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PETROGRAPHIC ANALYSES OF COMPOSITE DRILL CORE SAMPLES FROM SAGE CREEK,
BRITISH COLUMBIA.

SUBMITTED BY SAGE CREEK COAL LIMITED

PROJECT 03-1-3/15-5

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Canadian Metallurgical Fuel Research Laboratory

April 1976

ERP/ERL 76-27(CTR)

ENERGY RESEARCH PROGRAM
Energy Research Laboratories
Report ERP/ERL 76-27(TR)

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INTRODUCTION

This report is a petrographic study of eleven drill core composites taken from Sage Creek, British Columbia by Sage Creek Coal Limited. The samples were prepared for analysis by Birtley Engineering (Canada) Ltd., in Calgary. Although the coal samples were low in F.S.I., the flotation tests indicated that they all floated very well.

The coal samples were submitted for petrographic analysis to further study the nature of these coals and to ascertain if they appear to be oxidized. The results of the petrographic analysis appear in Tables 1 and 2. The proximate analysis is recorded in Table 3.

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TABLE 1 Petrographic Analysis of Component Coals

Identification

Laboratory Number.....	3607-75	3608-75	3609-75	3610-75	3611-75	3612-75
Description.....	#4231	#4232	#4291	#4292	#4330	#4331

Distribution of Vitrinite Types

V-6.....%						
V-7.....%						
V-8.....%		0.3				
V-9.....%		1.1				
V-10.....%	9.9	16.5	3.2	2.4	8.6	12.0
V-11.....%	3.1	6.2	21.8	17.4	11.7	24.7
V-12.....%		1.6	10.4	8.9	2.2	1.5
V-13.....%		0.8	0.4	1.2		0.4
V-14.....%		0.3		0.5		
V-15.....%						
V-16.....%						
V-17.....%						
V-18.....%						

Reactive Components

Total Vitrinite.....%	13.0	26.8	35.7	30.4	22.5	38.6
Reactive Semi-fusinite (1/3)....%	23.1	16.1	9.9	15.2	20.4	9.0
Exinite.....%	1.3	2.4	0.9	0.7	2.9	0.7
Total.....%	37.4	45.3	46.5	46.3	45.8	48.3

Inert Components

Inert Semi-fusinite (2/3).....%	46.3	32.1	19.6	30.5	40.8	18.0
Micrinite.....%	3.0	3.6	4.1	5.4	1.9	4.2
Fusinite.....%	4.5	6.3	20.7	12.1	8.5	17.6
Mineral Matter.....%	8.8	12.7	9.1	5.7	3.0	11.9
Total.....%	62.6	54.7	53.5	53.7	54.2	51.7

Petrographic Indices

Mean Reflectance.....%	1.07	1.09	1.17	1.18	1.12	1.12
Balance Index.....						
Strength Index.....						
Stability Index.....						

TABLE 2 Petrographic Analysis of Component Coals

Identification

Laboratory Number.....	2189-76	2190-76	2191-76	2192-76	2193-76
Description.....	#7230	#7231	#7232	#7233	#7234

Distribution of Vitrinite Types

V-6.....%					
V-7.....%					
V-8.....%					
V-9.....%					
V-10.....%	2.5	1.3	1.3		0.2
V-11.....%	15.0	10.1	16.9	11.6	10.3
V-12.....%	7.5	22.2	13.7	16.9	8.0
V-13.....%			0.6	0.6	0.5
V-14.....%					
V-15.....%					
V-16.....%					
V-17.....%					
V-18.....%					

Reactive Components

Total Vitrinite.....%	25.0	33.6	32.5	29.1	19.0
Reactive Semi-fusinite (1/3)....%	17.9	14.3	14.0	16.3	19.5
Exinite.....%	0.5	0.2	0.4	0.4	0.0
Total.....%	43.4	48.1	46.9	45.8	38.5

Inert Components

Inert Semi-fusinite (2/3).....%	35.9	28.5	28.0	32.7	38.9
Micrinite.....%	2.0	2.7	3.3	3.7	2.5
Fusinite.....%	9.9	11.1	13.4	11.4	10.4
Mineral Matter.....%	8.8	9.6	8.4	6.4	9.7
Total.....%	56.6	51.9	53.1	54.2	61.5

Petrographic Indices

Mean Reflectance.....%	1.16	1.20	1.18	1.20	1.19
Balance Index.....					
Strength Index.....					
Stability Index.....					

TABLE 3

Proximate Analysis of Component Coals

<u>Identification</u>						
Lab. Number.....	3607-75	3608-75	3609-75	3610-75	3611-75	3612-75
Description.....	#4231	#4232	#4233	#4234	#4235	#4236
<u>Proximate Analysis (db)</u>						
Ash.....%	14.7	21.2	15.2	9.7	5.3	19.8
Volatile Matter.....%	21.5	22.9	27.1	22.4	21.6	30.1
Fixed Carbon	63.8	55.9	57.7	67.9	73.1	50.1
<u>Identification</u>						
Laboratory Number.....	2189-76	2190-76	2191-76	2192-76	2193-76	
Description.....	#7230	#7231	#7232	#7233	#7234	
<u>Proximate Analysis (db)</u>						
Ash.....%	14.8	16.0	14.1	10.8	16.2	
Volatile Matter.....%	21.4	23.8	21.2	20.9	20.0	
Fixed Carbon.....%	68.8	60.2	64.7	68.3	63.8	

REMARKS

1. The vitrinite content of the drill-core composite samples is very low ranging from 13.0 to 38.6 percent. The total semi-fusinite content is very high ranging from 42.0 to 58.4 percent.
2. The total inert content (2/3 semi-fusinite + micrinite + fusinite + mineral matter) is very high, ranging from 51.7 to 62.6 percent.
3. The results of the sulfranin-0 stain test for oxidation were negative except for sample #4331, indicating that these coals were not oxidized. Sample #4331 revealed oxidation of a small percentage of vitrinites which indicates slight oxidation.
4. The reported low F.S.I. values appear to be due to the excess inert content and the deficiency of fluid vitrinite rather than in situ oxidation.

REFERENCES

1. ASTM Designation: D2797-72, "Preparing Coal Samples for Microscopical Analysis by Reflected Light".
2. ASTM Designation: D2798-72, "Determining Microscopically the Reflectance of the Organic Components in a Polished Specimen of Coal".
3. ASTM Designation: D2799-72, "Microscopical Determination of Volume Percent of Physical Components of Coal".
4. Schapiro, N., Gray, R.J., "Petrographic Classification Applicable to Coals of all Ranks", Proc. Ill, Min. Inst., 1960, 68, 83-97.