Mines Branch Information Circular IC 287

EVALUATION OF CANADIAN COMMERCIAL COALS: NOVA SCOTIA AND NEW BRUNSWICK - 1971

by

T. E. Tibbetts* and W. J. Montgomery**

ABSTRACT

Physical and chemical analyses of eighty-nine coal samples are reported, representing the eight operating mines in Nova Scotia and six operating mines in New Brunswick.

The samples were taken and analysed by the Fuels Research Centre during the year 1971. They represent the production on a specified day of the coals as commercially prepared at the mine or the coals as delivered to thermal electric generating stations.

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Direction des mines
Circulaire d'information IC 287

EVALUATION DES HOUILLES COMMERCIALES CANADIENNES: NOUVELLE-ECOSSE ET NOUVEAU-BRUNSWICK - 1971

par
T. E. Tibbetts* et W. J. Montgomery**

RESUME

Les auteurs donnent les résultats des analyses chimiques et physiques de 89 échantillons de houille provenant des 8 mines en exploitation en Nouvelle-Ecosse et de 6 mines du Nouveau-Brunswick.

Les échantillons ont été prélevés et analysés en 1971 par le Centre de recherche sur les combustibles. Ils sont représentatifs de la production journalière de la houille préparée commercialement à la mine ou livrée aux centrales thermiques.

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COAL AREAS AND PRODUCERS

(with approximate production in 1971 in thousands of short tons)

NOVA SCOTIA

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Evans Coal Mines Limited	30

Pictou Area

Drummond Coal Company Limited	30
Thorburn Mining Limited (McBean Mine)	100

Joggins Area

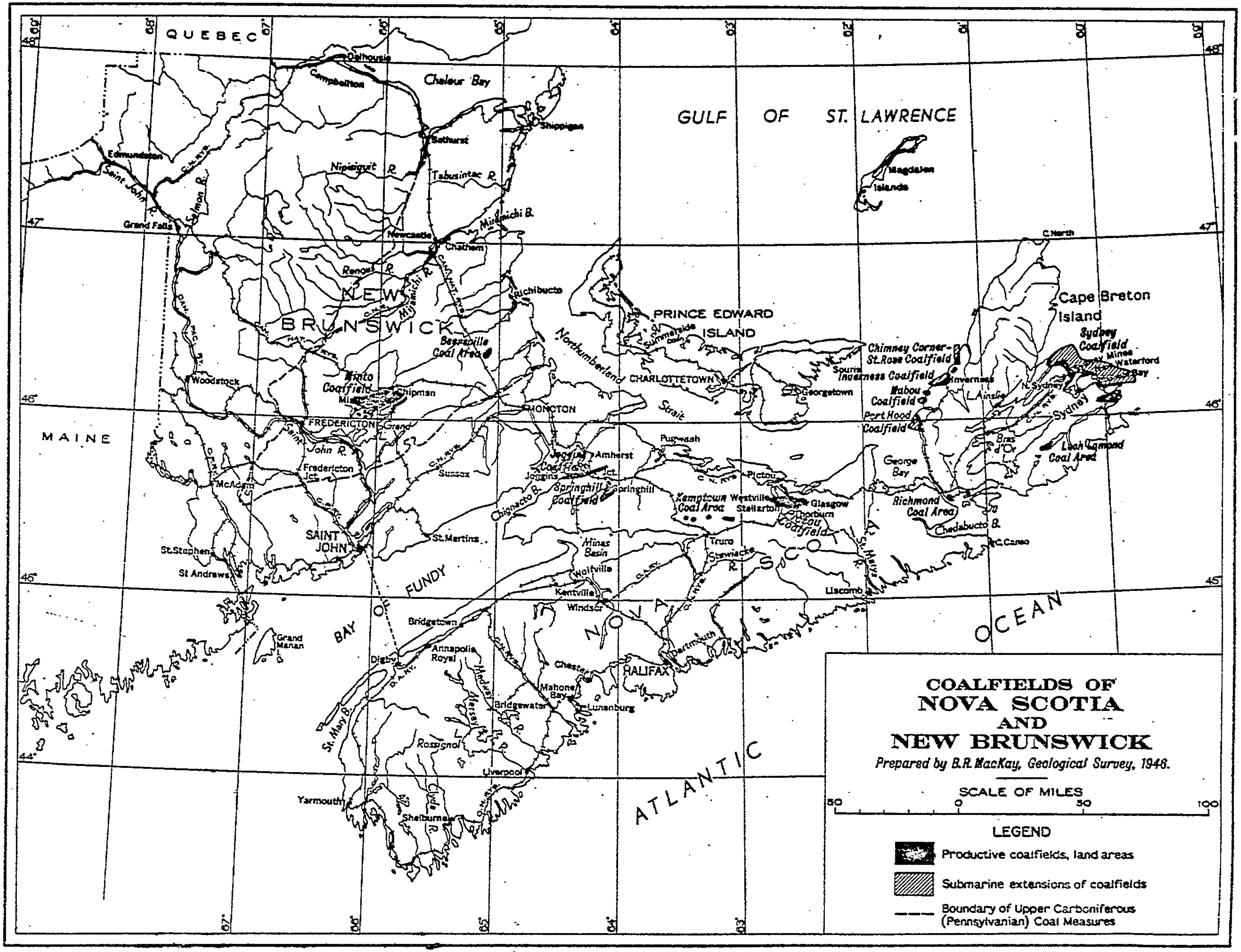
River Hebert Coal Company Limited	30

NEW BRUNSWICK

Minto Area

N.B. Coal Limited	500

Note: All coal mines in New Brunswick are now operated by the N.B. Coal Limited for the Grand Lake Development Corporation.


QUEBEC
GULF OF ST. LAWRENCE
Chaleur Bay
Dalhousie
Campbellton
Shippigan
Bathurst
Edmundston
Nipisiguit R.
Tabusintac R.
Saint John R.
Salmon R.
Grand Falls
Newcastle
Chatham
Miramichi B.
Magdalen Islands
C. North
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NEW BRUNSWICK
Miramichi R.
Richibucto
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Chipman
Woodstock
Northumberland Strait
PRINCE EDWARD ISLAND
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CHARLOTTETOWN
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Port Hood Coalfield
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Sydney
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Bras d'Or L.
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MONCTON
Fredericton Jct.
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Amherst
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St. Martins
St. Stephen
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Minas Basin
Truro
Stewiacke R.
St. Marys R.
NOVA SCOTIA
BAY OF FUNDY
Wolfville
Kentville
Windsor
Liscomb
Grand Manan
Bridgetown
Annapolis Royal
Digby
St. Marys B.
Chester
Dartmouth
HALIFAX
Mahone Bay
Lunenburg
Bridgewater
Rossignol L.
Liverpool
Yarmouth
Shelburne
Clyde R.
ATLANTIC OCEAN
COALFIELDS OF
NOVA SCOTIA
AND
NEW BRUNSWICK
Prepared by B.R. MacKay, Geological Survey, 1946.
SCALE OF MILES
50 0 50 100
LEGEND
Productive coalfields, land areas
Submarine extensions of coalfields
Boundary of Upper Carboniferous (Pennsylvanian) Coal Measures

INTRODUCTION

In order to keep in close touch with any change in coal quality and to ensure that such changes are significant and not due to improper sampling techniques, the Fuels Research Centre has had members of the staff collecting samples of commercially prepared coals at the mines in eastern and western Canadian coalfields on a more or less continuing basis since 1954. The project "Evaluation of Canadian Commercials Coals", is conducted under the direction of the Coal and Peat Resources Evaluation Section.

All samples collected under this project are obtained in accordance with recognized reliable specifications and for the most part are representative of the production for one day at the mines. Normal production and preparation procedures are followed at the mine during the sampling period, allowing the samples to be truly representative of the commercially prepared products. In certain instances, where it is recognized that more representative samples can be collected, sampling is conducted at thermal electric generating stations; where this is done it is so noted.

The gross samples were crushed and reduced in volume in the field prior to being shipped to Ottawa for analysis. A laboratory with complete sample preparation facilities was opened by the Fuels Research Centre at Glace Bay, Nova Scotia, in 1965. This was subsequently re-established in the Point Edward area, Sydney, Nova Scotia. In New Brunswick, the sample preparation facilities of the New Brunswick Electric Power Commission were used for partial preparation of samples collected in the Minto coalfield.

In order to report more accurately the total "as received" moisture of coals sampled in Nova Scotia, the loss of moisture on air drying was determined by standardized procedure at the Point Edward Laboratory prior to sample preparation. In New Brunswick, where significant time lag was anticipated between the sampling period and sample preparation (crushing and volume reduction), and when practical in reference to particle size, special moisture samples were prepared from the gross sample at the time of sampling.

