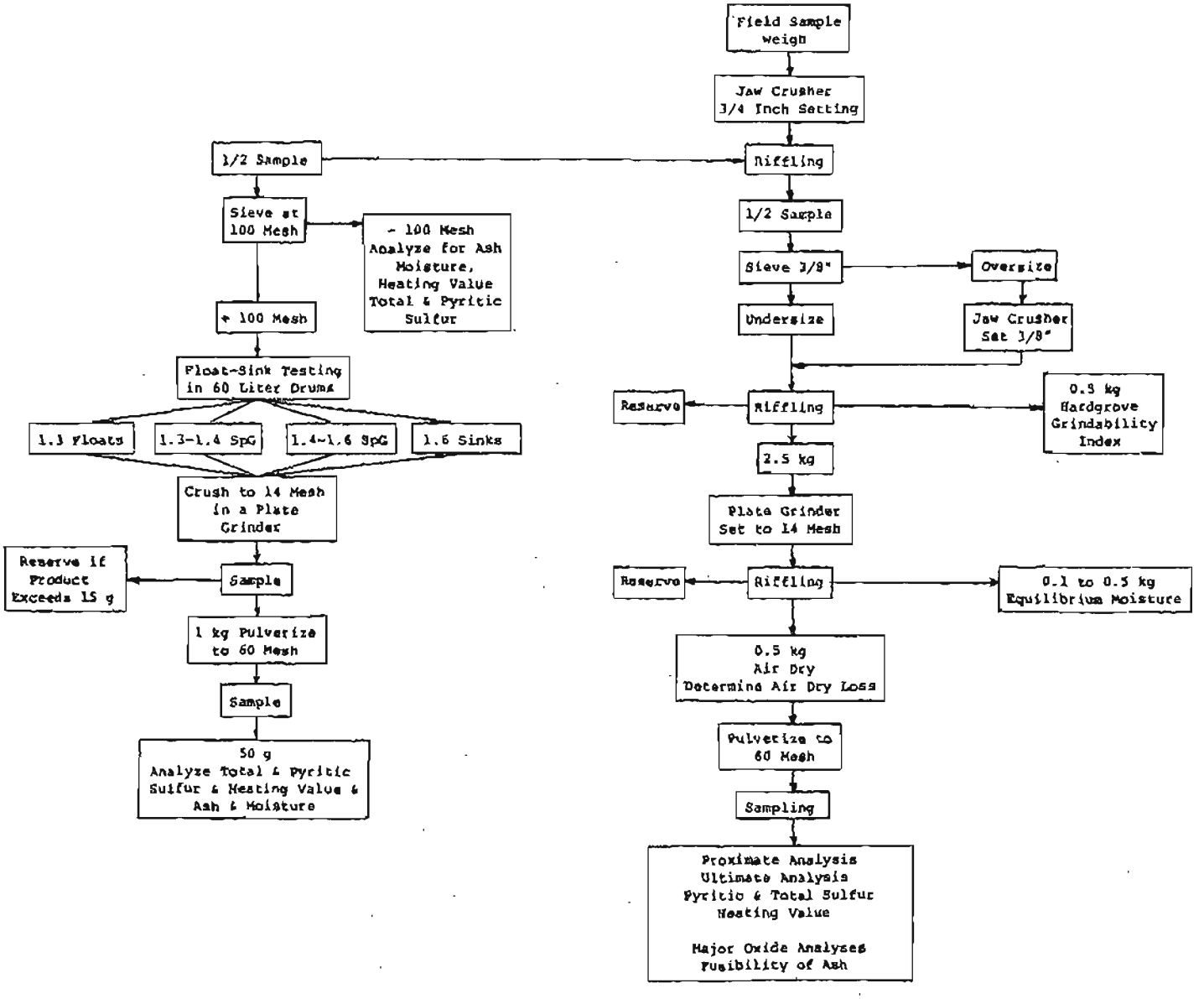

Figure 5 : Flowsheet of Procedures Used in Processing Samples.

Tables 26 through 31 show washability data for all samples from the six drill holes. The tables show weight percent distribution, ash, heating value, pyritic sulfur, and total sulfur on a moisture free basis for the various gravimetric fractions as well as values for cumulated floats. The quality of the floats at any of the three densities can be read directly from the tables. The tables also show cumulative sink weight percent and ash content that may be expected at any of the three densities.

Finally, Tables 32 and 33 present petrologic data for certain samples from the drilling program. Table 32 gives ulminite reflectance rank distribution data and Table 33 presents coal maceral distribution for samples from drill hole no. 1.

Each set of tables is preceded by a table(s) overview, which presents a summary of data contained within a group of tables. This should facilitate the reader's rapid comprehension of tabulated data.

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Table 1 Overview

Table 1 follows on pages 14 - 16. 147 drill hole samples were taken from 6 drill holes during the 1981 exploration program. Table 1 describes each sample by identifying number, weight in grams, drill hole footage increment, and the cumulative footage of the sample.

Coal samples were received at the laboratory in tightly sealed plastic containers and some samples showed visible surface moisture on the coal. Sample weights ranged from 4.5-30 pounds.

Table 1. List of Coal Samples Taken for Analyses

Sample Number	Weight (grams)	Depth (feet)	Length (feet)
		Hole No. 1	
41676	2718	28.5 - 31.0	2.5
41677	2269	48.0 - 50.0	2.3
41678	5085	100.0 - 105.0	5.0
41679	4702	112.5 - 116.0	3.5
41680	5626	116.0 - 121.0	5.0
41681	7466	121.0 - 127.5	6.5
41682	4576	128.9 - 133.9	5.0
41683	4747	133.9 - 138.9	5.0
41684	3246	139.9 - 142.0	2.1
41685	4612	155.0 - 159.5	4.5
41686	8453	160.0 - 167.5	7.5
41687	2030	170.0 - 172.0	2.0
41688	5832	178.5 - 183.5	5.0
41689	5371	183.5 - 189.0	5.5
41690	5403	189.0 - 194.0	5.0
41691	5553	194.0 - 199.0	5.0
41692	5112	199.0 - 204.0	5.0
41693	5899	204.0 - 209.3	5.3
41694	4090	209.4 - 213.0	3.6
41695	4491	224.5 - 229.5	5.0
41696	7494	229.5 - 234.5	5.0
41697	5055	234.5 - 239.5	5.0
41698	4169	239.5 - 244.5	5.0
41699	5008	244.5 - 256.0	11.5
41700	4503	259.0 - 263.0	4.0
41701	8101	271.3 - 279.0	7.7
41702	5912	279.3 - 285.0	5.7
41703	2837	328.0 - 333.0	5.0
41704	4657	333.0 - 337.0	4.0
41705	5922	368.0 - 373.0	5.0
41706	6345	373.0 - 378.5	5.5
41707	4858	378.5 - 383.5	5.0
41708	4350	383.5 - 387.0	3.5
		Hole No. 2	
41709	4403	41.0 - 45.5	4.5
41710	3428	78.0 - 83.5	5.5
41711	5044	83.5 - 90.0	6.5
41712	7136	92.0 - 99.5	7.5
41713	5659	109.0 - 115.0	6.0
41714	7172	115.0 - 124.0	9.0
41715	5433	124.0 - 129.0	5.0
41716	5564	129.0 - 134.0	5.0
41717	5210	134.0 - 139.0	5.0
41718	5025	139.0 - 144.0	5.0
41719	3169	144.0 - 151.0	7.0
41720	5794	151.0 - 159.0	8.0
41721	3392	159.0 - 163.0	4.0

[illegible] Number	Weight (grams)	Depth (feet)	Length (feet)
41722	3515	176.5 - 180.5	4.0
41723	4305	181.5 - 186.5	5.0
41724	4456	186.5 - 192.0	5.5
41725	2893	192.0 - 195.5	3.5
41726	3642	273.0 - 277.0	4.0
41727	2623	277.0 - 282.0	5.0
41728	4781	284.0 - 290.0	6.0
41729	3307	291.3 - 294.0	2.7
	Hole No. 3		
41730	9997	121.0 - 130.5	9.5
41731	5838	291.5 - 298.0	6.5
41732	10816	313.0 - 322.0	9.0
41733	6539	322.0 - 328.0	6.0
41734	6306	345.0 - 351.5	6.5
41735	5341	351.5 - 357.5	6.0
41736	6410	362.5 - 368.5	6.0
41737	3879	368.5 - 372.0	3.5
41738	9238	389.0 - 397.0	8.0
41739	6842	397.0 - 403.0	6.0
41740	5068	403.0 - 408.0	5.0
41741	6533	414.0 - 422.0	8.0
41742	6146	422.0 - 428.0	6.0
41743	9165	429.0 - 438.0	9.0
41744	3304	441.5 - 444.5	3.4
41745	6142	445.0 - 451.5	6.5
41746	6577	451.5 - 457.0	5.5
41747	5579	457.0 - 462.0	5.0
41748	9161	462.0 - 470.0	8.0
41749	6521	470.0 - 477.5	7.5
41750	8829	478.5 - 487.5	9.0
41826	9020	487.5 - 497.3	9.8
41827	2701	519.0 - 522.0	3.0
41828	9311	529.0 - 539.0	10.0
	Hole No. 4		
41829	3978	109.5 - 113.5	4.0
41830	4310	117.4 - 121.6	4.2
41831	7163	152.5 - 158.5	6.0
41832	3045	160.8 - 163.8	3.0
41833	5779	174.5 - 179.5	5.0
41834	5172	208.0 - 213.0	5.0
41835	5831	312.0 - 218.5	5.5
41836	7106	229.0 - 235.0	6.0
41837	4617	237.3 - 242.0	4.7
41838	8442	370.0 - 379.5	9.5
41839	8366	379.5 - 387.0	7.5
41840	7528	387.5 - 394.5	7.0
41841	10975	394.5 - 404.5	10.0
41842	5036	404.5 - 409.5	5.0
41843	11475	409.5 - 419.5	10.0
41844	9763	419.5 - 429.3	9.8
41845	5848	430.5 - 436.5	6.0

Sample Number	Weight (grams)	Depth (feet)	Length (feet)
	Hole No. 5		
41846	4839	436.5 - 443.5	7.0
41847	5204	297.0 - 302.0	5.0
41848	3909	378.5 - 382.0	3.5
41849	4386	400.0 - 404.0	4.0
41850	4669	432.0 - 435.5	3.5
41851	4295	436.0 - 442.0	6.0
41852	5631	442.5 - 448.5	6.0
41853	8838	448.5 - 456.5	8.0
41854	12237	469.8 - 481.5	11.7
41855	5232	496.3 - 502.5	6.2
41856	4050	509.0 - 513.5	4.5
41857	5308	514.5 - 521.0	6.5
41858	3109	526.0 - 529.0	3.0
41859	3223	558.5 - 563.0	4.5
	Hole No. 6		
41860	3980	81.5 - 85.5	4.0
41861	4914	85.5 - 90.5	5.0
41862	7501	90.5 - 99.0	8.5
41863	2124	48.5 - 50.5	2.0
41864	5701	198.0 - 203.5	5.5
41865	4224	216.5 - 220.4	3.9
41866	3484	242.5 - 245.5	3.0
41867	2743	289.7 - 292.2	2.5
41868	5672	304.5 - 309.6	5.1
41869	2495	322.2 - 324.5	2.2
41870	5665	325.7 - 330.7	5.0
41871	5405	330.7 - 335.7	5.0
41872	5074	335.7 - 340.2	4.5
41873	8498	343.0 - 350.7	7.7
41874	2555	380.5 - 383.0	2.5
41875	5435	385.8 - 391.0	5.2
41876	4160	391.0 - 395.0	4.0
41877	5396	418.0 - 423.0	5.0
41878	5182	423.0 - 428.0	5.0
41879	5743	428.0 - 433.0	5.0
41880	6000	433.0 - 438.0	5.0
41881	5403	438.0 - 443.0	5.0
41882	5977	443.0 - 449.0	6.0
41883	2954	450.0 - 452.8	2.8
41884	4102	454.0 - 458.0	4.0
41885	5288	468.8 - 473.2	4.4
41886	4933	477.5 - 481.5	4.0
41887	4833	486.0 - 491.0	5.0
41888	3697	491.0 - 496.0	5.0
41889	5032	496.0 - 501.0	5.0
41890	4788	501.5 - 506.5	5.0
41891	5790	506.5 - 512.0	5.5
41892	5321	512.0 - 517.0	5.0
41893	4397	517.0 - 521.6	4.6
41894	3502	526.8 - 530.0	3.2
41895	4839	532.0 - 537.0	5.0
41896	5272	537.0 - 542.0	5.0
41897	3627	548.5 - 551.5	3.0

Tables 2-7 Overview

Table 2-7 follow on pages 18 - 44. They present proximate and ultimate analyses of the raw coals from the six drill holes. The analyses are presented on 1) equilibrium bed moisture basis, 2) as received basis, 3) moisture free basis and 4) moisture and ash free basis. Most samples had higher as received moisture than equilibrium moisture. The difference was the extraneous surface moisture introduced during drilling. Coal, as mined, would be expected to have moisture levels comparable to equilibrium moisture.

Proximate analyses averages, from Tables 2-7, are shown in Table I, page 3, which is reproduced below for the readers convenience. Table I shows a broad range of analytical values. This is due in part to the variation in the nature and percent ash in the coal samples taken from the drilling program.

Coal rank tends to decline up-section, to the northwest, as the coal beds become younger. The younger beds are thinner and more lignitic.

Table I. Analyses of Little Tonzona Coal Samples Taken in 1981 (2).

	Basis			
	Equilibrium Moisture		Dry, Ash Free	
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Heating Value Btu/lb	6,707	3,671 - 7,601	11,574	10,295 - 12,117
Total Sulfur %	1.04	0.28 - 1.85	2.47	0.83 - 3.36

Little Tonzona coal is ranked overall, as subbituminous-C. The 147 coal samples had an average heating value of 6,707 Btu/lb and averages of 31.73% moisture, 32.40% volatile matter, 25.71% fixed carbon, 10.31% ash and 1.04% total sulfur on an equilibrium bed moisture basis. Although the sulfur content of Little Tonzona coal is high for an Alaskan tertiary coal, it is similar in other ways to other coals of the same age and rank from within the state. See Table II, page 3.

Table 2. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 1

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41676	1	28.64	33.13	25.62	12.61	6,679	39.36	6.08	0.56	40.80	0.02	0.59
	2	32.71	31.24	24.16	11.89	6,298	37.12	6.37	0.53	43.54	0.03	0.56
	3	–	46.42	35.91	17.67	9,359	55.16	4.03	0.79	21.52	0.04	0.83
	4	–	56.39	43.61	–	11,368	67.00	4.89	0.96	26.15	0.04	1.00
41677	1	23.40	27.82	17.83	30.95	4,777	28.61	5.02	0.42	33.83	0.35	1.17
	2	25.58	27.03	17.32	30.07	4,641	27.79	5.20	0.41	35.39	0.34	1.13
	3	–	36.32	23.28	40.40	6,237	37.34	3.14	0.55	17.05	0.46	1.52
	4	–	60.94	39.06	–	10,465	62.66	5.27	0.93	28.58	0.78	2.56
41678	1	27.77	37.11	27.49	7.63	7,419	43.18	6.50	0.43	41.33	0.04	0.93
	2	30.20	35.87	26.56	7.37	7,170	41.73	6.66	0.42	42.93	0.03	0.90
	3	–	51.38	38.06	10.56	10,272	59.78	4.70	0.60	23.07	0.05	1.29
	4	–	57.45	42.55	–	11,484	66.84	5.26	0.67	25.80	0.06	1.44
41679	1	27.12	25.94	17.27	29.67	4,702	28.23	5.32	0.35	35.83	0.05	0.59
	2	27.63	25.76	17.14	29.47	4,669	28.03	5.36	0.35	36.20	0.05	0.59
	3	–	35.60	23.68	40.72	6,452	38.74	3.14	0.49	16.10	0.07	0.81
	4	–	60.04	39.96	–	10,883	65.34	5.30	0.82	27.18	0.12	1.37
41680	1	29.94	33.07	24.11	12.88	6,638	38.79	5.99	0.40	41.07	0.07	0.87
	2	30.31	32.90	23.98	12.81	6,603	38.58	6.02	0.40	41.33	0.07	0.86
	3	–	47.21	34.41	18.38	9,474	55.36	3.77	0.57	20.68	0.10	1.24
	4	–	57.84	42.16	–	11,608	67.83	4.62	0.70	25.33	0.12	1.51
41681	1	31.34	35.24	27.06	6.36	7,179	42.48	6.55	0.50	43.28	0.04	0.84
	2	32.53	34.63	26.59	6.25	7,054	41.74	6.63	0.49	44.07	0.04	0.83
	3	–	51.33	39.41	9.26	10,456	61.87	4.43	0.72	22.50	0.05	1.22
	4	–	56.57	43.43	–	11,523	68.19	4.88	0.79	24.79	0.06	1.35

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 2. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41682	1	29.32	34.48	25.40	10.80	6,896	40.28	6.28	0.46	41.03	0.09	1.15
	2	30.35	33.97	25.04	10.64	6,796	39.70	6.35	0.45	41.73	0.09	1.13
	3	–	48.78	35.94	15.28	9,757	56.99	4.24	0.65	21.21	0.13	1.63
	4	–	57.57	42.43	–	11,516	67.27	5.01	0.77	25.03	0.15	1.92
41683	1	28.48	32.89	19.98	18.65	5,398	31.74	6.26	0.40	41.80	0.17	1.15
	2	23.55	35.15	21.37	19.93	5,770	33.93	5.92	0.42	38.56	0.19	1.23
	3	–	45.98	27.95	26.07	7,548	44.39	4.30	0.56	23.08	0.24	1.61
	4	–	62.20	37.80	–	10,210	60.04	5.82	0.75	31.22	0.33	2.18
41684	1	29.14	31.58	23.27	16.01	6,290	36.56	6.23	0.47	39.48	0.16	1.25
	2	32.03	30.29	22.33	15.35	6,033	35.07	6.43	0.45	41.49	0.15	1.20
	3	–	44.56	32.85	22.59	8,877	51.60	4.19	0.66	19.20	0.22	1.76
	4	–	57.57	42.43	–	11,467	66.65	5.41	0.86	24.80	0.29	2.28
41685	1	26.36	29.67	21.75	22.22	5,863	33.57	5.70	0.39	37.02	0.15	1.09
	2	29.40	28.44	20.86	21.30	5,621	32.18	5.93	0.37	39.16	0.15	1.05
	3	–	40.29	29.54	30.17	7,962	45.59	3.74	0.53	18.48	0.21	1.49
	4	–	57.70	42.30	–	11,402	65.29	5.35	0.76	26.48	0.30	2.13
41686	1	31.18	32.79	24.36	11.67	6,675	39.31	6.34	0.48	40.99	0.07	1.20
	2	32.91	31.97	23.74	11.38	6,507	38.33	6.46	0.47	42.19	0.07	1.17
	3	–	47.65	35.39	16.96	9,699	57.13	4.14	0.70	19.33	0.10	1.75
	4	–	57.38	42.62	–	11,680	68.79	4.99	0.84	23.27	0.12	2.10
41687	1	29.12	33.06	25.49	12.33	6,777	39.25	6.38	0.46	39.88	0.45	1.70
	2	31.54	31.94	24.61	11.91	6,546	37.91	6.55	0.44	41.55	0.43	1.64
	3	–	46.65	35.95	17.40	9,562	55.37	4.41	0.64	19.78	0.63	2.40
	4	–	56.48	43.52	–	11,576	67.03	5.34	0.78	23.95	0.77	2.90

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 2. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41688	1	31.65	33.56	25.39	9.40	6,804	40.59	6.43	0.50	42.00	0.09	1.07
	2	32.74	33.02	24.99	9.25	6,695	39.95	6.51	0.50	42.74	0.09	1.06
	3	–	49.10	37.14	13.76	9,955	59.39	4.23	0.74	20.31	0.14	1.57
	4	–	56.9.	43.07	–	11,543	68.86	4.90	0.85	23.56	0.16	1.82
41689	1	31.23	33.52	27.25	8.00	6,995	41.59	6.56	0.49	42.62	0.03	0.74
	2	33.73	32.30	26.26	7.71	6,740	40.08	6.73	0.47	43.30	0.03	0.71
	3	–	48.75	39.61	11.64	10,171	60.48	4.45	0.71	21.64	0.05	1.07
	4	–	55.17	44.83	–	11,510	68.45	5.04	0.80	24.49	0.06	1.21
41690	1	31.77	33.02	27.09	8.13	6,902	40.71	6.48	0.53	42.86	0.29	1.30
	2	32.53	32.65	26.78	8.04	6,825	40.25	6.53	0.53	43.37	0.29	1.28
	3	–	48.39	39.70	11.91	10,116	59.66	4.28	0.78	21.47	0.43	1.90
	4	–	54.94	45.06	–	11,484	67.73	4.86	0.89	24.36	0.49	2.16
41691	1	30.44	34.67	26.86	8.03	7,245	42.22	6.57	0.42	41.91	0.20	0.85
	2	33.03	33.38	25.86	7.73	6,976	40.65	6.74	0.40	43.65	0.19	0.82
	3	–	49.84	38.61	11.55	10,416	60.70	4.55	0.60	21.38	0.29	1.22
	4	–	56.34	43.66	–	11,776	68.63	5.14	0.68	24.17	0.33	1.38
41692	1	30.35	33.86	26.84	8.95	7,050	41.62	6.39	0.49	41.35	0.06	1.20
	2	32.95	32.59	25.84	8.62	6,787	40.06	6.57	0.47	43.13	0.06	1.15
	3	–	48.61	38.54	12.85	10,122	59.75	4.30	0.71	20.68	0.09	1.72
	4	–	55.78	44.22	–	11,615	68.56	4.94	0.81	23.72	0.10	1.97
41693	1	29.33	34.42	26.56	9.69	7,197	41.87	6.38	0.52	40.33	0.10	1.22
	2	32.64	32.81	25.32	9.23	6,860	39.90	6.61	0.50	42.60	0.09	1.16
	3	–	48.70	37.59	13.71	10,184	59.24	4.39	1.74	20.20	0.14	1.72
	4	–	56.44	43.56	–	11,802	68.65	5.08	0.86	23.41	0.16	1.99

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 2. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41694	1	31.80	31.28	25.70	11.22	6,475	38.66	6.40	0.50	42.04	0.11	1.18
	2	32.47	30.97	25.45	11.11	6,412	38.28	6.45	0.49	42.50	0.11	1.17
	3	–	45.87	37.68	16.45	9,495	56.69	4.16	0.73	20.24	0.16	1.73
	4	–	54.90	45.10	–	11,364	67.85	4.98	0.87	24.22	0.19	2.07
41695	1	31.96	33.33	27.33	7.38	7,142	42.45	6.63	0.55	41.81	0.08	1.17
	2	33.99	32.33	26.52	7.16	6,929	41.19	6.77	0.54	43.22	0.08	1.14
	3	–	48.98	40.18	10.84	10,497	62.39	4.49	0.82	19.74	0.11	1.72
	4	–	54.94	45.06	–	11,773	69.98	5.04	0.91	22.14	0.13	1.93
41696	1	30.78	32.45	26.10	10.67	6,857	40.35	6.27	0.53	41.21	0.06	0.97
	2	33.56	31.15	25.05	10.24	6,581	38.73	6.46	0.51	43.13	0.05	0.93
	3	–	46.88	37.71	15.41	9,906	58.30	4.08	0.77	20.05	0.08	1.40
	4	–	55.42	44.58	–	11,711	68.92	4.82	0.91	23.70	0.10	1.65
41697	1	32.40	32.59	26.79	8.22	6,903	40.40	6.47	0.50	42.93	0.29	1.49
	2	33.14	32.24	26.49	8.13	6,827	39.95	6.52	0.50	43.43	0.28	1.47
	3	–	48.21	39.63	12.16	10,211	59.76	4.20	0.74	20.94	0.43	2.21
	4	–	54.89	45.11	–	11,624	68.03	4.78	0.85	23.83	0.48	2.51
41698	1	31.51	32.43	22.80	13.26	6,620	38.36	6.40	0.51	40.17	0.18	1.31
	2	34.83	30.86	21.69	12.62	6,299	36.50	6.63	0.49	42.53	0.17	1.24
	3	–	47.35	33.29	19.36	9,665	56.00	4.19	0.75	17.79	0.26	1.91
	4	–	58.71	41.29	–	11,985	69.45	5.20	0.93	22.06	0.32	2.36
41699	1	31.84	30.28	23.61	14.27	6,341	37.15	6.07	0.63	40.12	0.37	1.77
	2	34.27	29.20	22.77	13.76	6,115	35.82	6.25	0.60	41.86	0.35	1.71
	3	–	44.43	34.64	20.93	9,304	54.50	3.68	0.92	17.38	0.54	2.60
	4	–	56.19	43.81	–	11,766	68.92	4.65	1.16	21.98	0.68	3.29

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 2. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41700	1	28.36	28.27	22.88	20.49	5,861	34.59	5.59	0.59	37.32	0.38	1.42
	2	30.85	27.29	22.08	19.78	5,657	33.39	5.78	0.57	39.11	0.37	1.37
	3	–	39.47	31.93	28.60	8,181	48.29	3.37	0.82	16.94	0.54	1.98
	4	–	55.28	44.72	–	11,459	67.63	4.72	1.15	23.73	0.75	2.77
41701	1	32.40	31.90	26.54	9.16	6,937	40.92	6.38	0.52	41.64	0.22	1.38
	2	34.00	31.14	25.91	8.95	6,773	39.95	6.49	0.51	42.76	0.21	1.34
	3	–	47.19	39.26	13.55	10,262	60.53	4.08	0.77	19.03	0.32	2.03
	4	–	54.59	45.41	–	11,871	70.02	4.72	0.89	22.02	0.37	2.35
41702	1	29.64	30.56	23.27	16.53	6,384	37.25	6.09	0.54	38.13	0.37	1.46
	2	31.26	29.85	22.74	16.15	6,237	36.39	6.20	0.53	39.29	0.36	1.43
	3	–	43.43	33.07	23.50	9,073	52.94	3.94	0.77	16.77	0.52	2.08
	4	–	56.77	43.23	–	11,859	69.20	5.15	1.00	21.93	0.68	2.72
41703	1	35.32	29.54	27.77	7.37	6,867	40.38	6.68	0.45	43.39	0.55	1.73
	2	37.81	28.40	26.70	7.09	6,602	38.83	6.85	0.43	45.14	0.53	1.67
	3	–	45.67	42.93	11.40	10,616	62.43	4.22	0.69	18.58	0.85	2.68
	4	–	51.54	48.46	–	11,982	70.47	4.76	0.78	20.97	0.96	3.02
41704	1	36.12	27.08	25.58	11.22	6,280	37.45	6.27	0.43	43.73	0.11	0.89
	2	36.82	26.79	25.30	11.09	6,211	37.04	6.33	0.43	44.23	0.11	0.89
	3	–	42.40	40.04	17.56	9,831	58.62	3.49	0.68	18.25	0.18	1.40
	4	–	51.43	48.57	–	11,925	71.11	4.24	0.82	22.13	0.21	1.70
41705	1	35.83	29.70	29.20	5.27	7,033	41.91	6.64	0.44	45.11	0.11	0.62
	2	37.81	28.79	28.29	5.11	6,816	40.62	6.78	0.43	46.46	0.11	0.60
	3	–	46.29	45.49	8.22	10,959	65.32	4.10	0.69	20.70	0.17	0.97
	4	–	50.44	49.56	–	11,941	71.17	4.47	0.75	22.56	0.19	1.06

