SUKUNKA

MIDDLE COALS

AREA

VOLUME 2

PR - SUKUNKA-7462A

PR- SUKUNKA - 74(2) E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 652

GEOLOGICAL CROSS SECTIONS

SEE OVER FOR:

1. REFERENCE FOR CROSS SECTIONS, DWG. NO. SKR 233
2. NOTES TO ACCOMPANY CROSS SECTIONS.

NOTES TO ACCOMPANY GEOLOGICAL CROSS SECTIONS

Nine cross sections are included here, illustrating the subsurface geology of the area under review.

Sections A-B-C and D-E, at a scale of 1 inch equals 400 feet, illustrate the geology south and north of Skeeter Creek, respectively, on a "regional" or property scale. The location of the two sections is shown on the Geological Map, Map 1.

To illustrate the detailed geology of the area where potential reserves exist, seven sections at a scale of 1 inch equals 100 feet have been constructed. Five sections are transverse and two longitudinal to the regional structural trend, being designated by the prefix T or L, respectively. The section lines are shown on Maps 4 and 5, included in this report, at a scale of 1 inch equals 200 feet.

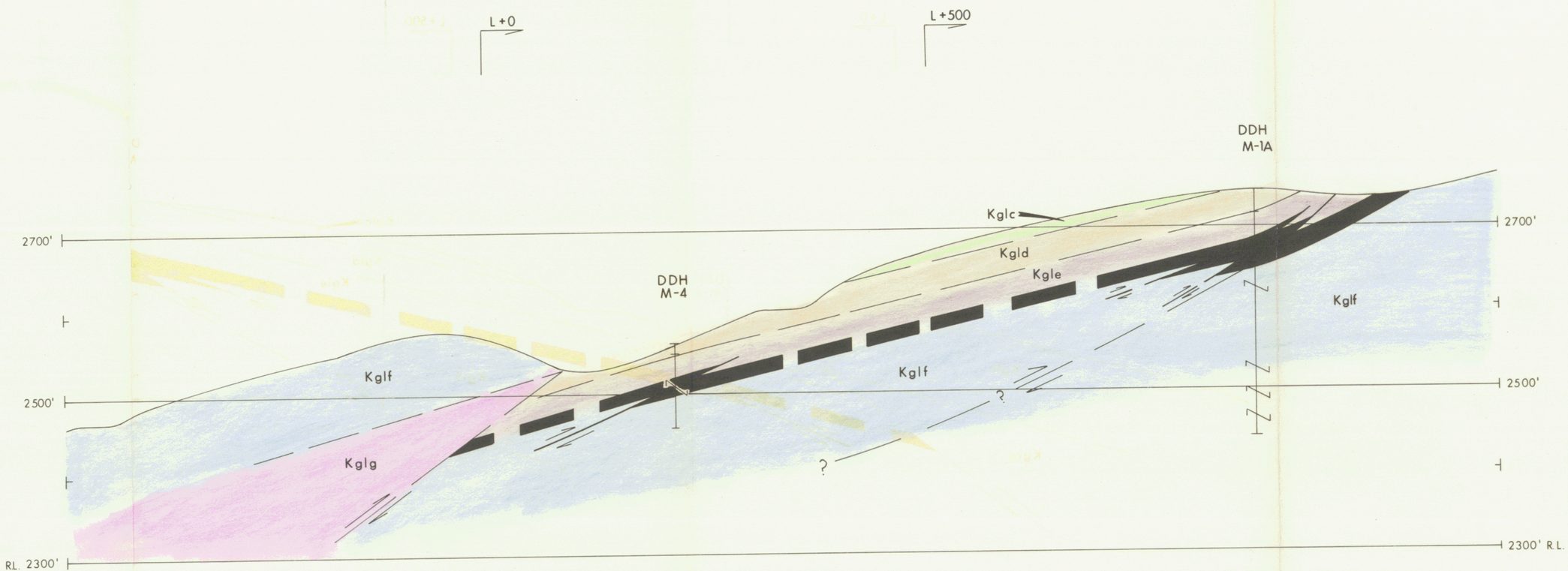
The origin of the sections T+O, L+O, is at grid reference 53 000 E, 71 000 N. The transverse sections are identified by their intersection with the L+O section line, since they are not perpendicular to the longitudinal sections by reason of drill hole locations.

The geological data which has been used to construct these sections includes:

1) The detailed logs of the drill holes adjacent to the sections;
2) The structure contour and surficial geology maps where drill hole control was lacking;
3) A knowledge of the style and form of tectonic deformation existing on the property;
4) The traces of the Rim and Skeeter Faults projected from identified observation points to the east;
5) Surface dip and strike data to provide a guide to the attitude of the beds in the case of rotary drill holes where such data is not available.

Special Note

Reference should be made to Section 4.3, Structural Geology, of this report, wherein the conceptual nature of the structure is discussed. Due to a paucity of control, it has been necessary to illustrate the sub-surface structure in a diagrammatic manner, similarly the seam thickness variations are regarded as hypothetical, pending further definition.



NOTE: See notes to accompany Cross Sections.

SCALE

100 50 0 100 200 300 FEET

PREPARED BY CLIFFORD McELROY & ASSOC. PTY. LTD.
TO ACCOMPANY REPORT No. 1/4/23

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See Dwg. No. SKR 243 For Reference

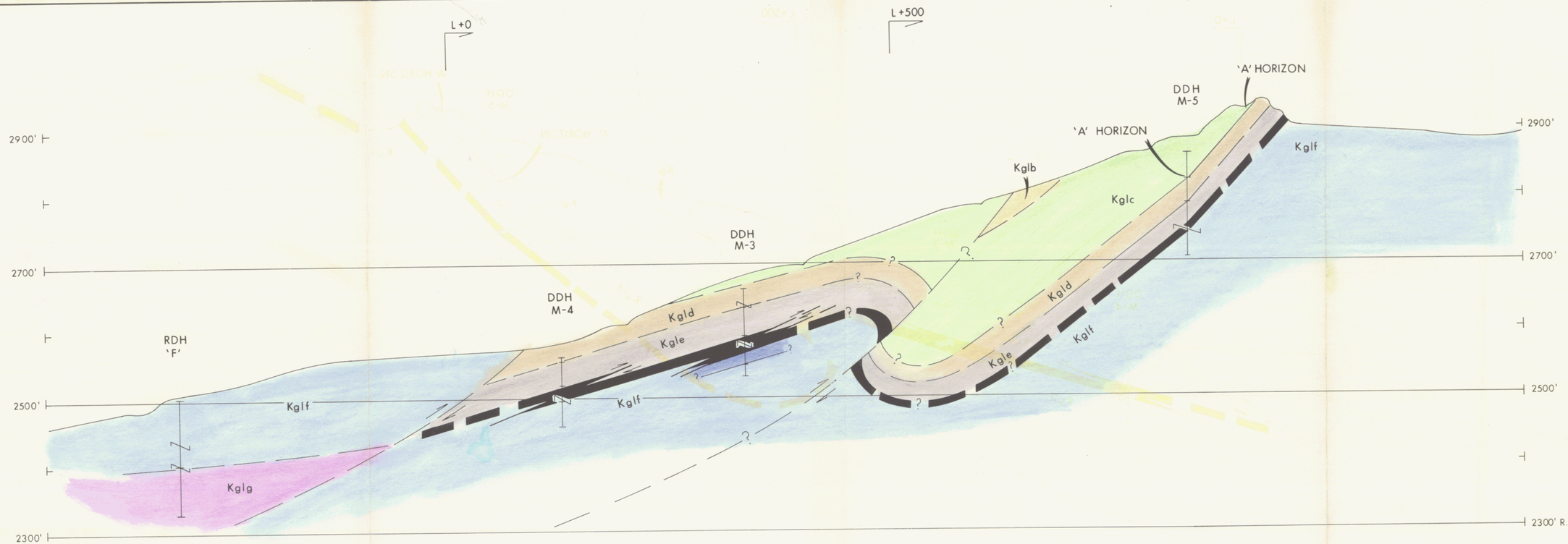
COALITION MINING LTD.

SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION T+420

DATE: MAY 30, 1975	DWG No. SKR 236

PR-SUKUNKA 74(2)A.



NOTE: See notes to accompany Cross Sections.