This publication contains the general analyses on the "as received" moisture basis, of all commercial coal samples collected under this project during the year 1971 at mines and delivery points in Nova Scotia and New Brunswick. It also contains the ultimate analyses and ash analyses of selected

samples. All analyses were conducted by the Fuels Research Centre.

As noted above, in some instances special procedures were followed to assure determination of the as-sampled moisture content of the coal. Where applicable, this moisture was used in reporting the analysis and is indicated by a plus (+) sign. Analyses of coal samples collected in the Inverness coalfield are reported, because of the lower rank of this coal, on the equilibrium ("in situ") moisture basis. Ash fusion determinations are made in a reducing atmosphere.

The analyses are presented in two sections as follows:

Section I - General Analyses
- A. Nova Scotia
- B. New Brunswick

Section II - Ultimate and Ash Analyses
- A. Nova Scotia
- B. New Brunswick

GLOSSARY OF ABBREVIATED TERMS

sq	-	square-hole screen
rd	-	round-hole screen
sl	-	slot-hole screen
-	-	not determined
N.S.P.C.	-	Nova Scotia Power Commission
N.B.E.P.C.	-	New Brunswick Electric Power Commission
ASTM	-	American Society for Testing and Materials

SECTION I - GENERAL ANALYSES

A. NOVA SCOTIA

B. NEW BRUNSWICK

A. NOVA SCOTIA

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... New Waterford, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 12 Mine

Date Sampled	28-1-71	30-3-71	6-7-71	6-10-71
Weight Sampled (approx.) .....tons	70	80	70	60
Size: Mine Designation	Screened	Screened	Screened	Screened
Screen Opening .....in.	Plus 2 sq	Plus 2 sq	Plus 2 sq	Plus 2 sq
FRC Laboratory No.	2170-71	2436-71	2656-71	2910-71
Proximate Analysis				
Moisture .....%	2.6	3.4	2.6	2.9
Ash .....%	4.7	3.1	2.8	5.5
Volatile Matter .....%	35.0	35.5	36.7	36.7
Fixed Carbon .....%	57.7	58.0	57.9	54.9
Sulphur .....%	2.9	2.0	1.1	2.1
Calorific Value .....Btu/lb.	14,420	14,530	14,580	14,120
Ash Fusibility				
Initial Temp. .....°F	2000	2000	2000	2040
Softening Temp: (a) Spherical .....°F	2100	2080	2110	2120
(b) Hemispherical.....°F	2230	2150	2160	2260
Fluid Temp. .....°F	2250	2400	2550	2450
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	7	7	6 1/2	5 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous			

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	New Waterford, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 12 Mine

Date Sampled	6-7-71	6-10-71	9-11-71
Weight Sampled (approx.) .....tons	560	450	325
Size: Mine Designation	Slack	Slack	Slack*
Screen Opening .....in.	Minus 2 sq	Minus 2 sq	Minus 2 sq
FRC Laboratory No.	2657-71	2911-71	2998-71
Proximate Analysis			
Moisture .....%	4.1	4.4	5.4
Ash .....%	7.0	7.9	11.8
Volatile Matter .....%	33.4	35.1	33.1
Fixed Carbon .....%	55.5	52.1	49.7
Sulphur .....%	2.1	1.6	1.4
Calorific Value .....Btu/lb.	13,740	13,380	12,820
Ash Fusibility			
Initial Temp. .....°F	2010	2070	2100
Softening Temp: (a) Spherical .....°F	2150	2110	2230
(b) Hemispherical.....°F	2340	2350	2500
Fluid Temp. .....°F	2650	2490	2540
Grindability Index (Hardgrove)	-	-	-
Free Swelling Index (ASTM)	6 1/2	6 1/2	6 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous		

*Sampled from deliveries to the Seaboard Power Plant, N.S.P.C.

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	New Waterford, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 12 Mine

Date Sampled	28-1-71	10-2-71	30-3-71	6-5-71
Weight Sampled (approx.) .....tons	300	300	650	120
Size: Mine Designation	Special Slack*	Slack**	Slack	Slack**
Screen Opening .....in.	Minus 2 sq	Minus 2 sq	Minus 2 sq	Minus 2 sq
FRC Laboratory No.	2171-71	2312-71	2437-71	2542-71
Proximate Analysis				
Moisture .....%	4.0	4.2	4.5	4.2
Ash .....%	8.9	6.8	7.0	9.4
Volatile Matter .....%	32.8	35.2	33.2	33.2
Fixed Carbon .....%	54.3	53.8	55.3	53.2
Sulphur .....%	3.5	1.5	3.4	2.5
Calorific Value .....Btu/lb.	13,420	13,410	13,760	13,240
Ash Fusibility				
Initial Temp. .....°F	2050	2050	1930	1990
Softening Temp: (a) Spherical .....°F	2120	2350	2080	2170
(b) Hemispherical.....°F	2200	2500	2200	2270
Fluid Temp. .....°F	2230	2580	2450	2380
Grindability Index (Hardgrove)				
Free Swelling Index (ASTM)	8	5 1/2	6-1/2	6
Classification by Rank (ASTM)	High-Volatile A Bituminous			

*Prepared by screening out 85% of the fines.

**Sampled from deliveries to the Seaboard Power Plant, N.S.P.C.

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	New Waterford, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 12 Mine

Date Sampled	28-1-71	6-5-71*	9-11-71*
Weight Sampled (approx.) .....tons	540	400	525
Size: Mine Designation	Fines	Fines	Fines
Screen Opening .....in.	Minus 1/4 sl	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2172-71	2541-71	2999-71
Proximate Analysis			
Moisture .....%	4.7	5.0	5.4
Ash .....%	9.7	5.4	11.9
Volatile Matter .....%	32.1	33.7	31.6
Fixed Carbon .....%	53.5	55.9	51.1
Sulphur .....%	2.9	2.8	1.2
Calorific Value .....Btu/lb.	13,230	13,890	12,750
Ash Fusibility			
Initial Temp. .....°F	1950	2050	2110
Softening Temp: (a) Spherical .....°F	2210	2140	2230
(b) Hemispherical.....°F	2280	2140	2510
Fluid Temp. .....°F	2390	2370	2560
Grindability Index (Hardgrove)	-	-	-
Free Swelling Index (ASTM)	7	7 1/2	7 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous		

*Sampled from deliveries to the Seaboard Power Plant, N.S.P.C.

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 20 Mine

Date Sampled	7-1-71	10-2-71*	29-4-71	6-5-71*
Weight Sampled (approx.) .....tons	720	650	750	480
Size: Mine Designation	Slack	Slack	Slack	Slack
Screen Opening .....in.	Minus 1 1/2 sq	Minus 1 1/2 sq	Minus 1 1/2 sq	Minus 1 1/2 sq
FRC Laboratory No.	2169-71	2311-71	2504-71	2551-71
Proximate Analysis				
Moisture .....%	3.9	3.8	4.8	3.8
Ash .....%	4.2	6.0	5.1	7.7
Volatile Matter .....%	34.9	35.0	36.5	37.2
Fixed Carbon .....%	57.0	55.2	53.4	51.3
Sulphur .....%	3.0	3.2	2.7	2.9
Calorific Value .....Btu/lb.	14,040	13,760	13,870	13,560
Ash Fusibility				
Initial Temp. .....°F	1980	1900	1870	2300
Softening Temp: (a) Spherical .....°F	2070	2080	2000	2360
(b) Hemispherical.....°F	2150	2200	2060	2370
Fluid Temp. .....°F	2250	2280	2190	2400
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	7 1/2	6 1/2	6 1/2	6 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous			

*Sampled from deliveries to the Seaboard Power Plant, N.S.P.C.