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 2. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41706	1	36.30	29.62	29.29	4.79	6,991	41.90	6.68	0.40	45.96	0.01	0.28
	2	38.24	28.72	28.39	4.65	6,778	40.62	6.81	0.39	47.26	0.01	0.27
	3	–	46.50	45.98	7.52	10,975	65.77	4.11	0.62	21.54	0.01	0.44
	4	–	50.28	49.72	–	11,868	71.12	4.44	0.67	23.29	0.02	0.47
41707	1	35.59	29.77	29.27	5.37	6,970	42.10	6.54	0.44	44.96	0.08	0.59
	2	37.66	28.82	28.32	5.20	6,746	40.74	6.69	0.43	46.37	0.08	0.57
	3	–	46.22	45.44	8.34	10,822	65.35	3.97	0.68	20.75	0.12	0.91
	4	–	50.43	49.57	–	11,807	71.30	4.33	0.75	22.62	0.13	0.99
41708	1	32.28	29.61	25.25	12.86	6,607	39.85	6.05	0.46	39.64	0.11	1.14
	2	34.02	28.85	24.60	12.53	6,437	38.82	6.19	0.45	40.90	0.11	1.11
	3	–	43.73	37.28	18.99	9,756	58.84	3.61	0.68	16.19	0.16	1.69
	4	–	53.98	46.02	–	12,043	72.63	4.45	0.84	19.99	0.20	2.08

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 3. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 2

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41709	1	20.15	22.82	47.35	9.68	8,110	54.43	3.84	0.91	30.58	0.10	0.56
	2	30.26	19.93	41.35	8.46	7,083	47.54	4.77	0.79	37.95	0.09	0.49
	3	–	28.58	59.29	12.13	10,157	68.17	1.99	1.14	15.87	0.13	0.70
	4	–	32.53	67.47	–	11,558	77.58	2.26	1.29	18.08	0.15	0.79
41710	1	33.54	35.68	27.22	3.56	7,166	42.39	6.91	0.33	46.03	0.02	0.79
	2	39.44	32.51	24.81	3.24	6,530	38.63	7.29	0.30	49.83	0.01	0.72
	3	–	53.68	40.97	5.35	10,783	63.79	4.74	0.49	24.45	0.02	1.18
	4	–	56.71	43.29	–	11,392	67.39	5.01	0.52	25.83	0.03	1.25
41711	1	33.05	34.96	27.43	4.56	7,201	42.79	6.74	0.50	44.51	0.01	0.90
	2	39.67	31.50	24.72	4.11	6,489	38.56	7.18	0.45	48.89	0.01	0.81
	3	–	52.22	40.97	6.81	10,756	63.92	4.54	0.74	22.64	0.01	1.34
	4	–	56.04	43.96	–	11,542	68.59	4.87	0.80	24.30	0.01	1.44
41712	1	34.30	32.94	26.03	6.73	6,862	40.00	6.80	0.47	44.84	0.02	1.16
	2	36.39	31.89	25.20	6.52	6,644	38.73	63.94	0.46	46.24	0.02	1.12
	3	–	50.14	39.61	10.25	10,445	60.88	4.50	0.72	21.88	0.04	1.77
	4	–	55.86	44.14	–	11,638	67.83	5.02	0.80	24.38	0.04	1.97
41713	1	35.10	33.11	27.66	4.13	7,104	42.15	6.84	0.49	45.43	<0.02	0.95
	2	36.40	32.44	27.11	4.05	6,961	41.31	6.92	0.48	46.30	<0.02	0.93
	3	–	51.01	42.62	6.37	10,946	64.95	4.48	0.75	21.97	<0.02	1.47
	4	–	54.48	45.52	–	11,690	69.37	4.79	0.81	23.47	<0.02	1.57
41714	1	34.18	31.27	24.85	9.70	6,544	38.78	6.62	0.47	43.46	0.02	0.96
	2	34.44	31.14	24.75	9.67	6,518	38.63	6.64	0.47	43.64	0.02	0.96
	3	–	47.50	37.76	14.74	9,942	58.93	4.25	0.72	19.90	0.03	1.46
	4	–	55.72	44.28	–	11,662	69.12	4.98	0.84	23.35	0.03	1.71

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 3. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41715	1	33.86	34.07	26.59	5.48	7,189	42.21	6.79	0.53	44.09	<0.02	0.90
	2	35.83	33.05	25.81	5.31	6,975	40.95	6.92	0.52	45.43	<0.02	0.87
	3	–	51.51	40.21	8.28	10,870	63.81	4.54	0.81	21.20	<0.02	1.36
	4	–	56.16	43.84	–	11,851	69.57	4.95	0.88	23.11	<0.02	1.48
41716	1	34.12	33.59	26.95	5.34	7,175	42.05	6.82	0.57	44.59	0.01	0.63
	2	35.95	32.66	26.20	5.19	6,976	40.88	6.94	0.56	45.81	0.01	0.61
	3	–	50.99	40.90	8.11	10,892	63.83	4.56	0.87	21.68	0.01	0.95
	4	–	55.49	44.51	–	11,853	69.46	4.96	0.94	23.59	0.01	1.04
41717	1	33.81	32.83	26.51	6.85	6,984	40.96	6.70	0.54	44.06	0.05	0.89
	2	36.10	31.70	25.59	6.61	6,742	39.54	6.85	0.52	45.61	0.05	0.86
	3	–	49.61	40.05	10.34	10,552	61.89	4.40	0.82	21.21	0.08	1.35
	4	–	55.33	44.67	–	11,769	69.03	4.91	0.91	23.65	0.09	1.51
41718	1	30.78	31.72	23.03	14.47	6,471	37.59	6.56	0.52	39.79	0.10	1.07
	2	33.85	30.31	22.01	13.83	6,184	35.92	6.77	0.50	41.96	0.10	1.02
	3	–	45.82	33.27	20.91	9,348	54.30	4.50	0.75	17.99	0.15	1.55
	4	–	57.94	42.06	–	11,819	68.65	5.69	0.95	22.74	0.19	1.96
41719	1	32.16	28.04	20.24	19.56	5,670	33.48	6.25	0.51	39.38	0.04	0.82
	2	33.37	27.54	19.88	19.21	5,569	32.89	6.34	0.50	40.26	0.04	0.81
	3	–	41.33	29.84	28.83	8,359	49.36	3.91	0.75	15.94	0.06	1.22
	4	–	58.08	41.92	–	11,744	69.35	5.50	1.05	22.40	0.08	1.71
41720	1	32.97	30.20	23.13	13.70	6,285	37.07	6.43	0.56	41.37	0.06	0.88
	2	35.68	28.98	22.20	13.14	6,031	35.57	6.63	0.53	43.29	0.05	0.84
	3	–	45.05	34.52	20.43	9,376	55.30	4.09	0.83	18.04	0.09	1.31
	4	–	56.62	43.38	–	11,784	69.50	5.15	1.04	22.67	0.11	1.64

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 3. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41721	1	37.14	30.50	25.69	6.67	6,558	38.84	6.90	0.62	45.95	0.10	1.01
	2	37.98	30.09	25.35	6.58	6,471	38.32	6.96	0.61	46.53	0.09	1.00
	3	–	48.51	40.88	10.61	10,433	61.79	4.37	0.99	20.63	0.15	1.61
	4	–	54.27	45.73	–	11,671	69.12	4.89	1.11	23.08	0.17	1.80
41722	1	34.56	31.54	25.72	8.18	6,777	39.68	6.81	0.54	43.38	0.26	1.40
	2	36.66	30.53	24.89	7.92	6,560	38.41	6.95	0.53	44.84	0.25	1.36
	3	–	48.20	39.30	12.50	10,356	60.64	4.50	0.83	19.39	0.39	2.15
	4	–	55.09	44.91	–	11,835	69.30	5.14	0.95	22.16	0.45	2.45
41723	1	36.83	29.86	24.05	9.26	6,325	36.95	6.79	0.50	44.93	0.32	1.57
	2	35.76	30.36	24.46	9.42	6,432	37.57	6.72	0.51	44.19	0.32	1.59
	3	–	47.27	38.07	14.66	10,013	58.49	4.23	0.79	19.35	0.50	2.48
	4	–	55.38	44.62	–	11,732	68.53	4.96	0.93	22.67	0.59	2.91
41724	1	36.24	31.09	26.07	6.60	6,750	39.16	6.87	0.53	45.19	0.31	1.65
	2	36.71	30.86	25.88	6.55	6,700	38.87	6.91	0.53	45.50	0.31	1.64
	3	–	48.76	40.89	10.35	10,586	61.42	4.42	0.83	21.34	0.48	2.58
	4	–	54.39	45.61	–	11,808	68.50	4.93	0.93	22.76	0.54	2.88
41725	1	33.03	28.76	21.83	16.38	5,992	34.74	6.41	0.56	40.61	0.20	1.30
	2	33.74	28.46	21.59	16.21	5,928	34.37	6.46	0.55	41.12	0.19	1.29
	3	–	42.95	32.59	24.46	8,947	51.87	4.05	0.83	16.84	0.29	1.94
	4	–	56.86	43.14	–	11,845	68.67	5.37	1.10	22.29	0.39	2.57
41726	1	37.17	30.41	26.12	6.30	6,792	39.93	6.97	0.51	45.04	0.18	1.24
	2	39.79	29.14	25.03	6.04	6,509	38.27	7.15	0.49	46.86	0.17	1.19
	3	–	48.41	41.56	10.03	10,810	63.56	4.48	0.81	19.14	0.28	1.98
	4	–	53.80	46.20	–	12,016	70.65	4.98	0.90	21.28	0.31	2.20

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 3. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41727	1	34.92	30.27	25.45	9.36	6,533	38.42	6.64	0.44	43.88	0.18	1.26
	2	36.74	29.42	24.74	9.10	6,351	37.34	6.77	0.43	45.14	0.18	1.22
	3	–	46.51	39.11	14.38	10,039	59.03	4.21	0.68	19.77	0.28	1.93
	4	–	54.32	45.68	–	11,725	68.95	4.91	0.79	23.09	0.33	2.26
41728	1	32.34	29.73	23.00	14.93	6,247	36.20	6.34	0.40	40.38	0.30	1.75
	2	33.38	29.27	22.65	14.70	6,151	35.64	6.42	0.40	41.12	0.30	1.72
	3	–	43.94	33.99	22.07	9,234	53.50	4.02	0.60	17.23	0.45	2.58
	4	–	56.38	43.62	–	11,848	68.65	5.16	0.76	22.11	0.58	3.31
41729	1	29.08	27.72	20.56	22.64	5,731	33.21	5.82	0.45	36.26	0.47	1.62
	2	31.37	26.82	19.90	21.91	5,546	32.14	5.99	0.43	37.95	0.45	1.57
	3	–	39.08	29.00	31.92	8,082	46.83	3.62	0.63	14.71	0.66	2.29
	4	–	57.41	42.59	–	11,871	68.79	5.32	0.93	21.61	0.96	3.36

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 4. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 3

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41730	1	32.85	34.74	24.30	8.11	6,640	39.22	6.84	0.43	44.87	0.03	0.54
	2	37.66	32.25	22.57	7.52	6,164	36.41	7.15	0.39	48.02	0.03	0.50
	3	–	51.74	36.19	12.07	9,888	58.41	4.71	0.63	23.38	0.04	0.80
	4	–	58.84	41.16	–	11,245	66.43	5.36	0.72	26.59	0.05	0.91
41731	1	30.44	30.31	21.86	17.39	5,801	33.89	6.32	0.43	40.90	0.14	1.06
	2	33.18	29.12	20.99	16.71	5,573	32.55	6.52	0.42	42.79	0.14	1.02
	3	–	43.57	31.42	25.01	8,340	48.72	4.19	0.62	19.94	0.21	1.52
	4	–	58.10	41.90	–	11,121	64.96	5.59	0.83	26.58	0.28	2.03
41732	1	30.48	31.95	22.46	15.11	6,059	35.15	6.56	0.32	41.82	0.10	1.05
	2	33.26	30.68	21.56	14.50	5,817	33.74	6.74	0.31	43.70	0.09	1.01
	3	–	45.96	32.31	21.73	8,716	50.56	4.52	0.46	21.22	0.14	1.51
	4	–	58.73	41.27	–	11,136	64.60	5.78	0.58	27.10	0.18	1.93
41733	1	31.78	31.29	22.99	13.94	6,137	35.77	6.51	0.40	42.47	0.07	0.91
	2	34.14	30.21	22.19	13.46	5,925	34.54	6.67	0.39	44.07	0.07	0.88
	3	–	45.86	33.71	20.43	8,996	52.44	4.32	0.59	20.89	0.10	1.33
	4	–	57.64	42.36	–	11,307	65.90	5.43	0.74	26.25	0.13	1.68
41734	1	33.92	34.48	26.99	4.61	7,053	41.35	7.05	0.41	45.57	0.02	1.01
	2	37.82	32.45	25.39	4.34	6,637	38.91	7.30	0.39	48.12	0.02	0.95
	3	–	52.18	40.84	6.98	10,673	62.57	4.93	0.62	23.37	0.03	1.53
	4	–	56.10	43.90	–	11,474	67.26	5.30	0.67	25.13	0.04	1.64
41735	1	33.93	34.10	26.09	5.88	6,942	39.14	6.92	0.42	46.54	0.08	1.09
	2	45.93	27.91	21.35	4.81	5,681	32.03	7.70	0.35	54.22	0.06	0.89
	3	–	51.61	39.50	8.89	10,508	59.24	4.73	0.64	24.84	0.12	1.65
	4	–	56.65	43.35	–	11,533	65.03	5.20	0.70	27.26	0.13	1.81

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 4. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41736	1	33.01	33.96	26.71	6.32	6,889	40.52	6.86	0.48	44.88	0.02	0.93
	2	36.04	32.42	25.50	6.04	6,578	38.69	7.06	0.46	46.86	0.01	0.89
	3	–	50.70	39.86	9.44	10,284	60.49	4.73	0.72	23.23	0.02	1.39
	4	–	55.98	44.02	–	11,356	66.80	5.22	0.79	25.65	0.03	1.54
41737	1	33.12	33.29	26.42	7.17	6,893	39.84	6.81	0.41	44.35	0.24	1.41
	2	35.62	32.04	25.43	6.91	6,636	38.35	6.98	0.39	46.01	0.23	1.36
	3	–	49.77	39.50	10.73	10,307	59.58	4.65	0.61	22.33	0.36	2.11
	4	–	55.75	44.25	–	11,545	66.73	5.20	0.68	25.01	0.40	2.36
41738	1	31.45	32.38	25.44	10.73	6,651	38.90	6.51	0.49	42.35	0.02	1.01
	2	35.26	30.58	24.03	10.13	6,281	36.74	6.77	0.46	44.93	0.02	0.96
	3	–	47.24	37.11	15.65	9,702	56.75	4.37	0.72	21.03	0.04	1.48
	4	–	56.01	43.99	–	11,502	67.28	5.18	0.85	24.93	0.04	1.75
41739	1	32.98	34.83	26.77	5.42	7,184	41.97	7.16	0.46	44.20	0.01	0.78
	2	36.74	32.88	25.25	5.12	6,781	39.61	7.39	0.44	46.70	0.01	0.74
	3	–	51.98	39.93	8.09	10,720	62.62	5.18	0.69	22.25	0.01	1.17
	4	–	56.55	43.45	–	11,663	68.13	5.64	0.75	24.21	0.01	1.27
41740	1	32.90	32.26	25.90	8.94	6,744	39.67	6.67	0.54	43.28	0.04	0.91
	2	36.08	30.73	24.68	8.51	6,424	37.79	6.88	0.52	45.43	0.04	0.86
	3	–	48.08	38.60	13.32	10,051	59.12	4.45	0.81	20.95	0.06	1.35
	4	–	55.47	44.53	–	11,595	68.20	5.13	0.94	24.17	0.07	1.56
41741	1	31.76	35.34	27.84	5.06	7,369	43.30	6.79	0.52	43.41	0.07	0.93
	2	38.05	32.09	25.27	4.59	6,690	39.31	7.19	0.47	47.59	0.07	0.84
	3	–	51.79	40.79	7.42	10,799	63.45	4.73	0.76	22.28	0.11	1.36
	4	–	55.94	44.06	–	11,664	68.53	5.11	0.82	24.06	0.11	1.47

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 4. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41742	1	33.60	34.18	27.55	4.67	7,234	42.14	7.04	0.50	44.52	0.04	1.13
	2	38.60	31.61	25.47	4.32	6,689	38.97	7.35	0.46	47.85	0.04	1.04
	3	–	51.48	41.48	7.04	10,894	63.47	4.94	0.75	22.11	0.07	1.70
	4	–	55.37	44.63	–	11,718	68.27	5.32	0.81	23.78	0.07	1.82
41743	1	31.85	33.27	26.84	8.04	7,015	41.49	6.47	0.56	42.29	0.11	1.14
	2	35.40	31.54	25.43	7.63	6,649	39.33	6.72	0.53	44.71	0.10	1.08
	3	–	48.82	39.38	11.80	10,293	60.88	4.27	0.83	20.55	0.16	1.68
	4	–	55.35	44.65	–	11,671	69.02	4.84	0.94	23.30	0.18	1.90
41744	1	31.88	31.41	24.87	11.84	6,548	38.55	6.45	0.53	41.46	0.07	1.16
	2	35.79	29.61	23.44	11.16	6,172	36.34	6.72	0.50	44.18	0.07	1.10
	3	–	46.11	36.51	17.38	9,613	56.60	4.23	0.78	19.30	0.11	1.71
	4	–	55.81	44.19	–	11,635	68.50	5.12	0.95	23.36	0.13	2.07
41745	1	34.33	33.69	26.78	5.20	7,199	42.26	6.85	0.54	44.27	0.02	0.89
	2	37.08	32.28	25.65	4.99	6,898	40.49	7.03	0.51	46.13	0.02	0.85
	3	–	51.31	40.77	7.92	10,963	64.35	4.58	0.82	20.98	0.02	1.36
	4	–	55.72	44.28	–	11,906	69.88	4.97	0.89	22.79	0.03	1.47
41746	1	34.33	32.02	27.01	6.64	6,953	40.84	6.65	0.53	44.33	0.02	1.01
	2	36.17	31.12	26.25	6.46	6,758	39.70	6.77	0.52	45.57	0.02	0.98
	3	–	48.75	41.14	10.11	10,588	62.19	4.27	0.81	21.07	0.02	1.54
	4	–	54.24	45.76	–	11,779	69.19	4.75	0.90	23.45	0.03	1.71
41747	1	33.38	32.83	27.24	6.55	7,145	42.07	6.67	0.52	43.20	0.07	1.00
	2	36.54	31.27	25.95	6.24	6,806	40.07	6.88	0.49	45.36	0.06	0.95
	3	–	49.27	40.90	9.83	10,726	63.14	4.40	0.78	20.35	0.10	1.50
	4	–	54.64	45.36	–	11,895	70.03	4.88	0.86	22.56	0.11	1.67

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 4. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41748	1	32.83	33.07	25.46	8.64	6,997	38.23	6.65	0.58	44.82	0.05	1.09
	2	36.77	31.13	23.97	8.13	6,587	35.98	6.92	0.55	47.40	0.05	1.02
	3	–	49.23	37.91	12.86	10,417	56.91	4.43	0.86	23.31	0.08	1.62
	4	–	56.50	43.50	–	11,955	65.31	5.09	0.99	26.75	0.09	1.86
41749	1	34.19	33.73	26.44	5.64	7,216	42.36	6.83	0.66	43.78	0.03	0.73
	2	38.94	31.29	24.53	5.24	6,695	39.30	7.15	0.61	47.03	0.03	0.68
	3	–	51.25	40.17	8.58	10,965	64.36	4.57	1.00	20.38	0.05	1.11
	4	–	56.06	43.94	–	11,994	70.40	5.00	1.10	22.29	0.05	1.22
41750	1	31.81	31.39	24.97	11.83	6,671	38.87	6.58	0.59	41.11	0.09	1.03
	2	34.28	30.26	24.06	11.40	6,430	37.46	6.74	0.57	42.84	0.09	0.99
	3	–	46.04	36.62	17.34	9,784	57.00	4.42	0.86	18.86	0.14	1.51
	4	–	55.70	44.30	–	11,836	68.96	5.35	1.04	22.82	0.16	1.83
41826	1	31.78	31.62	24.39	12.21	6,644	38.53	6.37	0.54	41.23	0.16	1.11
	2	34.10	30.55	23.55	11.80	6,418	37.22	6.53	0.52	42.85	0.15	1.08
	3	–	46.36	35.74	17.90	9,739	56.48	4.13	0.79	19.07	0.24	1.63
	4	–	56.46	43.54	–	11,863	68.79	5.03	0.96	23.23	0.29	1.99
41827	1	33.49	29.42	24.12	12.97	6,274	36.67	6.49	0.67	41.66	0.58	1.54
	2	35.60	28.49	23.35	12.56	6,075	35.51	6.64	0.65	43.16	0.57	1.49
	3	–	44.24	36.26	19.50	9,433	55.14	4.13	1.00	17.92	0.88	2.31
	4	–	54.95	45.05	–	11,718	68.49	5.13	1.25	22.26	1.09	2.87
41828	1	33.46	31.01	26.03	9.50	6,917	40.24	6.71	0.59	41.12	0.58	1.85
	2	35.28	30.16	25.32	9.24	6,728	39.14	6.83	0.57	42.42	0.56	1.80
	3	–	46.61	39.11	14.28	10,396	60.47	4.45	0.88	17.14	0.87	2.78
	4	–	54.37	45.63	–	12,127	70.54	5.19	1.03	19.99	1.02	3.24

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 5. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 4

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41829	1	28.60	36.63	26.79	7.98	7,254	42.70	6.56	0.42	41.52	0.01	0.82
	2	35.20	33.24	24.32	7.24	6,584	38.76	6.98	0.38	45.89	0.01	0.75
	3	–	51.30	37.52	11.18	10,160	59.81	4.70	0.59	22.57	0.01	1.15
	4	–	57.76	42.24	–	11,439	67.33	5.29	0.67	25.41	0.01	1.30
41830	1	34.08	34.96	25.66	5.30	6,929	40.34	6.94	0.40	46.34	0.01	0.69
	2	38.14	32.81	24.08	4.97	6,502	37.85	7.20	0.37	48.96	0.01	0.64
	3	–	53.04	38.92	8.04	10,511	61.19	4.74	0.60	24.38	0.02	1.04
	4	–	57.68	42.32	–	11,430	66.54	5.15	0.65	26.52	0.02	1.13
41831	1	32.49	35.85	25.82	5.84	7,176	41.53	6.86	0.38	44.65	0.02	0.73
	2	34.41	34.83	25.08	5.68	6,972	40.35	6.98	0.37	45.91	0.02	0.70
	3	–	53.10	38.24	8.66	10,630	61.52	4.78	0.57	23.40	0.02	1.07
	4	–	58.13	41.87	–	11,637	67.35	5.23	0.62	25.62	0.03	1.18
41832	1	26.57	32.50	25.16	15.77	6,561	38.57	5.94	0.45	38.01	0.25	1.26
	2	31.99	30.10	23.30	14.61	6,077	35.72	6.32	0.42	41.76	0.23	1.16
	3	–	44.25	34.27	21.48	8,935	52.53	4.03	0.62	19.64	0.34	1.71
	4	–	56.36	43.64	–	11,379	66.89	5.14	0.78	25.00	0.44	2.18
41833	1	29.61	30.73	24.17	15.49	6,151	36.38	5.64	0.40	41.18	0.19	0.91
	2	31.90	29.73	23.39	14.98	5,951	35.20	5.82	0.39	42.73	0.19	0.89
	3	–	43.66	34.34	22.00	8,738	51.68	3.31	0.57	21.14	0.27	1.30
	4	–	55.98	44.02	–	11,203	66.26	4.24	0.73	27.10	0.35	1.67
41834	1	32.90	36.00	27.12	3.98	7,437	43.24	6.97	0.45	44.84	0.01	0.53
	2	36.64	33.99	25.61	3.76	7,023	40.83	7.20	0.42	47.29	0.01	0.50
	3	–	53.65	40.41	5.94	11,084	64.44	4.90	0.67	23.27	0.01	0.78
	4	–	57.03	42.97	–	11,784	68.51	5.20	0.71	24.74	0.01	0.83

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 5. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41835	1	31.85	35.72	27.47	4.96	7,409	43.65	6.83	0.43	43.46	0.01	0.66
	2	33.67	34.77	26.73	4.83	7,211	42.49	6.95	0.42	44.67	0.01	0.64
	3	–	52.42	40.30	7.28	10,871	64.05	4.80	0.63	22.27	0.01	0.97
	4	–	56.54	43.46	–	11,724	69.08	5.17	0.68	24.02	0.01	1.05
41836	1	33.57	34.04	27.82	4.57	7,190	42.13	7.03	0.45	45.20	0.03	0.62
	2	37.10	32.23	26.35	4.32	6,807	39.89	7.25	0.42	47.52	0.03	0.59
	3	–	51.24	41.89	6.87	10,823	63.42	4.93	0.67	23.17	0.04	0.93
	4	–	55.03	44.97	–	11,622	68.10	5.30	0.72	24.88	0.05	1.00
41837	1	33.72	33.98	28.25	4.05	7,293	42.93	6.92	0.45	44.95	0.01	0.70
	2	35.56	33.04	27.46	3.94	7,091	41.74	7.04	0.43	46.17	0.01	0.68
	3	–	51.27	42.62	6.11	11,003	64.77	4.75	0.67	22.64	0.01	1.06
	4	–	54.61	45.39	–	11,720	68.98	5.06	0.72	24.11	0.01	1.13
41838	1	34.08	33.95	28.45	3.52	7,283	42.76	6.99	0.49	45.76	0.01	0.48
	2	37.44	32.22	27.00	3.34	6,912	40.58	7.20	0.47	47.95	0.01	0.46
	3	–	51.50	43.16	5.34	11,048	64.86	4.82	0.75	23.50	0.01	0.73
	4	–	54.41	45.59	–	11,671	68.52	5.09	0.79	24.83	0.01	0.78
41839	1	32.78	32.50	26.20	8.52	6,943	40.32	6.87	0.50	43.11	0.01	0.69
	2	36.17	30.86	24.88	8.09	6,593	38.29	7.09	0.47	45.41	0.01	0.65
	3	–	48.34	38.99	12.67	10,329	59.98	4.76	0.74	20.82	0.01	1.02
	4	–	55.36	44.64	–	11,828	68.69	5.45	0.85	23.84	0.01	1.17
41840	1	34.56	32.75	28.10	4.59	7,121	41.73	7.01	0.49	45.36	0.01	0.81
	2	37.57	31.25	26.80	4.38	6,793	39.81	7.20	0.47	47.36	0.01	0.77
	3	–	50.05	42.93	7.02	10,881	63.77	4.80	0.76	22.42	0.02	1.23
	4	–	53.83	46.17	–	11,703	68.59	5.16	0.81	24.11	0.02	1.33