SCALE

100 50 0 100 200 300 FEET

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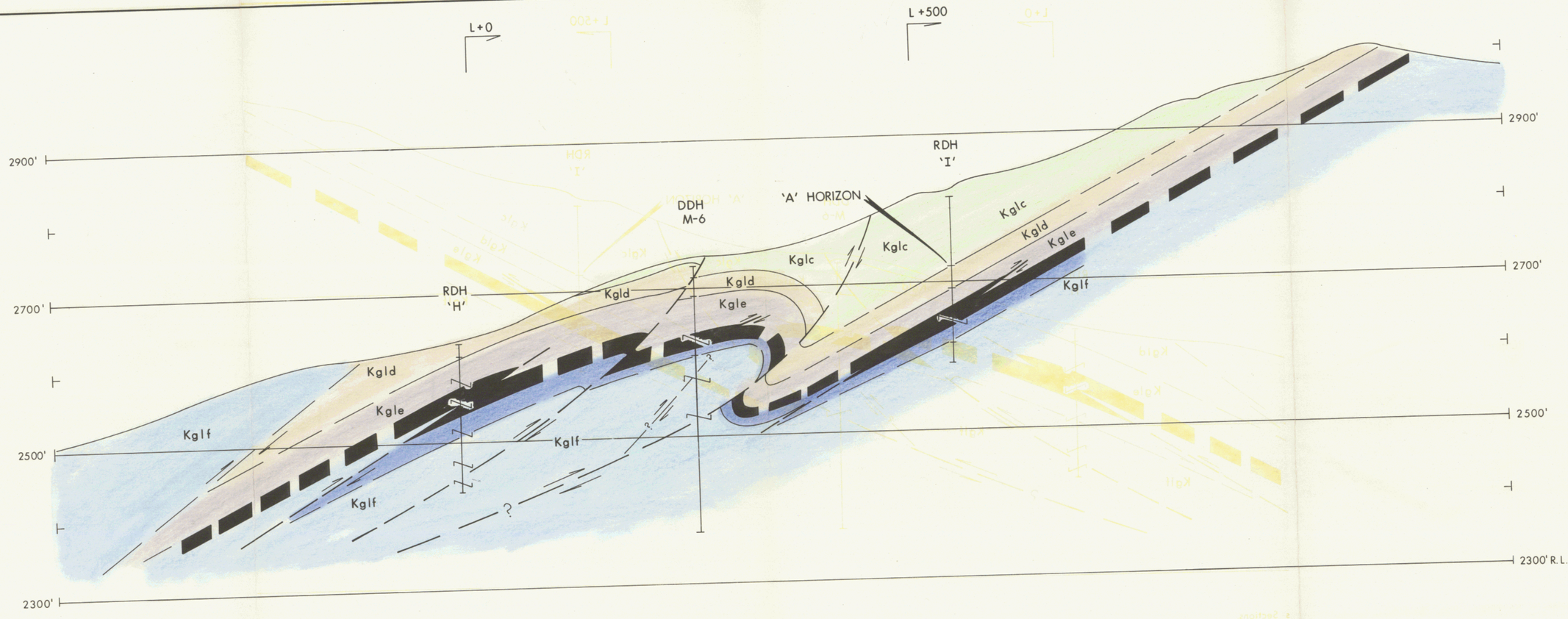
SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION T+515

DATE: MAY 30, 1975 | DWG. No. SKR 237

PR-SUKUNKA 74(2)A



NOTE: See notes to accompany Cross Sections.

SCALE

100 50 0 100 200 300 FEET

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PR-SUKUNKA 74(2)A

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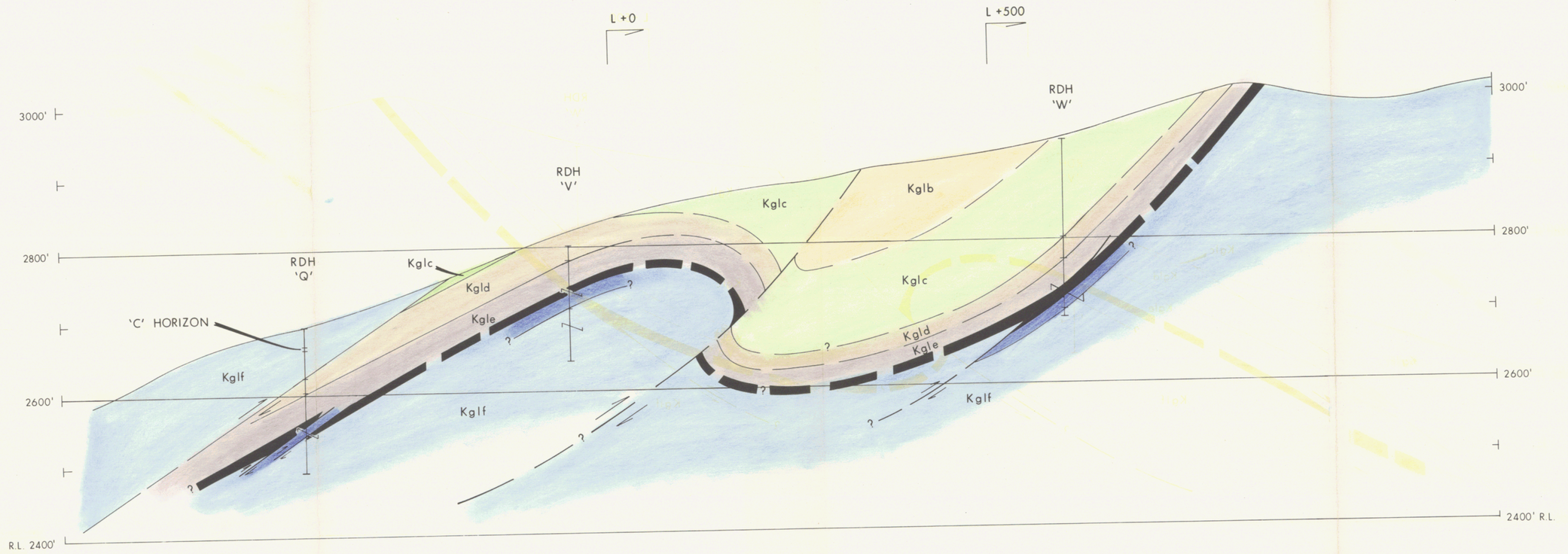
SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION T+1190

DATE: MAY 30, 1975 | DWG No. SKR 238



NOTE: See notes to accompany Cross Sections.

SCALE

100 50 0 100 200 300 FEET

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PR-SUKUNKA 74(2)A.