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 26 Mine

Date Sampled	12-2-71	14-5-71	17-5-71	18-10-71
Weight Sampled (approx.) .....tons	340	375	135	125
Size: Mine Designation	Screened	Screened	Egg	Egg
Screen Opening .....in.	Plus 2 1/4 sl	Plus 2 1/4 sl	Plus 1 3/4	Plus 1 3/4
FRC Laboratory No.	2313-71	2548-71	2543-71	2912-71
Proximate Analysis				
Moisture .....%	3.0	3.3	4.4	4.3
Ash .....%	3.1	3.6	5.9	2.1
Volatile Matter .....%	34.7	35.5	34.3	34.3
Fixed Carbon .....%	59.2	57.6	55.4	59.3
Sulphur .....%	0.9	1.0	1.3	0.7
Calorific Value .....Btu/lb.	14,460	14,370	13,840	14,490
Ash Fusibility				
Initial Temp. .....°F	2080	2090	2000	2060
Softening Temp: (a) Spherical .....°F	2220	2170	2170	2260
(b) Hemispherical.....°F	2380	2200	2250	2480
Fluid Temp. .....°F	2480	2240	2380	2590
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	8 1/2	6 1/2	7	7
Classification by Rank (ASTM)	High-Volatile A Bituminous			

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 26 Mine

Date Sampled	17-5-71	18-10-71	17-5-71	18-10-71
Weight Sampled (approx.) .....tons	255	235	1130	1200
Size: Mine Designation	Nut	Nut	Coarse Slack	Coarse Slack
Screen Opening .....in.	1 3/4 to 3/4	1 3/4 to 3/4	Minus 1 3/4	Minus 1 3/4
FRC Laboratory No.	2544-71	2913-71	2545-71	2914-71
Proximate Analysis				
Moisture .....%	4.9	4.5	8.1	8.0
Ash .....%	2.3	2.3	4.0	2.7
Volatile Matter .....%	34.3	35.0	32.7	32.8
Fixed Carbon .....%	58.5	58.2	55.2	56.5
Sulphur .....%	0.6	0.8	0.7	0.8
Calorific Value .....Btu/lb.	14,380	14,350	13,520	13,760
Ash Fusibility				
Initial Temp. .....°F	2050	2030	2040	2010
Softening Temp: (a) Spherical .....°F	2260	2160	2220	2210
(b) Hemispherical.....°F	2420	2450	2420	2500
Fluid Temp. .....°F	2460	2560	2550	2550
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	7 1/2	7 1/2	8	9
Classification by Rank (ASTM)	High-Volatile A Bituminous			

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 26 Mine

Date Sampled	12-2-71	14-5-71	17-5-71	18-10-71
Weight Sampled (approx.) .....tons	250	280	155	140
Size: Mine Designation	Pea	Pea	Pea	Pea
Screen Opening .....in.	4 by 5/16 sl	4 by 5/16 sl	3/4 to 1/4	3/4 to 1/4
FRC Laboratory No.	2315-71	2550-71	2546-71	2915-71
Proximate Analysis				
Moisture .....%	4.4	4.9	7.5	7.5
Ash .....%	3.3	4.1	2.8	2.1
Volatile Matter .....%	32.9	33.4	33.2	33.2
Fixed Carbon .....%	59.4	57.6	56.5	57.2
Sulphur .....%	1.0	0.7	0.6	0.7
Calorific Value .....Btu/lb.	14,240	14,070	13,810	14,000
Ash Fusibility				
Initial Temp. .....°F	1950	2050	2050	2000
Softening Temp: (a) Spherical .....°F	2120	2200	2160	2190
(b) Hemispherical.....°F	2220	2410	2240	2440
Fluid Temp. .....°F	2500	2520	2540	2550
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	9	8 1/2	7 1/2	9
Classification by Rank (ASTM)	High-Volatile A Bituminous			

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 26 Mine

Date Sampled	17-5-71	18-10-71
Weight Sampled (approx.) .....tons	800	840
Size: Mine Designation	Fines	Fines
Screen Opening .....in.	Minus 1/4	Minus 1/4
FRC Laboratory No.	2547-71	2916-71
Proximate Analysis		
Moisture .....%	6.6	6.9
Ash .....%	5.4	3.1
Volatile Matter .....%	32.1	32.0
Fixed Carbon .....%	55.9	58.0
Sulphur .....%	0.9	0.8
Calorific Value .....Btu/lb.	13,580	13,850
Ash Fusibility		
Initial Temp. .....°F	2070	2010
Softening Temp: (a) Spherical .....°F	2160	2110
(b) Hemispherical.....°F	2250	2270
Fluid Temp. .....°F	2430	2470
Grindability Index (Hardgrove)	-	-
Free Swelling Index (ASTM)	8	9
Classification by Rank (ASTM)	High-Volatile A Bituminous	

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Glace Bay, Cape Breton County, Nova Scotia
Name of Mine or Coal	No. 26 Mine

Date Sampled	12-2-71	14-5-71	9-11-71
Weight Sampled (approx.) .....tons	1250	1400	150
Size: Mine Designation	Coarse Slack	Coarse Slack	Coarse Slack
Screen Opening .....in.	Minus 2 1/4 sl	Minus 2 1/4 sl	Minus 2 1/4 sl
FRC Laboratory No.	2314-71	2549-71	3000-71
Proximate Analysis			
Moisture .....%	4.9	5.7	5.5
Ash .....%	3.4	3.5	5.8
Volatile Matter .....%	33.2	33.5	33.0
Fixed Carbon .....%	58.5	57.3	55.7
Sulphur .....%	0.9	0.9	1.3
Calorific Value .....Btu/lb.	14,090	13,950	13,720
Ash Fusibility			
Initial Temp. .....°F	1980	2060	2020
Softening Temp: (a) Spherical .....°F	2200	2110	2100
(b) Hemispherical.....°F	2350	2200	2350
Fluid Temp. .....°F	2550	2370	2510
Grindability Index (Hardgrove)	-	-	-
Free Swelling Index (ASTM)	9	8	9
Classification by Rank (ASTM)	High-Volatile A Bituminous		

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Sydney Mines, Cape Breton County, Nova Scotia
Name of Mine or Coal	Princess Mine

Date Sampled	26-1-71	22-6-71	17-11-71	26-1-71
Weight Sampled (approx.) .....tons	200	175	150	155
Size: Mine Designation	Egg	Egg	Egg	Nut
Screen Opening .....in.	Plus 1 3/4 rd	Plus 1 3/4 rd	Plus 1 3/4 rd	1 3/4 rd to 3/4 sl
FRC Laboratory No.	2173-71	2658-71	3038-71	2174-71
Proximate Analysis				
Moisture .....%	4.0	4.5	4.1	5.2
Ash .....%	4.8	5.6	4.2	2.7
Volatile Matter .....%	35.7	37.1	37.7	35.6
Fixed Carbon .....%	55.5	52.8	54.0	56.5
Sulphur .....%	1.4	2.5	3.0	1.0
Calorific Value .....Btu/lb.	13,850	13,750	14,150	14,030
Ash Fusibility				
Initial Temp. .....°F	1950	2000	2070	1930
Softening Temp: (a) Spherical .....°F	2130	2060	2140	2200
(b) Hemispherical.....°F	2280	2180	2260	2260
Fluid Temp. .....°F	2380	2520	2320	2500
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	8	6 1/2	5 1/2	8 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous			

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Sydney Mines, Cape Breton County, Nova Scotia
Name of Mine or Coal	Princess Mine

Date Sampled	22-6-71	17-11-71	26-1-71	22-6-71	17-11-71
Weight Sampled (approx.) .....tons	140	120	100	95	100
Size: Mine Designation	Nut	Nut	Pea	Pea	Pea
Screen Opening .....in.	1 3/4 rd 3/4 sl	1 3/4 rd 3/4 sl	3/4 to 1/4 sl	3/4 to 1/4 sl	3/4 to 1/4 sl
FRC Laboratory No.	2659-71	3039-71	2175-71	2661-71	3041-71
Proximate Analysis					
Moisture .....%	5.0	5.3	7.3	7.5	6.2
Ash .....%	4.0	3.7	2.4	5.8	4.0
Volatile Matter .....%	37.6	37.4	34.7	32.1	37.9
Fixed Carbon .....%	53.4	53.6	55.6	54.6	51.9
Sulphur .....%	2.1	2.1	0.9	2.1	2.3
Calorific Value .....Btu/lb.	13,980	14,080	13,660	13,260	13,720
Ash Fusibility					
Initial Temp. .....°F	2050	2010	1880	1970	1910
Softening Temp: (a) Spherical .....°F	2120	2110	2100	2070	2000
(b) Hemispherical.....°F	2200	2210	2250	2350	2160
Fluid Temp. .....°F	2510	2330	2450	2500	2420
Grindability Index (Hardgrove)	-	-	-	-	-
Free Swelling Index (ASTM)	6 1/2	6	8	6	6
Classification by Rank (ASTM)	High-Volatile A Bituminous				

Mine Operator	CAPE BRETON DEVELOPMENT CORPORATION
Mine Location	Sydney Mines, Cape Breton County, Nova Scotia
Name of Mine or Coal	Princess Mine

Date Sampled	22-6-71	17-11-71	26-1-71	22-6-71	17-11-71
Weight Sampled (approx.) .....tons	400	500	405	380	405
Size: Mine Designation	Coarse Slack	Coarse Slack	Fines	Fines	Fines
Screen Opening .....in.	Minus 1 3/4	Minus 1 3/4	Minus 1/4 sl	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2660-71	3040-71	2176-71	2662-71	3042-71
Proximate Analysis					
Moisture .....%	7.2	7.3	6.2	6.3	7.1
Ash .....%	4.6	5.1	8.3	10.2	8.4
Volatile Matter .....%	36.6	36.9	32.9	33.1	35.7
Fixed Carbon .....%	51.6	50.7	52.6	50.4	48.8
Sulphur .....%	1.8	2.1	1.0	2.0	2.1
Calorific Value .....Btu/lb.	13,550	13,330	12,960	12,690	12,880
Ash Fusibility					
Initial Temp. .....°F	1960	1900	2080	2040	2100
Softening Temp: (a) Spherical .....°F	2110	2000	2350	2120	2160
(b) Hemispherical.....°F	2350	2200	2500	2490	2500
Fluid Temp. .....°F	2500	2460	2540	2520	2560
Grindability Index (Hardgrove)	-	-	-	-	-
Free Swelling Index (ASTM)	7	6 1/2	6	7	5
Classification by Rank (ASTM)	High-Volatile A Bituminous				

