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PETROGRAPHIC ANALYSES OF THREE CLEAN COAL SAMPLES IDENTIFIED AS UPPER BIRD SEAM, LOWER BIRD SEAM, AND GATES B SEAM SUBMITTED BY NICHIMEN RESOURCES LIMITED, BRITISH COLUMBIA

Project 03-1-3/25-1
Job No. 3149R

J.G. Jorgensen
Coal Resource and Processing Laboratory

February, 1978

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by

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INTRODUCTION

This report includes the petrographic analyses of three clean coal samples identified as Upper Bird Seam, Lower Bird Seam and Gates B Seam submitted by Nichimen Resources Limited.

The project was initiated by M.A. Mitchell, Exploration Manager, Nichimen Resources Limited. A copy of the covering letter dated November 22, 1977 is included in the appendix of the report.

The proximate analysis and sulphur values are given in Table I. The petrographic analyses and the calculated stability factors are tabulated in Table 2.

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TABLE 1 Chemical Analyses of Component Coals

Identification			
Laboratory Number	3665-77	3666-77	3667-77
Description	J-6664	J-6665	J-6666
	Upper Bird Seam	Lower Bird Seam	Gates Bird Seam
Classification			
Rank (ASTM)	lvb	lvb	mvb
International System			
Specific Volatile Index			
Carbon (dmmfb) .....%			
Proximate Analysis (db)			
Ash .....%	7.1	6.8	9.5
Volatile Matter .....%	19.5	19.0	20.8
Fixed Carbon .....%	73.4	74.2	69.7
Gross Calorific Value (db)			
Btu per pound			
Ultimate Analysis (db)			
Carbon .....%			
Hydrogen .....%			
Sulphur .....%	2.43	1.45	0.25
Nitrogen .....%			
Ash .....%			
Oxygen (by difference) .....%			
Ash Analysis (db)			
SiO_2 .....%			
Al_2O_3 .....%			
Fe_2O_3 .....%			
TiO_2 .....%			
P_2O_5 .....%			
CaO .....%			
MgO .....%			
SO_3 .....%			
Na_2O .....%			
K_2O .....%			

TABLE 2 Petrographic Analysis of Component Coals

Identification			
Laboratory Number.....	3665-77	3666-77	3667-77
Description.....	Upper Bird Seam No. 1	Lower Bird Seam No. 2	Gates "B" Seam No. 5
Distribution of Vitrinite Types			
V-6.....%			
V-7.....%			
V-8.....%			
V-9.....%			
V-10.....%			1.2
V-11.....%			9.9
V-12.....%			45.3
V-13.....%	5.0	4.9	5.6
V-14.....%	41.1	39.9	
V-15.....%	15.0	9.8	
V-16.....%	1.2		
V-17.....%			
V-18.....%			
Reactive Components			
Total Vitrinite.....%	62.3	54.6	62.1
Reactive Semi-fusinite (1/2)...%	11.2	15.2	12.0
Exinite.....%	0.0	0.0	0.0
Total.....%	73.5	69.8	74.1
Inert Components			
Inert Semi-fusinite (1/2).....%	11.2	15.3	12.1
Micrinite.....%	2.7	3.5	2.3
Fusinite.....%	8.1	7.3	6.2
Mineral Matter.....%	4.5	4.1	5.3
Total.....%	26.5	30.2	25.9
Petrographic Indices			
Mean Reflectance.....%	1.46	1.46	1.23
Balance Index.....	2.74	3.20	1.39
Strength Index.....	6.88	6.78	4.80
Stability Index.....	58.0	54.8	60.0