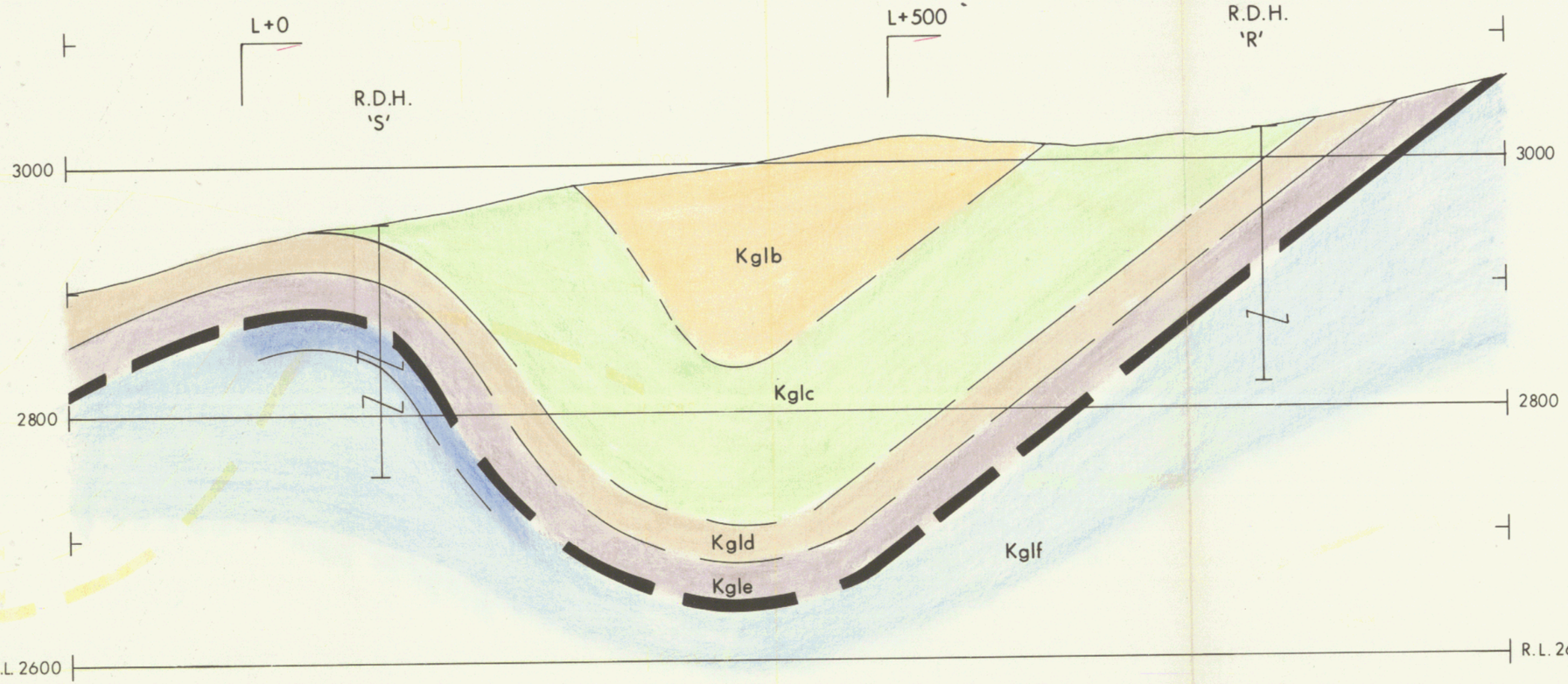
See Dwg. No. SKR 243 For Reference

COALITION MINING LTD.

SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION T+2250

DATE: MAY 30, 1975	DWG No. SKR 239



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PR-SUKUNKA 74(2)A

NOTE: See notes to accompany Cross Sections.

SCALE

100 50 0 100 200 300 FEET

See Dwg. No. SKR 243 For Reference

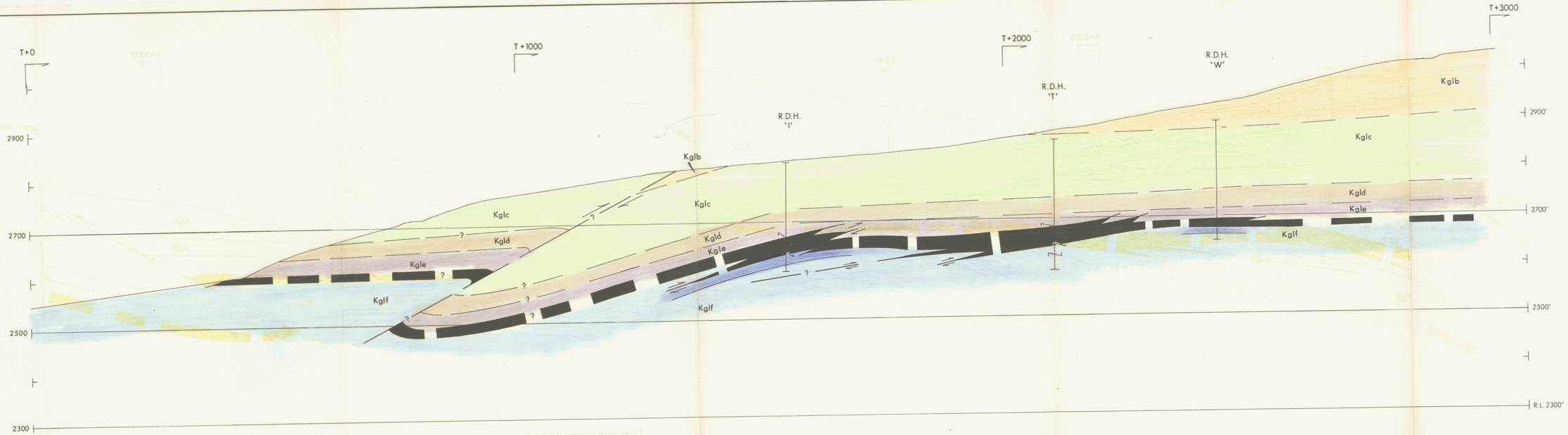
COALITION MINING LTD.

SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION T+2830

DATE: MAY 30, 1975 | DWG. No. SKR 240

PREPARED BY CLIFFORD McELROY & ASSOC. PTY. LTD.
TO ACCOMPANY REPORT No. 1/4/23



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PR-SUKUNKA 74(2)A

NOTES: (1) See notes to accompany cross sections
(2) R.L. of R.D.H. 'W' modified to conform with section position and structure contours.

SCALE
100 50 0 100 200 300 FEET

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TO ACCOMPANY REPORT No. 1/4/23

See Dwg. No. SKR 243 For Reference

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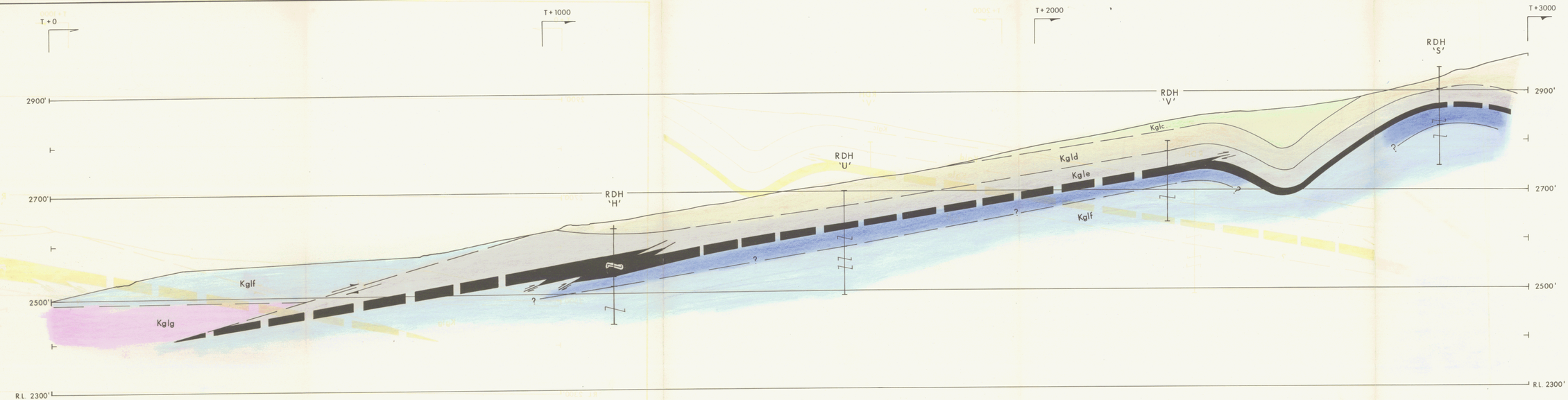
SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION L+500

DATE: MAY 30, 1975 | DWG. No. SKR 242



NOTE: See notes to accompany Cross Sections.

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See Dwg. No. SKR 243 For Reference.

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SUKUNKA COAL PROJECT
MIDDLE COALS AREA

CROSS SECTION L+O.

DATE: MAY 30, 1975 | DWG No SKR. 241

SCALE
100 50 0 100 200 300 FEET

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PR-SUKUNKA 74(2)A.

REFERENCE

PLEISTOCENE TO RECENT	Qa	Boulder, gravel, sand, silt & mud
COLLINGMOTION FORMATION — Gates Member	Klc	Sandstone, siltstone, mudstone, interbedded; conglomerate horizons.
MOOSEBAR FORMATION	Klm	Mudstone
LOWER CRETACEOUS — GETHING FORMATION — Upper Gething Sequence	Kgu	Fine to medium grained sandstone, siltstone and shale. Chamberlain Seam at base.
Lower Gething Sequence	Kgla-b / Kgla	Fine to medium sandstone, with interbedded siltstone & mudstone in center of unit.
	Kglb	Interbedded siltstone and mudstone grading to mudstone at base; glauconitic mudstone present.
	Kglc	Siltstone grading to interbeds to mudstone; 'A' Coaly Horizon at base. Unit top glauconitic sandstone.
	Kgld-e / Kgld	Fine grained sandstone.
	Kgle	Interbedded siltstone and mudstone, underlain by mudstone.
		'B' Seam
	Kglf	Interbedded sandstone and siltstone, containing mudstone units, coal and carbonaceous throughout.
	Kglg	Conglomeratic Sandstone
	Kglu	Undifferentiated Lower Gething Sequence.