Mine Operator	DRUMMOND COAL COMPANY LIMITED
Mine Location	Westville, Pictou County, Nova Scotia
Name of Mine or Coal	Drummond

Date Sampled	22-11-71	23-11-71*	22-11-71	22-11-71	22-11-71
Weight Sampled (approx.) .....tons	20	250	12	13	9
Size: Mine Designation	Lump	Lump	Nut	Stoker	Fines
Screen Opening .....in.	Plus 1 1/2	Plus 1 1/2	1 1/2 3/4	3/4 to 1/4	Minus 1/4
FRC Laboratory No.	3107-71	3111-71	3108-71	3109-71	3110-71
Proximate Analysis					
Moisture .....%	2.1	2.9	2.2	3.3	3.2
Ash .....%	22.9	18.1	21.2	20.1	20.7
Volatile Matter .....%	24.8	26.2	24.7	24.1	24.3
Fixed Carbon .....%	50.2	52.8	51.9	52.5	51.8
Sulphur .....%	1.0	1.4	1.0	1.0	0.9
Calorific Value .....Btu/lb.	10,960	11,640	11,230	11,260	11,150
Ash Fusibility					
Initial Temp. .....°F	2700+	2460	2700+	2700+	2700+
Softening Temp: (a) Spherical .....°F	2700+	2660	2700+	2700+	2700+
(b) Hemispherical.....°F	2700+	2700+	2700+	2700+	2700+
Fluid Temp. .....°F	2700+	2700+	2700+	2700+	2700+
Grindability Index (Hardgrove)	-	-	-	-	-
Free Swelling Index (ASTM)	1 1/2	1	1	1 1/2	1 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous				

*Sampled from deliveries to Trenton Power Plant, N.S.P.C.

Mine Operator	EVANS COAL MINES LIMITED
Mine Location	St. Rose, Inverness County, Nova Scotia
Name of Mine or Coal	St. Rose

Date Sampled	31-3-71	2-9-71	31-3-71	2-9-71
Weight Sampled (approx.) .....tons	27	15	31	20
Size: Mine Designation	Medium Lump	Medium Lump	Egg	Egg
Screen Opening .....in.	6 to 3 1/4 sq	6 to 3 1/4	3 1/4 to 2 sq	3 1/4 to 2 sq
FRC Laboratory No.	2438-71	2781-71	2439-71	2782-71
Proximate Analysis				
Moisture .....%	4.9	4.9	5.1	5.0
Ash .....%	8.5	9.6	8.6	8.8
Volatile Matter .....%	35.9	34.6	35.5	36.4
Fixed Carbon .....%	50.7	50.8	50.8	49.8
Sulphur .....%	6.4	5.9	6.4	6.1
Calorific Value .....Btu/lb.	12,360	12,080	12,320	12,150
Ash Fusibility				
Initial Temp. .....°F	1830	1860	1990	1950
Softening Temp: (a) Spherical .....°F	1930	1990	2020	2000
(b) Hemispherical.....°F	2000	2050	2040	2040
Fluid Temp. .....°F	2250	2290	2180	2160
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	-	2 1/2	3	4 1/2
Classification by Rank (ASTM)	High-Volatile B Bituminous			

Mine Operator ..... EVANS COAL MINES LIMITED

Mine Location ..... St. Rose, Inverness County, Nova Scotia

Name of Mine or Coal ..... St. Rose

Date Sampled	31-3-71	2-9-71	31-3-71	2-9-71
Weight Sampled (approx.) .....tons	35	12	23	8
Size: Mine Designation	Nut	Nut	Stoker Pea	Stoker Pea
Screen Opening .....in.	2 to 3/4 sq	2 to 3/4 sq	3/4 sq to 1/4 sl	3/4 sq to 1/4 sl
FRC Laboratory No.	2440-71	2783-71	2441-71	2784-71
Proximate Analysis				
Moisture .....%	5.2	5.2	5.5	5.5
Ash .....%	9.5	10.0	8.8	10.3
Volatile Matter .....%	36.5	35.9	35.1	35.3
Fixed Carbon .....%	48.8	48.9	50.6	48.9
Sulphur .....%	6.1	6.2	5.8	6.3
Calorific Value .....Btu/lb.	12,170	11,950	12,250	11,870
Ash Fusibility				
Initial Temp. .....°F	1950	1900	1960	1860
Softening Temp: (a) Spherical .....°F	2000	1920	2100	1950
(b) Hemispherical.....°F	2080	2000	2140	2000
Fluid Temp. .....°F	2220	2100	2300	2270
Grindability Index (Hardgrove)	55	54	60	55
Free Swelling Index (ASTM)	-	3 1/2	-	3
Classification by Rank (ASTM)	High-Volatile B Bituminous			

Mine Operator ..... EVANS COAL MINES LIMITED

Mine Location ..... St. Rose, Inverness County, Nova Scotia

Name of Mine or Coal ..... St. Rose

Date Sampled	31-3-71	2-9-71
Weight Sampled (approx.) .....tons	41	12
Size: Mine Designation	Fines	Fines
Screen Opening .....in.	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2442-71	2785-71
Proximate Analysis		
Moisture .....%	5.3	5.3
Ash .....%	10.7	14.6
Volatile Matter .....%	34.8	34.3
Fixed Carbon .....%	49.2	45.8
Sulphur .....%	5.7	5.5
Calorific Value .....Btu/lb.	11,850	11,180
Ash Fusibility		
Initial Temp. .....°F	1800	1850
Softening Temp: (a) Spherical .....°F	1910	1910
(b) Hemispherical.....°F	2020	1950
Fluid Temp. .....°F	2110	2140
Grindability Index (Hardgrove)	60	58
Free Swelling Index (ASTM)	-	2 1/2
Classification by Rank (ASTM)	High-Volatile B Bituminous	

Mine Operator ..... RIVER HEBERT COAL COMPANY LIMITED

Mine Location ..... River Hebert, Cumberland County, Nova Scotia

Name of Mine or Coal ..... River Hebert

Date Sampled	8-9-71	9-9-71*	8-9-71	9-9-71*
Weight Sampled (approx.) .....tons	40	20	95	50
Size: Mine Designation	Lump	Lump	Slack	Slack
Screen Opening .....in.	Plus 1 1/8 sq	Plus 1 1/8 sq	Minus 1 1/8 sq	Minus 1 1/8 sq
FRC Laboratory No.	2789-71	2792-71	2790-71	2798-71
Proximate Analysis				
Moisture .....%	2.1	1.1	1.3	2.1
Ash .....%	11.2	13.4	25.1	24.9
Volatile Matter .....%	35.7	36.5	30.9	29.7
Fixed Carbon .....%	51.0	49.0	42.7	43.3
Sulphur .....%	5.0	4.0	4.7	4.5
Calorific Value .....Btu/lb.	12,800	12,650	10,690	10,580
Ash Fusibility				
Initial Temp. .....°F	1920	1990	1970	2010
Softening Temp: (a) Spherical .....°F	2010	2100	2100	2090
(b) Hemispherical.....°F	2030	2190	2300	2340
Fluid Temp. .....°F	2130	2300	2390	2440
Grindability Index (Hardgrove)	61	61	57	60
Free Swelling Index (ASTM)	8	7 1/2	7	8
Classification by Rank (ASTM)	High-Volatile A Bituminous			

*Sampled from deliveries to the Maccan Power Plant, N.S.P.C.

Mine Operator ..... THORBURN MINING LIMITED

Mine Location ..... Thorburn, Pictou County, Nova Scotia

Name of Mine or Coal ..... McBean; Coal Washing Plant (1)

Date Sampled	24-11-71	24-11-71	24-11-71	24-11-71
Weight Sampled (approx.) .....tons	125	136	95	140
Size: Mine Designation	Egg	Nut	Stoker	Fines
Screen Opening .....in.	Plus 1 3/4 sq	1 3/4 to 3/4 sq	3/4 to 3/16 sq	Minus 3/16 sq
FRC Laboratory No.	3101-71	3102-71	3103-71	3105-71
Proximate Analysis				
Moisture .....%	3.0	4.2	5.5	6.0
Ash .....%	19.2	20.7	18.8	21.8
Volatile Matter .....%	28.6	26.3	26.3	25.8
Fixed Carbon .....%	49.2	48.8	49.4	46.4
Sulphur .....%	1.1	0.7	0.7	0.7
Calorific Value .....Btu/lb.	11,530	11,080	11,200	10,580
Ash Fusibility				
Initial Temp. .....°F	2410	2600	2610	2350
Softening Temp: (a) Spherical .....°F	2490	2700+	2700+	2510
(b) Hemispherical.....°F	2530	2700+	2700+	2650
Fluid Temp. .....°F	2700	2700+	2700+	2700+
Grindability Index (Hardgrove)	-	-	-	-
Free Swelling Index (ASTM)	2	1 1/2	2	1
Classification by Rank (ASTM)	High-Volatile A Bituminous			

(1) Mine and coal washing plant at Stellarton operated and managed by the Cape Breton Development Corporation; all samples were taken at the coal washing plant.