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 5. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41841	1	31.03	34.31	28.28	6.38	7,345	43.21	6.72	0.59	42.51	0.10	0.60
	2	34.57	32.55	26.83	6.05	6,968	40.99	6.95	0.56	44.88	0.09	0.57
	3	–	49.75	41.00	9.25	10,650	62.65	4.70	0.85	21.68	0.14	0.88
	4	–	54.81	45.19	–	11,735	69.03	5.18	0.94	23.88	0.16	0.97
41842	1	33.02	32.14	25.72	9.12	6,847	40.02	6.66	0.53	43.00	0.02	0.67
	2	35.17	31.11	24.90	8.82	6,627	38.73	6.81	0.51	44.47	0.02	0.65
	3	–	47.99	38.40	13.61	10,222	59.75	4.43	0.79	20.42	0.02	1.00
	4	–	55.55	44.45	–	11,833	69.16	5.13	0.91	23.63	0.03	1.16
41843	1	34.04	33.65	28.21	4.10	7,496	43.66	6.98	0.50	44.02	0.01	0.74
	2	36.47	32.41	27.17	3.95	7,219	42.05	7.13	0.48	45.67	0.01	0.72
	3	–	51.01	42.77	6.22	11,364	66.19	4.81	0.75	20.90	0.01	1.13
	4	–	54.39	45.61	–	12,117	70.58	5.13	0.80	22.29	0.01	1.20
41844	1	32.81	33.68	26.68	6.83	7,222	41.93	6.82	0.55	42.99	0.03	0.88
	2	35.50	32.33	25.61	6.56	6,933	40.26	7.00	0.53	44.82	0.03	0.84
	3	–	50.13	39.70	10.17	10,748	62.41	4.69	0.81	20.61	0.05	1.31
	4	–	55.80	44.20	–	11,965	69.47	5.22	0.91	22.95	0.05	1.45
41845	1	30.55	32.52	26.53	10.40	7,057	41.44	6.52	0.52	40.14	0.03	0.99
	2	31.26	32.19	26.26	10.29	6,984	41.01	6.56	0.51	40.64	0.03	0.98
	3	–	46.82	38.21	14.97	10,161	59.67	4.46	0.75	18.73	0.05	1.43
	4	–	55.07	44.93	–	11,950	70.17	5.24	0.88	22.03	0.06	1.68
41846	1	30.83	34.59	28.31	6.27	7,601	44.20	6.80	0.59	41.25	0.02	0.89
	2	34.73	32.64	26.72	5.91	7,172	41.71	7.05	0.56	43.93	0.01	0.84
	3	–	50.00	40.94	9.06	10,988	63.90	4.84	0.86	20.05	0.02	1.29
	4	–	54.98	45.02	–	12,083	70.26	5.32	0.94	22.05	0.03	1.42

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 6. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 5

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41847	1	31.67	33.82	24.55	9.96	6,704	38.70	6.60	0.41	43.37	0.08	0.96
	2	33.48	32.92	23.90	9.70	6,527	37.68	6.72	0.40	44.57	0.07	0.94
	3	–	49.49	35.93	14.58	9,812	56.64	4.47	0.60	22.30	0.11	1.41
	4	–	57.94	42.06	–	11,486	66.31	5.23	0.70	26.11	0.13	1.65
41848	1	32.61	34.53	24.95	7.91	6,648	38.81	6.63	0.40	45.05	0.20	1.19
	2	33.21	34.22	24.73	7.84	6,589	38.47	6.67	0.40	45.44	0.20	1.18
	3	–	51.23	37.03	11.74	9,865	57.59	4.42	0.60	23.88	0.30	1.77
	4	–	58.05	41.95	–	11,178	65.25	5.01	0.68	27.05	0.34	2.01
41849	1	29.97	31.32	22.41	16.30	5,928	34.75	6.20	0.42	41.42	0.09	0.91
	2	31.06	30.83	22.06	16.05	5,836	34.21	6.28	0.42	42.15	0.09	0.90
	3	–	44.72	32.00	23.28	8,466	49.62	4.07	0.60	21.13	0.13	1.30
	4	–	58.29	41.71	–	11,034	64.67	5.30	0.79	27.55	0.17	1.69
41850	1	33.36	34.01	25.91	6.72	6,808	40.24	6.75	0.46	44.93	0.02	0.89
	2	33.86	33.76	25.71	6.67	6,757	39.94	6.79	0.46	45.26	0.02	0.88
	3	–	51.04	38.87	10.09	10,217	60.39	4.53	0.69	22.96	0.02	1.34
	4	–	56.77	43.23	–	11,363	67.16	5.04	0.77	25.54	0.03	1.49
41851	1	34.33	33.68	25.88	6.11	6,693	39.43	6.87	0.41	46.47	0.02	0.71
	2	34.88	33.40	25.66	6.06	6,637	39.10	6.91	0.41	46.82	0.02	0.70
	3	–	51.29	39.41	9.30	10,192	60.05	4.61	0.63	24.34	0.02	1.08
	4	–	56.55	43.45	–	11,237	66.21	5.09	0.69	26.83	0.03	1.19
41852	1	32.12	34.59	25.90	7.39	6,923	40.55	6.74	0.41	43.85	0.02	1.06
	2	33.63	33.82	25.32	7.23	6,769	39.65	6.84	0.40	44.85	0.02	1.04
	3	–	50.96	38.15	10.89	10,199	59.74	4.63	0.61	22.58	0.04	1.56
	4	–	57.18	42.82	–	11,445	67.03	5.20	0.68	25.33	0.04	1.76

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 6. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41853	1	28.16	27.62	18.51	25.71	4,992	29.68	5.71	0.36	37.59	0.11	0.96
	2	27.27	27.96	18.74	26.03	5,054	30.05	5.64	0.36	36.95	0.11	0.97
	3	–	38.45	25.77	35.78	6,948	41.32	3.56	0.50	17.51	0.15	1.33
	4	–	59.87	40.13	–	10,821	64.35	5.54	0.78	27.26	0.23	2.07
41854	1	31.80	31.20	22.55	14.45	6,134	35.91	6.33	0.39	41.80	0.10	1.11
	2	32.11	31.06	22.44	14.39	6,107	35.75	6.36	0.39	42.01	0.10	1.11
	3	–	45.75	33.06	21.19	8,995	52.66	4.07	0.57	19.87	0.14	1.63
	4	–	58.06	41.94	–	11,413	66.82	5.17	0.73	25.22	0.18	2.07
41855	1	32.94	32.73	25.30	9.03	6,676	38.87	6.73	0.48	43.38	0.40	1.51
	2	33.47	32.47	25.10	8.96	6,623	38.56	6.77	0.48	43.74	0.39	1.49
	3	–	48.80	37.73	13.47	9,955	57.96	4.54	0.72	21.07	0.59	2.25
	4	–	56.40	43.60	–	11,504	66.98	5.25	0.83	24.34	0.69	2.60
41856	1	33.04	33.35	26.17	7.44	6,920	40.35	6.75	0.45	43.67	0.38	1.34
	2	34.07	32.84	25.76	7.33	6,814	39.73	6.81	0.44	44.37	0.38	1.32
	3	–	49.81	39.07	11.12	10,335	60.27	4.55	0.67	21.40	0.57	2.00
	4	–	56.04	43.96	–	11,627	67.80	5.12	0.75	24.08	0.64	2.25
41857	1	32.34	32.57	26.01	9.08	6,836	39.86	6.55	0.52	42.61	0.11	1.38
	2	33.66	31.94	25.50	8.90	6,703	39.08	6.64	0.51	43.51	0.11	1.36
	3	–	48.14	38.44	13.42	10,104	58.91	4.34	0.77	20.52	0.16	2.04
	4	–	55.60	44.40	–	11,670	68.04	5.01	0.89	23.70	0.19	2.36
41858	1	31.55	33.72	28.40	6.33	7,169	41.91	6.68	0.46	43.24	0.17	1.39
	2	33.43	32.79	27.63	6.15	6,972	40.76	6.80	0.44	44.49	0.17	1.36
	3	–	49.26	41.50	9.24	10,473	61.23	4.60	0.67	22.23	0.25	2.04
	4	–	54.27	45.73	–	11,539	67.46	5.06	0.74	24.50	0.28	2.24

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 6. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41859	1	32.74	30.87	24.27	12.12	6,396	37.50	6.56	0.43	42.09	0.19	1.30
	2	33.24	30.64	24.09	12.03	6,349	37.22	6.60	0.42	42.44	0.19	1.29
	3	–	45.89	36.09	18.02	9,509	55.75	4.31	0.63	17.92	0.28	1.93
	4	–	55.98	44.02	–	11,600	68.01	5.26	0.77	23.61	0.35	2.35

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. Proximate and Ultimate Analyses of Raw Coals, Drill Hole No. 6

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41860	1	23.78	25.67	14.24	36.31	4,212	25.03	5.14	0.33	32.48	0.07	0.71
	2	24.03	25.58	14.20	36.19	4,198	24.94	5.16	0.33	32.68	0.07	0.70
	3	–	33.67	18.69	47.64	5,526	32.83	3.25	0.44	14.91	0.10	0.93
	4	–	64.31	35.69	–	10,553	62.70	6.21	0.83	28.49	0.18	1.77
41861	1	27.98	37.95	26.38	7.69	7,380	43.00	6.74	0.45	41.16	0.11	0.96
	2	29.94	36.92	25.66	7.48	7,179	41.83	6.86	0.44	42.45	0.11	0.94
	3	–	52.69	36.68	10.68	10,247	59.70	5.02	0.62	22.64	0.16	1.34
	4	–	58.99	41.01	–	11,472	66.84	5.61	0.70	25.36	0.17	1.49
41862	1	27.34	39.76	28.38	4.52	7,858	45.68	6.86	0.59	41.60	0.02	0.75
	2	29.25	38.72	27.63	4.40	7,651	44.48	6.97	0.58	42.84	0.02	0.73
	3	–	54.72	39.06	6.22	10,814	62.86	5.23	0.82	23.83	0.02	1.04
	4	–	58.35	41.65	–	11,532	67.04	5.58	0.87	25.40	0.02	1.11
41863	1	28.94	34.39	23.07	13.60	6,529	37.65	6.47	0.51	40.16	0.40	1.61
	2	31.36	33.22	22.29	13.13	6,307	36.37	6.63	0.49	41.82	0.39	1.56
	3	–	48.40	32.47	19.13	9,188	52.98	4.54	0.71	20.37	0.56	2.27
	4	–	59.85	40.15	–	11,362	65.52	5.62	0.88	25.17	0.70	2.81
41864	1	30.35	29.47	19.48	20.70	5,362	31.34	5.74	0.34	40.50	0.46	1.38
	2	32.23	28.68	18.95	20.14	5,218	30.49	5.88	0.33	41.82	0.45	1.34
	3	–	42.32	27.96	29.72	7,699	45.00	3.36	0.49	19.45	0.66	1.98
	4	–	60.21	39.79	–	10,954	64.02	4.78	0.69	27.69	0.94	2.82
41865	1	27.69	25.73	15.63	30.95	4,398	25.73	5.59	0.37	36.54	0.18	0.82
	2	21.55	27.92	16.95	33.58	4,771	27.92	5.11	0.40	32.10	0.20	0.89
	3	–	35.59	21.61	42.80	6,082	35.59	3.44	0.51	16.52	0.25	1.14
	4	–	62.22	37.78	–	10,633	62.22	6.02	0.88	28.89	0.44	1.99

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41866	1	30.52	22.10	13.56	33.82	3,671	22.69	5.58	0.35	37.20	0.03	0.36
	2	28.20	22.84	14.01	34.95	3,794	23.45	5.39	0.36	35.47	0.03	0.38
	3	–	31.81	19.51	48.68	5,284	32.65	3.11	0.50	14.53	0.04	0.53
	4	–	61.99	38.01	–	10,295	63.62	6.06	0.98	28.32	0.08	1.02
41867	1	27.82	32.04	22.18	17.96	5,990	35.09	6.12	0.46	39.32	0.19	1.05
	2	23.00	34.18	23.66	19.16	6,390	37.43	5.78	0.49	36.02	0.20	1.12
	3	–	44.39	30.73	24.88	8,299	48.61	4.16	0.64	20.25	0.26	1.46
	4	–	59.10	40.90	–	11,048	64.71	5.54	0.85	26.96	0.34	1.94
41868	1	30.18	35.46	25.16	9.20	6,870	39.81	6.70	0.42	42.71	0.11	1.16
	2	30.78	35.16	24.94	9.12	6,811	39.46	6.74	0.42	43.11	0.11	1.15
	3	–	50.79	36.03	13.18	9,839	57.01	4.75	0.61	22.79	0.16	1.66
	4	–	58.50	41.50	–	11,332	65.66	5.48	0.70	26.25	0.19	1.91
41869	1	29.80	33.12	24.07	13.01	6,410	36.50	6.51	0.46	42.57	0.03	0.95
	2	31.31	32.40	23.56	12.73	6,272	35.71	6.61	0.45	43.57	0.03	0.93
	3	–	47.17	34.29	18.54	9,131	51.99	4.52	0.65	22.95	0.04	1.35
	4	–	57.91	42.09	–	11,209	63.83	5.55	0.80	28.16	0.05	1.66
41870	1	29.46	31.64	20.42	18.48	5,936	34.67	6.32	0.42	39.10	0.32	1.01
	2	30.02	31.39	20.26	18.33	5,889	34.39	6.36	0.41	39.51	0.31	1.00
	3	–	44.86	28.94	26.20	8,415	49.14	4.29	0.59	18.34	0.45	1.44
	4	–	60.78	39.22	–	11,402	66.59	5.82	0.80	24.85	0.61	1.94
41871	1	30.91	33.94	25.93	9.22	6,741	39.81	6.78	0.43	42.90	0.04	0.86
	2	31.48	33.66	25.71	9.15	6,685	39.48	6.82	0.42	43.27	0.04	0.86
	3	–	49.12	37.53	13.35	9,757	57.61	4.81	0.62	22.36	0.05	1.25
	4	–	56.69	43.31	–	11,260	66.49	5.56	0.71	25.80	0.06	1.44

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41872	1	29.92	34.62	25.04	10.42	6,777	39.45	6.67	0.53	42.11	0.02	0.82
	2	31.43	33.87	24.50	10.20	6,631	38.60	6.77	0.52	43.10	0.02	0.81
	3	–	49.40	35.73	14.87	9,670	56.30	4.74	0.75	22.16	0.03	1.18
	4	–	56.03	41.97	–	11,359	66.13	5.57	0.89	26.03	0.04	1.38
41873	1	30.06	34.76	24.34	10.84	6,852	39.72	6.68	0.48	41.18	0.17	1.10
	2	31.14	34.22	23.97	10.67	6,747	39.11	6.75	0.47	41.92	0.16	1.08
	3	–	49.70	34.80	15.50	9,798	56.79	4.74	0.69	20.71	0.24	1.57
	4	–	58.81	41.19	–	11,594	67.21	5.61	0.82	24.50	0.28	1.86
41874	1	30.69	33.02	25.04	11.25	6,642	38.32	6.60	0.45	42.46	0.42	0.92
	2	30.78	32.98	25.00	11.24	6,634	38.27	6.61	0.45	42.51	0.42	0.92
	3	–	47.64	36.12	16.24	9,584	55.29	4.57	0.64	21.93	0.60	1.33
	4	–	56.87	43.13	–	11,441	66.01	5.45	0.77	26.18	0.72	1.59
41875	1	27.15	32.10	22.48	18.27	6,192	36.08	6.14	0.50	37.35	0.02	1.66
	2	29.32	31.15	21.80	17.73	6,008	35.00	6.29	0.49	38.88	0.02	1.61
	3	–	44.07	30.85	25.08	8,500	49.52	4.26	0.69	18.17	0.03	2.28
	4	–	58.82	41.18	–	11,345	66.10	5.68	0.92	24.26	0.04	3.04
41876	1	32.33	31.54	23.83	12.30	6,188	36.05	6.50	0.45	43.27	0.15	1.43
	2	32.94	31.26	23.61	12.19	6,132	35.73	6.55	0.45	43.66	0.15	1.42
	3	–	46.61	35.22	18.17	9,144	53.28	4.26	0.67	21.51	0.22	2.11
	4	–	56.97	43.03	–	11,175	65.11	5.21	0.82	26.28	0.26	2.58
41877	1	31.87	35.40	26.92	5.81	7,182	42.04	6.98	0.53	43.61	0.07	1.03
	2	30.09	36.33	27.62	5.96	7,369	43.14	6.67	0.55	42.62	0.08	1.06
	3	–	51.96	39.51	8.53	10,541	61.70	5.01	0.79	22.45	0.11	1.52
	4	–	56.81	43.19	–	11,524	67.45	5.47	0.86	24.56	0.12	1.66

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41878	1	32.47	34.17	27.35	6.01	7,105	42.01	6.89	0.51	43.81	0.01	0.77
	2	29.64	35.60	28.49	6.27	7,402	43.77	6.71	0.53	41.92	0.01	0.80
	3	–	50.60	40.49	8.91	10,521	62.21	4.83	0.75	22.16	0.01	1.14
	4	–	55.55	44.45	–	11,549	68.29	5.30	0.86	24.33	0.01	1.25
41879	1	31.76	31.51	25.06	11.67	6,449	37.89	6.62	0.50	42.39	0.21	0.93
	2	32.42	31.21	24.82	11.55	6,386	37.52	6.67	0.49	42.85	0.21	0.92
	3	–	46.18	36.73	17.09	9,450	55.52	4.50	0.73	20.80	0.31	1.36
	4	–	55.70	44.30	–	11,398	66.97	5.43	0.88	25.08	0.37	1.64
41880	1	31.60	35.40	27.09	5.91	7,326	42.54	6.97	0.54	43.03	0.07	1.01
	2	32.84	34.76	26.60	5.80	7,194	41.77	7.05	0.53	43.86	0.07	0.99
	3	–	51.75	39.61	8.64	10,711	62.20	5.02	0.79	21.88	0.10	1.47
	4	–	56.65	43.35	–	11,724	68.08	5.49	0.86	23.96	0.11	1.61
41881	1	32.71	30.08	24.33	12.88	6,173	35.97	6.60	0.47	43.16	0.04	0.92
	2	32.66	30.10	24.35	12.89	6,178	36.00	6.59	0.47	43.12	0.04	0.93
	3	–	44.71	36.15	19.14	9,174	53.46	4.36	0.70	20.97	0.05	1.37
	4	–	55.29	44.71	–	11,346	66.11	5.39	0.87	25.93	0.07	1.70
41882	1	32.92	33.04	27.07	6.97	6,916	40.19	6.81	0.50	44.18	0.16	1.35
	2	33.10	32.95	27.00	6.95	6,896	40.08	6.82	0.50	44.30	0.15	1.35
	3	–	49.26	40.35	10.39	10,310	59.91	4.66	0.75	22.28	0.23	2.01
	4	–	54.97	45.03	–	11,506	66.86	5.20	0.84	24.85	0.26	2.25
41883	1	32.27	33.67	27.14	6.92	7,008	40.59	6.84	0.50	43.96	0.17	1.19
	2	32.40	33.60	27.09	6.91	6,995	40.52	6.85	0.50	44.03	0.17	1.19
	3	–	49.71	40.07	10.22	10,347	59.94	4.77	0.75	22.56	0.26	1.76
	4	–	55.36	44.64	–	11,525	66.76	5.31	0.83	25.14	0.28	1.96

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41884	1	34.36	31.36	26.59	7.69	6,624	38.67	6.83	0.50	45.00	0.12	1.31
	2	33.41	31.82	26.97	7.80	6,720	39.23	6.77	0.51	44.36	0.12	1.33
	3	–	47.78	40.51	11.71	10,092	58.91	4.54	0.77	22.07	0.18	2.00
	4	–	54.12	45.88	–	11,431	66.72	5.15	0.87	25.00	0.21	2.26
41885	1	26.35	29.68	21.74	22.23	5,772	33.39	5.82	0.50	36.72	0.31	1.34
	2	26.34	29.69	21.74	22.23	5,772	33.39	5.82	0.50	36.72	0.31	1.34
	3	–	40.30	29.52	30.18	7,836	45.33	3.90	0.68	18.09	0.43	1.82
	4	–	57.72	42.28	–	11,224	64.93	5.58	0.98	25.91	0.61	2.60
41886	1	28.35	26.29	19.27	26.09	4,919	30.00	5.75	0.50	36.19	0.55	1.47
	2	28.64	26.18	19.19	25.99	4,899	29.88	5.77	0.50	36.40	0.54	1.46
	3	–	36.69	26.89	36.42	6,865	41.87	3.59	0.70	15.37	0.76	2.05
	4	–	57.70	42.30	–	10,797	65.86	5.65	1.10	24.16	1.20	3.23
41887	1	32.53	33.16	28.40	5.91	7,194	42.13	6.83	0.62	43.47	0.07	1.04
	2	33.80	32.48	27.93	5.79	7,048	41.28	6.92	0.61	44.38	0.07	1.02
	3	–	49.14	42.10	8.76	10,663	62.44	4.73	0.92	21.60	0.10	1.55
	4	–	53.86	46.14	–	11,687	68.44	5.18	1.01	23.68	0.11	1.69
41888	1	31.16	32.84	25.68	10.32	6,854	40.00	6.75	0.57	41.57	0.02	0.79
	2	33.98	31.49	24.64	9.89	6,574	38.37	6.94	0.55	43.50	0.02	0.75
	3	–	47.71	37.30	14.99	9,957	58.11	4.75	0.83	20.18	0.03	1.14
	4	–	56.11	43.89	–	11,712	68.36	5.58	0.98	23.74	0.04	1.34
41889	1	32.23	33.67	27.33	6.77	7,173	41.95	6.86	0.62	42.60	0.18	1.20
	2	32.87	33.35	27.07	6.71	7,105	41.56	6.90	0.61	43.03	0.17	1.19
	3	–	49.69	40.31	10.00	10,584	61.90	4.80	0.91	20.62	0.26	1.77
	4	–	55.20	44.80	–	11,759	68.78	5.33	1.01	22.91	0.29	1.97

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41890	1	31.45	34.38	27.32	6.85	7,245	41.52	6.78	0.39	43.48	0.22	0.98
	2	32.98	33.62	26.71	6.69	7,084	40.80	6.88	0.38	44.29	0.21	0.96
	3	–	50.16	39.85	9.99	10,570	60.57	4.76	0.57	22.68	0.32	1.43
	4	–	55.73	44.27	–	11,743	67.30	5.29	0.64	25.19	0.35	1.58
41891	1	31.08	32.97	24.66	11.29	6,831	39.36	6.72	0.63	40.61	0.07	1.39
	2	32.19	32.44	24.26	11.11	6,721	38.73	6.79	0.62	41.38	0.07	1.37
	3	–	47.84	35.78	16.38	9,911	57.11	4.70	0.92	18.87	0.11	2.02
	4	–	57.21	42.79	–	11,853	68.30	5.62	1.10	22.56	0.13	2.42
41892	1	31.62	32.71	26.74	8.93	6,927	39.76	6.75	0.57	43.10	0.03	0.89
	2	32.33	32.37	26.47	8.83	6,855	39.35	6.79	0.56	43.59	0.03	0.88
	3	–	47.84	39.11	13.05	10,130	58.15	4.69	0.83	21.98	0.04	1.30
	4	–	55.02	44.98	–	11,651	66.88	5.39	0.96	25.27	0.05	1.50
41893	1	31.27	30.36	32.99	15.38	6,245	36.40	6.56	0.58	40.23	0.06	0.85
	2	32.41	29.85	22.61	15.13	6,141	35.79	6.64	0.58	41.03	0.06	0.83
	3	–	44.17	33.45	22.38	9,086	52.96	4.46	0.85	18.12	0.09	1.23
	4	–	56.91	43.09	–	11,706	68.23	5.74	1.10	23.34	0.11	1.59
41894	1	33.24	34.06	27.31	5.39	7,248	42.44	6.99	0.72	43.72	0.02	0.74
	2	34.66	33.33	26.73	5.28	7,093	41.54	7.08	0.70	44.68	0.02	0.72
	3	–	51.02	40.90	8.08	10,858	63.58	4.90	1.07	21.27	0.03	1.10
	4	–	55.50	44.50	–	11,810	69.16	5.33	1.17	23.14	0.04	1.20
41895	1	32.47	33.32	26.43	7.78	6,952	40.74	6.78	0.67	43.20	0.02	0.83
	2	32.88	33.12	26.27	7.73	6,910	40.50	6.81	0.66	43.48	0.02	0.82
	3	–	49.35	39.13	11.52	10,295	60.33	4.66	0.99	21.27	0.03	1.23
	4	–	55.77	44.23	–	11,635	68.18	5.26	1.12	24.05	0.04	1.39

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Table 7. (continued)

Sample Number	Basis*	Moisture %	Volatile Matter %	Fixed Carbon %	Ash %	Heating Value Btu/lb	C %	H %	N %	O %	Sulfur % Pyritic	Sulfur % Total
41896	1	30.78	32.07	23.87	13.28	6,679	38.32	6.60	0.69	40.03	0.16	1.08
	2	31.42	31.78	23.65	13.15	6,618	37.97	6.64	0.68	40.49	0.16	1.07
	3	–	46.33	34.49	19.18	9,649	55.37	4.56	0.99	18.34	0.24	1.56
	4	–	57.33	42.67	–	11,939	68.51	5.64	1.23	22.69	0.29	1.93
41897	1	32.44	31.27	24.81	11.48	6,577	37.87	6.59	0.71	41.86	0.52	1.49
	2	33.16	30.94	24.54	11.36	6,506	37.47	6.64	0.70	42.36	0.51	1.47
	3	–	46.29	36.72	16.99	9,734	56.06	4.39	1.05	19.31	0.77	2.20
	4	–	55.76	44.24	–	11,727	67.53	5.29	1.26	23.27	0.92	2.65

*Basis: 1 Equilibrium Moisture
2 As Received
3 Moisture Free
4 Moisture and Ash Free

Tables 8-13 Overview

Tables 8-13 follow on pages 46 - 50. Hardgrove grindability index (HGI) data from Tables 8-13, are consistent with coal of subbituminous rank. Despite the range of HGI values observed, 23 to 71, approximately 90% of the values lie within an HGI range of 25-47. HGI averages within drill holes ranged from 30 to 38 with an overall average for all 147 samples of 35. These values indicate that raw coal from the Little Tonzona field would be relatively hard to grind i.e., require larger amounts of energy for pulverization.