- Bedding - inclined, horizontal
- Anticline, showing direction of plunge
- Syncline
- Thrust fault, position approximate
- Thrust fault, position inferred
- Geological boundary, position accurate
- Geological boundary, position approximate
- Geological boundary, position inferred
- Diamond drill hole (M-3)
- Rotary drill hole (G)
- Access road
- Topographic contours (3700)
- Section line (D – E)
- Property grid (51 000N — 72 000E)

NOTE: The geology shown on this map is mostly interpretive, based on field traverses, air photo-interpretation and sub-surface data.

SCALE
400 0 200 400 600 800 1200 1600 FEET

AREA OF DETAILED MAPS
No's 6 thru 9
SCALE: 1 inch = 200 feet

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COALITION MINING LIMITED
SUKUNKA COAL PROJECT

MIDDLE COALS AREA

GEOLOGICAL MAP

MAP 1

PR-SUKUNKA 74(2)A

Drawn By: G. WALLIS | Scale: 1" = 400'
Drafted By: M.E.W. | Contour Interval: 50 feet
Date: MAY 1975 Revised: | Drawing No. SKR 225

#88

PREPARED BY CLIFFORD McELROY & ASSOC. PTY. LTD.
TO ACCOMPANY REPORT No. 1/4/23

D.D.H M-6 | R.D.H 'H' | R.D.H 'U' | R.D.H 'V' | R.D.H 'S' | D.D.H M-2

UNIT 9

UNIT 8

UNIT 7

'A' HORIZON

UNIT 6

UNIT 6

UNIT 5

(Faulting indicated in D.H's M6 & 'H'

UNIT 5

DATUM: Roof of 'B' Seam

UNIT 4

'B' SEAM (FAULTED)

UNIT 4

'B' SEAM

FAULT REPETITION

FAULT REPETITION

UNIT 3

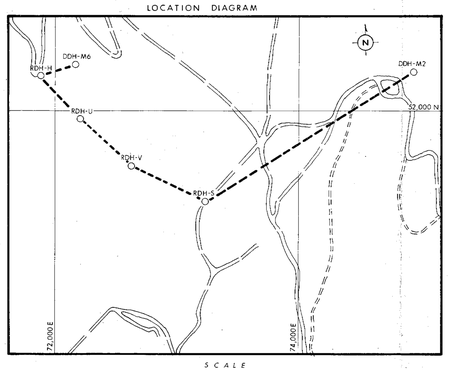
UNIT 3

'C' HORIZON

'C' HORIZON

'D' HORIZON

LOCATION DIAGRAM



SCALE

400 0 200 400 600 800 1200 1600 FEET

REFERENCE

FOR LITHOLOGIC SYMBOLS SEE REFERENCE ACCOMPANYING DRILL HOLE LOGS, APPENDIX C, VOLUME 3

VERT. SCALE

40 feet

20

0

10

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COALITION MINING LIMITED
SUKUNKA COAL PROJECT

MIDDLE COALS AREA

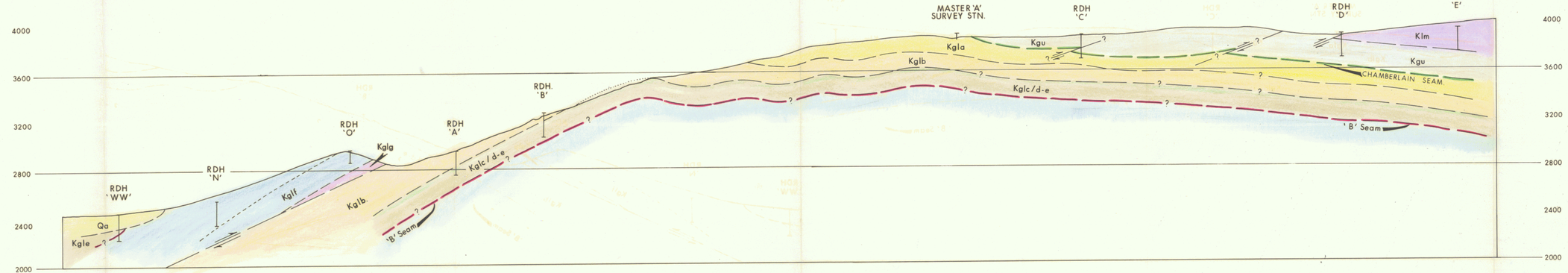
CORRELATION DIAGRAM SHOWING LITHOLOGIC VARIATIONS OF UNIT 3

PR-SUKUNKA 79(2)A.

Drawn By: G.WILLIS | Vert Scale: 1" = 20'
Drafted By: M.E.W. | Hor. Scale:
Date: JULY 27/79 Revised: | Drawing No. SKR 244

PREPARED BY CLIFFORD McELROY & ASSOC. PTY. LTD.
TO ACCOMPANY REPORT No. 1/4/23

D



E

REFERENCE

SEE GEOLOGICAL MAP, MAP 1 for STRATIGRAPHIC COLUMN

DRILL HOLE POSITION, SHOWING FAULT INTERSECTION

Geological boundary - position accurate

Geological boundary - position approximate

Geological boundary - position inferred

THRUST FAULT, showing direction of relative movement.

NOTES:
1. See Geological Map, Map 1, for location of Cross Sections.
2. Folding of Beds Diagrammatic.
3. RDH 'N' and 'WW' projected onto Section for purposes of illustrating the Regional Geology and attitude of beds.

SCALE

400 0 200 400 600 800 FEET

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PE-SUKUNKA 74(2)A

COALITION MINING LTD.

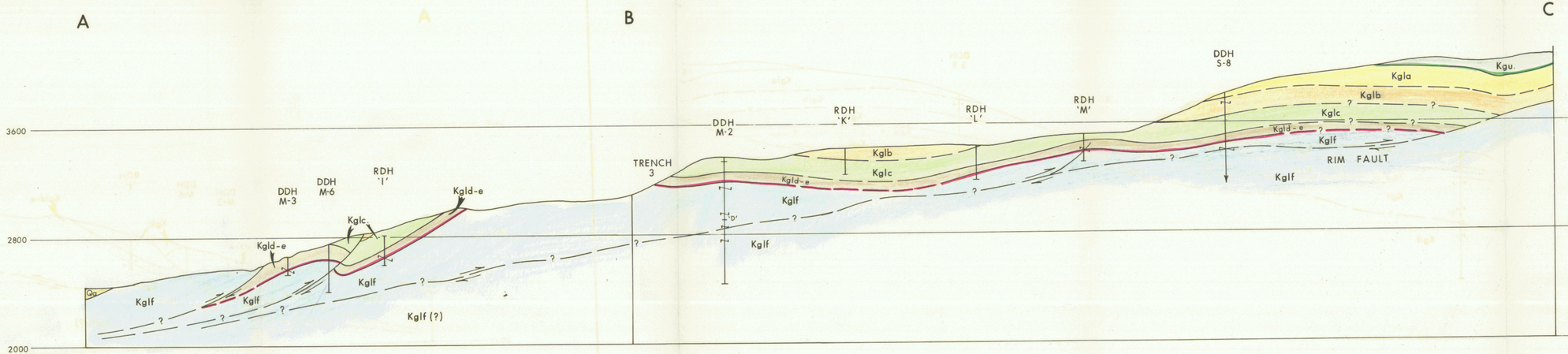
SUKUNKA COAL PROJECT

MIDDLE COALS AREA

CROSS SECTION D-E

DATE: MAY 30, 1975 | DWG No. SKR 235

PREPARED BY CLIFFORD McELROY & ASSOC. PTY. LTD. TO ACCOMPANY REPORT No. 1/4/23



REFERENCE.

SEE GEOLOGICAL MAP, MAP 1 for STRATIGRAPHIC COLUMN.

DRILL HOLE POSITION, SHOWING FAULT INTERSECTION.

Geological boundary – position accurate

Geological boundary – position approximate

Geological boundary – position inferred.

THRUST FAULT, showing direction of relative movement.

NOTES:
1. See Geological Map, Map 1, for location of Cross Sections.
2. Folding & Faulting Diagrammatic.
3. Projection of Rim Fault based on evidence from previous programmes.
4. DDH S-8 projected onto Section for completness of geology.

SCALE

400 0 200 400 600 800 FEET

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PR-SUKUNKA 74(2)A

COALITION MINING LTD.

SUKUNKA COAL PROJECT.

MIDDLE COALS AREA

CROSS SECTION A-B-C.

