

LEGEND

— COAL SEAM	cobc	COMMOTION F. BOULDER CREEK M.
— MEASURED DIP	coh	COMMOTION F. HULCROSS M.
--- GEOLOGICAL CONTACT	cog(u)	COMMOTION F. GATES (UPPER) M.
--- FAULT	cog(l)	COMMOTION F. GATES (LOWER) M.
	mb	MOOSEBAR F.
	ge	GETHING F.

PR-NTI SPIEGER 75(2)A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

GEOLOGICAL CROSS SECTION
(A ~ A')

SCALE 1" = 1,000'

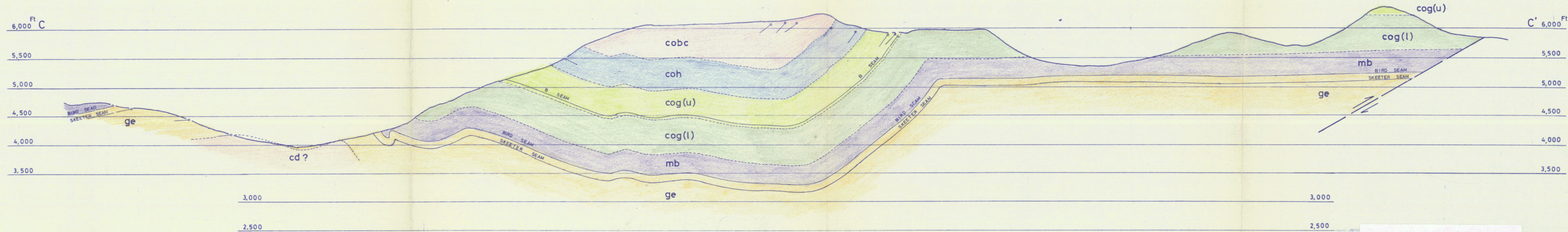
DATE: SEP. 1975

MAP No.: 75-03-1

MITSUI MINING CO., LTD.
TOKYO JAPAN



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LEGEND			
— COAL SEAM	cobc	COMMOTION F.	BOULDER CREEK M.
— MEASURED DIP	coh	COMMOTION F.	HULCROSS M.
--- GEOLOGICAL CONTACT	cog(u)	COMMOTION F.	GATES (UPPER) M.
--- FAULT	cog(l)	COMMOTION F.	GATES (LOWER) M.
	mb	MOOSEBAR F.	
	ge	GETHING F.	
	cd	CADOMIN F.	

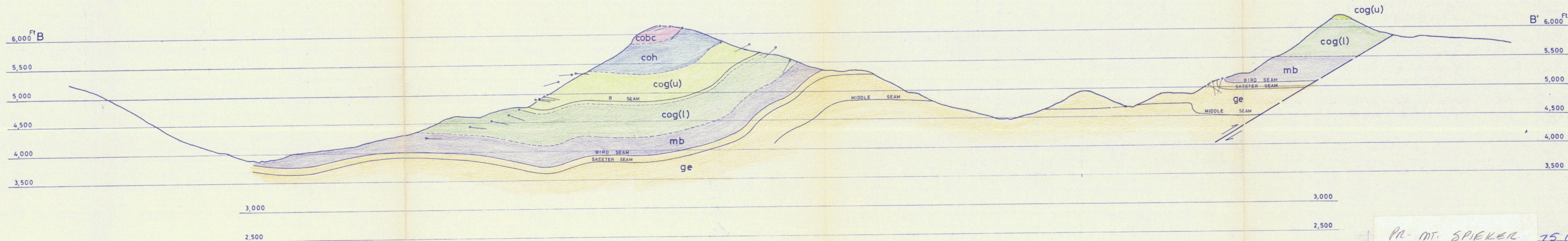
PR-NT. SPIEGER-75(2)A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

GEOLOGICAL CROSS SECTION
(C - C')
SCALE 1" = 1,000'

DATE: SEP. 1975 MAP No.: 75-03-3

MITSUMI MINING CO., LTD.
TOKYO JAPAN



LEGEND			
—	COAL SEAM	cobc	COMMOTION F. BOULDER CREEK M.
—	MEASURED DIP	coh	COMMOTION F. HULCROSS M.
- - -	GEOLOGICAL CONTACT	cog(u)	COMMOTION F. GATES (UPPER) M.
—	FAULT	cog(l)	COMMOTION F. GATES (LOWER) M.
		mb	MOOSEBAR F.
		ge	GETHING F.

PR-MT. SPIEKER 75(2)A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

GEOLOGICAL CROSS SECTION

(B ~ B')

SCALE 1" = 1,000'

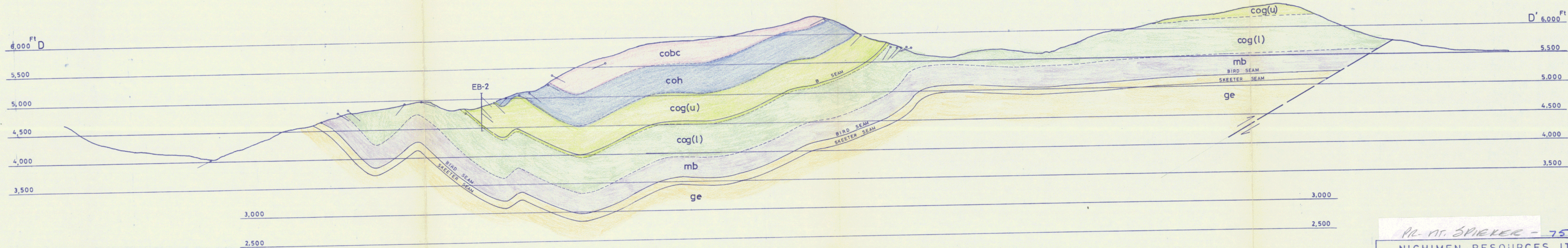
DATE: SEP. 1975

MAP No.: 75-03-2

MITSUI MINING CO., LTD.
TOKYO JAPAN



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LEGEND			
—	COAL SEAM	cobc	COMMOTION F. BOULDER CREEK M.
—•—	MEASURED DIP	coh	COMMOTION F. HULCROSS M.
- - -	GEOLOGICAL CONTACT	cog(u)	COMMOTION F. GATES (UPPER) M.
- - -	FAULT	cog(l)	COMMOTION F. GATES (LOWER) M.
		mb	MOOSEBAR F.
		ge	GETHING F.