Table 8. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 1

Sample Number	H.G.I.	Moisture, %
41676	35	10.4
41677	68	5.7
41678	24	14.7
41679	58	8.0
41680	26	13.7
41681	23	16.7
41682	28	11.4
41683	39	14.4
41684	34	10.0
41685	46	11.6
41686	30	17.2
41687	28	13.2
41688	28	13.5
41689	28	12.9
41690	26	16.4
41691	26	14.0
41692	28	13.8
41693	27	14.4
41694	30	12.5
41695	27	16.1
41696	32	16.3
41697	26	15.5
41698	34	11.8
41699	39	9.2
41700	49	9.5
41701	31	12.9
41702	42	10.1
41703	31	14.1
41704	52	7.6
41705	36	11.1
41706	38	10.2
41707	40	8.5
41708	44	9.1

Table 9. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 2

Sample Number	H.G.I.	Moisture, %
41709	55	11.1
41710	32	11.9
41711	36	12.0
41712	33	11.7
41713	32	15.2
41714	38	11.8
41715	34	15.1
41716	26	17.5
41717	28	16.8
41718	38	11.9
41719	56	9.7
41720	53	7.9
41721	32	14.3
41722	32	14.8
41723	36	13.4
41724	29	18.0
41725	42	9.6
41726	40	9.7
41727	43	11.0
41728	36	16.6
41729	54	8.43

Table 10. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 3

Sample Number	H.G.I.	Moisture, %
41730	29	21.3
41731	35	16.9
41732	35	19.5
41733	37	10.2
41734	27	19.7
41735	24	17.2
41736	28	16.9
41737	29	13.4
41738	34	14.6
41739	28	16.3
41740	28	19.6
41741	29	15.7
41742	33	15.0
41743	28	17.9
41744	44	9.6
41745	31	17.9
41746	32	14.3
41747	31	16.8
41748	32	15.2
41749	29	18.3
41750	38	12.2
41826	31	17.8
41827	30	19.1
41828	27	19.9

Table 11. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 4

Sample Number	H.G.I.	Moisture, %
41829	28	7.6
41830	30	8.0
41831	32	9.0
41832	46	4.3
41833	44	9.5
41834	33	9.7
41835	32	10.7
41836	32	4.9
41837	33	7.6
41838	37	8.4
41839	37	4.2
41840	32	12.2
41841	36	7.7
41842	38	8.7
41843	35	8.3
41844	31	13.5
41845	35	10.6
41846	36	8.2

Table 12. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 5

Sample Number	H.G.I.	Moisture, %
41847	26	19.2
41848	26	9.6
41849	32	14.3
41850	24	16.0
41851	28	10.8
41852	24	19.6
41853	44	11.0
41854	31	17.9
41855	28	16.3
41856	26	13.7
41857	30	15.3
41858	29	12.3
41859	40	11.2

Table 13. Hardgrove Grindability Index of Raw Coals, Drill Hole No. 6

Sample Number	H.G.I.	Moisture, %
41860	60	5.2
41861	29	9.4
41862	25	9.3
41863	34	6.6
41864	28	9.9
41865	35	9.3
41866	61	6.9
41867	34	7.8
41868	27	15.5
41869	32	9.9
41870	39	13.8
41871	32	9.1
41872	29	12.8
41873	25	15.0
41874	30	14.8
41875	36	13.1
41876	38	13.9
41877	27	16.4
41878	35	7.0
41879	36	11.7
41880	31	10.0
41881	41	6.0
41882	32	13.0
41883	35	5.2
41884	35	7.6
41885	51	7.4
41886	71	7.5
41887	35	6.8
41888	37	6.1
41889	34	7.9
41890	34	6.2
41891	38	7.7
41892	35	9.0
41893	41	5.7
41894	35	7.9
41895	35	6.2
41896	48	9.1
41897	41	6.3

Tables 14-19 Overview

Tables 14-19 follows on pages 52 - 59. Tables 14-19 show the chemical composition of ash of the coal samples. Ash is the product of heating the inorganic constituents during coal combustion. Ash is prepared by heating coal to 750°C in a well ventilated furnace. The resulting residue is analyzed for eight major elements and three minor elements expressed as oxides . The major oxides are SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, and SO_3. Minor oxides are TiO_2, MnO and P_2O_5.

The relationship of ash composition to its behavior during coal combustion operations has been correlated. Emperical equations are available to successfully predict ash behavior from its composition. The low sodium content of Little Tonzona coals indicates their low boiler fouling propensity.

The high calcium content would likely fix much of the sulfur in the ash and reduce sulfur emissions. High calcium levels would also reduce the boiler fowling propensity of the ash due to the coal's sulfur content. Calculations using emperical formulas show that the ash will have intermediate slagging characteristics. This can also be seen from the ash fusibility data (Tables 20-25).

Table 14. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 1

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41676	44.5	18.0	4.1	2.6	14.5	0.1	1.2	1.0	8.7	0.18	1.5
41677	54.3	26.1	5.5	2.3	4.0	0.1	3.0	1.1	2.4	0.20	0.3
41678	28.9	20.7	5.0	3.4	20.1	0.1	1.0	0.7	15.4	0.16	0.2
41679	54.7	29.3	2.9	1.9	4.0	0.1	1.7	1.1	0.9	0.14	0.6
41680	49.7	19.7	4.2	2.6	12.4	0.1	1.2	0.9	8.7	0.18	0.3
41681	18.4	16.9	5.3	3.9	29.2	0.1	0.6	0.5	19.3	0.18	0.2
41682	35.0	23.2	4.7	2.5	15.1	0.1	0.8	0.8	12.1	0.18	0.3
41683	45.5	26.7	4.2	2.1	7.3	0.1	1.8	1.0	7.8	0.18	0.4
41684	40.3	27.7	5.1	2.6	9.7	0.1	1.8	1.0	7.6	0.20	0.4
41685	55.9	23.2	4.5	2.3	5.4	0.1	1.7	1.1	3.8	0.20	0.3
41686	32.3	24.8	5.4	3.1	13.9	0.1	1.1	1.0	10.2	0.15	2.5
41687	34.3	24.3	9.9	2.6	12.1	0.1	1.2	0.8	10.5	0.16	0.5
41688	35.3	17.0	6.7	3.2	17.7	0.1	1.2	0.7	15.0	0.24	0.1
41689	26.6	20.1	5.8	3.5	21.5	0.1	1.0	0.7	14.1	0.15	0.2
41690	24.1	13.4	10.3	3.0	19.0	0.1	0.5	0.6	22.1	0.12	1.4
41691	28.8	22.4	5.5	3.3	19.0	0.1	1.2	0.8	14.0	0.18	0.6
41692	26.3	20.1	5.9	3.2	19.8	0.1	1.0	0.9	15.3	0.14	2.4
41693	34.2	17.7	6.2	2.8	16.8	0.1	1.2	0.7	14.5	0.17	1.0
41694	38.8	21.8	5.9	2.8	13.0	0.1	1.3	0.8	10.5	0.18	0.8
41695	18.3	17.0	7.2	3.6	24.3	0.1	0.7	0.5	22.0	0.17	0.5
41696	34.1	22.7	5.2	3.0	15.6	0.1	1.1	0.8	10.6	0.15	0.3
41697	24.3	16.6	9.9	3.1	18.5	0.1	0.7	0.6	22.2	0.15	0.1
41698	39.8	23.8	6.9	2.6	11.7	0.1	1.1	0.8	9.8	0.16	0.2
41699	39.8	18.7	12.0	2.7	10.5	0.1	1.2	0.8	10.9	0.23	0.1
41700	52.1	12.5	7.9	3.0	5.9	0.1	1.9	1.0	6.0	0.23	0.1

Table 14. (continued)

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41701	31.3	17.7	9.9	4.5	15.2	0.1	1.0	0.7	15.6	0.16	0.2
41702	43.9	21.8	7.8	3.2	7.5	0.1	1.5	1.0	10.2	0.15	0.1
41703	18.2	14.2	15.9	4.9	18.6	0.1	0.5	0.8	20.5	0.32	0.4
41704	45.2	18.0	6.2	4.2	10.9	0.1	1.7	0.8	10.7	0.34	0.1
41705	14.9	10.6	9.0	7.8	26.5	0.1	0.4	0.5	22.3	0.43	0.1
41706	9.8	13.0	7.8	9.2	34.5	0.1	0.2	0.3	11.1	0.43	1.3
41707	9.4	11.9	8.5	8.8	30.4	0.1	0.3	0.3	19.8	0.41	0.2
41708	40.7	14.1	5.9	4.3	13.9	0.1	0.5	0.5	14.0	0.24	1.0

Table 15. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 2

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41709	18.7	19.2	16.1	1.9	19.4	0.1	1.1	0.7	14.4	1.90	0.6
41710	19.1	17.4	9.0	1.9	22.2	0.1	0.6	0.6	21.1	0.50	0.7
41711	11.4	20.0	2.0	2.4	27.9	0.1	0.5	0.7	21.0	0.55	4.6
41712	34.3	24.6	3.2	2.1	14.0	0.1	1.6	0.8	11.5	0.51	1.8
41713	8.0	12.9	8.2	3.3	28.5	0.1	0.3	0.4	29.2	0.57	1.7
41714	42.8	26.4	5.3	1.8	9.6	0.1	1.9	0.9	7.5	0.27	0.7
41715	22.0	19.6	8.7	1.6	20.9	0.1	0.7	0.5	19.7	0.40	1.9
41716	29.3	16.3	9.7	1.6	18.5	0.1	0.9	0.7	16.1	0.45	1.7
41717	29.7	20.8	7.8	1.5	16.1	0.1	0.8	0.9	12.7	0.35	3.6
41718	51.6	24.7	5.1	1.7	6.6	0.1	1.5	1.1	3.5	0.36	0.7
41719	59.4	18.8	6.8	1.7	5.3	0.1	1.4	0.9	3.8	0.70	0.3
41720	53.0	21.5	4.4	1.9	7.9	0.1	1.7	0.9	5.3	0.78	0.3
41721	32.4	20.3	7.6	2.5	15.7	0.1	1.1	0.7	14.6	0.89	0.2
41722	33.2	20.2	12.8	1.9	12.2	0.1	0.9	0.8	12.7	0.62	0.3
41723	42.3	20.3	10.8	2.1	10.2	0.1	1.2	0.8	8.5	0.43	0.2
41724	28.7	17.6	12.2	2.2	15.0	0.1	0.8	0.7	17.4	0.53	0.2
41725	52.5	24.0	5.0	2.0	5.9	0.1	2.0	1.0	4.6	0.29	0.1
41726	18.6	17.3	11.1	2.0	20.3	0.1	0.7	0.7	17.2	0.36	4.1
41727	36.4	21.2	7.5	2.1	12.0	0.1	1.7	0.8	11.5	0.27	3.0
41728	48.2	21.9	8.0	1.9	7.0	0.1	1.6	1.0	7.7	0.17	0.8
41729	55.9	22.0	6.9	2.0	5.1	0.1	1.9	1.0	3.2	0.20	0.2

Table 16. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 3

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41730	33.0	17.4	9.8	3.5	16.0	0.1	1.1	0.8	10.5	1.83	0.6
41731	46.1	23.5	8.0	2.2	6.1	0.1	1.9	1.1	4.2	0.60	1.0
41732	44.8	26.2	7.8	2.1	5.0	0.1	1.8	1.0	5.3	0.56	1.4
41733	43.7	27.1	8.0	2.2	6.0	0.1	1.7	1.0	3.6	0.57	1.7
41734	21.5	16.5	15.5	3.5	18.6	0.1	0.8	0.6	2.4	1.14	0.7
41735	24.0	20.1	14.9	3.3	16.1	0.1	0.9	0.7	13.9	0.94	0.8
41736	27.7	23.1	12.4	3.2	13.6	0.1	1.2	0.8	14.4	0.83	1.4
41737	31.6	20.0	14.6	2.8	12.0	0.1	0.9	1.0	8.3	0.70	2.8
41738	35.4	25.1	8.6	2.9	9.1	0.1	1.8	1.0	8.2	0.48	3.0
41739	25.4	17.4	12.7	3.6	16.5	0.1	1.0	0.7	13.9	0.70	1.1
41740	38.6	22.9	9.2	2.8	10.3	0.1	1.9	0.9	7.7	0.48	0.8
41741	22.9	17.0	12.2	3.1	18.1	0.1	0.9	0.8	17.5	0.70	1.9
41742	10.3	15.2	12.9	3.3	22.6	0.1	0.4	0.6	13.6	0.73	2.7
41743	33.4	22.0	10.7	3.1	12.1	0.1	1.6	0.8	10.3	0.46	1.0
41744	37.9	22.3	7.5	2.7	9.0	0.1	1.6	0.9	10.8	0.30	2.1
41745	15.2	14.7	13.5	5.1	22.6	0.1	0.7	0.5	21.0	0.53	0.6
41746	26.0	19.2	10.5	4.4	16.8	0.1	1.1	0.7	14.6	0.38	1.1
41747	24.9	17.6	12.0	4.9	17.3	0.1	1.0	0.6	15.9	0.42	0.5
41748	31.4	22.4	8.6	3.6	12.3	0.1	1.3	0.8	14.2	0.32	1.1
41749	24.5	16.8	10.8	4.3	19.7	0.1	0.8	0.7	14.1	0.38	2.8
41750	44.8	22.1	7.0	3.0	9.0	0.1	1.5	0.9	7.6	0.25	1.0
41826	47.3	21.0	6.9	2.7	7.8	0.1	1.5	0.9	8.0	0.23	0.6
41827	43.9	20.3	11.3	3.0	9.3	0.1	1.5	0.8	7.41	0.23	0.2
41828	33.8	18.0	13.0	3.3	13.3	0.1	1.0	0.8	7.3	0.20	0.2

Table 17. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 4

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41829	32.8	19.0	13.7	2.7	11.1	0.1	1.1	0.8	12.7	1.63	0.6
41830	20.7	15.0	18.1	3.0	16.5	0.1	1.2	0.6	14.2	2.24	1.2
41831	30.2	18.7	16.6	2.4	11.9	0.1	1.8	0.8	9.9	1.58	0.8
41832	55.2	17.8	11.0	1.7	4.7	0.1	2.7	0.8	3.2	0.77	0.3
41833	50.6	4.77	9.3	1.7	3.9	0.1	2.9	0.9	4.8	0.62	0.5
41834	9.7	9.2	23.5	2.9	23.8	0.1	0.2	0.4	20.3	2.16	0.2
41835	21.1	15.0	18.1	2.5	17.2	0.1	1.0	0.6	15.7	1.52	0.3
41836	19.0	10.8	19.7	2.9	19.1	0.1	0.5	0.9	19.0	1.58	0.2
41837	15.2	11.6	19.2	2.9	19.7	0.1	0.9	0.4	19.3	1.48	0.3
41838	5.2	7.9	17.9	4.1	29.3	0.1	0.1	0.2	23.2	1.46	0.2
41839	41.9	17.9	8.4	2.6	9.8	0.1	2.1	0.8	10.8	0.57	0.2
41840	19.3	15.9	12.7	3.7	19.5	0.1	0.7	0.5	18.2	0.84	1.0
41841	31.0	16.9	10.6	3.3	15.1	0.1	1.1	0.7	13.6	0.67	1.4
41842	43.4	20.8	7.5	2.6	10.0	0.1	1.6	0.9	8.4	0.48	0.4
41843	16.1	11.6	12.5	4.5	24.4	0.1	0.4	0.4	21.4	0.83	0.2
41844	31.8	17.8	9.4	3.5	15.9	0.1	1.1	0.7	14.3	0.54	0.1
41845	41.6	20.3	6.5	2.6	11.4	0.1	1.1	0.9	10.5	0.38	0.2
41846	26.4	14.1	9..0	3.9	20.1	0.1	0.8	0.5	18.4	0.45	0.1

Table 18. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 5

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41847	38.5	19.9	8.6	3.6	10.5	0.1	1.5	1.1	11.3	0.41	1.4
41848	29.1	22.4	11.4	5.1	12.1	0.1	0.7	0.7	10.9	0.18	2.0
41849	44.1	27.7	7.1	3.3	5.3	0.1	1.3	1.0	5.1	0.23	0.8
41850	27.3	19.6	8.3	6.6	15.9	0.1	0.7	0.7	14.0	0.18	1.8
41851	27.8	21.8	7.8	7.0	15.6	0.1	1.1	0.7	11.9	0.19	2.7
41852	33.7	22.2	7.2	6.0	12.6	0.1	1.0	0.9	10.2	0.17	2.1
41853	50.4	28.3	4.4	2.8	2.8	0.1	2.0	1.1	2.5	0.18	0.5
41854	43.5	27.3	5.6	3.9	6.6	0.1	1.3	1.1	5.8	0.18	1.2
41855	34.9	22.0	12.3	5.3	10.2	0.1	1.2	0.8	9.0	0.21	0.4
41856	28.6	18.6	13.1	5.8	12.0	0.1	0.9	0.8	13.9	0.18	1.0
41857	34.9	22.2	7.2	5.6	11.8	0.1	1.2	1.1	10.9	0.16	0.9
41858	25.4	19.9	10.4	6.2	14.7	0.1	1.0	0.7	16.8	0.29	0.5
41859	46.8	21.4	6.4	3.5	7.0	0.1	2.0	0.9	8.1	0.31	0.3

Table 19. Concentration of Major Elements in Coal Ash, Percent, Drill Hole No. 6

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41860	56.6	26.4	4.0	1.7	3.2	0.1	1.6	1.5	1.1	0.24	0.2
41861	21.8	16.3	9.9	3.5	22.0	0.1	0.5	0.5	18.0	0.52	2.3
41862	4.2	6.0	11.5	6.2	38.4	0.1	0.1	0.2	25.4	0.70	0.2
41863	37.7	18.4	12.6	2.7	10.6	0.1	1.3	0.8	9.9	0.64	1.1
41864	49.8	22.9	8.2	2.4	4.1	0.1	2.2	1.0	5.3	0.31	0.4
41865	58.6	23.5	4.2	2.1	2.4	0.1	2.0	1.2	2.6	0.19	0.2
41866	55.7	23.6	5.6	2.1	2.3	0.1	2.7	1.0	1.6	0.31	0.2
41867	48.1	25.6	6.3	2.7	6.8	0.1	1.4	1.0	3.7	0.20	0.7
41868	32.5	23.9	5.1	4.4	13.6	0.1	0.9	0.8	8.8	0.21	2.4
41869	38.6	28.8	8.4	3.2	8.6	0.1	1.2	1.0	6.5	0.37	0.9
41870	40.9	25.4	6.8	2.8	7.1	0.1	1.3	1.2	4.7	0.13	3.5
41871	42.4	17.9	6.5	4.1	11.7	0.1	1.1	0.8	9.5	0.23	0.8
41872	31.9	23.8	7.0	4.1	12.2	0.1	1.3	0.9	8.5	0.24	1.5
41873	35.8	23.1	6.9	4.0	10.7	0.1	1.4	1.0	11.3	0.23	1.2
41874	42.7	17.3	10.5	3.7	9.8	0.1	1.1	1.0	8.6	0.26	1.2
41875	44.7	30.0	5.0	3.1	6.6	0.1	1.5	1.1	1.8	0.18	1.0
41876	25.3	25.0	6.8	3.6	11.6	0.1	0.9	1.2	11.0	0.11	9.9
41877	18.3	17.1	10.8	6.2	20.5	0.1	0.7	0.6	20.2	0.30	0.8
41878	17.1	17.1	9.8	6.4	22.5	0.1	0.7	0.6	18.8	0.27	0.8
41879	42.1	16.1	7.3	3.3	9.9	0.1	1.1	0.9	11.9	0.16	2.8
41880	18.8	17.3	10.3	6.2	20.5	0.1	0.5	0.8	18.3	0.23	2.5
41881	39.5	28.0	5.4	3.7	8.2	0.1	1.8	1.1	5.6	0.17	1.9
41882	24.9	18.5	10.1	5.5	16.7	0.1	1.1	0.7	15.2	0.20	3.0
41883	32.3	16.3	10.7	4.8	14.0	0.1	1.2	0.7	13.6	0.24	0.8
41884	25.8	22.8	8.6	4.7	14.4	0.1	1.0	0.7	16.1	0.17	1.9

Table 19. (continued)

Sample Number	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	SO_3	MnO	P_2O_5
41885	52.5	21.6	7.1	2.7	4.6	0.1	2.0	1.0	3.7	0.44	0.7
41886	53.2	23.3	7.6	2.7	3.7	0.1	2.0	1.0	2.9	0.27	0.6
41887	19.0	16.4	9.9	6.5	20.7	0.1	0.8	0.5	20.7	0.26	1.0
41888	34.9	21.6	6.4	4.5	13.5	0.1	1.4	0.8	12.0	0.19	1.2
41889	20.9	16.1	11.3	5.8	19.0	0.1	0.7	0.5	22.6	0.20	0.7
41890	32.1	22.8	10.4	4.5	12.8	0.1	1.0	0.7	10.8	0.19	0.6
41891	40.6	20.8	6.7	3.7	9.7	0.1	1.1	0.8	8.2	0.18	0.6
41892	44.3	19.8	6.5	4.2	10.5	0.1	1.6	0.9	9.3	0.20	0.4
41893	51.2	22.4	5.1	3.6	6.9	0.1	1.6	1.0	4.8	0.19	0.8
41894	19.8	14.6	9.4	7.0	22.9	0.1	0.6	0.5	20.3	0.19	0.4
41895	34.8	18.8	6.6	5.2	14.9	0.1	1.1	0.8	12.7	0.16	0.5
41896	45.5	19.0	7.0	3.9	9.0	0.1	1.3	0.9	10.7	0.20	0.2
41897	37.4	20.2	11.4	4.3	10.6	0.1	1.3	0.8	9.0	0.18	0.3

Tables 20-25 Overview

Tables 20-25 follow on pages 61 - 66. Fusibility of ash was determined by subjecting cones prepared with coal ash to increasing temperatures. Temperatures at which transformations occur in the cones are recorded. The temperature at which rounding of cones occur is reported as initial deformation temperature. As the ash cone is heated to higher temperatures it softens further and the temperature at which the cone height is equal to the cone base length is termed softening temperature. When the ash cone completely melts and spreads over the base, the fluid temperature is recorded.

Coals with softening temperature below 2000°F are termed slagging coals. Coals with ash softening temperatures above 2600°F are termed non slagging. All of the Little Tonzona samples tested had ash softening temperatures between 2200 and 2600°F and thus may or may not form slag depending on combustion process conditions. Combustion equipment could be designed to prevent ash from melting in cases where coal was burned in a stoker furnace. Alternatively, provisions could be made to melt the ash and keep it flowing, removing it as slag from cyclone type furnaces.

Table 20. Fusibility of Ash, °F, Drill Hole No. 1

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41676	2260	2300	2418
41677	2450	2560	2654
41678	2266	2280	2370
41679	2690	2800+	2800+
41680	2300	2376	2500
41681	2570	2590	2720
41682	2470	2520	2590
41683	2400	2600	2660
41684	2440	2470	2580
41685	2380	2520	2640
41686	2430	2482	2570
41687	2460	2482	2570
41688	2274	2290	2430
41689	2283	2293	2322
41690	2230	2244	2270
41691	2290	2314	2434
41692	2220	2278	2365
41693	2271	2314	2460
41694	2392	2440	2540
41695	2520	2560	2625
41696	2390	2505	2600
41697	2271	2285	2315
41698	2430	2466	2530
41699	2325	2380	2435
41700	2290	2355	2444
41701	2290	2330	2417
41702	2260	2370	2423
41703	2340	2360	2425
41704	2240	2306	2404
41705	2380	2397	2440
41706	2397	2544	2634
41707	2397	2540	2770
41708	2195	2212	2270

Table 21. Fusibility of Ash, °F, Drill Hole No. 2

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41709	2380	2425	2505
41710	2375	2435	2520
41711	2550	2780+	2780+
41712	2415	2535	2590
41713	2525	2770	2780+
41714	2445	2470	2555
41715	2255	2315	2350
41716	2265	2295	2445
41717	2365	2515	2485
41718	2445	2545	2580
41719	2305	2470	2500
41720	2375	2450	2490
41721	2345	2425	2505
41722	2435	2455	2530
41723	2375	2405	2440
41724	2335	2395	2440
41725	2390	2505	2580
41726	2320	2325	2475
41727	2375	2395	2490
41728	2350	2405	2470
41729	2375	2495	2560

Table 22. Fusibility of Ash, °F, Drill Hole No. 3

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41730	2295	2314	2450
41731	2390	2471	2567
41732	2500	2640	2722
41733	2500	2598	2676
41734	2300	2353	2460
41735	2374	2398	2460
41736	2427	2455	2514
41737	2367	2401	2450
41738	2358	2373	2510
41739	2319	2349	2430
41740	2388	2415	2500
41741	2277	2299	2477
41742	2481	2510	2585
41743	2390	2427	2482
41744	2340	2375	2458
41745	2490	2532	2582
41746	2250	2340	2420
41747	2280	2317	2420
41748	2410	2455	2530
41749	2270	2284	2390
41750	2330	2350	2450
41826	2315	2354	2470
41827	2331	2364	2444
41828	2270	2377	2451

Table 23. Fusibility of Ash, °F, Drill Hole No. 4

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41829	2397	2397	2437
41830	2294	2384	2442
41831	2340	2397	2442
41832	2333	2394	2520
41833	2260	2500	2527
41834	2419	2455	2481
41835	2299	2348	2450
41836	2285	2354	2398
41837	2377	2407	2461
41838	2445	2490	2750+
41839	2280	2355	2370
41840	2345	2375	2385
41841	2280	2315	2350
41842	2320	2375	2445
41843	2395	2475	2490
41844	2285	2325	2390
41845	2360	2405	2500
41846	2220	2250	2270

Table 24. Fusibility of Ash, °F, Drill Hole No. 5

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41847	2325	2395	2450
41848	2405	2460	2505
41849	2570	2680	2740
41850	2315	2370	2435
41851	2315	2385	2490
41852	2370	2425	2480
41853	2630	2780	2780+
41854	2530	2595	2640
41855	2395	2430	2465
41856	2310	2425	2460
41857	2395	2435	2470
41858	2310	2375	2440
41859	2320	2375	2425

Table 25. Fusibility of Ash, °F, Drill Hole No. 6

Sample Number	Initial Deformation Temperature	Softening Temperature	Fluid Temperature
41860	2600	2770	2800
41861	2277	2296	2389
41862	2320	2467	2800
41863	2320	2360	2415
41864	2263	2570	2608
41865	2500	2720	2790
41866	2490	2660	2770
41867	2436	2560	2610
41868	2390	2455	2520
41869	2430	2480	2650
41870	2325	2440	2527
41871	2280	2317	2418
41872	2439	2463	2510
41873	2397	2418	2488
41874	2269	2308	2400
41875	2520	2641	2733
41876	2358	2377	2441
41877	2398	2413	2757
41878	2460	2476	2800+
41879	2200	2260	2367
41880	2322	2338	2690
41881	2390	2425	2618
41882	2270	2290	2580
41883	2285	2310	2419
41884	2380	2428	2640
41885	2300	2440	2547
41886	2440	2546	2633
41887	2395	2413	2560
41888	2343	2416	2480
41889	2290	2317	2500
41890	2420	2435	2514
41891	2347	2370	2485
41892	2300	2317	2433
41893	2300	2387	2470
41894	2458	2479	2704
41895	2287	2319	2450
41896	2260	2342	2460
41897	2343	2378	2454

Tables 26-31 Overview

Tables 26-31 follows on pages 68 - 117. They show washability data for all samples from the six drill holes. The tables show weight percent distribution, ash, heating value, pyritic sulfur, and total sulfur on a moisture free basis for the various gravimetric fractions as well as values for cumulated floats. The quality of the floats at any of the three densities can be read directly from the tables. The tables also show cumulative sink weight percent and ash content that may be expected at any of the three densities.