DATE: MAY 30, 1975 | DWG No. SKR. 234

REFERENCE FOR CROSS SECTIONS
SKR 236 to 242

Kglb — Interbedded siltstone and mudstone grading to mudstone at base; glauconitic mudstone present.

Kglc — Siltstone grading to interbeds to mudstone; 'A' Coaly Horizon at base. Unit top glauconitic sandstone.

Kgld — Fine grained sandstone.

Kgle — Interbedded siltstone and mudstone, underlain by mudstone.

'B' SEAM

Kglf — Tectonically deformed seam floor - carbonaceous mudstone -

Interbedded sandstone and siltstone, containing mudstone units, coal and carbonaceous throughout.

Kglg — Conglomeratic sandstone.

Thrust fault

Geological boundaries - accuracy not defined due to conceptual nature of sections.

R.D.H.
'U'

Drill hole showing fault intersection

Applies only to cross sections at 1 in. = 100 ft.
T+420, T+2250, T+515, T+2830, T+1190
L+500, L+0

PREPARED BY CLIFFORD McELROY & ASSOCIATES PTY. LIMITED

COALITION MINING LTD.

SUKUNKA COAL PROJECT
MIDDLE COALS AREA

MAY 30, 1975
SKR 243

SUKUNKA COAL PROJECT
MIDDLE COALS AREA
VOLUME 2

MAPS ACCOMPANYING REPORT

See Over For List Of Maps.

Prepared By: CLIFFORD McELROY & ASSOCIATES Pty. LIMITED
Report No. : 1/4/23 June, 1975

TITLE	MAP NO.
Geological Map	1
Drilling Results - Data Map	2
Plan Showing Co-ordinates and Elevations of Drill Hole Sites Skeeter Creek Area	3
Topographical Map	4
Structure Contours on Roof of 'B' Seam Interval	5
Isopach Map - Total 'B' Seam	6
Isopach Map - Total Coal in 'B' Seam	7
Isopach Map - Cover over 'B' Seam	8
Coal Quality Data	9

Correlation Diagram Showing Lithologic Variations of Unit 3	DWG No. SKR 244

REFERENCE

RDH-L ○ 195 / 12 / 17	Drill hole number Depth of cover / Total coal in seam / Total seam thickness (Feet)
N/C	No coal intersection

NOTES:
1. All intersections apply to 'B' Seam, Lower Gething sequence except-
   RDH-C Skeeter Seam, Upper Gething
   RDH-G 'C' Seam, Lower Gething ?
2. For complete details of coal intersections refer to Appendix A-1 and Appendix C for drill hole records.

SCALE
400 0 400 800 1200 1600 FEET

58,000 N
56,000 N
54,000 N
52,000 N
50,000 N
68,000 E
70,000 E
72,000 E
74,000 E
76,000 E
78,000 E
80,000 E
82,000 E
84,000 E

RDH-A ○ N/C
RDH-B ○ N/C
RDH-C ○ 161 / 6.5/6.5
RDH-D ○ N/C
RDH-E ○ N/C
RDH-F ○ N/C
RDH-G ○ 157 / 2.6/2.6
RDH-H ○ 59 / 28/38
RDH-I ○ 152 / 24/34.5
RDH-K ○ N/C
RDH-L ○ 195 / 12/17
RDH-M ○ 110 / 14/21
RDH-N ○ 104 / ?/3.5
RDH-O ○ N/C
RDH-P ○ N/C
RDH-Q ○ 142 / ?/28
RDH-R ○ 99 / 7.5/9.5
RDH-S ○ 77 / 7.2/10
RDH-T ○ 178 / 28.6/42.5
RDH-U ○ 66 / 10/12
RDH-V ○ 54 / 11.5/15.5
RDH-W ○ 200 / 14/21
RDH-WW ○ 171 / 6.5/8.0
DDH-M1 ○ 60 / 35.2/41.9
DDH-M2 ○ 166 / 8.6/10.6
DDH-M3 ○ 73 / 25.8/38.7
DDH-M4 ○ 44 / 30/38
DDH-M5 ○ 110 / 4.5/4.5
DDH-M6 ○ 93 / 18.5/26.9

MASTER 'A'
MASTER 'B'
SUKUNKA CAMP
SKEETER CREEK
10 HART HWY CHETWYND 35 MI
No.1 MINE AREA
Coal Outcrop
S-8
S-9 (APPROX.)

1063 | 1064 / 1070 | 1071
1064 | 1065 / 1071 | 1072

COALITION MINING LIMITED
SUKUNKA COAL PROJECT

DRILLING RESULTS
DATA MAP

MAP 2

PR SUKUNKA - 74 (2) A

Drawn By: G. WALLIS	Scale: 1" = 400'
Drafted By: M.E.W.	Contour Interval: 50 feet
Date: MAY 21, 1975	Drawing No. SKR 226

TO CAMP

TO SUKUNKA VALLEY ROAD

L+1000

2500

2600

2700

2800

2900

3000

RDH G

L+500

SECTION L+500

TRENCH 1

DDH. M-1& M1A

53,000 N

T+0

L+0

SECTION L-0

RDH- F

DDH. M-4

T+420

T+515

DDH. M-3

T+1000

DDH. M-5

TRENCH 2

L-500

SECTION T+515

SECTION T+420

DDH. M-6

RDH. I.

T+1000

RDH. H

T+1190

SECTION T+1190

T+2000

RDH. T

52,000 N

RDH. U.

RDH. W.

RDH. R.

T+2000

RDH. P

RDH. V.

T+2250

T+3000

RDH. Q

RDH. S.

T+2830

SECTION T+2250

SEC. T+2830

T+3000

TRENCH - 3

M-2

DDH

2500

2400

2600

2700

2800

2900

21,000 E

22,000 E

73,000 E

74,000 E

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LEGEND

2900 TOPOGRAPHIC CONTOUR; CONTOUR INTERVAL 50'

LINES OF SECTION

DIAMOND DRILL HOLE (DDH) OR ROTARY DRILL HOLE (RDH)

MAIN ACESS ROAD

OLD TRACK

52,000N

21,000E

PROPERTY GRID; ORIGIN TRUE NORTH

ORIGIN OF CONTOURS

THE CONTOURS ON THIS MAP HAVE BEEN PHOTOGRAPHICALLY ENLARGED FROM THE ORIGINAL 1" = 400' CONTOURS PRODUCED PHOTOGRAMMETRICALLY FROM AIR PHOTOGRAPHS.

SCALE

100 0 100 200 400 FT

COALITION MINING LTD.

SUKUNKA COAL PROJECT

MIDDLE COALS AREA

TOPOGRAPHICAL CONTOURS.

MAP 4

Drawn By G.R. WALLIS	Scale 1" = 200 FEET
Drafted By M.J.W.	Contour Interval 50 FEET
Date NOV '75 Revised	Drawing No SKR - 228