PR. MT. SPIRER - 75(2)A

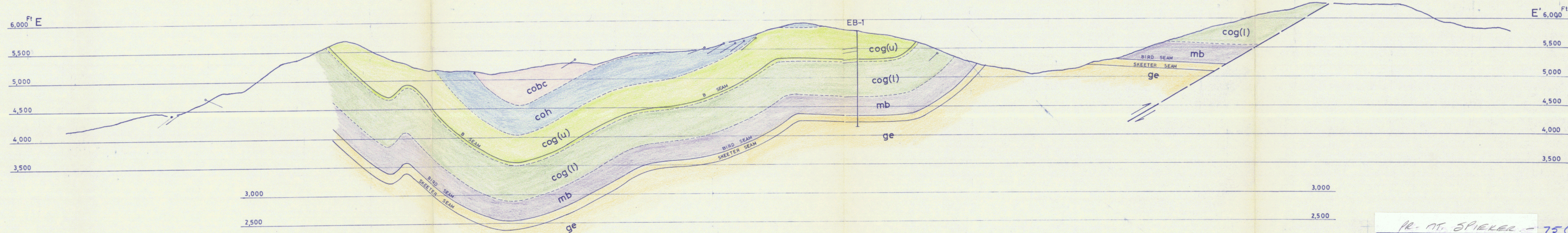
NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

GEOLOGICAL CROSS SECTION
(D ~ D')
SCALE 1"=1,000'

DATE : SEP. 1975 MAP No: 75-03-4

MITSUI MINING CO., LTD.
TOKYO JAPAN

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LEGEND			
— COAL SEAM	cobc	COMMOTION F.	BOULDER CREEK M.
— MEASURED DIP	coh	COMMOTION F.	HULECROSS M.
--- GEOLOGICAL CONTACT	cog(u)	COMMOTION F.	GATES (UPPER) M.
--- FAULT	cog(l)	COMMOTION F.	GATES (LOWER) M.
	mb	MOOSEBAR F.	
	ge	GETHING F.	

PR. NT. SPIELER - 75(2)A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

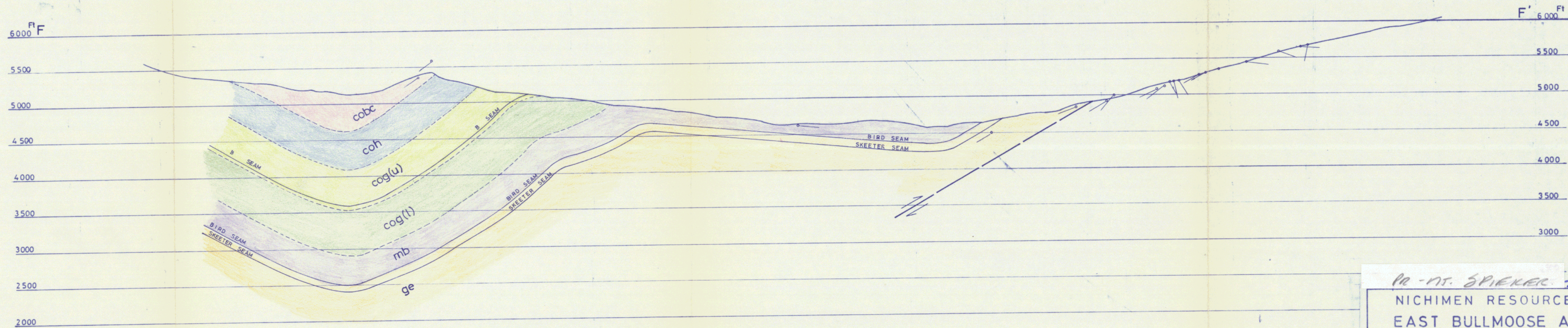
GEOLOGICAL CROSS SECTION
(E - E')

SCALE 1" = 1,000'

DATE : SEP. 1975 MAP No.: 75-03-5

MITSUI MINING CO., LTD.
TOKYO JAPAN

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LEGEND

— COAL SEAM	cobc	COMMOTION F. BOULDER CREEK M.
- - - MEASURED DIP	coh	COMMOTION F. HULCROSS M.
- - - GEOLOGICAL CONTACT	cog(u)	COMMOTION F. GATES (UPPER) M.
- - - FAULT	cog(l)	COMMOTION F. GATES (LOWER) M.
	mb	MOOSEBAR F.
	ge	GETHING F.

10 - MT. SPIEKER 75 (2) A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

GEOLOGICAL CROSS SECTION
(F - F')