Reduction of sulfur due to washing was small, even for samples in which pyritic sulfur exceeded 0.5%. The pyrite in Little Tonzona coal is apparently still locked for the coal size range (3/4" x 100 mesh) tested. Good coal recoveries can be expected by washing the coal to 8 to 10% ash. This would yield a clean coal with an approximate heating value of 10,500 Btu/lb on a moisture free basis.

Table 26. Washability Analyses of 3/4 Inch x 100 Mesh Coals, Drill Hole No. 1

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41676							
–	1.30	38.69	6.01	11513	0.01	0.82	38.69	6.01	11513	0.01	0.82	100.00	19.05
1.30	1.40	36.62	10.23	9522	0.03	0.86	75.31	8.06	10545	0.02	0.84	61.31	27.28
1.40	1.60	10.06	31.53	7561	0.08	0.92	85.37	10.83	10193	0.03	0.85	24.69	52.56
1.60	–	14.63	67.02	3424	0.07	0.45	100.00	19.05	9203	0.03	0.79	14.63	67.02
Minus 100 Mesh		1.24	33.57	7860	0.17	0.85	*100.00	19.23	9186	0.03	0.79		
						Sample No. 41677							
–	1.30	7.28	4.05	10177	0.06	1.22	7.28	4.05	10177	0.06	1.22	100.00	45.02
1.30	1.40	10.66	10.52	9749	0.40	1.69	17.94	7.89	9923	0.26	1.50	92.72	48.23
1.40	1.60	41.66	40.01	6400	0.93	2.00	59.60	30.34	7460	0.73	1.85	82.06	53.13
1.60	–	40.40	66.66	3207	0.31	0.78	100.00	45.02	5742	0.56	1.42	40.40	66.66
Minus 100 Mesh		2.80	58.35	3997	0.37	1.71	*100.00	45.38	5694	0.55	1.43		
						Sample No. 41678							
–	1.30	52.04	5.44	10832	0.02	1.17	52.04	5.44	10832	0.02	1.17	100.00	10.74
1.30	1.40	37.69	12.26	9826	0.10	1.41	89.73	8.30	10409	0.05	1.27	47.96	16.50
1.40	1.60	8.34	33.49	7100	0.08	1.07	98.07	10.45	10128	0.06	1.25	10.27	32.04
1.60	–	1.93	25.80	8232	0.50	1.84	100.00	10.74	10091	0.06	1.27	1.93	25.80
Minus 100 Mesh		0.35	28.51	8125	0.50	2.50	*100.00	10.80	10085	0.07	1.27		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41679							
–	1.30	15.81	7.02	10730	0.01	1.40	15.81	7.02	10730	0.01	1.40	100.00	34.66
1.30	1.40	32.82	16.00	9379	0.03	1.22	48.63	13.08	9818	0.02	1.28	84.19	39.85
1.40	1.60	19.76	38.25	6629	0.04	0.84	68.39	20.35	8897	0.03	1.15	51.37	55.08
1.60	–	31.61	65.60	3569	0.08	0.41	100.00	34.66	7213	0.04	0.92	31.61	65.60
Minus 100 Mesh		1.36	50.10	5363	0.07	0.79	*100.00	34.86	7188	0.04	0.92		
						Sample No. 41680							
–	1.30	63.07	6.97	10700	0.02	1.31	63.07	6.97	10700	0.02	1.31	100.00	12.87
1.30	1.40	26.75	12.72	9986	0.35	1.63	89.82	8.68	10487	0.12	1.41	36.93	22.94
1.40	1.60	4.23	31.35	7936	0.12	1.05	94.05	9.70	10373	0.12	1.39	10.18	49.79
1.60	–	5.95	62.90	4052	0.08	0.49	100.00	12.87	9997	0.12	1.34	5.95	62.90
Minus 100 Mesh		1.33	26.89	8720	0.25	1.42	*100.00	13.05	9980	0.12	1.34		
						Sample No. 41681							
–	1.30	72.32	7.31	10738	0.01	1.22	72.32	7.31	10738	0.01	1.22	100.00	8.94
1.30	1.40	25.60	12.28	9977	0.04	1.27	97.92	8.61	10539	0.02	1.23	27.68	13.19
1.40	1.60	1.49	24.47	8824	0.13	1.16	99.41	8.85	10513	0.02	1.23	2.08	24.38
1.60	–	0.59	24.14	8657	1.03	2.40	100.00	8.94	10502	0.03	1.24	0.59	24.14
Minus 100 Mesh		0.63	18.69	9600	0.25	2.09	*100.00	9.00	10497	0.03	1.24		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41682							
–	1.30	40.22	6.62	10924	0.06	1.59	40.22	6.62	10924	0.06	1.59	100.00	13.61
1.30	1.40	46.84	12.57	10035	0.16	1.72	87.06	9.82	10446	0.11	1.66	59.78	18.31
1.40	1.60	10.27	35.61	7184	0.17	1.26	97.33	12.54	10102	0.12	1.62	12.94	39.09
1.60	–	2.67	52.48	5175	0.18	0.96	100.00	13.61	9970	0.12	1.60	2.67	52.48
Minus 100 Mesh		1.26	30.09	8372	0.21	1.95	*100.00	13.81	9950	0.12	1.60		
						Sample No. 41683							
–	1.30	19.39	6.59	10908	0.14	2.03	19.39	6.59	10908	0.14	2.03	100.00	29.48
1.30	1.40	32.74	15.27	9761	0.29	2.03	52.13	12.04	10188	0.23	2.03	80.61	34.99
1.40	1.60	26.89	39.53	6694	0.34	1.67	79.02	21.40	8999	0.27	1.91	47.87	48.48
1.60	–	20.98	59.95	4090	0.12	0.79	100.00	29.48	7969	0.24	1.67	20.98	59.95
Minus 100 Mesh		1.02	45.94	6003	0.21	1.55	*100.00	29.65	7949	0.24	1.67		
						Sample No. 41684							
–	1.30	27.40	8.45	10811	0.27	2.12	27.40	8.45	10811	0.27	2.12	100.00	20.32
1.30	1.40	43.56	15.33	9702	0.36	2.10	70.96	12.67	10130	0.33	2.11	72.60	24.79
1.40	1.60	22.51	34.71	7147	0.12	1.39	93.47	17.98	9412	0.28	1.93	29.04	38.99
1.60	–	6.53	53.75	4896	0.17	1.01	100.00	20.32	9117	0.27	1.87	6.53	53.75
Minus 100 Mesh		1.77	34.84	7467	0.18	1.85	*100.00	20.57	9088	0.27	1.87		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41685							
–	1.30	49.27	6.89	10875	0.14	1.89	49.27	6.89	10875	0.14	1.89	100.00	26.04
1.30	1.40	18.23	14.46	9805	0.18	1.89	67.50	8.93	10586	0.15	1.89	50.73	44.63
1.40	1.60	8.54	38.30	6902	0.26	1.41	76.04	12.23	10172	0.16	1.84	32.50	61.56
1.60	–	23.96	69.85	3010	0.15	0.57	100.00	26.04	8456	0.16	1.53	23.96	69.85
Minus 100 Mesh		1.74	50.79	5593	0.17	1.18	*100.00	26.46	8407	0.16	1.53		
						Sample No. 41686							
–	1.30	40.04	7.80	10710	0.10	1.94	40.04	7.80	10710	0.10	1.94	100.00	16.67
1.30	1.40	41.06	14.72	9714	0.08	1.72	81.10	11.30	10206	0.09	1.83	59.96	22.59
1.40	1.60	14.01	32.84	7244	0.09	1.41	95.11	14.48	9769	0.09	1.77	18.90	39.69
1.60	–	4.89	59.30	3932	0.12	0.92	100.00	16.67	9484	0.09	1.73	4.89	59.30
Minus 100 Mesh		1.47	31.72	7835	0.15	1.95	*100.00	16.89	9460	0.09	1.73		
						Sample No. 41687							
–	1.30	13.79	5.62	11011	0.11	2.08	13.79	5.62	11011	0.11	2.08	100.00	18.93
1.30	1.40	61.04	15.09	9741	0.71	2.53	74.83	13.34	9975	0.60	2.45	86.21	21.06
1.40	1.60	23.62	35.91	7569	0.62	1.78	98.45	18.76	9398	0.60	2.29	25.17	35.54
1.60	–	1.55	29.89	7325	2.19	3.60	100.00	18.93	9366	0.63	2.31	1.55	29.89
Minus 100 Mesh		1.86	33.58	7662	0.89	2.85	*100.00	19.20	9335	0.63	2.32		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41688							
–	1.30	65.68	7.41	10888	0.03	1.62	65.68	7.41	10888	0.03	1.62	100.00	12.02
1.30	1.40	27.02	12.46	10038	0.21	1.76	92.70	8.88	10640	0.08	1.66	34.32	20.85
1.40	1.60	3.00	34.50	7281	0.17	1.27	95.70	9.69	10535	0.09	1.65	7.30	51.90
1.60	–	4.30	64.04	4078	0.15	0.75	100.00	12.02	10257	0.09	1.61	4.30	64.04
Minus 100 Mesh		1.23	24.59	8254	0.12	1.59	*100.00	12.18	10233	0.09	1.61		
						Sample No. 41689							
–	1.30	52.33	6.49	10798	0.03	1.04	52.33	6.49	10798	0.03	1.04	100.00	9.99
1.30	1.40	42.33	10.93	10133	0.07	1.16	94.66	8.48	10501	0.05	1.09	47.67	13.84
1.40	1.60	4.81	36.65	7145	0.08	1.13	99.47	9.84	10338	0.05	1.10	5.34	36.91
1.60	–	0.53	39.23	6839	1.25	3.66	100.00	9.99	10320	0.06	1.11	0.53	39.23
Minus 100 Mesh		0.85	23.45	8233	0.24	2.51	*100.00	10.11	10302	0.06	1.12		
						Sample No. 41690							
–	1.30	49.10	6.38	10869	0.07	1.49	49.10	6.38	10869	0.07	1.49	100.00	13.71
1.30	1.40	43.40	12.83	10180	0.64	2.18	92.50	9.41	10546	0.34	1.81	50.90	20.79
1.40	1.60	1.86	28.96	8046	1.03	2.47	94.36	9.79	10496	0.35	1.83	7.50	66.85
1.60	–	5.64	79.35	1773	0.23	0.52	100.00	13.71	10004	0.34	1.75	5.64	79.35
Minus 100 Mesh		0.82	50.20	5290	0.83	2.89	*100.00	14.01	9966	0.35	1.76		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41691							
–	1.30	61.86	6.74	11007	0.02	1.19	61.86	6.74	11007	0.02	1.19	100.00	12.16
1.30	1.40	29.13	16.48	9662	0.27	1.28	90.99	9.86	10576	0.10	1.22	38.14	20.96
1.40	1.60	7.53	33.59	7367	0.04	1.12	98.52	11.67	10331	0.10	1.21	9.01	35.44
1.60	–	1.48	44.83	6099	0.29	1.39	100.00	12.16	10268	0.10	1.21	1.48	44.83
Minus 100 Mesh		1.36	26.65	8705	0.16	1.67	*100.00	12.36	10247	0.10	1.22		
						Sample No. 41692							
–	1.30	32.07	7.69	10666	0.08	1.72	32.07	7.69	10666	0.08	1.72	100.00	12.90
1.30	1.40	61.17	13.17	10046	0.08	1.60	93.24	11.29	10259	0.08	1.64	67.93	15.36
1.40	1.60	5.81	34.05	7412	0.08	1.30	99.05	12.62	10092	0.08	1.62	6.76	35.19
1.60	–	0.95	42.17	6532	0.20	1.19	100.00	12.90	10058	0.08	1.62	0.95	42.17
Minus 100 Mesh		1.51	19.10	9473	0.13	1.72	*100.00	12.99	10050	0.08	1.62		
						Sample No. 41693							
–	1.30	64.22	7.25	11005	0.12	1.79	64.22	7.25	11005	0.12	1.79	100.00	10.73
1.30	1.40	29.60	12.61	10126	0.22	1.89	93.82	8.94	10728	0.15	1.82	35.78	16.96
1.40	1.60	4.12	32.62	7547	0.17	1.41	97.94	9.94	10594	0.15	1.80	6.18	37.81
1.60	–	2.06	48.19	5836	0.26	1.39	100.00	10.73	10496	0.15	1.80	2.06	48.19
Minus 100 Mesh		0.90	22.89	9197	0.15	1.70	*100.00	10.83	10484	0.15	1.79		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41694							
–	1.30	33.98	7.73	10691	0.01	1.70	33.98	7.73	10691	0.01	1.70	100.00	18.01
1.30	1.40	49.91	14.81	9751	0.23	1.79	83.89	11.94	10132	0.14	1.75	66.02	23.29
1.40	1.60	10.31	35.64	7329	0.15	1.20	94.20	14.54	9825	0.14	1.69	16.11	49.58
1.60	–	5.80	74.35	2168	0.19	0.50	100.00	18.01	9381	0.14	1.62	5.80	74.35
Minus 100 Mesh		0.91	37.74	7116	0.32	1.88	*100.00	18.18	9360	0.15	1.63		
						Sample No. 41695							
–	1.30	65.10	8.51	10815	0.07	1.66	65.10	8.51	10815	0.07	1.66	100.00	11.03
1.30	1.40	29.90	13.01	10047	0.13	1.56	95.00	9.93	10573	0.09	1.63	34.90	15.73
1.40	1.60	4.42	32.68	7544	0.09	1.24	99.42	10.94	10439	0.09	1.61	5.00	31.98
1.60	–	0.58	26.65	8317	0.71	2.42	100.00	11.03	10426	0.09	1.62	0.58	26.65
Minus 100 Mesh		0.86	21.94	9379	0.33	2.57	*100.00	11.12	10417	0.09	1.62		
						Sample No. 41696							
–	1.30	47.60	8.35	10846	0.07	1.14	47.60	8.35	10846	0.07	1.14	100.00	17.23
1.30	1.40	30.83	17.25	9525	0.13	1.46	78.43	11.85	10327	0.09	1.27	52.40	25.29
1.40	1.60	20.70	36.85	7312	0.07	1.12	99.13	17.07	9697	0.09	1.24	21.57	36.79
1.60	–	0.87	35.38	7091	0.73	2.40	100.00	17.23	9675	0.09	1.25	0.87	35.38
Minus 100 Mesh		0.47	25.72	8647	0.40	1.86	*100.00	17.27	9670	0.10	1.25		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41697							
–	1.30	10.49	6.99	11030	0.37	2.37	10.49	6.99	11030	0.37	2.37	100.00	11.95
1.30	1.40	82.66	10.41	10396	0.56	2.20	93.15	10.02	10467	0.54	2.22	89.51	12.53
1.40	1.60	5.21	37.15	7474	0.19	1.17	98.36	11.46	10309	0.52	2.16	6.85	38.09
1.60	–	1.64	41.09	6528	0.88	2.20	100.00	11.95	10247	0.53	2.16	1.64	41.09
Minus 100 Mesh		1.08	26.73	8466	0.98	3.82	*100.00	12.11	10228	0.53	2.18		
						Sample No. 41698							
–	1.30	36.08	7.68	11159	0.17	1.81	36.08	7.68	11159	0.17	1.81	100.00	15.24
1.30	1.40	56.36	16.16	10030	0.45	2.03	92.44	12.85	10471	0.34	1.94	63.92	19.51
1.40	1.60	4.82	38.58	6815	0.39	1.48	97.26	14.13	10289	0.34	1.92	7.56	44.51
1.60	–	2.74	54.95	5091	0.51	1.21	100.00	15.24	10147	0.35	1.90	2.74	54.95
Minus 100 Mesh		1.15	27.05	8748	0.93	2.83	*100.00	15.38	10131	0.35	1.91		
						Sample No. 41699							
–	1.30	26.74	8.39	10920	0.23	1.62	26.74	8.39	10920	0.23	1.62	100.00	28.65
1.30	1.40	41.53	16.45	9759	0.97	2.64	68.27	13.29	10214	0.68	2.24	73.26	36.05
1.40	1.60	11.13	35.92	7311	2.28	3.67	79.40	16.46	9807	0.90	2.44	31.73	61.69
1.60	–	20.60	75.62	2078	0.56	1.08	100.00	28.65	8215	0.83	2.16	20.60	75.62
Minus 100 Mesh		0.88	49.09	5468	1.79	4.10	*100.00	28.83	8191	0.84	2.18		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41700							
–	1.30	26.56	7.18	11156	0.19	1.53	26.56	7.18	11156	0.19	1.53	100.00	32.31
1.30	1.40	36.37	16.02	9829	0.65	2.24	62.93	12.29	10389	0.46	1.94	73.44	41.40
1.40	1.60	9.36	34.04	7225	0.70	1.95	72.29	15.11	9979	0.49	1.94	37.07	66.29
1.60	–	27.71	77.19	1678	0.35	0.67	100.00	32.31	7679	0.45	1.59	27.71	77.19
Minus 100 Mesh		2.62	61.45	3938	0.51	1.69	*100.00	33.05	7584	0.45	1.59		
						Sample No. 41701							
–	1.30	43.35	6.83	11181	0.11	1.61	43.35	6.83	11181	0.11	1.61	100.00	17.53
1.30	1.40	41.67	13.59	10100	0.64	2.50	85.02	10.14	10651	0.37	2.05	56.65	25.72
1.40	1.60	4.66	35.48	7105	0.67	1.85	89.68	11.46	10467	0.39	2.04	14.98	59.47
1.60	–	10.32	70.30	3026	0.21	0.71	100.00	17.53	9699	0.37	1.90	10.32	70.30
Minus 100 Mesh		1.62	39.33	6955	0.71	2.64	*100.00	17.88	9655	0.37	1.91		
						Sample No. 41702							
–	1.30	19.23	6.91	11063	0.21	1.78	19.23	6.91	11063	0.21	1.78	100.00	26.18
1.30	1.40	45.96	14.50	10099	0.41	2.12	65.19	12.26	10383	0.35	2.02	80.77	30.77
1.40	1.60	16.66	39.02	6868	0.57	1.74	81.85	17.71	9668	0.40	1.96	34.81	52.24
1.60	–	18.15	64.38	3607	0.64	1.34	100.00	26.18	8568	0.44	1.85	18.15	64.38
Minus 100 Mesh		0.83	42.81	6426	1.19	2.93	*100.00	26.32	8550	0.45	1.86		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41703							
–	1.30	85.20	7.93	10902	0.46	1.98	85.20	7.93	10902	0.46	1.98	100.00	9.77
1.30	1.40	10.40	13.79	10047	1.45	1.14	95.60	8.57	10809	0.57	1.89	14.80	20.36
1.40	1.60	3.16	32.88	7372	1.93	3.31	98.76	9.35	10699	0.61	1.93	4.40	35.89
1.60	–	1.24	43.56	5968	1.32	8.07	100.00	9.77	10640	0.62	2.01	1.24	43.56
Minus 100 Mesh		1.23	24.92	8692	1.61	4.22	*100.00	9.95	10617	0.63	2.04		
						Sample No. 41704							
–	1.30	66.78	8.51	10844	0.17	1.55	66.78	8.51	10844	0.17	1.55	100.00	27.30
1.30	1.40	8.43	19.53	9135	0.56	1.93	75.21	9.75	10652	0.21	1.59	33.22	65.08
1.40	1.60	3.24	39.96	6660	0.47	1.46	78.45	10.99	10488	0.22	1.59	24.79	80.57
1.60	–	21.55	86.67	862	0.22	0.58	100.00	27.30	8413	0.22	1.37	21.55	86.67
Minus 100 Mesh		0.89	45.49	6306	0.44	1.77	*100.00	27.46	8395	0.23	1.37		
						Sample No. 41705							
–	1.30	89.84	6.41	10929	0.06	0.86	89.84	6.41	10929	0.06	0.86	100.00	8.72
1.30	1.40	6.48	17.28	9731	0.77	1.91	96.32	7.14	10848	0.11	0.93	10.16	29.12
1.40	1.60	1.77	31.10	7878	2.60	5.47	98.09	7.57	10795	0.15	1.01	3.68	49.98
1.60	–	1.91	67.48	3042	2.60	4.90	100.00	8.72	10647	0.20	1.09	1.91	67.48
Minus 100 Mesh		0.92	25.75	8885	1.26	2.45	*100.00	8.87	10631	0.21	1.10		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 26. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41706							
–	1.30	92.89	6.84	10919	<.01	0.42	92.89	6.84	10919	<.01	0.42	100.00	7.35
1.30	1.40	6.66	14.15	9902	<.01	0.38	99.55	7.33	10851	<.01	0.42	7.11	13.94
1.40	1.60	0.26	9.50	10403	0.06	0.54	99.81	7.33	10850	<.01	0.42	0.45	10.88
1.60	–	0.19	12.78	10101	0.11	0.61	100.00	7.35	10848	<.01	0.42	0.19	12.78
Minus 100 Mesh		0.88	9.57	11353	0.06	0.48	*100.00	7.36	10853	<.01	0.42		
						Sample No. 41707							
–	1.30	94.65	8.09	10846	0.11	0.97	94.65	8.09	10846	0.11	0.97	100.00	8.85
1.30	1.40	3.81	15.14	9880	0.27	1.09	98.46	8.36	10809	0.12	0.97	5.35	22.30
1.40	1.60	0.73	34.08	7196	0.73	1.49	99.19	8.55	10782	0.12	0.98	1.54	40.02
1.60	–	0.81	45.37	5676	1.33	2.04	100.00	8.85	10741	0.13	0.99	0.81	45.37
Minus 100 Mesh		0.80	16.58	11184	0.61	1.49	*100.00	8.91	10744	0.13	0.99		
						Sample No. 41708							
–	1.30	43.62	11.33	10396	0.35	1.63	43.62	11.33	10396	0.35	1.63	100.00	18.62
1.30	1.40	45.29	19.10	9636	0.33	1.61	88.91	15.29	10009	0.34	1.62	56.38	24.26
1.40	1.60	9.09	39.60	7053	0.12	0.83	98.00	17.54	9735	0.32	1.55	11.09	45.31
1.60	–	2.00	71.25	3139	0.63	0.95	100.00	18.62	9603	0.33	1.53	2.00	71.25
Minus 100 Mesh		1.32	31.72	8854	0.67	1.78	*100.00	18.79	9593	0.33	1.54		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. Washability Analyses of 3/4 Inch x 100 Mesh Coals, Drill Hole No. 2