PRE-SUKUNKA 74(2)A

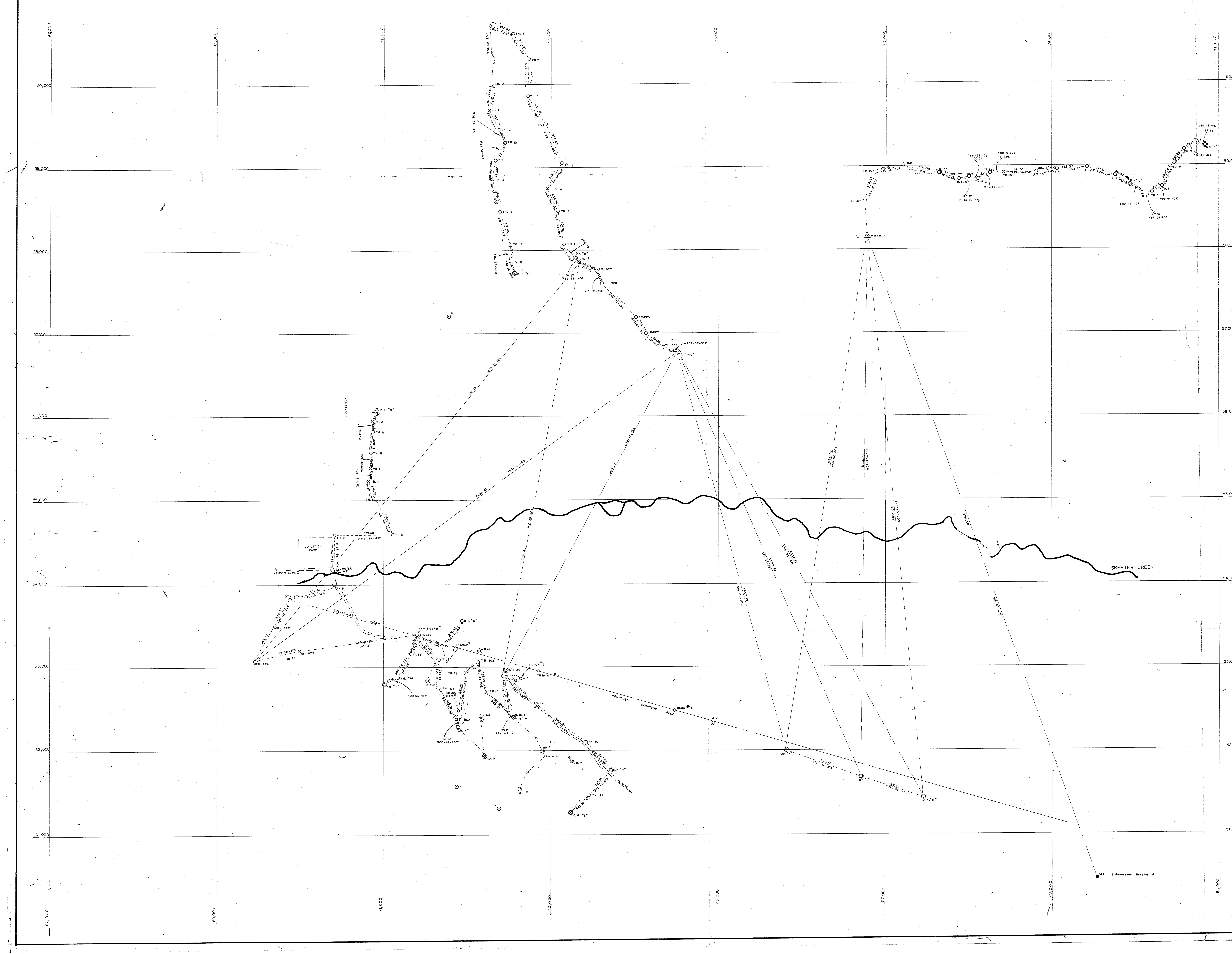

TABLE OF CO-ORDINATES AND ELEVATIONS			
DRILL HOLE	CO - ORDINATES LATITUDE (N)	DEPARTURE (E)	ELEVATION
A	+ 57,721.22	+ 72,565.13	2956
B	57,885.49	73,288.83	3261
C	58,916.38	77,658.70	3893
D	58,752.50	79,923.93	3897
E	59,222.14	80,811.83	3946
F	+ 52,798.60	+ 70,996.04	2505
G	53,559.66	71,919.78	2636
H	52,252.16	71,874.31	2633
I	52,398.67	72,540.32	2814
K	+ 51,995.92	+ 75,699.55	3431
L	51,710.30	76,616.20	3436
M	51,477.02	77,368.75	3495
N	56,090.58	70,874.98	2542
R	51,760.18	73,706.83	3022
S	51,241.18	73,218.53	2950
T	52,000.20	72,907.82	2856
U	+ 51,935.95	+ 72,221.39	2700
V	51,544.69	72,633.05	2800
W	51,882.52	73,248.59	2927
M3	52,682.66	71,841.24	2662
M4	52,840.88	71,535.17	2561
M5	52,960.01	72,461.97	2861
M6	52,377.96	72,174.36	2730
N of Trench #1	53,233.96	71,899.08	2624
S of Trench #1	53,089.17	71,779.77	2609
Centre of Trench #2	52,865.93	72,638.61	2908
M1	53,195	72,155	2743 *
TRENCH 3	52,475	74,480	3172 *
TRENCH 4	52,950	72,850	2887 *
O	57,195 * *	71,785 * *	2960 * *
P	51,589.6 *	71,882.6 *	2591 *
Q	51,325.4 *	72,391.6 *	2697 *
WATER WELL	54,170 * *	70,470 * *	2435 * *
M 2	52,318.6 *	74,925.0 *	3332 *

C.N. STABLES B.C.L.S.

* Indicates measured by Coalition Mining Ltd.
** Indicates estimates by Coalition Mining Ltd.

SCALE : 1" = 400'

0 400 800 1200 1600 2000

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REV.	DETAILS	DATES
3	Added O, P, Q, Water Well and Elev.'s on M1 & Trenches	4/29/75
2	Added DH M1 - Trenches 3 and 4	11/20/74
1	Added DH's T, U, V, W, M3, M4, M5, M6 & Trenches	11/12/74

COALITION MINING LIMITED

PR - SUKUNKA 74(2)A.

PLAN SHOWING CO-ORDINATES AND ELEVATIONS OF DRILL HOLE SITES SKEETER CREEK AREA

SCALE : 1" = 400'

MAP. 3

C.N. STABLES AND ASSOCIATES
SURVEYORS AND ENGINEERS, DAWSON CREEK B.C.

DRWG. NO. 3272
SKR. 227.

70,000E | 71,000E | 72,000E | 73,000E | 74,000E

54,000N | 53,000N | 52,000N | 51,000N | 50,000N

'G'

TR 1

M-1A

	ASH %	V.M. %	FSI
RAW (1)	13.3	-	1 1/2
PRODUCT(2) (90% +)	5.3	18.5	2 1/2

M-5

TR 2

M-4

	ASH %	V.M. %	FSI
RAW	38.0	16.0	2 1/2
PRODUCT (49.2 %)	6.3	20.4	5 1/2

'F'

M-3

	ASH %	V.M. %	FSI
RAW (3)	26.6	-	2
PRODUCT(4) (78.8 %)	6.6	19.7	2

M-6

'I'

'H'

	ASH %	V.M. %	FSI
RAW	21.2	18.7	3 1/2
PRODUCT (75.8%)	6.7	-	4

	ASH %	V.M. %	FSI
RAW	16.4	18.4	3
PRODUCT (81.0 %)	4.8	20.3	3 1/2

	ASH %	V.M. %	FSI
RAW	27.9	16.6	1 1/2
PRODUCT (65.3%)	7.3	19.6	2

'T'

'U'

'W'

	ASH %	V.M. %	FSI
RAW	28.8	17.0	1
PRODUCT (66.6%)	5.2	19.7	2 1/2

	ASH %	V.M. %	FSI
RAW	20.9	18.7	1
PRODUCT (61.6 %)	4.8	19.7	2 1/2

'R'

'V'

'P'

'Q'

'S'

LEGEND

M-3

	ASH %	V.M. %	FSI	
RAW (3)	26.6	-	2	Raw or as mined analysis (3)
PRODUCT(4) (78.8 %)	6.6	19.7	2	Washed product analysis at S.G. 1.60 (Yield %) (4)

FAULT TRACE AT LEVEL OF 'B' SEAM

SEAM OUTCROP - APPROXIMATE

70,000E / 54,000N — PROPERTY GRID

NOTES:

(1) D.D.H. M-1A - Raw coal values - weighted average of 26 plies.

(2) D.D.H. M-1A - Product values - arithmetic average of 26 plies.

(3) Raw or "as mined" coal values calculated by weighted averages for total seam ; assumed ash values used where no analytical data.

(4) Product values based on analytical data ; excludes non-analysed plies.

(5) See Table A-3.1, Appendix A-3 for analysis of individual plies or increments of each seam.

N

652

SCALE (FEET)

0 100 200 400 600 800 1000

COALITION MINING LTD.