Mine Operator ..... THORBURN MINING LIMITED

Mine Location ..... Thorburn, Pictou County, Nova Scotia

Name of Mine or Coal ..... McBean; Coal Washing Plant (1)

Date Sampled	24-11-71	23-11-71*
Weight Sampled (approx.) .....tons	23	40
Size: Mine Designation	Splint[x]	Splint[x]
Screen Opening .....in.	Minus 1 1/2	Minus 1 1/2
FRC Laboratory No.	3104-71	3106-71
Proximate Analysis		
Moisture .....%	6.2	6.2
Ash .....%	26.6	23.6
Volatile Matter .....%	24.9	24.5
Fixed Carbon .....%	42.3	45.7
Sulphur .....%	0.6	0.9
Calorific Value .....Btu/lb.		10,260
Ash Fusibility		
Initial Temp. .....°F	2400	2490
Softening Temp: (a) Spherical .....°F	2520	2560
(b) Hemispherical.....°F	2700+	2700+
Fluid Temp. .....°F	2700+	2700+
Grindability Index (Hardgrove)	-	-
Free Swelling Index (ASTM)	1	1
Classification by Rank (ASTM)	High-Volatile A Bituminous	

(1) Mine and coal washing plant at Stellarton operated and managed by the Cape Breton Development Corporation; except where noted otherwise, all samples were taken at the coal washing plant.

* Sampled from deliveries to the Trenton Power Plant, N.S.P.C.

x Washery middlings product.

B. NEW BRUNSWICK

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Coal Creek, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 7200 Dragline

	No. 1 Dragline	No. 2 Dragline
Date Sampled	25-10-71	25-10-71
Weight Sampled (approx.) .....tons	250	250
Size: Mine Designation	Mine Run	Mine Run
Screen Opening .....in.		
FRC Laboratory No.	2925-71	2926-71
Proximate Analysis		
Moisture .....%	1.8	1.8
Ash .....%	17.3	16.9
Volatile Matter .....%	34.1	33.2
Fixed Carbon .....%	46.8	48.1
Sulphur .....%	7.1	6.9
Calorific Value .....Btu/lb.	12,210	12,300
Ash Fusibility		
Initial Temp. .....°F	1940	1960
Softening Temp: (a) Spherical .....°F	1980	2000
(b) Hemispherical.....°F	2110	2150
Fluid Temp. .....°F	2290	2350
Grindability Index (Hardgrove)	-	62
Free Swelling Index (ASTM)	5	5
Classification by Rank (ASTM)	High-Volatile A Bituminous	

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Coal Creek, Minto Coalfield; New Brunswick

Name of Mine or Coal ..... 200-W Dragline

Date Sampled	25-10-71
Weight Sampled (approx.) .....tons	230
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2927-71
Proximate Analysis	
Moisture .....%	2.0
Ash .....%	15.2
Volatile Matter .....%	34.3
Fixed Carbon .....%	48.5
Sulphur .....%	6.2
Calorific Value .....Btu/lb.	12,610
Ash Fusibility	
Initial Temp. .....°F	1950
Softening Temp: (a) Spherical .....°F	2010
(b) Hemispherical.....°F	2100
Fluid Temp. .....°F	2310
Grindability Index (Hardgrove)	58
Free Swelling Index (ASTM)	6
Classification by Rank (ASTM)	High-Volatile A Bituminous

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... New Zion, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 500-W Dragline

Date Sampled	25-10-71
Weight Sampled (approx.) .....tons	600
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2928-71
Proximate Analysis	
Moisture .....%	3.2
Ash .....%	12.3
Volatile Matter .....%	33.8
Fixed Carbon .....%	50.7
Sulphur .....%	5.7
Calorific Value .....Btu/lb.	12,840
Ash Fusibility	
Initial Temp. .....°F	1950
Softening Temp: (a) Spherical .....°F	2000
(b) Hemispherical.....°F	2110
Fluid Temp. .....°F	2200
Grindability Index (Hardgrove)	66
Free Swelling Index (ASTM)	6 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Hardwood Ridge, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 4500 Dragline

Date Sampled	27-10-71*	28-10-71
Weight Sampled (approx.) .....tons	83	-
Size: Mine Designation	Mine Run+	Mine Run+
Screen Opening .....in.		
FRC Laboratory No.	2922-71	2921-71
Proximate Analysis		
Moisture .....%	17.5	16.5
Ash .....%	6.6	6.7
Volatile Matter .....%	27.5	26.7
Fixed Carbon .....%	48.4	50.1
Sulphur .....%	2.2	2.3
Calorific Value .....Btu/lb.	11,080	11,210
Ash Fusibility		
Initial Temp. .....°F	1980	2190
Softening Temp: (a) Spherical .....°F	2260	2410
(b) Hemispherical.....°F	2310	2560
Fluid Temp. .....°F	2550	2670
Grindability Index (Hardgrove)	77	
Free Swelling Index (ASTM)	1	
Classification by Rank (ASTM)	High-Volatile A Bituminous	

* Sampled from deliveries to the Grand Lake Power Plant, N.B.E.P.C.
\+ The analysis indicates that this coal has been significantly oxidized.

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... New England, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 7400 Dragline

Date Sampled	27-10-71*	28-10-71
Weight Sampled (approx.) .....tons	329	-
Size: Mine Designation	Mine Run	Mine Run
Screen Opening .....in.		
FRC Laboratory No.	2924-71	2923-71
Proximate Analysis		
Moisture .....%	1.7	1.9
Ash .....%	11.3	11.3
Volatile Matter .....%	32.8	33.0
Fixed Carbon .....%	54.2	53.8
Sulphur .....%	5.9	5.7
Calorific Value .....Btu/lb.	13,320	13,300
Ash Fusibility		
Initial Temp. .....°F	1960	2020
Softening Temp: (a) Spherical .....°F	2000	2090
(b) Hemispherical.....°F	2050	2160
Fluid Temp. .....°F	2300	2270
Grindability Index (Hardgrove)	71	-
Free Swelling Index (ASTM)	6 1/2	5 1/2
Classification by Rank (ASTM)	High-Volatile A Bituminous	

* Sampled from deliveries to the Grand Lake Power Plant, N.B.E.P.C.

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Minto, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 9-W Dragline

Date Sampled	27-10-71*	28-10-71
Weight Sampled (approx.) .....tons	290	
Size: Mine Designation	Mine Run	Mine Run
Screen Opening .....in.		
FRC Laboratory No.	2920-71	2919-71
Proximate Analysis		
Moisture .....%	3 3	1.9
Ash .....%	12.2	12.3
Volatile Matter .....%	29.0	34.1
Fixed Carbon .....%	55.5	51.7
Sulphur .....%	5.8	5.8
Calorific Value .....Btu/lb.	12,780	12,990
Ash Fusibility		
Initial Temp. .....°F	2010	2000
Softening Temp: (a) Spherical .....°F	2100	2080
(b) Hemispherical.....°F	2150	2130
Fluid Temp. .....°F	2310	2410
Grindability Index (Hardgrove)	59	-
Free Swelling Index (ASTM)	5	6
Classification by Rank (ASTM)	High-Volatile A Bituminous	

* Sampled from deliveries to the Grand Lake Power Plant, N.B.E.P.C.

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Mills Siding, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... Coal Washing Plant (1)

Date Sampled	26-10-71	26-10-71	26-10-71	26-10-71	26-10-71
Weight Sampled (approx.) .....tons	850	280	75	210	230
Size: Mine Designation	Raw Coal	Lump	Nut	Pea	Fines
Screen Opening .....in.		Plus 1 1/2	1 1/2 to 1	1 to 1/4	Minus 1/4
FRC Laboratory No.	2933-71	2929-71	2930-71	2931-71	2932-71
Proximate Analysis					
Moisture .....%	3.2	3.0	3.6	3.0	4.1
Ash .....%	24.2	19.0	14.8	14.1	14.1
Volatile Matter .....%	30.7	32.0	33.0	33.6	32.7
Fixed Carbon .....%	41.9	46.0	48.6	49.3	49.1
Sulphur .....%	8.4	8.5	6.4	5.9	5.6
Calorific Value .....Btu/lb.	10,820	11,700	12,450	12,640	12,500
Ash Fusibility					
Initial Temp. .....°F	2000	1960	1900	1850	1940
Softening Temp: (a) Spherical .....°F	2100	2010	1990	1950	2050
(b) Hemispherical.....°F	2230	2170	2050	2080	2220
Fluid Temp. .....°F	2340	2330	2120	2180	2350
Grindability Index (Hardgrove)	64		61	61	66
Free Swelling Index (ASTM)	5	5	5 1/2	6	6
Classification by Rank (ASTM)	High-Volatile A Bituminous				

(1) Coal was from Coal Creek area only on date of sampling.