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41709								
–	1.30	TRACE											
1.30	1.40	98.00	10.88	10331	0.11	0.67	98.00	10.88	10331	0.11	0.67	100.00	11.00
1.40	1.60	0.56	16.61	10061	0.08	0.46	98.56	10.91	10329	0.11	0.67	2.00	16.96
1.60	–	1.44	17.10	9612	0.08	0.71	100.00	11.00	10319	0.11	0.67	1.44	17.10
Minus 100 Mesh		1.60	30.43	7630	0.12	0.47	*100.00	11.31	10277	0.11	0.67		
					Sample No. 41710								
–	1.30	76.68	4.67	10877	0.01	1.18	76.68	4.67	10877	0.01	1.18	100.00	7.60
1.30	1.40	17.30	8.83	9834	0.01	1.00	93.98	5.44	10685	0.01	1.15	23.32	17.24
1.40	1.60	3.30	26.00	7207	0.12	0.80	97.28	6.13	10567	0.01	1.14	6.02	41.41
1.60	–	2.72	60.11	3391	0.10	0.51	100.00	7.60	10372	0.02	1.12	2.72	60.11
Minus 100 Mesh		1.06	19.72	9065	0.09	0.93	*100.00	7.73	10358	0.02	1.12		
					Sample No. 41711								
–	1.30	89.14	6.20	11001	0.01	1.36	89.14	6.20	11001	0.01	1.36	100.00	6.77
1.30	1.40	9.61	10.36	9719	0.01	1.44	98.75	6.60	10876	0.01	1.37	10.86	11.47
1.40	1.60	0.95	17.88	8575	0.05	1.30	99.70	6.71	10854	0.01	1.37	1.25	20.00
1.60	–	0.30	26.73	7719	0.05	2.30	100.00	6.77	10845	0.01	1.37	0.30	26.73
Minus 100 Mesh		1.87	10.61	10593	0.05	1.31	*100.00	6.84	10840	0.01	1.37		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41712							
–	1.30	70.72	6.65	11026	0.03	1.88	70.72	6.65	11026	0.03	1.88	100.00	11.39
1.30	1.40	19.96	15.29	9769	0.06	1.76	90.68	8.55	10749	0.04	1.85	29.28	22.83
1.40	1.60	8.08	36.67	7106	0.11	1.30	98.76	10.85	10451	0.04	1.81	9.32	38.99
1.60	–	1.24	54.08	4867	0.18	1.18	100.00	11.39	10382	0.04	1.80	1.24	54.08
Minus 100 Mesh		1.62	18.08	9491	0.09	1.55	*100.00	11.49	10368	0.05	1.80		
						Sample No. 41713							
–	1.30	96.22	6.69	11073	0.02	1.53	96.22	6.69	11073	0.02	1.53	100.00	6.93
1.30	1.40	3.18	12.61	9852	0.04	1.55	99.40	6.88	11034	0.02	1.53	3.78	12.95
1.40	1.60	0.42	12.45	9706	0.01	1.57	99.82	6.90	11028	0.02	1.53	0.60	14.76
1.60	–	0.18	20.16	8904	0.02	1.73	100.00	6.93	11025	0.02	1.53	0.18	20.16
Minus 100 Mesh		0.42	13.95	11080	0.03	1.54	*100.00	6.96	11025	0.02	1.53		
						Sample No. 41714							
–	1.30	70.29	7.08	11049	0.01	1.54	70.29	7.08	11049	0.01	1.54	100.00	15.89
1.30	1.40	10.18	20.13	9279	0.02	1.42	80.47	8.73	10825	0.01	1.52	29.71	36.73
1.40	1.60	14.49	41.73	6305	0.05	1.07	94.96	13.77	10135	0.02	1.46	19.53	45.39
1.60	–	5.04	55.90	4320	0.06	0.77	100.00	15.89	9842	0.02	1.42	5.04	55.90
Minus 100 Mesh		1.34	24.88	8840	0.03	1.31	*100.00	16.01	9829	0.02	1.42		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41715							
–	1.30	89.18	8.40	11119	0.01	1.42	89.18	8.40	11119	0.01	1.42	100.00	10.30
1.30	1.40	8.01	24.03	8948	0.03	1.65	97.19	9.69	10940	0.01	1.44	10.82	26.00
1.40	1.60	2.57	32.13	7781	0.02	1.32	99.76	10.27	10859	0.01	1.44	2.81	31.62
1.60	–	0.24	26.12	8462	0.02	1.40	100.00	10.30	10853	0.01	1.44	0.24	26.12
Minus 100 Mesh		1.62	14.80	11042	0.06	1.39	*100.00	10.38	10856	0.01	1.44		
						Sample No. 41716							
–	1.30	86.75	6.03	11461	0.01	0.97	86.75	6.03	11461	0.01	0.97	100.00	9.41
1.30	1.40	7.38	17.75	9783	0.01	0.77	94.13	6.95	11329	0.01	0.95	13.25	31.57
1.40	1.60	3.29	36.63	7172	0.03	0.53	97.42	7.95	11189	0.01	0.94	5.87	48.94
1.60	–	2.58	64.64	3346	0.03	0.35	100.00	9.41	10987	0.01	0.92	2.58	64.64
Minus 100 Mesh		1.45	20.11	10253	0.01	0.95	*100.00	9.57	10976	0.01	0.93		
						Sample No. 41717							
–	1.30	80.76	6.11	11202	0.01	1.23	80.76	6.11	11202	0.01	1.23	100.00	10.32
1.30	1.40	13.22	20.16	9364	0.09	1.31	93.98	8.09	10943	0.02	1.24	19.24	27.98
1.40	1.60	3.74	36.95	7081	0.11	1.06	97.72	9.19	10796	0.02	1.23	6.02	45.15
1.60	–	2.28	58.59	4246	0.11	0.76	100.00	10.32	10646	0.03	1.22	2.28	58.59
Minus 100 Mesh		1.21	21.02	9898	0.16	1.58	*100.00	10.45	10637	0.03	1.23		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41718							
–	1.30	52.51	9.49	10679	0.10	1.71	52.51	9.49	10679	0.10	1.71	100.00	16.51
1.30	1.40	35.79	18.00	8583	0.17	1.48	88.30	12.94	9829	0.13	1.62	47.49	24.28
1.40	1.60	8.47	38.20	6832	0.15	1.24	96.77	15.15	9567	0.13	1.58	11.70	43.49
1.60	–	3.23	57.35	4280	0.12	0.78	100.00	16.51	9396	0.13	1.56	3.23	57.35
Minus 100 Mesh		1.15	25.82	8855	0.17	1.65	*100.00	16.62	9390	0.13	1.56		
						Sample No. 41719							
–	1.30	67.85	9.28	10981	0.04	1.55	67.85	9.28	10981	0.04	1.55	100.00	21.81
1.30	1.40	13.05	18.19	9412	0.15	1.58	80.90	10.72	10728	0.06	1.55	32.15	48.25
1.40	1.60	4.19	33.80	7252	0.16	1.28	85.09	11.85	10557	0.06	1.54	19.10	68.79
1.60	–	14.91	78.62	1707	0.09	0.31	100.00	21.81	9237	0.07	1.36	14.91	78.62
Minus 100 Mesh		1.29	40.03	7318	0.10	1.09	*100.00	22.04	9213	0.07	1.35		
						Sample No. 41720							
–	1.30	61.54	8.80	11081	0.04	1.33	61.54	8.80	11081	0.04	1.33	100.00	25.04
1.30	1.40	9.63	22.04	9022	0.15	1.46	71.17	10.59	10802	0.05	1.35	38.46	51.02
1.40	1.60	9.74	42.85	6379	0.22	1.18	80.91	14.47	10270	0.07	1.33	28.83	60.70
1.60	–	19.09	69.81	3013	0.33	0.66	100.00	25.04	8885	0.12	1.20	19.09	69.81
Minus 100 Mesh		1.05	36.47	7952	0.07	1.09	*100.00	25.16	8875	0.12	1.20		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41721							
–	1.30	67.63	7.80	10842	0.15	1.68	67.63	7.80	10842	0.15	1.68	100.00	15.27
1.30	1.40	18.16	19.67	9243	0.42	1.91	85.79	10.31	10504	0.21	1.73	32.37	30.87
1.40	1.60	11.15	41.95	6762	0.20	1.11	96.94	13.95	10073	0.21	1.66	14.21	45.18
1.60	–	3.06	56.93	4511	0.29	1.10	100.00	15.27	9903	0.21	1.64	3.06	56.93
Minus 100 Mesh		1.31	28.06	8779	0.44	2.07	*100.00	15.43	9888	0.21	1.65		
						Sample No. 41722							
–	1.30	68.18	8.69	10752	0.28	2.11	68.18	8.69	10752	0.28	2.11	100.00	14.11
1.30	1.40	26.45	20.89	9482	0.51	2.19	94.63	12.10	10397	0.34	2.13	31.82	25.72
1.40	1.60	2.56	33.00	7442	0.94	2.10	97.19	12.65	10319	0.36	2.13	5.37	49.50
1.60	–	2.81	64.54	3550	0.31	0.75	100.00	14.11	10129	0.36	2.09	2.81	64.54
Minus 100 Mesh		1.31	28.37	8710	0.72	2.75	*100.00	14.29	10111	0.36	2.10		
						Sample No. 41723							
–	1.30	68.28	8.84	10807	0.29	2.36	68.28	8.84	10807	0.29	2.36	100.00	15.45
1.30	1.40	17.70	16.90	9552	0.66	2.61	85.98	10.50	10549	0.37	2.41	31.72	29.68
1.40	1.60	9.39	38.16	6922	0.69	2.20	95.37	13.22	10192	0.40	2.39	14.02	45.81
1.60	–	4.63	61.32	3965	0.54	1.39	100.00	15.45	9903	0.40	2.34	4.63	61.32
Minus 100 Mesh		0.81	26.66	8841	0.89	3.29	*100.00	15.54	9895	0.41	2.35		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41724							
–	1.30	87.04	7.83	10911	0.18	2.29	87.04	7.83	10911	0.18	2.29	100.00	10.09
1.30	1.40	9.97	15.87	9739	0.89	2.88	97.01	8.66	10791	0.25	2.35	12.96	25.23
1.40	1.60	0.93	33.62	7541	0.61	1.95	97.94	8.89	10760	0.26	2.35	2.99	56.45
1.60	–	2.06	66.76	3264	0.19	0.82	100.00	10.09	10605	0.25	2.32	2.06	66.76
Minus 100 Mesh		1.54	22.28	9579	0.52	2.78	*100.00	10.27	10590	0.26	2.32		
						Sample No. 41725							
–	1.30	64.26	9.37	10846	0.32	2.45	64.26	9.37	10846	0.32	2.45	100.00	19.30
1.30	1.40	18.16	20.94	9255	0.43	2.11	82.42	11.92	10495	0.34	2.38	35.74	37.16
1.40	1.60	8.10	42.04	6685	0.10	1.14	90.52	14.61	10154	0.32	2.26	17.58	53.91
1.60	–	9.48	64.06	4032	0.06	0.64	100.00	19.30	9574	0.30	2.11	9.48	64.06
Minus 100 Mesh		1.36	31.90	8745	0.26	2.13	*100.00	19.47	9563	0.30	2.11		
						Sample No. 41726							
–	1.30	86.78	8.23	10909	0.11	1.84	86.78	8.23	10909	0.11	1.84	100.00	10.31
1.30	1.40	11.16	21.69	9254	1.30	2.90	97.94	9.76	10720	0.25	1.96	13.22	23.97
1.40	1.60	1.84	36.33	7183	1.00	2.31	99.78	10.25	10655	0.26	1.97	2.06	36.35
1.60	–	0.22	36.55	6872	2.25	3.64	100.00	10.31	10647	0.26	1.97	0.22	36.55
Minus 100 Mesh		1.18	19.93	10180	0.32	2.59	*100.00	10.42	10641	0.26	1.98		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 27. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41727								
–	1.30	71.86	9.58	10708	0.32	2.04	71.86	9.58	10708	0.32	2.04	100.00	16.95
1.30	1.40	14.62	20.21	9241	0.58	2.25	86.48	11.38	10460	0.36	2.08	28.14	35.76
1.40	1.60	6.76	38.52	7032	0.34	1.51	93.24	13.34	10211	0.36	2.03	13.52	52.58
1.60	–	6.76	66.65	3438	0.16	0.73	100.00	16.95	9754	0.35	1.95	6.76	66.65
Minus 100 Mesh		0.48	36.43	7830	0.20	2.15	*100.00	17.04	9744	0.35	1.95		
					Sample No. 41728								
–	1.30	59.12	9.14	10971	0.51	2.69	59.12	9.14	10971	0.51	2.69	100.00	20.98
1.30	1.40	18.32	20.01	9418	1.45	3.60	77.44	11.71	10604	0.73	2.91	40.88	38.10
1.40	1.60	12.08	43.55	6692	0.38	1.57	89.52	16.01	10076	0.68	2.73	22.56	52.79
1.60	–	10.48	63.45	4154	0.23	0.90	100.00	20.98	9455	0.64	2.53	10.48	63.45
Minus 100 Mesh		0.99	39.35	7251	0.58	2.89	*100.00	21.16	9434	0.64	2.54		
					Sample No. 41729								
–	1.30	49.91	9.28	10730	0.21	2.22	49.91	9.28	10730	0.21	2.22	100.00	24.78
1.30	1.40	20.40	19.83	9352	0.96	2.84	70.31	12.34	10330	0.43	2.40	50.09	40.23
1.40	1.60	15.52	40.10	6931	1.00	2.33	85.83	17.36	9716	0.53	2.39	29.69	54.24
1.60	–	14.17	69.73	3167	0.31	0.85	100.00	24.78	8788	0.50	2.17	14.17	69.73
Minus 100 Mesh		1.86	41.25	6846	0.46	2.07	*100.00	25.08	8752	0.50	2.17		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. Washability Analyses of 3/4 Inch x 100 Mesh Coal, Drill Hole No. 3

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41730							
–	1.30	74.17	7.27	10537	0.02	0.75	74.17	7.27	10537	0.02	0.75	100.00	12.27
1.30	1.40	16.36	16.40	9253	0.10	0.97	90.53	8.92	10305	0.03	0.79	25.83	26.61
1.40	1.60	7.38	42.72	6428	0.10	0.62	97.91	11.47	10013	0.04	0.78	9.47	44.25
1.60	–	2.09	49.65	5355	0.13	0.69	100.00	12.27	9915	0.04	0.78	2.09	49.65
Minus 100 Mesh		0.61	17.74	9040	0.13	0.85	*100.00	12.30	9910	0.04	0.78		
						Sample No. 41731							
–	1.30	24.12	8.08	10466	0.15	1.72	24.12	8.08	10466	0.15	1.72	100.00	26.73
1.30	1.40	32.35	15.76	9219	0.25	1.63	56.47	12.48	9752	0.21	1.67	75.88	32.66
1.40	1.60	33.42	40.74	6434	0.30	1.32	89.89	22.99	8518	0.24	1.54	43.53	45.22
1.60	–	10.11	60.04	4284	0.21	0.73	100.00	26.73	8090	0.24	1.46	10.11	60.04
Minus 100 Mesh		1.11	34.78	7980	0.34	1.49	*100.00	26.82	8089	0.24	1.46		
						Sample No. 41732							
–	1.30	40.42	6.96	10956	0.12	1.73	40.42	6.96	10956	0.12	1.73	100.00	16.95
1.30	1.40	26.00	8.61	10898	0.11	1.56	66.42	7.61	10933	0.12	1.66	59.58	23.73
1.40	1.60	25.04	27.12	5948	0.10	0.96	91.46	12.95	9568	0.11	1.47	33.58	35.43
1.60	–	8.54	59.81	4069	0.16	0.69	100.00	16.95	9099	0.12	1.40	8.54	59.81
Minus 100 Mesh		0.55	26.87	7130	0.20	1.32	*100.00	17.00	9088	0.12	1.40		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41733							
–	1.30	44.84	7.89	10607	0.07	1.34	44.84	7.89	10607	0.07	1.34	100.00	21.86
1.30	1.40	24.49	20.00	8993	0.33	1.80	69.33	12.17	10037	0.16	1.50	55.16	33.22
1.40	1.60	29.32	43.71	5937	0.09	0.96	98.65	21.54	8818	0.14	1.34	30.67	43.78
1.60	–	1.35	45.41	5898	0.21	0.99	100.00	21.86	8779	0.14	1.34	1.35	45.41
Minus 100 Mesh		0.78	23.64	7542	0.30	1.45	*100.00	21.88	8769	0.14	1.34		
						Sample No. 41734							
–	1.30	94.32	6.15	10885	0.02	1.47	94.32	6.15	10885	0.02	1.47	100.00	6.81
1.30	1.40	3.83	14.60	9520	0.09	1.47	98.15	6.48	10832	0.02	1.47	5.68	17.74
1.40	1.60	1.04	36.47	6768	0.09	1.02	99.19	6.79	10789	0.02	1.47	1.85	24.25
1.60	–	0.81	8.55	8211	0.18	1.23	100.00	6.81	10768	0.02	1.46	0.81	8.55
Minus 100 Mesh		0.35	9.60	9867	0.12	1.49	*100.00	6.82	10765	0.03	1.46		
						Sample No. 41735							
–	1.30	86.94	6.35	10793	0.03	1.48	86.94	6.35	10793	0.03	1.48	100.00	7.84
1.30	1.40	11.29	16.64	9183	0.28	1.73	98.23	7.53	10608	0.06	1.51	13.06	17.73
1.40	1.60	1.14	24.24	8320	0.86	1.94	99.37	7.72	10582	0.07	1.51	1.77	24.65
1.60	–	0.63	25.38	8269	0.36	1.52	100.00	7.84	10567	0.07	1.51	0.63	25.38
Minus 100 Mesh		0.63	10.49	9878	0.26	1.66	*100.00	7.85	10563	0.07	1.51		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41736							
–	1.30	73.38	6.96	11025	0.01	1.41	73.38	6.96	11025	0.01	1.41	100.00	10.95
1.30	1.40	21.26	20.41	9094	0.03	1.32	94.64	9.98	10591	0.01	1.39	26.62	21.95
1.40	1.60	4.34	26.45	7524	0.04	0.99	98.98	10.70	10457	0.02	1.37	5.36	28.08
1.60	–	1.02	35.00	7159	0.13	1.05	100.00	10.95	10423	0.02	1.37	1.02	35.00
Minus 100 Mesh		0.87	13.18	9216	0.04	1.22	*100.00	10.97	10413	0.02	1.37		
						Sample No. 41737							
–	1.30	74.26	7.31	11013	0.23	2.06	74.26	7.31	11013	0.23	2.06	100.00	10.28
1.30	1.40	22.09	15.84	9574	0.70	2.44	96.35	9.27	10683	0.34	2.15	25.74	18.86
1.40	1.60	2.59	34.42	6995	0.48	1.71	98.94	9.92	10587	0.34	2.14	3.65	37.17
1.60	–	1.06	43.89	6013	0.25	1.21	100.00	10.28	10538	0.34	2.13	1.06	43.89
Minus 100 Mesh		1.94	12.06	9502	0.39	2.00	*100.00	10.32	10518	0.34	2.12		
						Sample No. 41738							
–	1.30	54.87	9.35	10499	0.13	1.55	54.87	9.35	10499	0.13	1.55	100.00	16.84
1.30	1.40	32.05	19.22	9359	0.14	1.35	86.92	12.99	10079	0.13	1.48	45.13	25.96
1.40	1.60	8.72	37.79	6602	0.09	1.13	95.64	15.25	9762	0.13	1.44	13.08	42.46
1.60	–	4.36	51.80	4884	0.13	0.84	100.00	16.84	9549	0.13	1.42	4.36	51.80
Minus 100 Mesh		1.73	16.97	8708	0.04	1.21	*100.00	16.85	9535	0.13	1.41		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41739								
–	1.30	89.20	6.62	10903	0.01	1.25	89.20	6.62	10903	0.01	1.25	100.00	8.19
1.30	1.40	9.52	19.44	9358	0.03	1.01	98.72	7.86	10754	0.01	1.23	10.80	21.16
1.40	1.60	1.04	35.14	7195	0.03	0.88	99.76	8.14	10717	0.01	1.22	1.28	33.97
1.60	–	0.24	28.90	8075	0.08	0.99	100.00	8.19	10711	0.01	1.22	0.24	28.90
Minus 100 Mesh		0.94	10.81	9881	0.02	0.99	*100.00	8.21	10703	0.01	1.22		
					Sample No. 41740								
–	1.30	69.34	6.48	10864	0.03	1.34	69.34	6.48	10864	0.03	1.34	100.00	13.39
1.30	1.40	17.73	22.74	8787	0.12	1.29	87.07	9.79	10441	0.05	1.33	30.66	29.02
1.40	1.60	10.69	34.66	7154	0.08	1.02	97.76	12.51	10082	0.05	1.30	12.93	37.62
1.60	–	2.24	51.76	5092	0.22	0.85	100.00	13.39	9970	0.06	1.29	2.24	51.76
Minus 100 Mesh		1.63	17.79	8531	0.49	1.68	*100.00	13.46	9947	0.06	1.29		
					Sample No. 41741								
–	1.30	95.59	5.87	10550	0.07	1.23	95.59	5.87	10550	0.07	1.23	100.00	6.55
1.30	1.40	3.39	20.02	9214	0.17	1.32	98.98	6.35	10504	0.07	1.23	4.41	21.39
1.40	1.60	0.59	28.78	8634	0.21	1.28	99.57	6.49	10493	0.07	1.23	1.02	25.93
1.60	–	0.43	22.03	8860	0.63	1.73	100.00	6.55	10486	0.08	1.24	0.43	22.03
Minus 100 Mesh		0.51	11.36	10038	0.68	1.86	*100.00	6.58	10484	0.08	1.24		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41742							
–	1.30	95.06	6.92	11126	0.04	1.56	95.06	6.92	11126	0.04	1.56	100.00	7.79
1.30	1.40	2.62	15.52	9810	0.10	1.49	97.68	7.15	11091	0.04	1.56	4.94	24.45
1.40	1.60	1.34	21.92	7993	0.08	1.23	99.02	7.35	11049	0.04	1.55	2.32	34.53
1.60	–	0.98	51.78	4895	0.21	0.86	100.00	7.79	10988	0.04	1.55	0.98	51.78
Minus 100 Mesh		0.77	12.96	11814	0.33	2.08	*100.00	7.83	10995	0.05	1.55		
						Sample No. 41743							
–	1.30	74.17	6.99	10949	0.10	1.70	74.17	6.99	10949	0.10	1.70	100.00	12.84
1.30	1.40	14.33	17.75	9392	0.23	1.75	88.50	8.73	10697	0.12	1.71	25.83	29.62
1.40	1.60	7.74	37.01	7267	0.25	1.35	96.24	11.01	10421	0.13	1.68	11.50	44.42
1.60	–	3.76	59.66	4125	0.31	0.86	100.00	12.84	10184	0.14	1.65	3.76	59.66
Minus 100 Mesh		2.01	24.36	8263	0.39	1.86	*100.00	13.06	10146	0.14	1.65		
						Sample No. 41744							
–	1.30	54.28	10.02	10535	0.12	1.91	54.28	10.02	10535	0.12	1.91	100.00	19.97
1.30	1.40	25.06	22.99	9226	0.12	1.60	79.34	14.12	10122	0.12	1.81	45.72	31.78
1.40	1.60	18.84	40.97	6423	0.06	1.14	98.18	19.27	9412	0.11	1.68	20.66	42.44
1.60	–	1.82	57.63	6475	0.11	1.06	100.00	19.97	9358	0.11	1.67	1.82	57.63
Minus 100 Mesh		1.28	21.84	7998	0.11	1.36	*100.00	19.99	9341	0.11	1.67		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41745								
–	1.30	94.49	7.10	11113	0.03	1.32	94.49	7.10	11113	0.03	1.32	100.00	7.92
1.30	1.40	3.60	16.60	9923	0.09	1.41	98.09	7.45	11069	0.03	1.32	5.51	21.89
1.40	1.60	0.90	26.22	8498	0.11	1.20	98.99	7.62	11046	0.03	1.32	1.91	31.87
1.60	–	1.01	36.90	7111	0.20	1.06	100.00	7.92	11006	0.03	1.32	1.01	36.90
Minus 100 Mesh		0.50	9.74	10159	0.40	1.52	*100.00	7.92	11002	0.04	1.32		
					Sample No. 41746								
–	1.30	91.39	7.83	10959	0.01	1.53	91.39	7.83	10959	0.01	1.53	100.00	8.90
1.30	1.40	6.68	16.83	9919	0.02	1.56	98.07	8.44	10888	0.01	1.53	8.61	20.28
1.40	1.60	0.89	22.14	9094	0.03	1.26	98.96	8.57	10872	0.01	1.53	1.93	32.23
1.60	–	1.04	40.86	7013	0.06	0.94	100.00	8.90	10832	0.01	1.52	1.04	40.86
Minus 100 Mesh		0.59	8.81	10093	0.02	1.21	*100.00	8.90	10828	0.01	1.52		
					Sample No. 41747								
–	1.30	80.00	6.57	11110	0.10	1.39	80.00	6.57	11110	0.10	1.39	100.00	11.65
1.30	1.40	10.61	19.46	9388	0.28	1.96	90.61	8.08	10908	0.12	1.46	20.00	31.98
1.40	1.60	3.16	54.24	4826	0.38	1.13	93.77	9.63	10703	0.13	1.45	9.39	46.13
1.60	–	6.23	42.01	7408	0.21	1.42	100.00	11.65	10498	0.13	1.44	6.23	42.01
Minus 100 Mesh		0.81	14.31	9323	0.09	1.17	*100.00	11.67	10489	0.13	1.44		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41748							
–	1.30	75.70	7.98	11056	0.10	1.48	75.70	7.98	11056	0.10	1.48	100.00	13.62
1.30	1.40	13.76	23.53	8916	0.08	1.59	89.46	10.37	10727	0.10	1.50	24.30	31.19
1.40	1.60	9.94	41.74	6326	0.10	1.14	99.40	13.51	10287	0.10	1.46	10.54	41.20
1.60	–	0.60	32.24	7740	0.19	1.38	100.00	13.62	10271	0.10	1.46	0.60	32.24
Minus 100 Mesh		0.72	16.21	9315	0.25	1.52	*100.00	13.64	10265	0.10	1.46		
						Sample No. 41749							
–	1.30	91.30	6.72	11305	0.09	1.07	91.30	6.72	11305	0.09	1.07	100.00	10.52
1.30	1.40	2.40	23.70	8838	0.17	1.13	93.70	7.15	11242	0.09	1.07	8.70	50.42
1.40	1.60	5.16	58.94	4321	0.20	0.84	98.86	9.86	10881	0.10	1.06	6.30	60.60
1.60	–	1.14	68.09	3308	0.11	0.39	100.00	10.52	10794	0.10	1.05	1.14	68.09
Minus 100 Mesh		1.28	22.23	8486	0.41	1.62	*100.00	10.67	10765	0.10	1.06		
						Sample No. 41750							
–	1.30	67.95	8.50	11082	0.14	1.67	67.95	8.50	11082	0.14	1.67	100.00	15.40
1.30	1.40	19.52	23.02	9064	0.39	1.85	87.47	11.74	10632	0.20	1.71	32.05	30.01
1.40	1.60	11.56	40.81	6777	0.32	1.37	99.03	15.13	10182	0.21	1.67	12.53	40.91
1.60	–	0.97	42.12	6584	0.10	0.82	100.00	15.40	10147	0.21	1.66	0.97	42.12
Minus 100 Mesh		0.26	21.71	9084	0.45	1.97	*100.00	15.41	10144	0.21	1.66		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 28. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41826							
–	1.30	73.61	8.25	10632	0.22	2.40	73.61	8.25	10632	0.22	2.40	100.00	14.18
1.30	1.40	16.28	19.36	9480	1.21	3.29	89.89	10.26	10423	0.40	2.56	26.39	30.72
1.40	1.60	5.66	36.54	7284	1.25	2.89	95.55	11.82	10237	0.45	2.58	10.11	49.02
1.60	–	4.45	64.90	3692	0.61	1.12	100.00	14.18	9946	0.46	2.52	4.45	64.90
Minus 100 Mesh		0.98	32.06	7064	1.00	2.58	*100.00	14.35	9918	0.46	2.52		
						Sample No. 41827							
–	1.30	72.08	10.20	10721	0.26	1.78	72.08	10.20	10721	0.26	1.78	100.00	14.61
1.30	1.40	18.08	21.02	9318	1.55	3.25	90.16	12.37	10440	0.52	2.07	27.92	25.98
1.40	1.60	7.38	27.99	8153	1.62	3.02	97.54	13.55	10267	0.60	2.15	9.84	35.09
1.60	–	2.46	56.38	4691	0.47	1.36	100.00	14.61	10129	0.60	2.13	2.46	56.38
Minus 100 Mesh		1.33	25.12	8066	1.65	3.01	*100.00	14.74	10102	0.61	2.14		
						Sample No. 41828							
–	1.30	65.67	8.34	11085	0.16	1.61	65.67	8.34	11085	0.16	1.61	100.00	15.39
1.30	1.40	22.00	21.84	9127	0.38	1.85	87.67	11.73	10594	0.22	1.67	34.33	28.89
1.40	1.60	9.36	38.54	7024	0.26	1.22	97.03	14.31	10249	0.22	1.63	12.33	41.47
1.60	–	2.97	50.70	5661	0.20	0.89	100.00	15.39	10113	0.22	1.60	2.97	50.70
Minus 100 Mesh		0.75	29.53	7215	1.00	2.63	*100.00	15.50	10091	0.22	1.61		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. Washability Analyses of 3/4 Inch x 100 Mesh Coal, Drill Hole No. 4