SUKUNKA COAL PROJECT

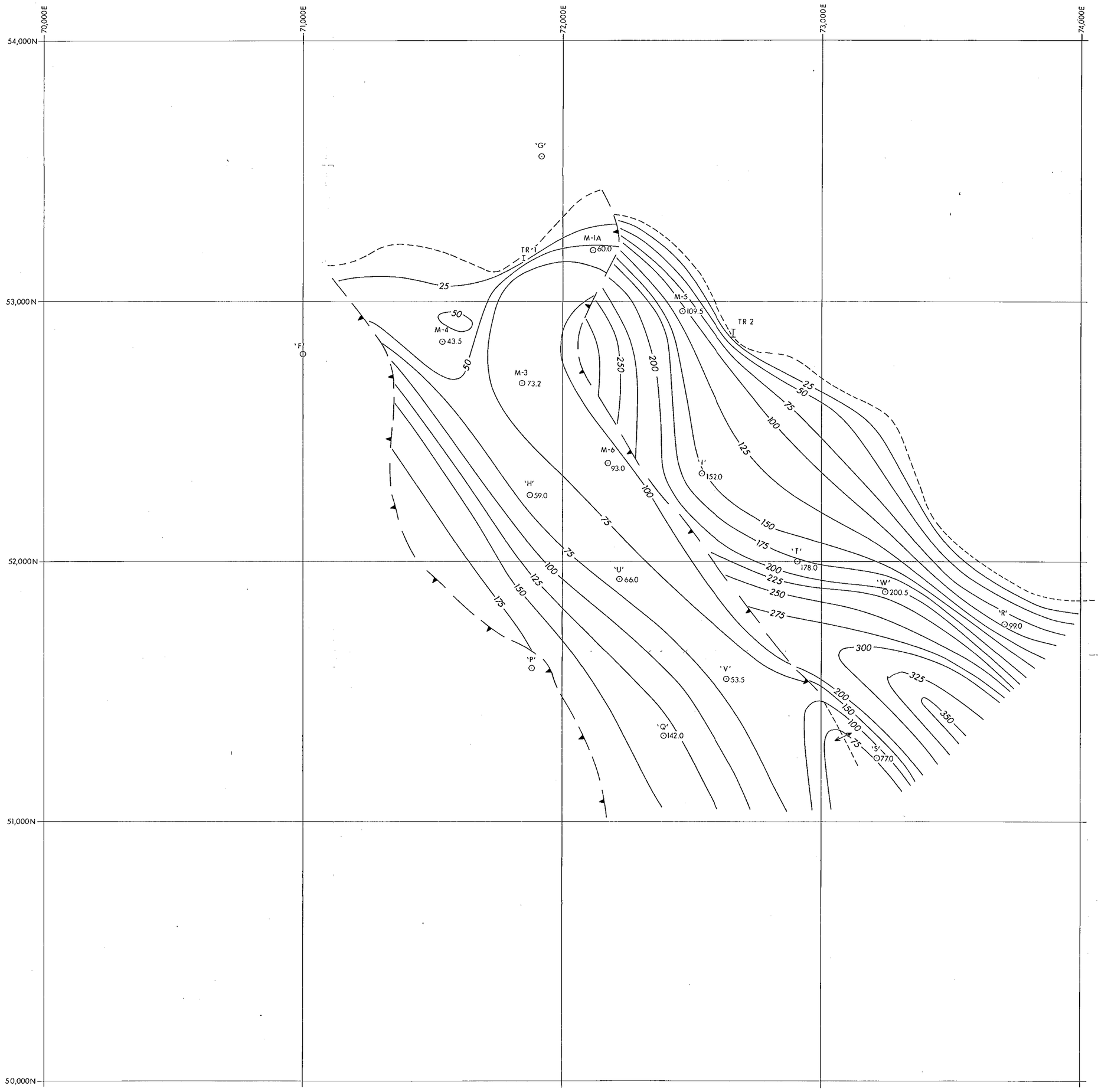
COAL QUALITY DATA

MAP 9

Drawn By: G.R. WALLIS
Drafted By: M.E.W.
Date: May 29/75 Revised:

Scale: 1" = 200'
Contour Interval:
Drawing No. SKR 233

RE-SUKUNKA 74(2)A.



LEGEND

M-3 DRILL HOLE
⊙ 43.5 COVER OVER 'B' SEAM

75 COVER ISOPACH

FAULT TRACE AT LEVEL OF 'B' SEAM

SEAM OUTCROP - APPROXIMATE

70,000E
54,000N PROPERTY GRID

N

NOTE: The isopachs have been constructed using data from both the drill holes and cross sections.

652

SCALE (FEET)
0 100 200 400 600 800 1000

COALITION MINING LTD.

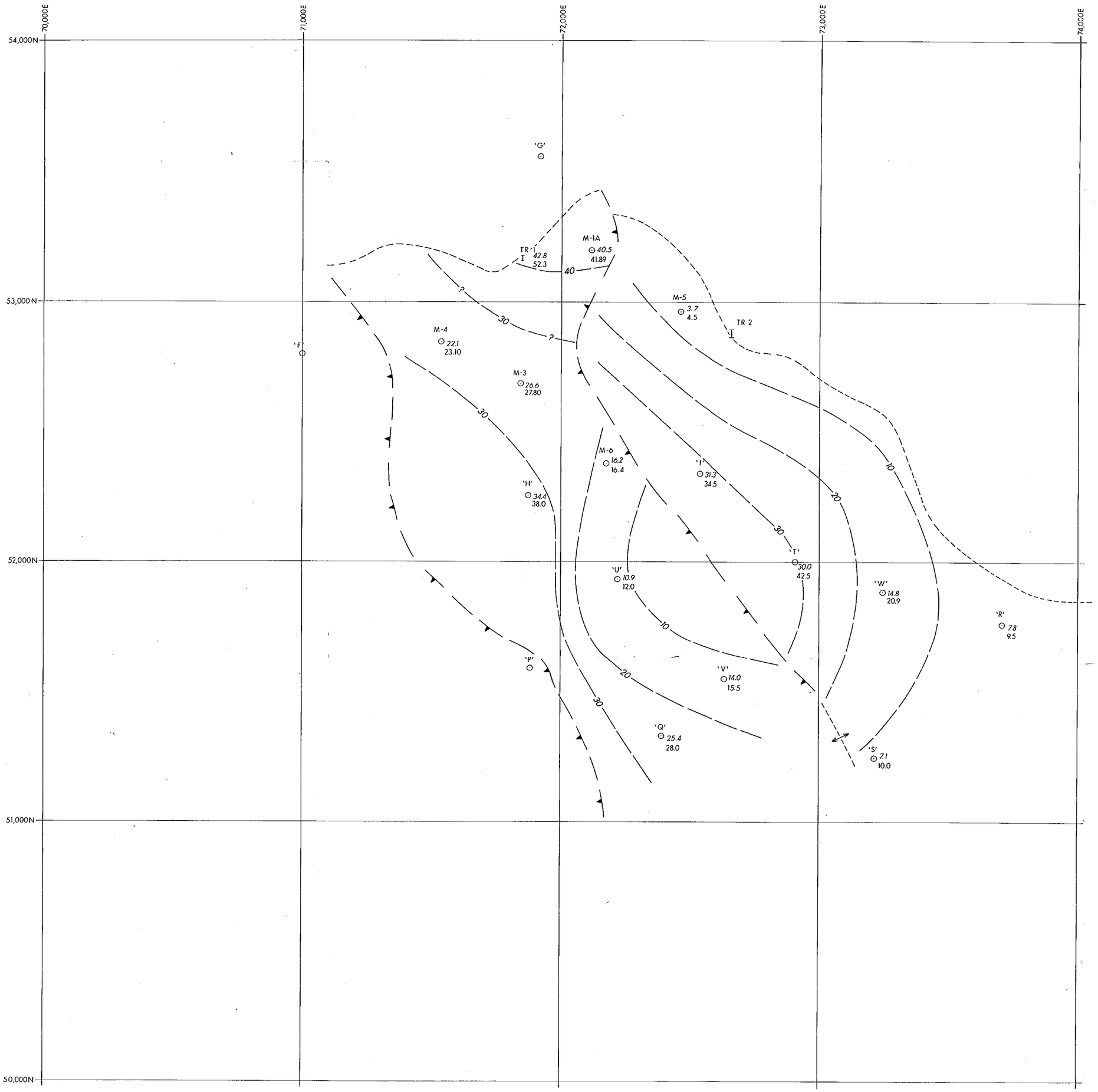
SUKUNKA COAL PROJECT

ISOPACH MAP
COVER OVER
'B' SEAM

MAP 8

Drawn By: G.R. WALLIS	Scale: 1" = 200'
Drafted By: M.E.W.	Contour Interval: 25 feet
Date: May 28/75 Revised:	Drawing No. SKR. 232

PR-SUKUNKA 74(2)A



LEGEND

M-3 DRILL HOLE
⊙ 40.5 CORRECTED SEAM THICKNESS
41.89 DRILL HOLE INTERSECTION

10 ISOPACH LINE INFERRED CORRECTED SEAM THICKNESS

FAULT TRACE AT LEVEL OF 'B' SEAM

SEAM OUTCROP - APPROXIMATE

70,000E / 54,000N PROPERTY GRID

N

NOTE: The isopach lines on this map have been constructed by interpolating between the drill hole data. Due to the inferred nature of the cross sections, local undefined seam thickness variations resulting from tectonism have not been taken into account.