SECTION II - ULTIMATE AND ASH ANALYSES

A. NOVA SCOTIA

B. NEW BRUNSWICK

A. NOVA SCOTIA

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... New Waterford, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 12 Mine

Date Sampled	28-1-71	30-3-71	6-5-71
Weight Sampled (approx.).....tons	300	650	120
Size: Mine Designation	Special Slack	Slack	Slack
Screen Opening .....in.	Minus 2 sq	Minus 2 sq	Minus 2 sq
FRC Laboratory No.	2171-71	2437-71	2542-71
Ultimate Analysis			
Carbon .....%	77.3	79.4	77.6
Hydrogen .....%	5.1	5.2	5.1
Sulphur .....%	3.6	3.5	2.6
Nitrogen .....%	1.3	1.6	0.9
Ash .....%	9.3	7.4	9.8
Oxygen (by difference) .....%	3.4	2.9	4.0
Ash Analysis			
SiO_2 .....%	34.6	32.2	44.2
Al_2O_3 .....%	20.0	20.4	21.4
Fe_2O_3 .....%	39.9	42.2	27.6
TiO_2 .....%	0.5	0.7	0.6
P_2O_5 .....%	0.2	0.2	0.2
CaO .....%	1.0	0.9	1.4
MgO .....%	0.8	0.6	1.2
SO_3 .....%	1.3	0.8	1.3
Na_2O .....%	0.4	0.5	0.5
K_2O .....%	1.3	1.6	1.8

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... New Waterford, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 12 Mine

Date Sampled	6-10-71	9-11-71
Weight Sampled (approx.).....tons	450	325
Size: Mine Designation	Slack	Slack
Screen Opening .....in.	Minus 2 sq	Minus 2 sq
FRC Laboratory No.	2911-71	2998-71
Ultimate Analysis		
Carbon .....%	79.5	75.6
Hydrogen .....%	5.3	5.0
Sulphur .....%	1.7	1.5
Nitrogen .....%	1.6	1.3
Ash .....%	8.3	12.5
Oxygen (by difference) .....%	3.6	4.1
Ash Analysis		
SiO_2 .....%	40.8	43.6
Al_2O_3 .....%	26.6	26.8
Fe_2O_3 .....%	26.6	19.5
TiO_2 .....%	0.8	0.6
P_2O_5 .....%	0.3	0.3
CaO .....%	1.4	1.7
MgO .....%	1.1	2.0
SO_3 .....%	0.6	1.5
Na_2O .....%	0.4	1.1
K_2O .....%	2.3	3.5

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... New Waterford, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 12 Mine

Date Sampled	28-1-71	6-5-71	9-11-71
Weight Sampled (approx.).....tons	540	400	525
Size: Mine Designation	Fines	Fines	Fines
Screen Opening .....in.	Minus 1/4 sl	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2172-71	2541-71	2999-71
Ultimate Analysis			
Carbon .....%	78.2	81.6	75.2
Hydrogen .....%	5.1	5.3	4.8
Sulphur .....%	3.0	3.0	1.2
Nitrogen .....%	1.5	1.0	1.3
Ash .....%	10.2	5.7	12.6
Oxygen (by difference) .....%	2.0	3.4	4.9
Ash Analysis			
SiO_2 .....%	45.5	25.3	44.9
Al_2O_3 .....%	22.9	16.5	28.0
Fe_2O_3 .....%	26.9	54.8	17.8
TiO_2 .....%	1.0	0.3	0.6
P_2O_5 .....%	0.1	0.2	0.3
CaO .....%	1.0	1.4	1.7
MgO .....%	0.7	0.5	1.1
SO_3 .....%	0.8	1.0	1.2
Na_2O .....%	0.6	0.6	3.1
K_2O .....%	2.1	1.1	3.2

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Glace Bay, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 20 Mine

Date Sampled	7-1-71	29-4-71	6-5-71
Weight Sampled (approx.).....tons	720	750	480
Size: Mine Designation	Slack	Slack	Slack
Screen Opening .....in.	Minus 1 1/2 sq	Minus 1 1/2 sq	Minus 1 1/2 sq
FRC Laboratory No.	2169-71	2504-71	2551-71
Ultimate Analysis			
Carbon .....%	80.3	80.9	78.0
Hydrogen .....%	5.4	5.4	5.2
Sulphur .....%	3.2	2.8	3.0
Nitrogen .....%	1.2	1.5	1.3
Ash .....%	4.3	5.4	8.0
Oxygen (by difference) .....%	5.6	4.0	4.5
Ash Analysis			
SiO_2 .....%	21.8	17.4	12.9
Al_2O_3 .....%	16.0	15.3	9.3
Fe_2O_3 .....%	53.6	36.3	24.2
TiO_2 .....%	0.6	0.6	0.3
P_2O_5 .....%	0.2	0.2	0.1
CaO .....%	3.4	9.9	17.3
MgO .....%	0.3	4.9	10.4
SO_3 .....%	3.6	14.5	25.0
Na_2O .....%	0.6	0.5	0.4
K_2O .....%	0.6	0.6	0.4

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Glace Bay, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 26 Mine

Date Sampled	12-2-71	14-5-71	17-5-71
Weight Sampled (approx.).....tons	250	280	155
Size: Mine Designation	Pea	Pea	Pea
Screen Opening .....in.	4 by 5/16 sl	4 x 5/16 sl	3/4 to 1/4
FRC Laboratory No.	2315-71	2550-71	2546-71
Ultimate Analysis			
Carbon .....%	83.3	82.4	84.2
Hydrogen .....%	5.4	5.4	5.5
Sulphur .....%	1.1	0.8	0.7
Nitrogen .....%	1.6	1.7	1.5
Ash .....%	3.5	4.4	3.1
Oxygen (by difference) .....%	5.2	5.3	5.0
Ash Analysis			
SiO_2 .....%	31.3	40.5	32.7
Al_2O_3 .....%	23.5	25.8	23.2
Fe_2O_3 .....%	35.4	24.6	35.2
TiO_2 .....%	0.8	0.7	0.9
P_2O_5 .....%	0.2	0.2	0.2
CaO .....%	3.1	2.7	2.7
MgO .....%	0.9	1.5	1.6
SO_3 .....%	4.4	2.4	2.6
Na_2O .....%	0.7	0.6	0.4
K_2O .....%	1.2	2.4	1.4

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Glace Bay, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 26 Mine

Date Sampled	12-2-71	14-5-71	9-11-11
Weight Sampled (approx.).....tons	1250	1400	150
Size: Mine Designation	Slack	Slack	Slack
Screen Opening .....in.	Minus 2 1/4 sl	Minus 2 1/4 sl	Minus 2 1/4 sl
FRC Laboratory No.	2314-71	2549-71	3000-71
Ultimate Analysis			
Carbon .....%	83.1	83.1	81.3
Hydrogen .....%	5.4	5.4	5.2
Sulphur .....%	1.0	1.0	1.3
Nitrogen .....%	1.6	1.5	1.6
Ash .....%	3.5	3.7	6.2
Oxygen (by difference) .....%	5.4	5.3	4.4
Ash Analysis			
SiO_2 .....%	32.5	29.3	33.4
Al_2O_3 .....%	22.7	21.7	19.8
Fe_2O_3 .....%	31.6	35.7	34.1
TiO_2 .....%	0.7	0.6	0.5
P_2O_5 .....%	0.2	0.3	0.4
CaO .....%	3.6	4.0	3.4
MgO .....%	1.0	1.5	1.0
SO_3 .....%	4.5	4.8	4.5
Na_2O .....%	0.7	0.7	1.6
K_2O .....%	1.2	1.3	1.9

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Glace Bay, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 26 Mine

Date Sampled	17-5-71	18-10-71
Weight Sampled (approx.).....tons	1130	1200
Size: Mine Designation	Coarse Slack	Coarse Slack
Screen Opening .....in.	Minus 1 3/4	Minus 1 3/4
FRC Laboratory No.	2545-71	2914-71
Ultimate Analysis		
Carbon .....%	82.7	84.3
Hydrogen .....%	5.4	5.4
Sulphur .....%	0.7	0.8
Nitrogen .....%	1.0	1.7
Ash .....%	4.3	3.0
Oxygen (by difference) .....%	5.9	4.8
Ash Analysis		
SiO_2 .....%	43.4	33.3
Al_2O_3 .....%	23.8	25.3
Fe_2O_3 .....%	22.6	32.1
TiO_2 .....%	0.8	0.8
P_2O_5 .....%	0.2	0.2
CaO .....%	3.3	2.9
MgO .....%	1.2	1.3
SO_3 .....%	3.1	2.0
Na_2O .....%	0.6	1.1
K_2O .....%	1.9	1.2