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41829								
–	1.30	66.04	7.26	10571	0.01	1.09	66.04	7.26	10571	0.01	1.09	100.00	11.20
1.30	1.40	31.85	18.17	9370	0.01	1.01	97.89	10.81	10180	0.01	1.06	33.96	18.86
1.40	1.60	1.51	30.53	7641	0.06	0.92	99.40	11.11	10142	0.01	1.06	2.11	29.22
1.60	–	0.60	25.94	8300	0.06	0.91	100.00	11.20	10131	0.01	1.06	0.60	25.94
Minus 100 Mesh		0.67	19.52	10560	0.05	1.06	*100.00	11.25	10133	0.01	1.06		
					Sample No. 41830								
–	1.30	83.55	6.39	10985	0.01	1.05	83.55	6.39	10985	0.01	1.05	100.00	10.29
1.30	1.40	9.37	22.22	8613	0.17	1.26	92.92	7.99	10746	0.03	1.07	16.45	30.13
1.40	1.60	5.83	37.54	6900	0.10	0.92	98.75	9.73	10519	0.03	1.06	7.08	40.59
1.60	–	1.25	54.83	4734	0.13	0.72	100.00	10.29	10446	0.03	1.06	1.25	54.83
Minus 100 Mesh		0.59	23.50	9664	0.10	1.08	*100.00	10.37	10442	0.03	1.06		
					Sample No. 41831								
–	1.30	89.80	6.81	10819	0.03	1.07	89.80	6.81	10819	0.03	1.07	100.00	8.23
1.30	1.40	7.71	16.39	9322	0.05	1.16	97.51	7.57	10701	0.03	1.08	10.20	20.69
1.40	1.60	1.81	32.83	7453	0.13	0.76	99.32	8.03	10641	0.03	1.07	2.49	34.02
1.60	–	0.68	37.17	7101	0.06	0.77	100.00	8.23	10617	0.03	1.07	0.68	37.17
Minus 100 Mesh		0.45	16.02	10444	0.06	0.99	*100.00	8.26	10617	0.03	1.07		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41832							
–	1.30	43.26	6.37	10741	0.12	1.62	43.26	6.37	10741	0.12	1.62	100.00	21.11
1.30	1.40	26.42	19.69	8998	0.45	1.77	69.68	11.42	10080	0.25	1.68	56.74	32.35
1.40	1.60	20.57	36.71	7040	0.34	1.36	90.25	17.18	9387	0.27	1.60	30.32	43.38
1.60	–	9.75	57.46	4570	0.16	0.80	100.00	21.11	8918	0.26	1.53	9.75	57.46
Minus 100 Mesh		1.31	44.04	6843	0.28	1.29	*100.00	21.41	8891	0.26	1.52		
						Sample No. 41833							
–	1.30	36.57	6.54	10889	0.08	1.19	36.57	6.54	10889	0.08	1.19	100.00	26.05
1.30	1.40	26.92	15.97	9359	0.68	1.74	63.49	10.54	10240	0.33	1.42	63.43	37.29
1.40	1.60	17.33	41.57	6333	0.26	0.98	80.82	17.19	9402	0.32	1.33	36.51	53.01
1.60	–	19.18	63.35	3582	0.20	0.59	100.00	26.05	8286	0.30	1.19	19.18	63.35
Minus 100 Mesh		0.82	41.52	6880	0.30	1.07	*100.00	26.17	8275	0.30	1.19		
						Sample No. 41834							
–	1.30	99.33	5.39	11223	0.05	0.77	99.33	5.39	11223	0.05	0.77	100.00	5.42
1.30	1.40	0.47	8.85	10371	0.04	0.79	99.80	5.41	11219	0.05	0.77	0.67	9.76
1.40	1.60	0.10	11.51	10093	0.15	0.84	99.90	5.41	11218	0.05	0.77	0.20	11.89
1.60	–	0.10	12.27	9998	0.20	0.87	100.00	5.42	11217	0.05	0.77	1.10	12.27
Minus 100 Mesh		0.41	12.20	11879	0.13	0.80	*100.00	5.45	11219	0.05	0.77		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41835							
–	1.30	91.01	6.44	10994	0.04	0.90	91.01	6.44	10994	0.04	0.90	100.00	7.46
1.30	1.40	8.39	17.24	9809	0.08	1.11	99.40	7.35	10894	0.04	0.92	8.99	17.78
1.40	1.60	0.41	23.15	8692	0.06	1.07	99.81	7.42	10885	0.04	0.92	0.60	25.35
1.60	–	0.19	30.09	9182	0.24	1.62	100.00	7.46	10882	0.04	0.92	0.19	30.09
Minus 100 Mesh		0.32	14.17	11490	0.13	1.07	*100.00	7.48	10884	0.04	0.92		
						Sample No. 41836							
–	1.30	93.64	5.55	10977	0.05	0.84	93.64	5.55	10977	0.05	0.84	100.00	6.44
1.30	1.40	5.07	16.41	9625	0.38	1.49	98.71	6.11	10908	0.07	0.87	6.36	19.62
1.40	1.60	1.13	33.38	7476	0.06	0.80	99.84	6.42	10869	0.07	0.87	1.29	32.23
1.60	–	0.16	24.14	8685	0.15	0.88	100.00	6.44	10865	0.07	0.87	0.16	24.14
Minus 100 Mesh		0.32	12.22	11599	0.12	0.92	*100.00	6.46	10868	0.07	0.87		
						Sample No. 41837							
–	1.30	95.10	5.68	11047	0.06	1.03	95.10	5.68	11047	0.06	1.03	100.00	6.88
1.30	1.40	2.48	17.06	9603	0.04	0.98	97.58	5.97	11010	0.06	1.03	4.90	30.19
1.40	1.60	1.53	35.10	7697	0.04	0.74	99.11	6.42	10959	0.06	1.02	2.42	43.64
1.60	–	0.89	58.33	4616	0.05	0.43	100.00	6.88	10903	0.06	1.02	0.89	58.33
Minus 100 Mesh		1.65	12.63	11231	0.05	0.93	*100.00	6.97	10908	0.06	1.02		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41838							
–	1.30	98.26	5.33	10820	0.01	0.66	98.26	5.33	10820	0.01	0.66	100.00	5.42
1.30	1.40	1.34	7.37	10448	0.04	0.70	99.60	5.36	10815	0.01	0.66	1.74	10.64
1.40	1.60	0.15	8.89	10320	0.05	0.76	99.75	5.36	10814	0.01	0.66	0.40	21.58
1.60	–	0.25	29.19	8244	0.07	0.81	100.00	5.42	10808	0.01	0.66	0.25	29.19
Minus 100 Mesh		0.25	9.95	11856	0.04	0.74	*100.00	5.43	10810	0.01	0.66		
						Sample No. 41839							
–	1.30	70.75	6.11	11041	0.01	1.02	70.75	6.11	11041	0.01	1.02	100.00	11.67
1.30	1.40	21.23	20.13	9315	0.04	0.99	91.98	9.35	10643	0.02	1.01	29.25	25.10
1.40	1.60	7.25	36.98	7193	0.03	0.74	99.23	11.36	10391	0.02	0.99	8.02	38.27
1.60	–	0.77	50.37	5688	0.04	0.56	100.00	11.67	10354	0.02	0.99	0.77	50.37
Minus 100 Mesh		0.42	22.06	10593	0.03	0.94	*100.00	11.71	10355	0.02	0.99		
						Sample No. 41840							
–	1.30	93.03	6.55	11060	0.02	1.23	93.03	6.55	11060	0.02	1.23	100.00	7.56
1.30	1.40	5.82	17.95	9340	0.03	1.21	98.85	7.22	10959	0.02	1.23	6.97	21.10
1.40	1.60	0.91	34.33	7248	0.03	0.92	99.76	7.47	10925	0.02	1.23	1.15	37.04
1.60	–	0.24	47.32	6030	0.06	0.73	100.00	7.56	10913	0.02	1.22	0.24	47.32
Minus 100 Mesh		0.42	13.64	11365	0.04	1.22	*100.00	7.59	10915	0.02	1.22		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41841							
–	1.30	93.02	5.81	11146	0.02	0.85	93.02	5.81	11146	0.02	0.85	100.00	7.38
1.30	1.40	4.14	16.21	9580	0.03	0.89	97.16	6.25	11079	0.02	0.85	6.98	28.35
1.40	1.60	1.63	36.31	7333	0.02	0.56	98.79	6.75	11017	0.02	0.85	2.84	46.04
1.60	–	1.21	59.14	4451	0.03	0.32	100.00	7.38	10938	0.02	0.84	1.21	59.14
Minus 100 Mesh		0.85	16.39	10189	0.04	0.73	*100.00	7.46	10932	0.02	0.84		
						Sample No. 41842							
–	1.30	70.84	7.53	11050	0.02	1.02	70.84	7.53	11050	0.02	1.02	100.00	13.90
1.30	1.40	16.10	21.26	9223	0.02	0.81	86.94	10.07	10712	0.02	0.98	29.16	29.38
1.40	1.60	12.24	39.21	6879	0.06	0.67	99.18	13.67	10239	0.02	0.94	13.06	39.38
1.60	–	0.82	41.95	6415	0.08	0.64	100.00	13.90	10207	0.03	0.94	0.82	41.95
Minus 100 Mesh		0.81	26.70	9442	0.04	0.88	*100.00	14.00	10201	0.03	0.94		
						Sample No. 41843							
–	1.30	95.76	6.17	11102	0.04	1.02	95.76	6.17	11102	0.04	1.02	100.00	6.77
1.30	1.40	3.11	15.38	9935	0.02	0.97	98.87	6.46	11065	0.04	1.02	4.24	20.26
1.40	1.60	0.95	31.74	7711	0.02	0.62	99.82	6.70	11033	0.04	1.01	1.13	33.71
1.60	–	0.18	44.08	6390	0.07	0.52	100.00	6.77	11025	0.04	1.01	0.18	44.08
Minus 100 Mesh		0.89	12.76	11115	0.01	0.96	*100.00	6.82	11026	0.04	1.01		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 29. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41844							
–	1.30	89.40	7.29	11170	0.04	1.28	89.40	7.29	11170	0.04	1.28	100.00	9.04
1.30	1.40	7.96	17.60	9858	0.10	1.34	97.36	8.13	11063	0.04	1.28	10.60	23.78
1.40	1.60	2.03	36.49	7219	0.03	0.95	99.39	8.71	10984	0.04	1.28	2.64	42.43
1.60	–	0.61	62.20	3921	0.05	0.49	100.00	9.04	10941	0.04	1.27	0.61	62.20
Minus 100 Mesh		0.29	16.60	11265	0.05	1.21	*100.00	9.06	10942	0.04	1.27		
						Sample No. 41845							
–	1.30	65.90	8.27	11033	0.01	1.29	65.90	8.27	11033	0.01	1.29	100.00	13.10
1.30	1.40	26.79	15.57	10258	0.06	1.41	92.69	10.38	10809	0.02	1.32	34.10	22.43
1.40	1.60	3.47	33.45	7595	0.09	1.08	96.16	11.21	10693	0.03	1.32	7.31	47.58
1.60	–	3.84	60.35	4399	0.11	0.62	100.00	13.10	10451	0.03	1.29	3.84	60.35
Minus 100 Mesh		1.34	30.72	8426	0.04	1.04	*100.00	13.33	10425	0.03	1.29		
						Sample No. 41846							
–	1.30	70.03	6.96	11150	0.03	1.32	70.03	6.96	11150	0.03	1.32	100.00	9.66
1.30	1.40	25.01	12.08	10672	0.05	1.23	95.04	8.31	11024	0.04	1.30	29.97	15.98
1.40	1.60	4.50	34.25	7825	0.02	0.65	99.54	9.48	10880	0.03	1.27	4.96	35.64
1.60	–	0.46	49.20	5724	0.03	0.56	100.00	9.66	10856	0.03	1.26	0.46	49.20
Minus 100 Mesh		0.90	30.38	8923	0.02	0.87	*100.00	9.85	10839	0.03	1.26		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 30. Washability Analyses of 3/4 Inch x 100 Mesh Coal, Drill Hole No. 5

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41847							
–	1.30	47.41	6.67	10605	0.06	1.44	47.41	6.67	10605	0.06	1.44	100.00	17.13
1.30	1.40	36.13	17.27	9287	0.14	1.73	83.54	11.25	10035	0.09	1.57	52.59	26.55
1.40	1.60	9.54	32.88	7275	0.16	1.37	93.08	13.47	9752	0.10	1.55	16.46	46.92
1.60	–	6.92	66.28	3726	0.07	0.56	100.00	17.13	9335	0.10	1.48	6.92	66.28
Minus 100 Mesh		0.65	30.03	8674	0.20	1.47	*100.00	17.21	9331	0.10	1.48		
						Sample No. 41848							
–	1.30	58.01	6.50	10728	0.09	1.72	58.01	6.50	10728	0.09	1.72	100.00	18.02
1.30	1.40	17.25	14.09	9574	0.64	2.28	75.26	8.24	10463	0.22	1.85	41.99	33.94
1.40	1.60	11.69	37.18	6583	0.30	1.38	86.95	12.13	9942	0.23	1.79	24.74	47.78
1.60	–	13.05	57.27	4073	0.14	0.71	100.00	18.02	9176	0.22	1.65	13.05	57.27
Minus 100 Mesh		1.34	33.10	7566	0.29	1.53	*100.00	18.22	9155	0.22	1.64		
						Sample No. 41849							
–	1.30	30.11	5.76	10614	0.11	1.61	30.11	5.76	10614	0.11	1.61	100.00	21.02
1.30	1.40	39.35	16.90	9367	0.14	1.47	69.46	12.07	9908	0.13	1.53	69.89	27.60
1.40	1.60	24.32	38.15	6651	0.16	1.17	93.78	18.83	9063	0.14	1.44	30.54	41.38
1.60	–	6.22	53.99	4640	0.17	0.81	100.00	21.02	8788	0.14	1.40	6.22	53.99
Minus 100 Mesh		1.60	33.95	7474	0.14	1.23	*100.00	21.22	8767	0.14	1.40		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 30. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41850								
–	1.30	83.55	7.40	10755	0.02	1.32	83.55	7.40	10755	0.02	1.32	100.00	9.62
1.30	1.40	12.56	17.55	9442	0.05	1.21	96.11	8.73	10583	0.02	1.31	16.45	20.92
1.40	1.60	3.35	30.90	7585	0.05	1.09	99.46	9.47	10482	0.02	1.30	3.89	31.81
1.60	–	0.54	37.46	6703	0.07	0.99	100.00	9.62	10462	0.03	1.30	0.54	37.46
Minus 100 Mesh		0.95	18.51	10060	0.07	1.15	*100.00	9.71	10458	0.03	1.30		
					Sample No. 41851								
–	1.30	64.94	6.22	10825	0.01	1.20	64.94	6.22	10825	0.01	1.20	100.00	14.36
1.30	1.40	23.55	19.10	8904	0.06	0.98	88.49	9.65	10314	0.02	1.14	35.06	29.45
1.40	1.60	5.37	38.22	6551	0.08	0.84	93.86	11.28	10098	0.03	1.12	11.51	50.62
1.60	–	6.14	61.46	3570	0.08	0.57	100.00	14.36	9698	0.03	1.09	6.14	61.46
Minus 100 Mesh		0.53	22.54	9292	0.17	1.19	*100.00	14.41	9695	0.03	1.09		
					Sample No. 41852								
–	1.30	69.85	6.28	10985	0.04	1.56	69.85	6.28	10985	0.04	1.56	100.00	12.36
1.30	1.40	18.99	13.73	10007	0.05	1.52	88.84	7.87	10776	0.04	1.55	30.15	26.45
1.40	1.60	6.00	37.49	7215	0.04	0.95	94.84	9.75	10551	0.04	1.51	11.16	48.10
1.60	–	5.16	60.44	3973	0.09	0.53	100.00	12.36	10211	0.04	1.46	5.16	60.44
Minus 100 Mesh		1.36	21.05	9520	0.21	1.41	*100.00	12.48	10202	0.05	1.46		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 30. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41853							
–	1.30	37.30	6.37	11141	0.12	1.78	37.30	6.37	11141	0.12	1.78	100.00	26.59
1.30	1.40	22.47	15.13	9707	0.21	2.00	59.77	9.66	10602	0.15	1.86	62.70	38.61
1.40	1.60	19.44	37.45	6980	0.12	1.36	79.21	16.48	9713	0.15	1.74	40.23	51.73
1.60	–	20.79	65.08	3342	0.12	0.66	100.00	26.59	8388	0.14	1.51	20.79	65.08
Minus 100 Mesh		1.51	41.38	6253	0.24	1.38	*100.00	26.81	8357	0.14	1.51		
						Sample No. 41854							
–	1.30	46.98	7.33	10876	0.11	2.01	46.98	7.33	10876	0.11	2.01	100.00	21.95
1.30	1.40	25.36	17.65	9469	0.13	1.87	72.34	10.95	10383	0.12	1.96	53.02	34.90
1.40	1.60	15.40	37.54	7061	0.06	1.12	87.74	15.62	9800	0.11	1.81	27.66	50.72
1.60	–	12.26	67.27	3252	0.09	0.48	100.00	21.95	8997	0.10	1.65	12.26	67.27
Minus 100 Mesh		1.28	30.49	7826	0.11	1.41	*100.00	22.06	8982	0.10	1.65		
						Sample No. 41855							
–	1.30	57.92	7.82	10851	0.35	1.97	57.92	7.82	10851	0.35	1.97	100.00	13.47
1.30	1.40	33.85	15.91	9747	0.67	2.45	91.77	10.80	10444	0.47	2.15	42.08	21.25
1.40	1.60	4.91	34.38	7290	0.74	1.94	96.68	12.00	10284	0.48	2.14	8.23	43.20
1.60	–	3.32	56.24	4331	0.21	0.96	100.00	13.47	10086	0.47	2.10	3.32	56.24
Minus 100 Mesh		0.54	23.72	9086	0.73	2.36	*100.00	13.53	10081	0.47	2.10		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 30. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41856							
–	1.30	67.75	6.30	10945	0.16	1.63	67.75	6.30	10945	0.16	1.63	100.00	11.06
1.30	1.40	25.78	17.63	9502	0.99	2.66	93.53	9.42	10547	0.39	1.91	32.25	21.06
1.40	1.60	5.53	31.20	7452	1.95	3.22	99.06	10.64	10374	0.48	1.99	6.47	34.74
1.60	–	0.94	55.59	4510	0.31	0.98	100.00	11.06	10319	0.47	1.98	0.94	55.59
Minus 100 Mesh		0.74	26.63	8853	1.12	2.72	*100.00	11.18	10309	0.48	1.98		
						Sample No. 41857							
–	1.30	50.68	8.22	10756	0.21	2.33	50.68	8.22	10756	0.21	2.33	100.00	15.12
1.30	1.40	37.93	17.16	9598	0.22	2.15	88.61	12.05	10260	0.21	2.25	49.32	22.21
1.40	1.60	9.43	35.77	7260	0.09	1.43	98.04	14.33	9972	0.20	2.17	11.39	39.03
1.60	–	1.96	54.71	4876	0.10	0.97	100.00	15.12	9872	0.20	2.15	1.96	54.71
Minus 100 Mesh		0.33	23.51	8940	0.40	2.18	*100.00	15.15	9869	0.20	2.15		
						Sample No. 41858							
–	1.30	47.06	6.74	10869	0.25	2.16	47.06	6.74	10869	0.25	2.16	100.00	9.56
1.30	1.40	49.45	10.85	10085	0.26	2.00	96.51	8.85	10467	0.26	2.08	52.94	12.07
1.40	1.60	2.99	30.20	7931	0.20	1.47	99.50	9.49	10391	0.25	2.06	3.49	29.42
1.60	–	0.50	24.78	8246	0.30	1.68	100.00	9.56	10380	0.25	2.06	0.50	24.78
Minus 100 Mesh		1.37	18.16	9447	0.40	2.10	*100.00	9.68	10368	0.26	2.06		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 30. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41859								
–	1.30	55.98	5.80	11145	0.18	2.06	55.98	5.80	11145	0.18	2.06	100.00	16.85
1.30	1.40	25.53	15.00	9871	0.66	2.57	81.51	8.68	10746	0.33	2.22	44.02	30.91
1.40	1.60	7.29	32.46	7447	0.73	2.13	88.80	10.63	10475	0.36	2.21	18.49	52.88
1.60	–	11.20	66.17	3219	0.17	0.69	100.00	16.85	9662	0.34	2.04	11.20	66.17
Minus 100 Mesh		1.50	44.28	6346	0.51	2.09	*100.00	17.26	9613	0.34	2.04		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. Washability Analyses of 3/4 Inch x 100 Mesh Coal, Drill Hole No. 6