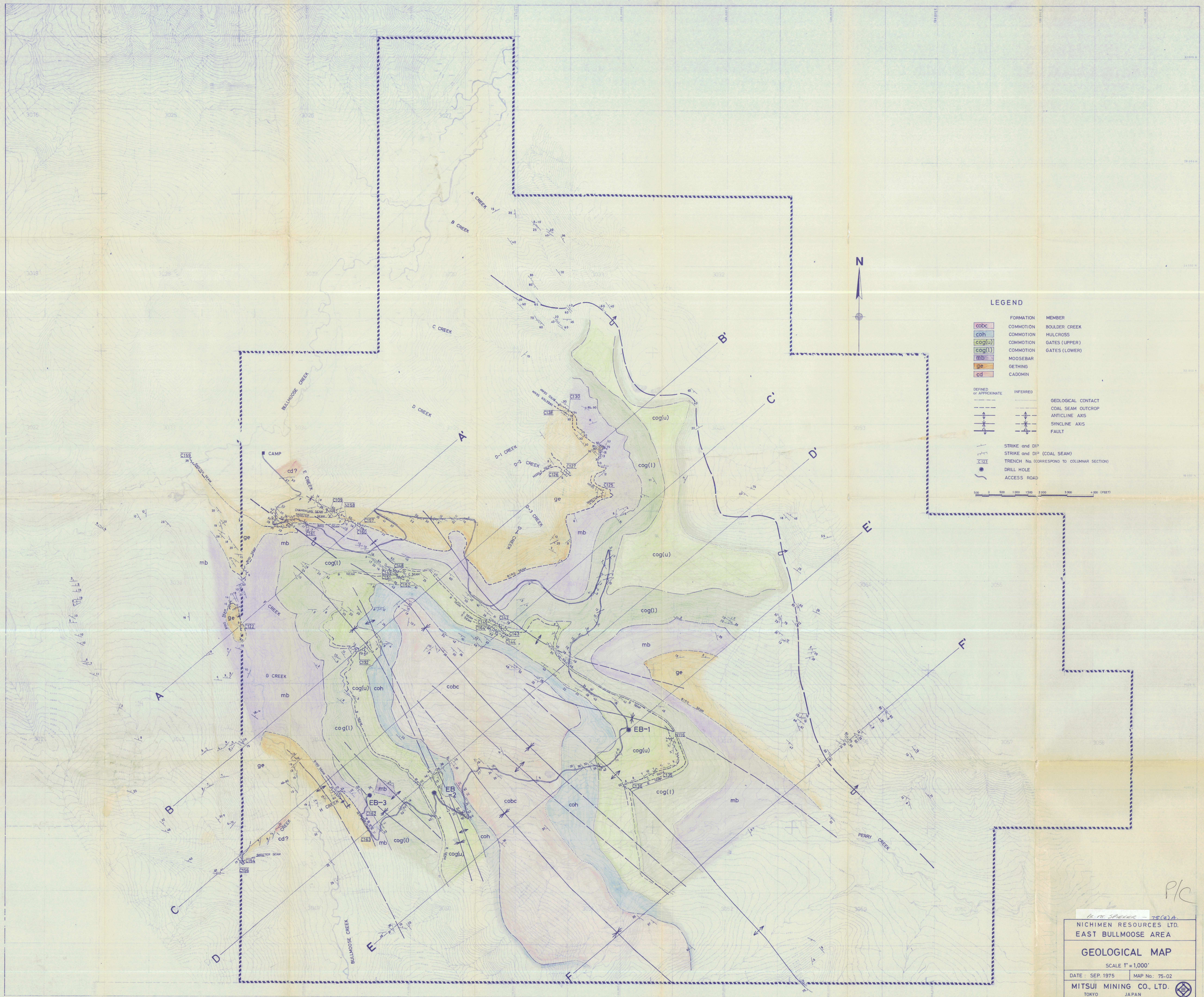
SCALE 1" = 1,000'

DATE : SEP. 1975 MAP No.: 75-03-6

MITSUI MINING CO., LTD.
TOKYO JAPAN



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LEGEND

FORMATION	MEMBER
cabc	BOULDER CREEK
coh	HULCROSS
cog(u)	GATES (UPPER)
cog(l)	GATES (LOWER)
mb	MOOSEBAR
ge	GETTING
cd	CADOMIN

DEFINED OF APPROXIMATE	INFERRED

	STRIKE and DIP
	STRIKE and DIP (COAL SEAM)
	TRENCH No. (CORRESPOND TO COLUMNAR SECTION)
	DRILL HOLE
	ACCESS ROAD

500 1000 1500 2000 2500 3000 3500 4000 (FEET)

U. M. SPENCE - 75(2)A
NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA
GEOLOGICAL MAP
SCALE 1" = 1,000'
DATE: SEP. 1975 MAP No.: 75-02
MITSUBI MINING CO., LTD.
TOKYO JAPAN

P/C

E CREEK

G CREEK

D-4 CREEK

EB-2

EB-1

D SEAM

SOUTH of EB-1
(TRENCH)

C SEAM

B SEAM

A SEAM

LEGEND

- COAL A or B
- COAL C
- COAL D (not included in coal thickness)
- COALY SHALE
- DARK (COALY) SHALE
- SHALE
- SANDY SHALE
- VERY FINE SANDSTONE
- FINE SANDSTONE or MEDIUM SANDSTONE
- CONGLOMERATE

12.90 COAL THICKNESS IN FEET
15.50 SEAM
SAMPLED SECTION

Plc 552

W. M. SPIERER - 75(2)A
NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA
COLUMNAR SECTIONS OF COAL SEAMS
(GATES MEMBER)
SCALE 1" = 5'
DATE: SEP. 1975 MAP No.: 75-05-1
MITSUI MINING CO., LTD.
TOKYO JAPAN