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Glace Bay, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... No. 26 Mine

Date Sampled	17-5-71	18-10-71
Weight Sampled (approx.).....tons	800	840
Size: Mine Designation	Fines	Fines
Screen Opening .....in.	Minus 1/4	Minus 1/4
FRC Laboratory No.	2547-71	2916-71
Ultimate Analysis		
Carbon .....%	81.1	83.8
Hydrogen .....%	5.2	5.3
Sulphur .....%	1.0	0.8
Nitrogen .....%	1.5	1.6
Ash .....%	5.8	3.3
Oxygen (by difference) .....%	5.4	5.2
Ash Analysis		
SiO_2 .....%	40.2	32.7
Al_2O_3 .....%	24.1	23.2
Fe_2O_3 .....%	23.3	30.2
TiO_2 .....%	0.7	0.6
P_2O_5 .....%	0.2	0.2
CaO .....%	3.7	4.3
MgO .....%	1.4	1.5
SO_3 .....%	3.9	3.0
Na_2O .....%	0.6	1.8
K_2O .....%	1.9	1.4

Mine Operator ..... CAPE BRETON DEVELOPMENT CORPORATION

Mine Location ..... Sydney Mines, Cape Breton County, Nova Scotia

Name of Mine or Coal ..... Princess Mine

Date Sampled	26-1-71	17-11-71	22-6-71	26-1-71	17-11-71
Weight Sampled (approx.).....tons	100	100	400	405	405
Size: Mine Designation	Pea	Pea	Coarse Slack	Fines	Fines
Screen Opening .....in.	3/4 to 1/4 sl	3/4 to 1/4 sl	Minus 1 3/4	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2175-71	3041-71	2660-71	2176-71	3042-71
Ultimate Analysis					
Carbon .....%	83.3	81.2	81.2	75.6	77.1
Hydrogen .....%	5.3	5.6	5.5	4.9	5.2
Sulphur .....%	1.0	2.5	1.9	1.0	2.3
Nitrogen .....%	1.3	1.6	1.5	1.1	1.4
Ash .....%	2.6	4.3	5.0	6.9	9.0
Oxygen (by difference) .....%	6.5	4.8	4.9	10.5	5.0
Ash Analysis					
SiO_2 .....%	26.6	19.9	32.0	48.5	37.8
Al_2O_3 .....%	22.2	15.7	23.6	28.8	25.7
Fe_2O_3 .....%	41.2	44.1	39.6	13.7	25.0
TiO_2 .....%	0.7	0.4	0.6	1.1	0.4
P_2O_5 .....%	0.4	0.2	0.2	0.2	0.2
CaO .....%	3.9	5.1	1.8	2.3	4.1
MgO .....%	1.1	0.0	0.8	1.2	0.6
SO_3 .....%	4.2	5.4	1.9	2.3	3.7
Na_2O .....%	0.6	1.2	0.4	0.9	2.6
K_2O .....%	0.6	6.7	1.0	2.9	1.6

Mine Operator ..... DRUMMOND COAL COMPANY LIMITED

Mine Location ..... Westville, Pictou County, Nova Scotia

Name of Mine or Coal ..... Drummond

Date Sampled	23-11-71	22-11-71	22-11-71
Weight Sampled (approx.).....tons	250	13	9
Size: Mine Designation	Lump	Stoker	Fines
Screen Opening .....in.	Plus 1 1/2	3/4 to 1/4	Minus 1/4
FRC Laboratory No.	3111-71	3109-71	3110-71
Ultimate Analysis			
Carbon .....%	68.9	67.3	66.3
Hydrogen .....%	4.0	4.0	3.9
Sulphur .....%	1.4	1.0	1.0
Nitrogen .....%	1.6	1.6	1.5
Ash .....%	18.6	20.8	21.4
Oxygen (by difference) .....%	5.5	5.3	5.9
Ash Analysis			
SiO_2 .....%	-	57.1	60.4
Al_2O_3 .....%	-	32.2	30.0
Fe_2O_3 .....%	-	2.6	3.4
TiO_2 .....%	-	0.5	0.6
P_2O_5 .....%	-	0.2	0.3
CaO .....%	-	1.1	1.1
MgO .....%	-	1.8	1.5
SO_3 .....%	-	0.2	0.1
Na_2O .....%	-	1.6	1.1
K_2O .....%	-	2.8	2.4

Mine Operator ..... EVANS COAL MINES LIMITED

Mine Location ..... St. Rose, Inverness County, Nova Scotia

Name of Mine or Coal ..... St. Rose

Date Sampled	2-9-71	2-9-71	2-9-71	31-3-71	2-9-71
Weight Sampled (approx.).....tons	15	20	12	23	8
Size: Mine Designation	Medium Lump	Egg	Nut	Stoker Pea	Stoker Pea
Screen Opening .....in.	6 to 3 1/4	3 1/4 to 2 sq	2 to 3/4 sq	3/4 sq to 1/4 sl	3/4 sq to 1/4 sl
FRC Laboratory No.	2781-71	2782-71	2783-71	2441-71	2784-71
Ultimate Analysis					
Carbon .....%	70.8	71.3	70.1	71.3	70.0
Hydrogen .....%	4.6	4.6	4.6	4.6	4.5
Sulphur .....%	6.3	6.4	6.5	6.1	6.6
Nitrogen .....%	1.2	1.2	1.2	1.2	1.2
Ash .....%	10.1	9.3	10.6	9.2	10.9
Oxygen (by difference) .....%	7.0	7.2	6.9	7.6	6.8
Ash Analysis					
SiO_2 .....%	-	-	24.5	27.6	25.9
Al_2O_3 .....%	-	-	14.0	16.5	14.4
Fe_2O_3 .....%	-	-	36.8	47.4	38.3
TiO_2 .....%	-	-	0.5	0.2	0.4
P_2O_5 .....%	-	-	0.5	0.4	0.4
CaO .....%	-	-	9.4	2.6	8.0
MgO .....%	-	-	1.2	0.8	1.2
SO_3 .....%	-	-	11.9	3.4	9.1
Na_2O .....%	-	-	1.1	0.6	1.1
K_2O .....%	-	-	0.5	1.1	0.7

Mine Operator ..... EVANS COAL MINES LIMITED

Mine Location ..... St. Rose, Inverness County, Nova Scotia

Name of Mine or Coal ..... St. Rose

Date Sampled	31-3-71	2-9-71
Weight Sampled (approx.).....tons	41	12
Size: Mine Designation	Fines	Fines
Screen Opening .....in.	Minus 1/4 sl	Minus 1/4 sl
FRC Laboratory No.	2442-71	2785-71
Ultimate Analysis		
Carbon .....%	70.2	66.7
Hydrogen .....%	4.4	4.3
Sulphur .....%	6.0	5.8
Nitrogen .....%	1.2	1.1
Ash .....%	11.3	15.5
Oxygen (by difference) .....%	6.9	6.6
Ash Analysis		
SiO_2 .....%	24.6	25.5
Al_2O_3 .....%	17.0	17.2
Fe_2O_3 .....%	34.2	23.0
TiO_2 .....%	0.3	0.3
P_2O_5 .....%	0.4	0.3
CaO .....%	7.8	13.8
MgO .....%	2.6	2.8
SO_3 .....%	11.1	16.3
Na_2O .....%	0.4	1.1
K_2O .....%	1.3	1.2

Mine Operator ..... RIVER HEBERT COAL COMPANY LIMITED

Mine Location ..... River Hebert, Cumberland County, Nova Scotia

Name of Mine or Coal ..... River Hebert

Date Sampled	8-9-71	9-9-71	8-9-71	9-9-71
Weight Sampled (approx.).....tons	40	20	95	50
Size: Mine Designation	Lump	Lump	Slack	Slack
Screen Opening .....in.	Plus 1 1/8 sq	Plus 1 1/8 sq	Minus 1 1/8 sq	Minus 1 1/8 sq
FRC Laboratory No.	2789-71	2792-71	2790-71	2793-71
Ultimate Analysis				
Carbon .....%	72.5	-	60.3	-
Hydrogen .....%	4.8	-	4.0	-
Sulphur .....%	5.0	-	4.8	-
Nitrogen .....%	1.5	-	1.2	
Ash .....%	11.5	-	25.4	-
Oxygen (by difference) .....%	4.7	-	4.3	-
Ash Analysis				
SiO_2 .....%	22.5	31.3	41.8	39.8
Al_2O_3 .....%	14.1	17.9	23.9	23.3
Fe_2O_3 .....%	27.8	17.0	17.0	16.2
TiO_2 .....%	0.5	0.4	0.7	0.6
P_2O_5 .....%	1.1	0.9	0.7	0.8
CaO .....%	14.2	12.6	5.7	5.6
MgO .....%	1.9	2.4	2.0	1.9
SO_3 .....%	17.1	15.4	6.5	8.0
Na_2O .....%	0.1	0.6	0.3	0.5
K_2O .....%	0.7	1.9	2.7	2.7