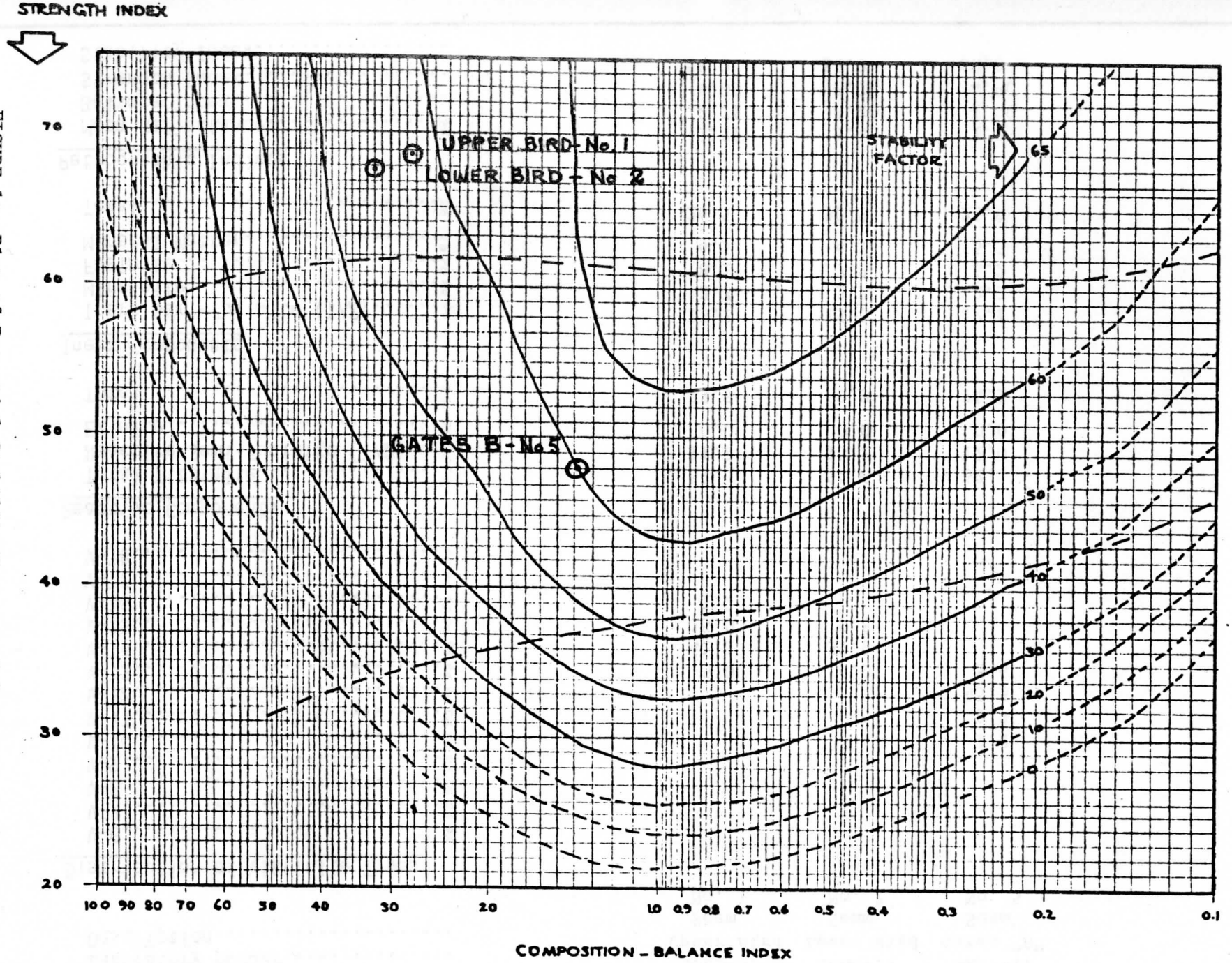

FIGURE 1: Plot of Potential Stability Factors of Component Coals

REFERENCES

1. ASTM Designation: D388-66, "Classification of Coals by Rank".

2. ASTM Designation: D720-67, "Test for Free Swelling Index of Coal".

3. ASTM Designation: D2639-71, "Test of Plastic Properties of Coal by the Constant-Torque Gieseler Plastometer". (Constant torque plastometer used with a torque of 40 gram-inch; start, 1dd/m; fusion, 55dd/m; final, 1·dd/m; solidification, no movement; range-temp., between start and final temperatures).

4. Burrough, E.J., "Specific Volatile Index", Fuels Division Memorandum 97/58-CG, Fuels and Mining Practice Division, Mines Branch Dept. of M. and T.S., Ottawa, Canada.

5. German Industrial Specification No. DIN 51739/March 1951.

6. ASTM Designation: D2797-72, "Preparing Coal Samples for Microscopical Analysis by Reflected Light".

7. ASTM Designation: D2798-72, Determining Microscopically the Reflectance of the Organic Components in a Polished Speciment of Coal".

8. ASTM Designation: D2799-72, "Microscopical Determination of Volume Per cent of Physical Components of Coal".

9. Schapiro, N., Gray, R.J. "Petrographic Classification Applicable to Coals of all Ranks", Proc. III, Min. Inst., 1960, 68, 83-97.

APPENDIX I

Letter dated November 22, 1977 from M.A. Mitchell, Exploration Manager, Nichimen Resources Limited.

NICHIMEN RESOURCES LTD.

SUITE 50
GRANVILLE SQUARE
200 GRANVILLE STREET
VANCOUVER, B.C., CANADA V6C 1S4

Mr. Jack Botham,
Can Met,
C.R.P.L.,
555 Booth Street,
Ottawa,
Ontario,
KIA OGI

22nd November 1977

Dear Sir,

I have just received notification that a number of coal samples have arrived at your facility for petrographic work but that instructions and authorization to do the work are missing.

Please accept this letter as authorization to perform petrographic work on three samples, one from each of the following seams :

(1) Upper Bird Seam.
(2) Lower Bird Seam.
(3) Gates "B" Seam.

I don't know how the samples are identified, i.e. with the C.E.S. number or with hole, intercept and seam (our identification).

The following groups of C.E.S. numbers identify samples from the Upper Bird, Lower Bird and Gates 'B' seams respectively:

(1) Upper Bird - C.E.S. Nos. - 1,10,11,17,19
(2) Lower Bird - C.E.S. Nos. - 2,12,13,16,18,20
(3) Gates "B" - C.E.S. Nos. - 5,9

I don't think that it matters which sample that you choose from each of the groups. Please keep all of the samples at your lab pending further testing or if you are short of space please send them to the above address as well as results and billing.

Yours very truly,

M.A. Mitchell, Bsc. P.Eng.
Exploration Manager,
Nichimen Resources Ltd.

MAM/EDB