BULLMOOSE CREEK I CREEK

E CREEK

ROAD to EB-3

EB-3

D CREEK

EB-1

**BIRD SEAM
(UPPER)**

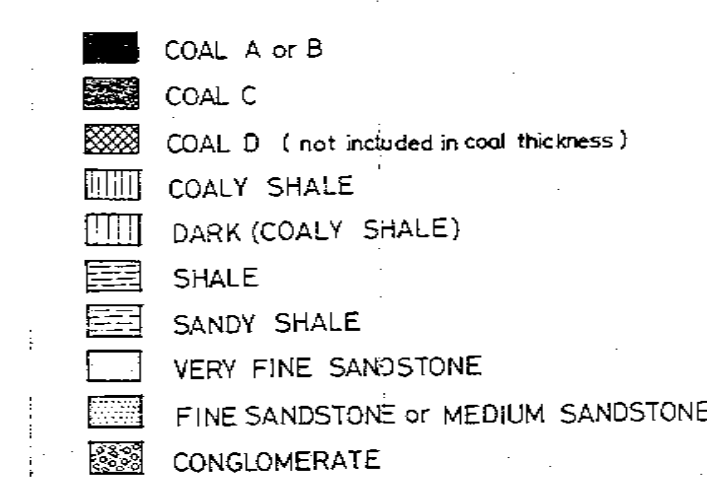
**BIRD SEAM
(LOWER)**

UPPER

SKEETER SEAM

CHAMBALAIN SEAM

MIDDLE SEAM



11-111 SPERER -- 75 (2) A

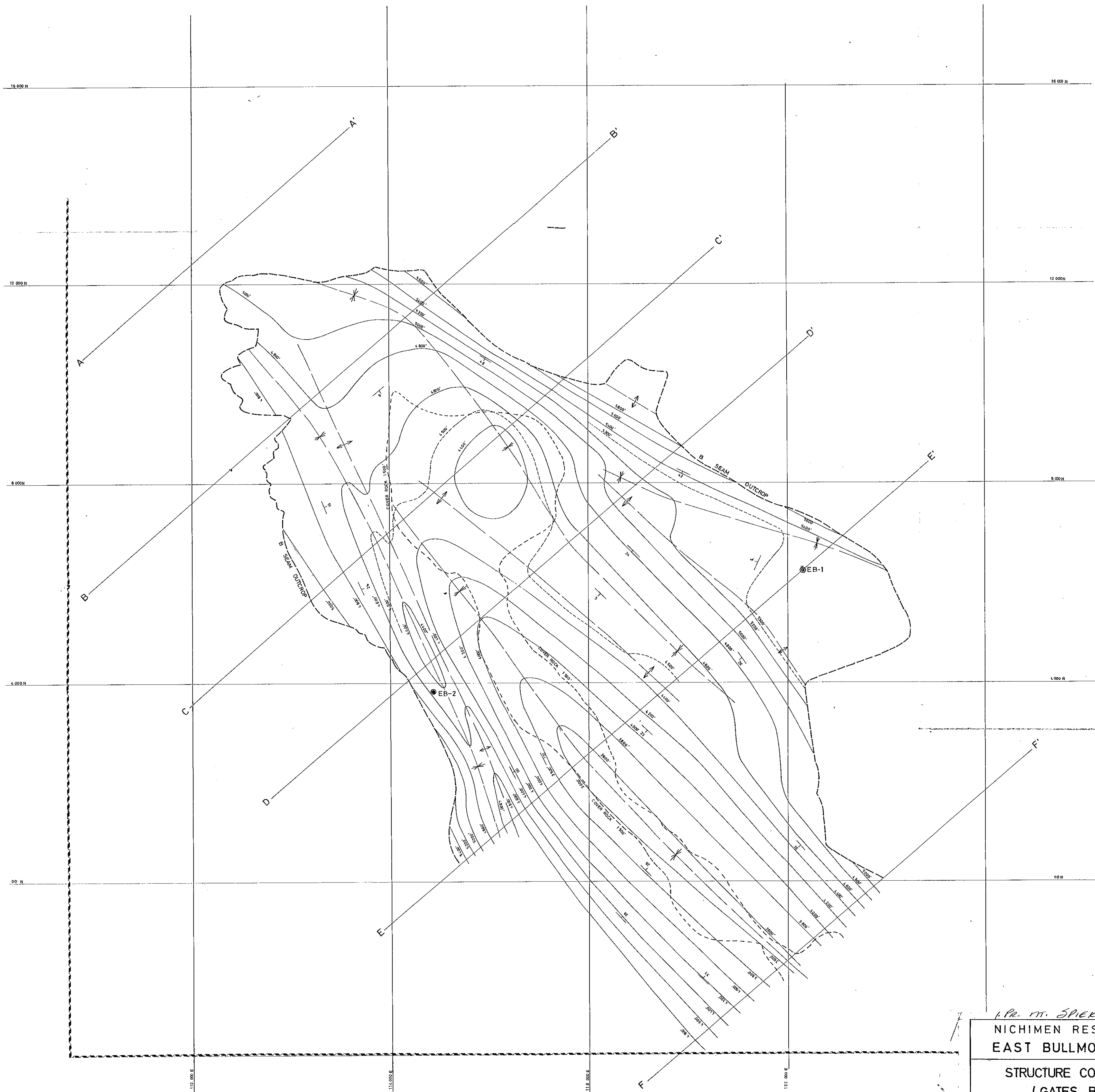
NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

COLUMNAR SECTIONS OF COAL SEAMS
(GETHING FORMATION)
SCALE 1" = 5'