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41860							
–	1.30	0.20	3.48	10830	0.06	1.44	0.20	3.48	10830	0.06	1.44	100.00	51.35
1.30	1.40	15.96	19.41	9378	0.16	1.58	16.16	19.21	9396	0.16	1.58	99.80	51.45
1.40	1.60	23.68	39.56	6646	0.12	0.88	39.84	31.31	7761	0.14	1.16	83.84	57.55
1.60	–	60.16	64.63	3897	0.07	0.54	100.00	51.35	5437	0.10	0.79	60.16	64.63
Minus 100 Mesh		3.74	57.16	5668	0.10	0.77	*100.00	51.56	5445	0.10	0.79		
						Sample No. 41861							
–	1.30	19.45	7.24	10672	0.03	1.11	19.45	7.24	10672	0.03	1.11	100.00	10.28
1.30	1.40	76.10	10.33	10309	0.12	1.32	95.55	9.70	10383	0.10	1.28	80.55	11.02
1.40	1.60	3.82	21.66	9021	1.15	2.45	99.37	10.16	10331	0.14	1.32	4.45	22.75
1.60	–	0.63	29.33	7908	0.58	1.82	100.00	10.28	10315	0.14	1.33	0.63	29.33
Minus 100 Mesh		0.73	19.37	9572	0.47	1.75	*100.00	10.35	10310	0.15	1.33		
						Sample No. 41862							
–	1.30	31.13	5.74	11256	0.02	1.03	31.13	5.74	11256	0.02	1.03	100.00	6.50
1.30	1.40	67.58	6.80	10608	0.04	1.06	98.71	6.47	10812	0.03	1.05	68.87	6.85
1.40	1.60	0.59	8.48	10320	1.22	1.16	99.30	6.48	10809	0.04	1.05	1.29	9.44
1.60	–	0.70	10.24	9803	0.56	1.22	100.00	6.50	10802	0.04	1.05	0.70	10.24
Minus 100 Mesh		2.50	9.18	10958	0.09	1.25	*100.00	6.57	10806	0.05	1.06		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41863								
–	1.30	5.27	2.61	11076	0.14	1.77	5.27	2.61	11076	0.14	1.77	100.00	19.18
1.30	1.40	81.28	17.03	9617	0.68	2.24	86.55	16.15	9706	0.65	2.21	94.73	20.10
1.40	1.60	9.72	30.73	7871	0.42	1.59	96.27	17.62	9521	0.62	2.15	13.45	38.67
1.60	–	3.73	59.35	4821	0.18	0.85	100.00	19.18	9345	0.61	2.10	3.73	59.35
Minus 100 Mesh		0.40	28.36	8488	0.70	1.81	*100.00	19.22	9342	0.61	2.10		
					Sample No. 41864								
–	1.30	30.44	6.64	10745	0.14	1.58	30.44	6.64	10745	0.14	1.58	100.00	31.34
1.30	1.40	28.65	17.16	9212	0.93	2.37	59.09	11.74	10002	0.52	1.96	69.56	42.15
1.40	1.60	10.29	36.37	6776	1.09	2.15	69.38	15.39	9523	0.61	1.99	40.91	59.65
1.60	–	30.62	67.47	3238	1.13	1.71	100.00	31.34	7599	0.77	1.90	30.62	67.47
Minus 100 Mesh		2.45	49.55	5394	1.08	2.40	*100.00	31.77	7546	0.77	1.92		
					Sample No. 41865								
–	1.30	28.40	4.48	10556	0.08	1.54	28.40	4.48	10556	0.08	1.54	100.00	32.75
1.30	1.40	19.08	16.19	9279	0.60	1.89	47.48	9.19	10043	0.29	1.68	71.60	43.96
1.40	1.60	29.29	40.91	6264	0.61	1.51	76.77	21.29	8601	0.41	1.62	52.52	54.05
1.60	–	23.23	70.61	3046	0.13	0.41	100.00	32.75	7311	0.35	1.34	23.23	70.61
Minus 100 Mesh		48.40	58.47	4214	0.34	1.12	*100.00	41.14	6301	0.34	1.27		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41866								
–	1.30	28.49	5.59	10686	0.02	0.93	28.49	5.59	10686	0.02	0.93	100.00	40.98
1.30	1.40	18.48	16.70	9238	0.04	0.85	46.97	9.96	10116	0.03	0.90	71.51	55.08
1.40	1.60	13.36	37.52	6822	0.06	0.70	60.33	16.06	9387	0.03	0.85	53.03	68.45
1.60	–	39.67	78.87	1646	0.10	0.18	100.00	40.98	6316	0.06	0.59	39.67	78.87
Minus 100 Mesh		1.29	54.82	4702	0.10	0.48	*100.00	41.16	6295	0.06	0.59		
					Sample No. 41867								
–	1.30	1.48	3.15	10855	0.06	1.64	1.48	3.15	10855	0.06	1.64	100.00	24.81
1.30	1.40	60.95	17.27	9610	0.18	1.83	62.43	16.94	9640	0.18	1.83	98.52	25.14
1.40	1.60	31.79	33.46	7192	0.38	1.49	94.22	22.51	8814	0.25	1.71	37.57	37.91
1.60	–	5.78	62.37	3990	0.18	0.74	100.00	24.81	8535	0.24	1.66	5.78	62.37
Minus 100 Mesh		2.09	34.45	7493	0.38	1.43	*100.00	25.01	8514	0.24	1.65		
					Sample No. 41868								
–	1.30	36.51	4.80	10973	0.02	1.59	36.51	4.80	10973	0.02	1.59	100.00	9.64
1.30	1.40	57.27	9.81	10176	0.16	1.69	93.78	7.86	10486	0.11	1.65	63.49	12.42
1.40	1.60	5.53	35.84	6958	0.08	1.03	99.31	9.42	10290	0.10	1.62	6.22	36.47
1.60	–	0.69	41.48	5950	0.12	0.62	100.00	9.64	10260	0.10	1.61	0.69	41.48
Minus 100 Mesh		0.68	19.40	9940	0.17	1.71	*100.00	9.70	10258	0.10	1.61		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41869								
–	1.30	14.49	5.32	10780	0.04	1.44	14.49	5.32	10780	0.04	1.44	100.00	17.30
1.30	1.40	64.78	15.43	9316	0.06	1.36	79.27	13.58	9584	0.06	1.37	85.51	19.33
1.40	1.60	18.86	30.88	7500	0.11	1.26	98.13	16.91	9183	0.07	1.35	20.73	31.53
1.60	–	1.87	38.11	6926	0.29	1.34	100.00	17.30	9141	0.07	1.35	1.87	38.11
Minus 100 Mesh		1.61	27.40	7929	0.42	1.67	*100.00	17.46	9122	0.08	1.36		
					Sample No. 41870								
–	1.30	9.40	7.86	10780	0.04	1.38	9.40	7.86	10780	0.04	1.38	100.00	25.85
1.30	1.40	48.79	15.36	9559	0.33	1.55	58.19	14.15	9756	0.28	1.52	90.60	27.72
1.40	1.60	34.67	39.39	6858	0.72	1.43	92.86	23.57	8674	0.45	1.49	41.81	42.14
1.60	–	7.14	55.52	4836	0.33	0.90	100.00	25.85	8400	0.44	1.45	7.14	55.52
Minus 100 Mesh		1.45	36.02	7184	0.71	1.66	*100.00	26.00	8383	0.44	1.45		
					Sample No. 41871								
–	1.30	67.63	5.75	10275	0.05	1.16	67.63	5.75	10275	0.05	1.16	100.00	9.03
1.30	1.40	26.90	8.83	10299	0.09	1.40	94.53	6.63	10282	0.06	1.23	32.37	15.89
1.40	1.60	1.91	26.84	8383	0.06	1.03	96.44	7.03	10244	0.06	1.22	5.47	50.58
1.60	–	3.56	63.32	4214	0.07	0.41	100.00	9.03	10030	0.06	1.20	3.56	63.32
Minus 100 Mesh		1.22	17.29	10030	0.10	1.25	*100.00	9.13	10030	0.06	1.20		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41872								
–	1.30	54.82	7.06	10766	0.03	1.22	54.82	7.06	10766	0.03	1.22	100.00	14.69
1.30	1.40	30.57	13.80	9749	0.07	1.31	85.39	9.47	10402	0.04	1.25	45.18	23.96
1.40	1.60	7.81	34.96	7265	0.12	1.07	93.20	11.61	10139	0.05	1.24	14.61	45.21
1.60	–	6.80	56.99	4221	0.08	0.63	100.00	14.69	9737	0.05	1.20	6.80	56.99
Minus 100 Mesh		1.68	28.00	7992	0.04	1.08	*100.00	14.91	9708	0.05	1.19		
					Sample No. 41873								
–	1.30	59.86	5.81	10806	0.05	1.58	59.86	5.81	10806	0.05	1.58	100.00	9.79
1.30	1.40	34.54	12.15	9834	0.17	1.79	94.40	8.13	10450	0.09	1.66	40.14	15.72
1.40	1.60	4.21	35.18	7203	0.18	1.20	98.61	9.28	10312	0.10	1.64	5.60	37.74
1.60	–	1.39	45.49	5890	0.14	1.00	100.00	9.79	10250	0.10	1.63	1.39	45.49
Minus 100 Mesh		0.84	19.47	9716	0.21	1.64	*100.00	9.87	10246	0.10	1.63		
					Sample No. 41874								
–	1.30	35.18	7.22	10450	0.46	2.23	35.18	7.22	10450	0.46	2.23	100.00	15.62
1.30	1.40	56.61	12.61	9992	0.70	2.53	91.79	10.54	10168	0.61	2.42	64.82	20.19
1.40	1.60	1.41	27.96	8420	0.32	1.31	93.20	10.81	10141	0.60	2.40	8.21	72.43
1.60	–	6.80	81.65	1899	0.10	0.40	100.00	15.62	9581	0.57	2.26	6.80	81.65
Minus 100 Mesh		1.32	43.05	6779	0.42	1.55	*100.00	15.98	9544	0.57	2.25		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41875							
–	1.30	10.27	8.95	10814	0.04	1.77	10.27	8.95	10814	0.04	1.77	100.00	21.91
1.30	1.40	45.28	15.79	9601	0.04	1.70	55.55	14.53	9825	0.04	1.71	89.73	23.39
1.40	1.60	42.61	30.40	7681	0.07	1.24	98.16	21.42	8894	0.05	1.51	44.45	31.13
1.60	–	1.84	48.06	5623	0.23	1.14	100.00	21.91	8834	0.06	1.50	1.84	48.06
Minus 100 Mesh		1.54	28.46	5229	0.18	1.16	*100.00	22.01	8780	0.06	1.50		
						Sample No. 41876							
–	1.30	50.89	6.68	10694	0.15	2.17	50.89	6.68	10694	0.15	2.17	100.00	18.13
1.30	1.40	27.24	14.53	9694	0.58	2.66	78.13	9.42	10345	0.30	2.34	49.11	30.00
1.40	1.60	10.93	32.95	7308	0.19	1.74	89.06	12.31	9973	0.29	2.27	21.87	49.27
1.60	–	10.94	65.58	2797	0.10	0.67	100.00	18.13	9188	0.27	2.09	10.94	65.58
Minus 100 Mesh		1.45	36.56	5639	0.26	1.76	*100.00	18.40	9137	0.27	2.09		
						Sample No. 41877							
–	1.30	61.32	6.44	11000	0.08	1.40	61.32	6.44	11000	0.08	1.40	100.00	8.69
1.30	1.40	36.57	11.54	10197	0.19	1.74	97.89	8.35	10700	0.12	1.53	38.68	12.26
1.40	1.60	1.63	26.04	8312	0.16	1.44	99.52	8.64	10661	0.12	1.53	2.11	24.80
1.60	–	0.48	20.60	9142	0.17	1.42	100.00	8.69	10654	0.12	1.53	0.48	20.60
Minus 100 Mesh		0.83	15.42	10109	0.11	1.51	*100.00	8.75	10649	0.12	1.52		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41878							
–	1.30	26.30	6.92	10925	0.02	1.00	26.30	6.92	10925	0.02	1.00	100.00	12.75
1.30	1.40	73.10	14.84	9914	0.02	1.49	99.40	12.74	10181	0.02	1.36	73.70	14.83
1.40	1.60	0.38	13.17	9901	0.05	1.19	99.78	12.75	10180	0.02	1.36	0.60	13.65
1.60	–	0.22	14.49	9772	0.05	1.19	100.00	12.75	10180	0.02	1.36	0.22	14.49
Minus 100 Mesh		0.99	11.38	10638	0.03	1.12	*100.00	12.74	10184	0.02	1.36		
						Sample No. 41879							
–	1.30	51.37	6.72	10869	0.05	1.21	51.37	6.72	10869	0.05	1.21	100.00	11.40
1.30	1.40	42.16	12.92	10437	0.36	1.59	93.53	9.51	10674	0.19	1.38	48.63	16.34
1.40	1.60	4.75	29.76	8233	0.91	1.81	98.28	10.49	10556	0.22	1.40	6.47	38.60
1.60	–	1.72	63.00	4076	0.47	0.88	100.00	11.40	10445	0.23	1.39	1.72	63.00
Minus 100 Mesh		0.65	21.21	9831	0.36	1.44	*100.00	11.46	10441	0.23	1.39		
						Sample No. 41880							
–	1.30	78.67	6.50	11077	0.07	1.53	78.67	6.50	11077	0.07	1.53	100.00	8.09
1.30	1.40	19.20	10.03	10265	0.25	1.68	97.87	7.19	10918	0.11	1.56	21.33	13.94
1.40	1.60	0.68	29.67	8100	0.13	1.12	98.55	7.35	10898	0.11	1.56	2.13	49.21
1.60	–	1.45	58.37	5005	0.05	0.68	100.00	8.09	10813	0.10	1.54	1.45	58.37
Minus 100 Mesh		0.97	12.87	10711	0.13	1.48	*100.00	8.13	10812	0.10	1.54		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41881							
–	1.30	25.79	6.60	11482	0.04	1.42	25.79	6.60	11482	0.04	1.42	100.00	21.62
1.30	1.40	51.41	20.10	9197	0.11	1.53	77.20	15.59	9960	0.09	1.49	74.21	26.84
1.40	1.60	21.94	41.96	6259	0.10	1.01	99.14	21.43	9141	0.09	1.39	22.80	42.03
1.60	–	0.86	43.80	6065	0.15	1.30	100.00	21.62	9115	0.09	1.39	0.86	43.80
Minus 100 Mesh		0.16	26.97		0.16	1.63	*100.00	21.63		0.09	1.39		
						Sample No. 41882							
–	1.30	44.52	7.64	10861	0.16	1.97	44.52	7.64	10861	0.16	1.97	100.00	14.07
1.30	1.40	46.58	14.70	9957	0.37	2.26	91.10	11.25	10399	0.27	2.12	55.48	19.23
1.40	1.60	5.62	34.00	7505	0.37	1.52	96.72	12.57	10231	0.27	2.08	8.90	42.93
1.60	–	3.28	58.23	4582	0.21	1.01	100.00	14.07	10045	0.27	2.05	3.28	58.23
Minus 100 Mesh		0.21	21.85	10517	0.07	2.48	*100.00	14.09	10046	0.27	2.05		
						Sample No. 41883							
–	1.30	83.92	6.19	10953	0.18	1.73	83.92	6.19	10953	0.18	1.73	100.00	10.07
1.30	1.40	9.69	13.71	9921	0.55	2.32	93.61	6.97	10846	0.22	1.79	16.08	30.32
1.40	1.60	1.42	31.80	7728	0.78	1.72	95.03	7.34	10800	0.23	1.79	6.39	55.51
1.60	–	4.97	62.29	4058	0.10	0.61	100.00	10.07	10465	0.22	1.73	4.97	62.29
Minus 100 Mesh		0.80	26.54	8938	0.40	1.69	*100.00	10.20	10452	0.22	1.73		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41884								
–	1.30	67.75	9.94	10488	0.13	1.89	67.75	9.94	10488	0.13	1.89	100.00	12.11
1.30	1.40	30.20	16.09	9627	0.28	2.07	97.95	11.84	10223	0.18	1.95	32.25	16.68
1.40	1.60	1.61	26.26	8074	0.20	1.64	99.56	12.07	10188	0.18	1.94	2.05	25.37
1.60	–	0.44	22.12	8779	0.61	2.40	100.00	12.11	10182	0.18	1.94	0.44	22.12
Minus 100 Mesh		0.34	19.49		1.18		*100.00	12.14			1.94		
					Sample No. 41885								
–	1.30	8.80	8.73	11082	0.20	1.87	8.80	8.73	11082	0.20	1.87	100.00	28.37
1.30	1.40	58.54	15.18	9961	0.26	2.38	67.34	14.34	10107	0.25	2.31	91.20	30.27
1.40	1.60	13.14	35.92	7297	0.23	1.53	80.48	17.86	9649	0.25	2.19	32.66	57.31
1.60	–	19.52	71.71	2700	0.09	0.51	100.00	28.37	8292	0.22	1.86	19.52	71.71
Minus 100 Mesh		0.63	43.64	6499	0.38	1.58	*100.00	28.47	8281	0.22	1.86		
					Sample No. 41886								
–	1.30	11.70	8.39	10679	0.63	2.50	11.70	8.39	10679	0.63	2.50	100.00	36.10
1.30	1.40	43.08	15.58	9691	1.10	2.94	54.78	14.04	9902	1.00	2.85	88.30	39.77
1.40	1.60	16.22	36.36	6952	0.80	2.17	71.00	19.14	9228	0.95	2.69	45.22	62.81
1.60	–	29.00	77.60	2143	0.16	0.48	100.00	36.10	7173	0.72	2.05	29.00	77.60
Minus 100 Mesh		0.75	43.36	6334	0.88	2.41	*100.00	36.15	7167	0.72	2.05		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41887							
–	1.30	84.74	7.80	10880	0.07	1.53	84.74	7.80	10880	0.07	1.53	100.00	9.61
1.30	1.40	12.36	16.00	9771	0.13	1.60	97.10	8.84	10739	0.08	1.54	15.26	19.68
1.40	1.60	1.86	31.42	7346	0.48	1.72	98.96	9.27	10675	0.09	1.54	2.90	35.35
1.60	–	1.04	42.37	6712	0.46	1.62	100.00	9.61	10634	0.09	1.54	1.04	42.37
Minus 100 Mesh		0.05				2.94	*100.00						
						Sample No. 41888							
–	1.30	69.29	7.61	11193	0.04	1.03	69.29	7.61	11193	0.04	1.03	100.00	11.69
1.30	1.40	26.59	19.37	8936	0.10	1.49	95.88	10.87	10567	0.06	1.16	30.71	20.89
1.40	1.60	3.67	29.74	7950	0.04	1.12	99.55	11.57	10471	0.06	1.16	4.12	30.72
1.60	–	0.45	38.71	6791	0.17	1.43	100.00	11.69	10454	0.06	1.16	0.45	38.71
Minus 100 Mesh		0.01	18.71			2.25	*100.00	11.69			1.16		
						Sample No. 41889							
–	1.30	81.18	7.50	10928	0.16	1.70	81.18	7.50	10928	0.16	1.70	100.00	9.20
1.30	1.40	16.38	15.23	10024	0.73	2.29	97.56	8.80	10776	0.26	1.80	18.82	16.55
1.40	1.60	1.93	26.32	8497	0.24	1.40	99.49	9.14	10732	0.26	1.79	2.44	25.37
1.60	–	0.51	21.79	6992	0.24	1.20	100.00	9.20	10713	0.26	1.79	0.51	21.79
Minus 100 Mesh		0.94	18.43	9984	0.43	1.91	*100.00	9.29	10706	0.26	1.79		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41890							
–	1.30	65.30	10.84	10944	0.27	1.55	65.30	10.84	10944	0.27	1.55	100.00	16.01
1.30	1.40	18.39	19.36	9203	0.38	1.61	83.69	12.71	10561	0.36	1.56	34.70	25.74
1.40	1.60	15.92	33.05	7457	0.15	1.04	99.61	15.96	10065	0.33	1.48	16.31	32.93
1.60	–	0.39	28.01	7940	1.23	2.71	100.00	16.01	10057	0.33	1.48	0.39	28.01
Minus 100 Mesh		1.00	23.18	8531	0.86	1.54	*100.00	16.08	10042	0.34	1.48		
						Sample No. 41891							
–	1.30	63.89	8.35	10836	0.10	2.08	63.89	8.35	10836	0.10	2.08	100.00	16.88
1.30	1.40	15.02	19.07	9384	0.25	2.41	78.91	10.39	10560	0.13	2.14	36.11	31.96
1.40	1.60	17.61	37.46	6814	0.09	1.34	96.52	15.33	9876	0.12	2.00	21.09	41.15
1.60	–	3.48	59.80	4326	0.08	0.62	100.00	16.88	9683	0.12	1.95	3.48	59.80
Minus 100 Mesh		0.40	29.45	8618	0.24	2.36	*100.00	16.93	9679	0.12	1.95		
						Sample No. 41892							
–	1.30	79.94	7.12	10726	0.06	1.42	79.94	7.12	10726	0.06	1.42	100.00	12.33
1.30	1.40	11.95	16.23	9906	0.87	1.30	91.89	8.30	10619	0.17	1.40	20.06	33.08
1.40	1.60	2.42	35.03	6658	0.08	1.00	94.31	8.99	10518	0.16	1.39	8.11	57.92
1.60	–	5.69	67.65	3136	0.05	0.42	100.00	12.33	10098	0.16	1.34	5.69	67.65
Minus 100 Mesh		0.42	27.84	9442	0.08	1.23	*100.00	12.39	10095	0.16	1.34		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
						Sample No. 41893							
–	1.30	54.28	8.68	10734	0.11	1.57	54.28	8.68	10734	0.11	1.57	100.00	19.92
1.30	1.40	26.20	17.83	9197	0.17	1.36	80.48	11.66	10234	0.13	1.50	45.72	33.26
1.40	1.60	11.18	37.67	7354	0.10	1.01	91.66	14.83	9882	0.13	1.44	19.52	53.97
1.60	–	8.34	75.82	2292	0.05	0.31	100.00	19.92	9249	0.12	1.35	8.34	75.82
Minus 100 Mesh		0.50	32.79	8860	0.19	1.34	*100.00	19.98	9247	0.12	1.35		
						Sample No. 41894							
–	1.30	85.75	7.37	10758	0.07	1.21	85.75	7.37	10758	0.07	1.21	100.00	10.26
1.30	1.40	9.08	21.11	8300	0.14	1.30	94.83	8.69	10523	0.08	1.22	14.25	27.64
1.40	1.60	4.54	38.15	6755	0.08	0.96	99.37	10.03	10351	0.08	1.21	5.17	39.10
1.60	–	0.63	45.91	6170	0.07	0.79	100.00	10.26	10324	0.08	1.20	0.63	45.91
Minus 100 Mesh		0.09	16.59	7022	0.13	1.30	*100.00	10.26	10321	0.08	1.20		
						Sample No. 41895							
–	1.30	72.45	8.30	10927	0.05	1.35	72.45	8.30	10927	0.05	1.35	100.00	16.67
1.30	1.40	13.58	23.30	8962	0.06	1.06	86.03	10.67	10617	0.05	1.30	27.55	38.67
1.40	1.60	8.23	39.88	7095	0.03	0.70	94.26	13.22	10309	0.05	1.25	13.97	53.62
1.60	–	5.74	73.32	2770	0.04	0.35	100.00	16.67	9877	0.05	1.20	5.74	73.32
Minus 100 Mesh		1.03	32.07	8133	0.07	1.00	*100.00	16.83	9859	0.05	1.20		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Table 31. (continued)

SPECIFIC GRAVITY FRACTIONS		INDIVIDUAL FRACTIONS					CUMULATIVE FLOAT					CUMULATIVE SINK	
					Percent Sulfur					Percent Sulfur			
Sink	Float	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %	Btu/lb	Pyritic	Total	Wt %	Ash %
					Sample No. 41896								
–	1.30	60.87	8.33	10979	0.17	1.70	60.87	8.33	10979	0.17	1.70	100.00	19.00
1.30	1.40	19.92	20.74	9448	0.43	1.93	80.79	11.39	10602	0.23	1.76	39.13	35.60
1.40	1.60	11.66	36.95	7596	0.15	1.13	92.45	14.61	10222	0.22	1.68	19.21	51.01
1.60	–	7.55	72.73	2457	0.19	0.56	100.00	19.00	9636	0.22	1.59	7.55	72.73
Minus 100 Mesh		1.03	41.54	7793	0.45	1.70	*100.00	19.23	9617	0.22	1.59		
					Sample No. 41897								
–	1.30	57.77	9.79	10595	0.50	2.04	57.77	9.79	10595	0.50	2.04	100.00	16.84
1.30	1.40	25.86	18.50	9604	0.84	2.48	83.63	12.48	10289	0.61	2.18	42.23	26.49
1.40	1.60	13.77	37.44	7130	0.94	2.23	97.40	16.01	9842	0.65	2.18	16.37	39.11
1.60	–	2.60	47.98	5684	0.43	1.29	100.00	16.84	9734	0.65	2.16	2.60	47.98
Minus 100 Mesh		0.48	42.43	8593	0.86	2.44	*100.00	16.96	9728	0.65	2.16		

All results are on a Moisture Free Basis
*Cumulative float plus minus 100 mesh material

Tables 32-33 Overview

Tables 32-33 follow on pages 119 - 120. They present petrologic data for samples from drill hole no. 1. Table 32 gives ulminite reflectance rank distribution data and Table 33 presents coal maceral distribution for the coal samples.

Reflectance of ulminite is an indication of the rank of coal. The mean value of 0.22 percent indicates that the Little Tonzona coal ranks in the subbituminous 'C' and lignite range. The narrow (three or less) reflectance class distribution for ulminite is indicative that this seam was not thermally influenced by any intrusive activity.

Maceral analysis of the samples is shown in Table 33. Various macerals are indicative of their source material and environment of deposition. The macerals ulminite, gelinite, phlobaphinite and pseudo phlobaphinite originate from woody portions of plants and are highly reactive. The liptinite macerals are waxy substances from various parts of plants; sporinite (spores), resinite (resins), alginite (algal remains), exudatinite (forming resin) cutinite (leaf cuticles), and suberinite (a wax coating of root tissues). Liptinite macerals yield a higher percentage of gas during gasification. The inertinite macerals fusinite, semifusinite and macrinite form from woody portions of the plant. These macerals are partly inert to liquefaction and burn with less ease than other macerals. The Little Tonzona coal samples generally contain over 90% reactive macerals. This is in line with other Alaskan subbituminous coals.

Table 32. Reflectance Rank Distribution of Ulminite, Drill Hole No. 1

Sample Number	Reflectance Classes V1	V2	V3	V4	V5	V6	Mean Maximum Reflectance in oil
41676	91	9					.17
41678	67	33					.19
41679	75	25					.17
41681	31	66	3				.23
41682		88	12				.25
41683		73	27				.18
41684		71	29				.18
41685		78	22				.18
41686	31	63	6				.22
41688	44	56					.21
41689	32	68					.23
41690	41	59					.20
41692	13	78	9				.23
41693	42	58					.21
41694	93	7					.18
41695	31	65	4				.27
41696	22	63	15				.25
41697	5	88	7				.24
41698	3	97					.23
41699	4	96					.23
41700		92	8				.25
41701		72	28				.27
41702		99	1				.25
41703		83	17				.27
41704	30	66	4				.22
41705	32	68	—				.21
Average	27	66	7				.22

Table 33. Distribution of Macerals, Drill Hole No. 1

Sample Number	Ulminite	Gelinite	Phlobaphinite	Pseudo phlobaphinite	Sporinite	Resinite	Cutinite	Alginite	Exsudatinite	Thick Cutinite	Suberinite	Other Liptinites	Fusinite	Semifusinite	Macrinite	Globular Macrinite	Inertodetrinite	Sclerotinite
41676	79.9	1.1	4.9	1.1	1.7	1.2	-	-	.2	-	.2	-	.6	3.9	1.2	2.2	1.3	.5
41678	77.6	-	6.3	-	5.8	1.8	-	-	.5	-	.5	-	.9	3.5	1.4	.5	1.0	.7
41679	81.4	-	1.9	.5	1.7	.9	-	-	1.2	-	1.2	-	.4	5.6	.9	1.7	2.6	.4
41681	80.1	.5	3.2	1.7	2.6	.4	.9	-	1.3	-	1.3	-	-	6.3	1.7	1.3	-	-
41682	83.9	-	6.5	1.4	2.6	.5	-	-	1.0	-	1.0	-	.4	1.8	.5	.9	.5	-
41683	74.0	1.0	3.4	.9	2.3	.4	.4	-	-	-	.8	-	-	6.6	5.2	2.7	1.9	.4
41684	83.7	-	3.1	.4	3.0	1.0	-	-	-	-	-	-	-	4.8	.9	2.3	1.3	-
41685	81.2	0.5	3.7	.5	3.1	1.8	-	-	-	-	.4	-	-	6.6	.9	.4	.9	-
41686	75.4	-	4.8	.9	3.5	1.3	.4	-	.8	-	.4	-	-	8.1	2.6	.9	.9	-
41688	79.2	-	4.8	.8	4.6	2.2	.1	-	-	-	1.7	-	-	3.0	1.4	1.4	.8	-
41689	75.2	-	3.9	1.8	3.3	2.1	.3	-	-	-	2.1	.7	-	6.0	1.4	2.7	.5	-
41690	82.1	.5	1.4	2.3	1.9	1.3	.5	-	-	-	.4	-	-	7.4	1.8	1.4	-	-
41692	73.0	-	7.0	2.3	5.5	1.4	.3	-	-	-	.5	.2	-	6.6	1.3	1.8	.1	-
41693	75.1	-	4.5	2.7	6.1	2.5	.6	-	-	-	1.1	-	-	2.2	1.3	2.9	.5	.5
41694	75.8	.5	2.6	2.2	3.1	1.5	-	-	-	-	.5	-	-	6.3	2.4	4.7	.4	-
41695	78.1	-	3.6	1.4	1.7	2.7	-	-	-	-	.4	-	.4	6.4	1.4	2.6	1.3	-
41696	70.9	-	4.4	2.6	5.7	5.7	-	-	-	-	1.3	-	-	4.2	2.6	2.2	.4	-
41697	77.6	-	3.1	.4	3.1	1.8	.3	-	-	-	.2	.6	-	7.0	2.1	3.0	-	-
41698	74.1	-	1.8	1.2	7.3	1.4	-	-	-	-	-	-	-	7.3	3.2	2.0	1.6	.1
41699	78.1	.4	3.9	4.3	1.8	1.3	.9	-	.4	-	.5	-	-	4.0	2.2	2.2	-	-
41700	87.0	-	2.6	2.1	.8	.9	-	-	-	-	-	-	-	3.0	1.8	1.3	-	-
41701	84.9	-	3.3	2.2	3.6	2.3	-	-	-	-	.5	-	-	.9	1.4	.5	.4	-
41702	88.6	.4	4.0	1.0	.5	2.3	-	-	-	-	-	-	-	1.0	.8	1.4	-	-
41703	85.9	-	3.2	.9	1.0	1.8	-	-	-	-	-	-	-	2.6	1.3	.9	.4	-
41704	76.0	-	5.4	4.2	.8	.8	-	-	-	-	.8	-	.4	5.8	1.4	4.4	-	-
41705	81.2	.5	2.6	2.4	2.2	1.4	-	-	-	-	.5	-	-	2.0	1.8	5.4	-	-