Mine Operator ..... THORBURN MINING LIMITED

Mine Location ..... Thorburn, Pictou County, Nova Scotia

Name of Mine or Coal ..... McBean; Coal Washing Plant

Date Sampled	24-11-71	24-11-71	24-11-71	23-11-71
Weight Sampled (approx.).....tons	95	140	23	40
Size: Mine Designation	Stoker	Fines	Washed Splint	Washed Splint
Screen Opening .....in.	3/4 to 3/16 sq	Minus 3/16 sq	Minus 1 1/2	Minus 1 1/2
FRC Laboratory No.	3103-71	3105-71	3104-71	3106-71
Ultimate Analysis				
Carbon .....%	68.0	64.9	59.9	62.9
Hydrogen .....%	4.2	4.0	3.8	3.9
Sulphur .....%	0.7	0.7	0.7	0.9
Nitrogen .....%	1.5	1.3	1.2	1.3
Ash .....%	19.9	23.2	28.4	25.2
Oxygen (by difference) .....%	5.7	5.9	6.0	5.8
Ash Analysis				
SiO_2 .....%	54.56	54.77	54.62	55.23
Al_2O_3 .....%	31.80	25.28	29.79	30.30
Fe_2O_3 .....%	3.63	4.19	4.21	6.66
TiO_2 .....%	.52	.55	.73	1.01
P_2O_5 .....%	.33	.32	.26	.17
CaO .....%	5.74	5.74	5.46	1.61
MgO .....%	1.01	1.26	.96	.96
SO_3 .....%	1.05	5.37	2.36	1.57
Na_2O .....%	.87	1.07	.97	1.07
K_2O .....%	1.77	2.36	2.50	2.36

B. NEW BRUNSWICK

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Coal Creek, Minto Coalfield

Name of Mine or Coal ..... 7200 Dragline (No. 2)

Date Sampled	25-10-71
Weight Sampled (approx.).....tons	250
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2926-71
Ultimate Analysis	
Carbon .....%	68.1
Hydrogen .....%	4.5
Sulphur .....%	7.0
Nitrogen .....%	0.8
Ash .....%	17.2
Oxygen (by difference) .....%	2.4
Ash Analysis	
SiO_2 .....%	32.6
Al_2O_3 .....%	12.6
Fe_2O_3 .....%	41.7
TiO_2 .....%	0.5
P_2O_5 .....%	2.6
CaO .....%	6.0
MgO .....%	0.1
SO_3 .....%	2.2
Na_2O .....%	0.2
K_2O .....%	0.4

Mine Operator	N.B. COAL LIMITED
Mine Location	Coal Creek, Minto Coalfield, New Brunswick
Name of Mine or Coal	200-W Dragline

Date Sampled	25-10-71
Weight Sampled (approx.).....tons	230
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2927-71
Ultimate Analysis	
Carbon .....%	70.5
Hydrogen .....%	4.7
Sulphur .....%	6.3
Nitrogen .....%	0.8
Ash .....%	15.5
Oxygen (by difference) .....%	2.2
Ash Analysis	
SiO_2 .....%	35.6
Al_2O_3 .....%	14.7
Fe_2O_3 .....%	40.0
TiO_2 .....%	0.5
P_2O_5 .....%	2.7
CaO .....%	5.2
MgO .....%	0.4
SO_3 .....%	1.1
Na_2O .....%	0.1
K_2O .....%	0.6

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... New Zion, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 500-W Dragline

Date Sampled	25-10-71
Weight Sampled (approx.).....tons	600
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2928-71
Ultimate Analysis	
Carbon .....%	72.9
Hydrogen .....%	4.8
Sulphur .....%	5.9
Nitrogen .....%	0.8
Ash .....%	12.7
Oxygen (by difference) .....%	2.9
Ash Analysis	
SiO_2 .....%	30.5
Al_2O_3 .....%	14.9
Fe_2O_3 .....%	45.9
TiO_2 .....%	0.6
P_2O_5 .....%	1.4
CaO .....%	3.7
MgO .....%	0.4
SO_3 .....%	2.8
Na_2O .....%	0.1
K_2O .....%	0.7

Mine Operator	N.B. COAL LIMITED
Mine Location	Hardwood Ridge, Minto Coalfield, New Brunswick
Name of Mine or Coal	4500 Dragline

Date Sampled	27-10-71
Weight Sampled (approx.).....tons	83
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2922-71
Ultimate Analysis	
Carbon .....%	76.0
Hydrogen .....%	4.8
Sulphur .....%	2.7
Nitrogen .....%	0.9
Ash .....%	8.1
Oxygen (by difference) .....%	7.6
Ash Analysis	
SiO_2 .....%	66.7
Al_2O_3 .....%	18.0
Fe_2O_3 .....%	9.5
TiO_2 .....%	1.0
P_2O_5 .....%	0.6
CaO .....%	1.7
MgO .....%	0.6
SO_3 .....%	0.2
Na_2O .....%	0.2
K_2O .....%	2.1

Mine Operator	N.B. COAL LIMITED
Mine Location	New England, Minto Coalfield, New Brunswick
Name of Mine or Coal	7400 Dragline

Date Sampled	27-10-71
Weight Sampled (approx.).....tons	329
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2924-71

Ultimate Analysis

Carbon .....%	74.6
Hydrogen .....%	4.8
Sulphur .....%	6.0
Nitrogen .....%	1.5
Ash .....%	11.5
Oxygen (by difference) .....%	1.6

Ash Analysis

SiO_2 .....%	32.0
Al_2O_3 .....%	14.5
Fe_2O_3 .....%	48.4
TiO_2 .....%	0.6
P_2O_5 .....%	1.6
CaO .....%	2.9
MgO .....%	0.3
SO_3 .....%	0.5
Na_2O .....%	0.2
K_2O .....%	0.6

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Minto, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... 9-W Dragline

Date Sampled	2710-71
Weight Sampled (approx.).....tons	290
Size: Mine Designation	Mine Run
Screen Opening .....in.	
FRC Laboratory No.	2920-71
Ultimate Analysis	
Carbon .....%	72.6
Hydrogen .....%	4.7
Sulphur .....%	5.9
Nitrogen .....%	0.8
Ash .....%	12.6
Oxygen (by difference) .....%	3.4
Ash Analysis	
SiO_2 .....%	30.8
Al_2O_3 .....%	14.6
Fe_2O_3 .....%	44.2
TiO_2 .....%	0.4
P_2O_5 .....%	3.2
CaO .....%	5.2
MgO .....%	0.2
SO_3 .....%	1.4
Na_2O .....%	0.2
K_2O .....%	0.6

Mine Operator ..... N.B. COAL LIMITED

Mine Location ..... Mills Siding, Minto Coalfield, New Brunswick

Name of Mine or Coal ..... Wash Plant

Date Sampled	26-10-71	26-10-71	26-10-71	26-10-71
Weight Sampled (approx.).....tons	850	75	210	230
Size: Mine Designation	Raw Coal	Nut	Pea	Fines
Screen Opening .....in.		1 1/2 to 1	1 to 3/4	Minus 1/4
FRC Laboratory No.	2933-71	2930-71	2931-71	2932-71
Ultimate Analysis				
Carbon .....%	60.3	70.1	71.6	71.2
Hydrogen .....%	4.0	4.7	4.8	4.7
Sulphur .....%	8.6	6.6	6.1	5.8
Nitrogen .....%	0.7	0.9	0.8	0.8
Ash .....%	25.0	15.4	14.6	14.7
Oxygen (by difference) .....%	1.4	2.3	2.1	2.8
Ash Analysis				
SiO_2 .....%	36.5	33.1	31.9	36.8
Al_2O_3 .....%	16.9	15.7	14.6	16.0
Fe_2O_3 .....%	36.5	40.7	39.5	33.5
TiO_2 .....%	0.5	0.6	0.5	0.5
P_2O_5 .....%	1.0	1.7	1.5	1.0
CaO .....%	4.4	3.9	3.6	4.1
MgO .....%	0.5	0.3	0.2	0.1
SO_3 .....%	3.0	1.5	2.6	2.8
Na_2O .....%	0.2	0.2	6.2	2.3
K_2O .....%	1.5	0.8	1.3	2.2