DATE: SEP. 1975 MAP No.: 75-05-2

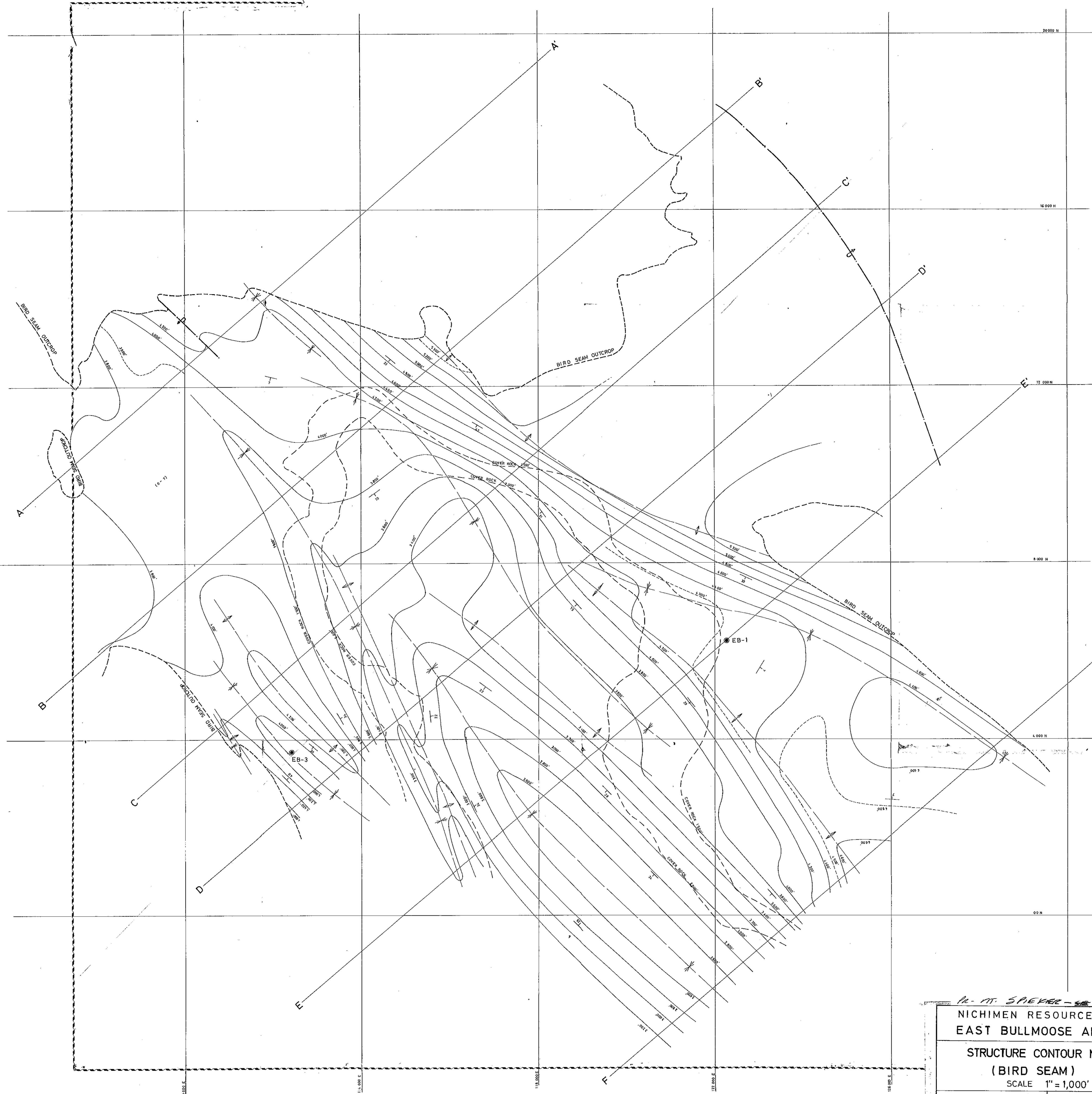
MITSUI MINING CO., LTD.
TOKYO JAPAN

P/Q 552



APR. 17. SPIKER - 75 (2) A.

NICHIMEN RESOURCES LTD. EAST BULLMOOSE AREA	
STRUCTURE CONTOUR MAP (GATES B SEAM) SCALE 1" = 1,000'	
DATE: SEP. 1975	MAP No: 75-07-1
MITSUI MINING CO., LTD. TOKYO JAPAN	



12-17-75 SPEAKER-75(2)A
NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA
STRUCTURE CONTOUR MAP
(BIRD SEAM)
SCALE 1"=1,000'
DATE: SEP. 1975 MAP No.: 75-07-2
MITSUI MINING CO., LTD.
TOKYO JAPAN

E CREEK

G CREEK

D-4 CREEK

EB-2

EB-1

D SEAM

C SEAM

B SEAM

A SEAM

GATES (UPPER)

GATES (LOWER)

LEGEND

- COAL A or B
- COAL C
- COAL D
- COALY SHALE
- DARK (COALY SHALE)
- SHALE
- SANDY SHALE
- VERY FINE SANDSTONE
- FINE SANDSTONE or MEDIUM SANDSTONE
- CONGLOMERATE

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

CORRELATION CHART
(GATES MEMBER)
SCALE 1"=20'

DATE SEP 1975

MAP No. 75-04-1

MITSUI MINING CO. LTD.
TOKYO JAPAN

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BULLMOOSE CREEK E CREEK ROAD to EB-3 EB-3 D-1 CREEK D-2 CREEK EB-1

MOOSEBAR FORMATION

GETHING FORMATION

BIRD SEAM (UPPER)

BIRD SEAM (LOWER)

I CREEK

SKEETER SEAM

CHAMBALAIN SEAM

LEGEND

- COAL A or B
- COAL C
- COAL D
- COALY SHALE
- DARK (COALY SHALE)
- SHALE
- SANDY SHALE
- VERY FINE SANDSTONE
- FINE SANDSTONE or MEDIUM SANDSTONE
- CONGLOMERATE

552

PR-MT. SPIEKER - 76(2)A.

NICHIMEN RESOURCES LTD.
EAST BULLMOOSE AREA

CORRELATION CHART
(GETHING FORMATION)

SCALE 1"=20'

DATE : SEP. 1975

MAP No.: 75-04-2

MITSUI MINING CO., LTD.
TOKYO JAPAN



Nov 1976

ROKE

GAMMA-RAY NEUTRON LOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

W-175 SPEAKER 75 (2) A

FILE NO. COMPANY NICHEN RESOURCES LTD

LSD SEC WELL EB - 2 MS22

TWP RGE LOCATION MT. SPEAKER

W. FIELD

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev. K.B. Log Measured from GROUND LEVEL F. Above Perm. Datum

Well Depths Measured from RIG FLOOR G.L.

Run. No. ONE

Date 18 SEPTEMBER 1975

First Reading 609

Last Reading 00

Footage Logged 609

Depth Reached 610

Depth Driller 628

Casing Floor

Casing Driller

Fluid Type AIR/OUTER GEL

Liquid Level 2-3/4

Mfr. Dam.

Rm. @ 0°

Operating Time 2 HOURS

Track No. 552

MAP No: 75-06-3

Recorded By: HEDIN

Witnessed By: ROBERTS

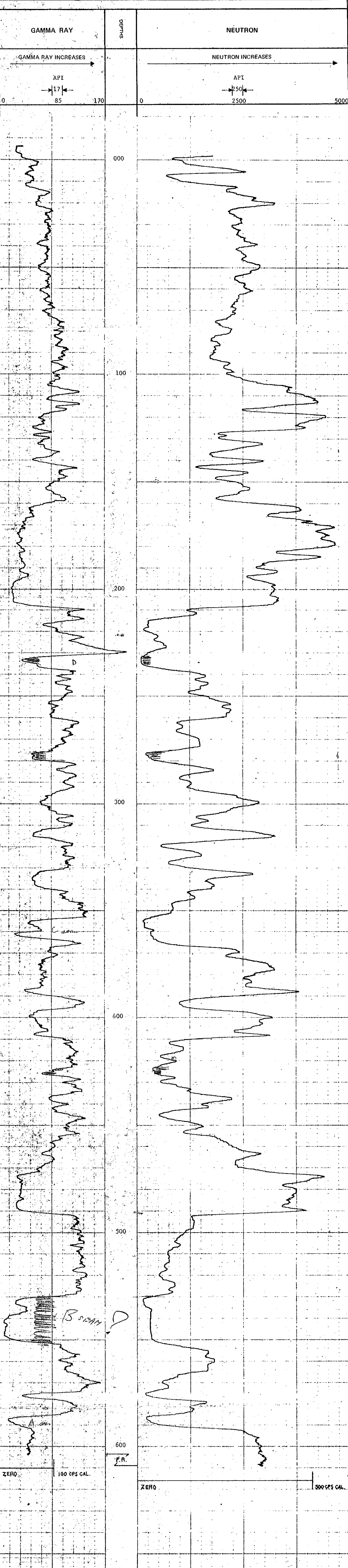
EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.	340	LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 1/2	TOOL MODEL NO.	340
DETECTOR MODEL NO.		DIAMETER	1 1/2
TYPE	SCINTILLATION	DETECTOR MODEL NO.	
LENGTH	4 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	5.5 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	171
HOIST TRUCK NO.	SU-5	SPACING	
INSTRUMENT TRUCK NO.	SU-5	TYPE	AmBe
TOOL SERIAL NO.	340	STRENGTH	3 CURIES
LOGGING DATA			

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	FROM	TO	SPEED FT/MIN	T.C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API G. R. UNITS PER LOG DIV.	T. C. SEC.	SENS. SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	00	609	12	5	100	-	17 API	3	500	-	250 API

REMARKS LOGGED THROUGH DRILL PIPE



ROKE

GAMMA RAY NEUTRON

OIL ENTERPRISES LTD. CALGARY, ALBERTA

File No. 777 SPEAKER - 75 (2) 14

COMPANY NITCHEMEN RESOURCES LIMITED

WELL EB-3

LOCATION BULLMOOSE CREEK

FIELD

PROVINCE BRITISH COLUMBIA

Other Services: DENS.

Permanant Datum GROUND LEVEL Elev.

Log Measured from R16 FLOOR 2 Ft. Above Perm. Datum

Well Depths Measured from R16 FLOOR G.L.

Run No. ONE

Date SEPT 24 1975

First Reading 5.4

Last Reading 000

Footage Logged 519

Depth Reached 520

Depth Driller 520

Casing Roke

Casing Driller

Fluid Type AIR / OIL & GAS

Liquid Level

Min. Diam. NA

Rm @ 9 Ft.

Operating Time 2 HRS

Truck No. 50-5

MAP No.: 75-06-5

Recorded By HEBIN Witnessed By ROBERTS

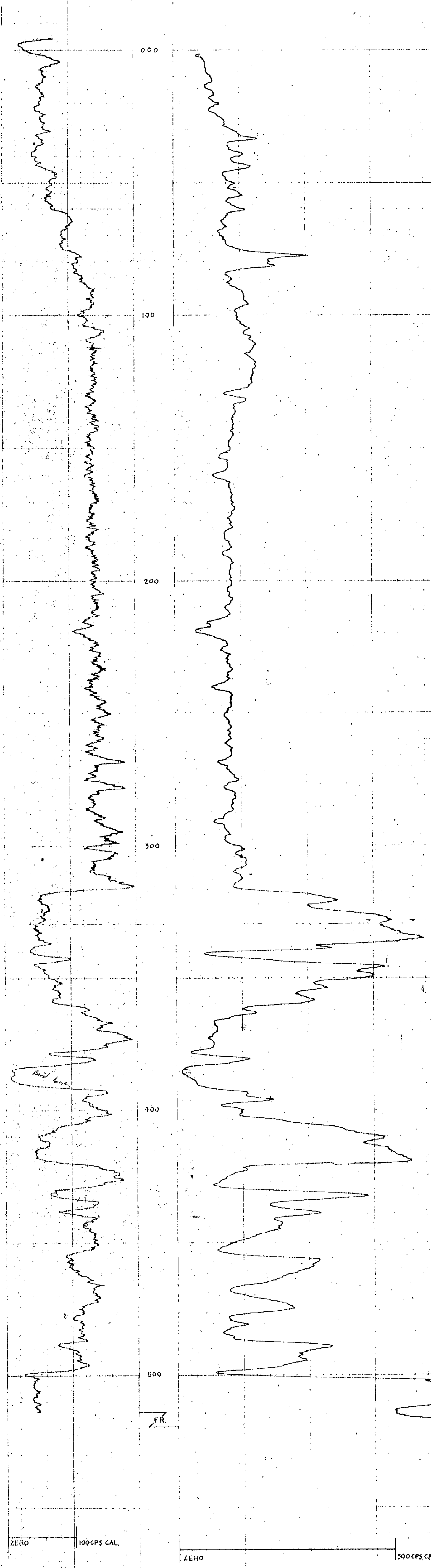
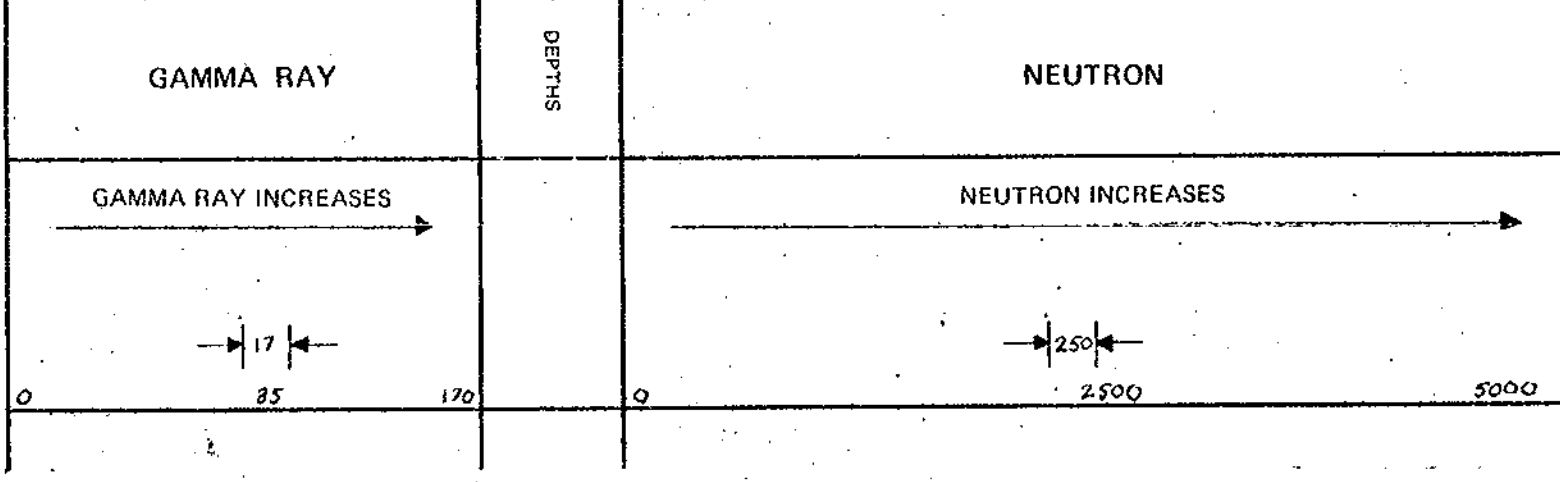
EQUIPMENT DATA

EQUIPMENT DATA			
GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.	340	LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	340
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	SCINTILLATION	DETECTOR MODEL NO.	
LENGTH	41 IN.	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	5.5 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	171
HOIST TRUCK NO.	50-5	SPACING	
INSTRUMENT TRUCK NO.	50-5	TYPE	AmBe
TOOL SERIAL NO.	340	STRENGTH	3 CURIES
LOGGING DATA			

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS		SPEED FT/MIN	T.C. SEC.	SENS. SETTINGS	ZERO. DIV. L OR R	API G. R. UNITS PER LOG DIV.	T. C. SEC.	SENS. SETTINGS	ZERO. DIV. L OR R	API N. UNITS PER LOG DIV.
	FROM	TO									
ONE	000	529	12	5	100	-	17	3	500	2.50	2.50

REMARKS LOGGED THROUGH NA DRILL ROD



ZERO 100 CPS CAL. ZERO 500 CPS CAL.

SIDEWALK DENSITOMETER

PK: 111, SPICKER.
E 75 (2) A.

FILE NO. COMPANY NTCUMEN RESOURCES LIMITED

WELL _____ EE-3

LOCATION BULLMOOSE CREEK

FIELD

PROVINCE BRITISH COLUMBIA

Ground Level _____ Elev. _____

Measured from	A16 FLOOR	2	ft. Above Perm. Datum
Depths Measured from	A16 FLOOR		

No.	ONE
-----	-----

	SEP 24 1975	
Reading	516	

Reading	000		
---------	-----	--	--

Age Reached	516		
Reached	519		

h Driller	520		
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g Foke	1	
Driller	1	

ing Office:		
1 Type:	NR/BUICK cel	

Level	1	2	3
Level			

Diem.	23		
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[illegible]

1

ating Time	2 hrs	
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MAP No. 75	SU-5	No.
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[illegible]

Tested By	HEIN	Witnessed By	ROBERT
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1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

[illegible]

REMARKS	LOGGED THROUGH DRILL ROD. CONSIDERATION MUST BE GIVEN TO THE POSITION OF THE DRILL ROD WHEN USING THE BULK DENSITY VALUES.
	700L SER # 553

TOOL SER # 553

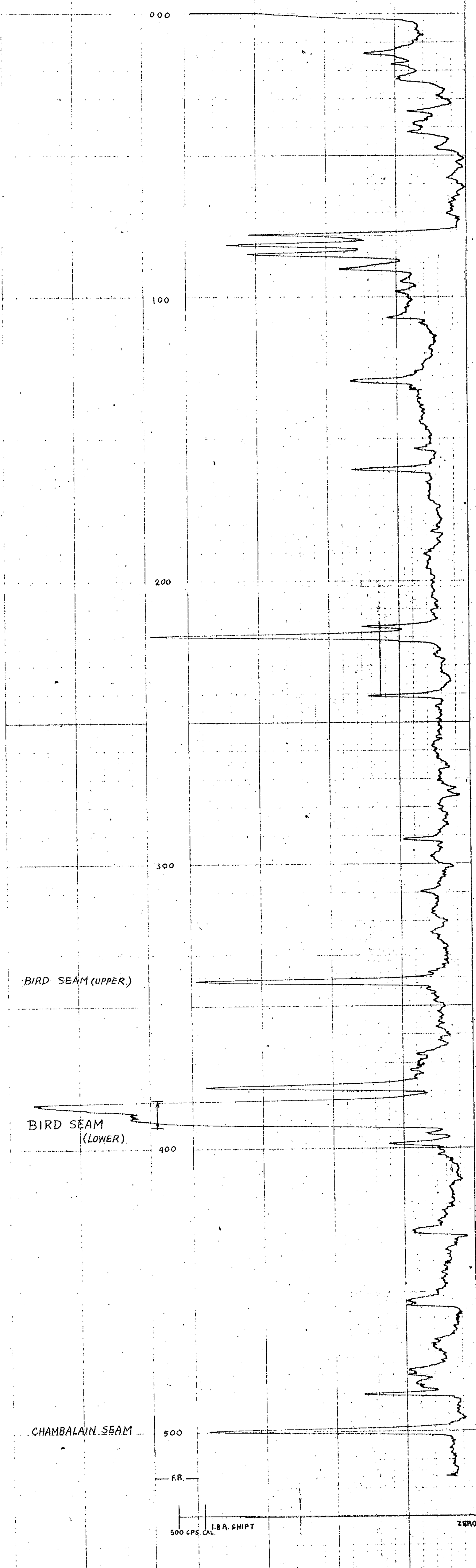
CALIPER

PTMS

GAMMA RAY

API

BULK DENSITY
(GRAMS/CC)



1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

•

~~CONFIDENTIAL~~

- f) The total recovery factor of mining and preparation plant yield is subject to the mining method. However, a figure of between 45% and 30% was arbitrarily adapted in this report.
- g) The specific gravity of 1.35 was used for clean coal.

Reserves

Total reserves of two coal seams is shown on the Table-1. There are approximately 134 million tons in place of which 30 million tons are conservatively taken as recoverable reserves above 1,500 feet coverline.

Since, so far as the limited exploration has yet shown, some other seams are workable locally within the explored area. Also the B Seam is present in extension to the south of the mapped area. Further exploration would probably increase the reserves substantially.

III-3 Coal Quality

The coal samples obtained from drill holes were tested by Commercial Testing and Engineering Co. in Vancouver. The analytical results are summarized on the Table.

The general description of the coal quality is summarized as follow.

Gates Coals

- a) The ash content of the clean coal washed at the specific gravities of 1.5 ranges from 6.8% to 10.0% which is relatively a low figure.

- b) The separating yields at the above gravity varies from 95.6% for the A Seam to 49.1% for the C Seam. At a S.G. of 1.6 the yield is 66.5% for the C Seam with 11.31% ash. The dilution was not considered for the testing work as the samples of the C and D Seams in EB-1 were taken from the upper and lower sections separately and the shale partings in the middle of both the seams were excluded. Therefore the yield of total seam thickness including the partings will become lower if mined as one seam.
- c) The volatile matter range is 22.9% to 27.6% which corresponds to 24.5% and 30.1% respectively in d.a.f. basis.
- d) Total sulphur is less than 0.6% which is reasonably low and the phosphorus ranges 0.02 - 0.09% of which is relatively high.
- e) F.S.I. is higher than $6\frac{1}{2}$.
- f) Maximum fluidity in Gieseler plastometer ranges from 63 to 291 d.d.p.m. with the exception of 1230 d.d.p.m. of the D Seam in EB-2.
- g) The average quality of the B Seam which is the main seam in the area is as follows.

Ash	7.5%
Volatile Matter	24.5%
Fixed Carbon	68.0%
B.T.U.	14,238/lb.
Total Sulphur	0.24%
Phosphorus	0.05%
Free Swelling Index	$6\frac{1}{2}$
Max. Fluidity	205 d.d.p.m.
H.G.I.	85

Gething Coals

- a) Although the core recoveries of the Gething Coal seams are very poor, it could be said that the analytical results could be fairly representative of seam thickness, because the density and visible loggings indicate no partings and homogenous characteristics in the seam.
- b) The ash contents of less than 8% of raw coal and less than 6% of clean coal washed at the specific gravity of 1.6, are very low.
- c) The washing yields at the above specific gravity are higher than 94%.
- d) The volatile matter content ranges from 18.3 to 22.9% which correspond to 19.3 and 23.4 in d.a.f. basis respectively.
- e) So far as analysis show the sulphur content is less than 0.6% which is reasonably low and the phosphorous is less than 0.06% which is relatively high.

Another analysis was made on the outcrop samples for reference which shows equivalent level of sulphur content.

- f) The Giesler plastometer test indicates the low fluidity of about 5 d.d.p.m.

SUMMARY OF TEST RESULTS OF DRILL CORE SAMPLES

TABLE-2

SEAM	DRILL NO.	THICKNESS (ft)	RAW COAL ASH (Dry) %	CLEAN COAL (DRY BASIS)										
				S.G.	YIELD %	ASH %	V.M. %	F.C. %	B.T.U. /lb.	T.S. %	P. %	F.S.A.	MAX FL. D.D.P.M.	H.G.I.
Gates D (u)	EB-1	4.75	15.38	1.5	78.3	7.72	24.71	67.57	14,265	0.52	0.05	7½	195	84
	D (1)	5.40	17.20	1.5	66.4	8.81	25.65	65.54	13,801	0.40	0.07	7½	85	83
	B	4.90	18.23	1.5	68.2	8.18	27.61	64.21	14,159	0.44	0.08	8	1,230	79
Gates C (u)	EB-1	6.70	27.25	1.5	49.1	7.77	23.73	68.50	14,245	0.42	0.06	7½	71	86
	C (1)	3.60	24.10	1.5	71.4	6.79	25.67	67.54	14,458	0.57	0.04	8	188	82
	C	4.90	25.65	1.5	62.3	9.98	25.26	64.76	13,809	0.47	0.05	7	275	83
Gates B	EB-1	15.30	15.80	1.5	76.8	7.17	23.89	68.94	14,339	0.23	0.09	6½	119	88
	EB-2	17.20	10.92	1.6	90.5	7.92	25.04	67.04	14,136	0.25	0.01	6½	291	82
Gates A	EB-1	4.00	12.30	1.5	82.8	6.86	22.86	70.28	14,570	0.48	0.02	7½	63	84
	EB-2	3.60	8.29	1.5	95.6	7.85	23.75	68.40	14,266	0.35	0.02	7½	155	79
Bird (Upper)	EB-1	7.90	7.92	1.6	96.5	5.56	19.17	75.27	14,715	0.53	0.02	4	-	91
Bird (Lower)	EB-1	5.00	5.17	1.6	94.4	3.97	20.60	75.43	14,916	0.41	0.04	8	4.9	88
	- EB-3	8.10	3.73	1.6	95.7	2.12	22.94	74.94	15,191	0.58	0.03	6½	3.0	94
Skeeter	EB-1	3.90	7.23	1.6	94.1	5.29	18.32	76.39	14,761	0.53	0.06	4	4.0	80