652

SCALE (FEET)
0 100 200 400 600 800 1000

COALITION MINING LTD.

SUKUNKA COAL PROJECT

MIDDLE COALS AREA

ISOPACH MAP
TOTAL THICKNESS OF 'B' SEAM

MAP 6

Drawn By: G.R. WALLIS	Scale: 1" = 200'
Drafted By: M.E.W.	Contour Interval: 10 feet
Date: May 28/75 Revised:	Drawing No. SKR 230

PR- SUKUNKA 79(2)A

74(3) A-1
SUKUNKA

MIDDLE COALS
AREA

VOLUME 3

~~PR SUKUNKA 74(3)E-1~~

SUKUNKA COAL PROJECT
MIDDLE COALS AREA
VOLUME 3
APPENDIX C

DRILL HOLE DATA

See Over For: Explanatory Notes
Reference for Graphic Sections

Prepared By : CLIFFORD McELROY & ASSOCIATES Pty. LIMITED
Report No. : 1/4/23 June, 1975

EXPLANATORY NOTES TO ACCOMPANY APPENDIX C

This Appendix contains the records of the holes drilled between September and December, 1974 for the programme evaluating the Lower Gething sequence in the vicinity of Skeeter Creek. The Appendix is divided into three parts, as outlined below.

Diamond Drill Holes (Appendix C-1)

The six diamond drill holes are prefixed 'M' for "Middle Coals", to distinguish them from the holes previously drilled to assess the seams in the Upper Gething sequence on the property.

D.D.H.'s M-1A and M-2 were drilled by Canadian Longyear Ltd., using a conventional diamond coring rig and wire-line triple tube barrel. D.D.H. M-1A, drilled in June, 1973, is included for completeness. D.D.H.'s M-3 to M-6 were drilled by Sedco Drilling, using a mud circulation Mayhew 1500 rotary drilling rig with a 4½" diameter Christensen core barrel with plastic liner.

Rotary Drill Holes

Twenty-three holes were drilled using a Mayhew 1500 rotary drilling rig employing mud circulation. Sedco Drilling was the contractor. Owing to contamination of the coal seam samples by rock cuttings, only samples from five of the twelve drill holes to penetrate significant seam thicknesses were analyzed. Thus the records for the rotary holes are included as two sub-appendices.

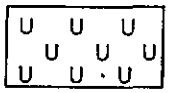
(a) R.D.H.'s - Seams Analyzed (Appendix C-2)

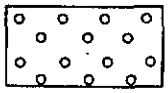
The drill hole records for R.D.H.'s 'C', 'H', 'T', 'V', and 'W' are included in this section, with the analytical data, strip log and description, and radiation log, each as a separate record.

(b) R.D.H.'s - Seams Not Analyzed (Appendix C-3)

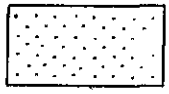
The remaining rotary drill hole records are included in this section as strip logs and descriptions, and radiation logs. The coal seam intersections, thicknesses, and other pertinent data are tabulated in Appendix A.
Due to the absence of samples for the Water Well ('WW'), an inferred lithologic column is shown on the radiation log.

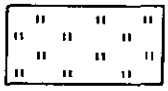
DETAIL OF GETHING FORMATION
STRIP LOGS Scale: 1" = 10'
STRATIGRAPHIC LOGS Scale: 1" = 20'


SOIL, WEATHERED and UNCONSOLIDATED MATERIAL


CONGLOMERATE pebble to granule

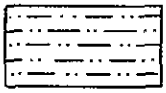

BRECCIA


SANDSTONE


SILTSTONE

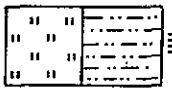

CLAYSTONE

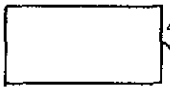

STONE COALY or CLAYSTONE CARBONACEOUS


MUDSTONE


COAL


INTERBEDDED


LAMINITE



INCLINED STRATA


FAULT established probable possible

COAL SEAMS

Scale: 1" = 2'


COAL BRIGHT or UNDIFFERENTIATED

COAL MAINLY BRIGHT with MINOR DULL BANDS

COAL DULL and BRIGHT

COAL MAINLY DULL with MINOR BRIGHT BANDS

COAL DULL

COAL INTERLAYED with NON-COAL

NON-COAL INTERLAYED with COAL

COAL STONY

STONE COALY

COAL WEATHERED

DIAMOND DRILL HOLES


COAL BRIGHT (Solid)
DULL (Blank)
(Relative Percent Indicated)

ROTARY DRILL HOLES

REFERENCE FOR GRAPHIC SECTIONS
of
DRILL HOLE DATA

PREPARED BY CLIFFORD McELROY & ASSOCIATES PTY. LIMITED

COALITION MINING LTD.
SUKUNKA COAL PROJECT
MIDDLE COALS AREA
APRIL 1975

SUKUNKA COAL PROJECT

MIDDLE COALS AREA

APPENDIX C-1

DIAMOND DRILL HOLE DATA

D.D.H.'s M-1 TO M-6

BORE NUMBER M-1A

Grid Reference 53195N 72155E

Date Commenced 19th June 1973 Completed 30th June 1973

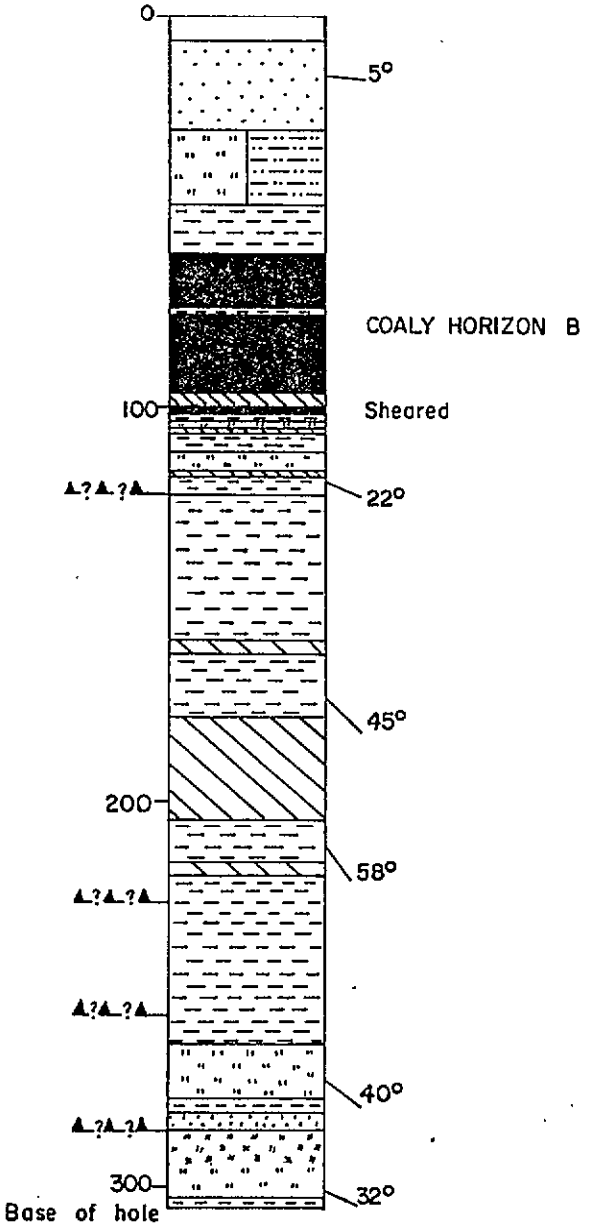
Collar R.L. 2743 ft Standard Datum
Total Depth 304.0 ft Electrically Logged No

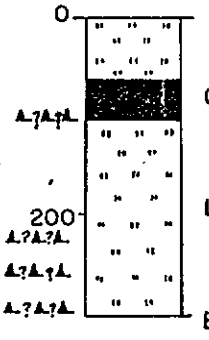
Drilled by Connor's Drilling Ltd
For Coalition Mining Limited

Logged by G.R. Jordan

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft)	Recovery	Comment
Coaly Horizon 'B'	2641.1	41.87	74%	Coal Seam sheared and tectonically thickened throughout.





DETAIL OF GETHING FORMATION
SCALE: 1"=50'

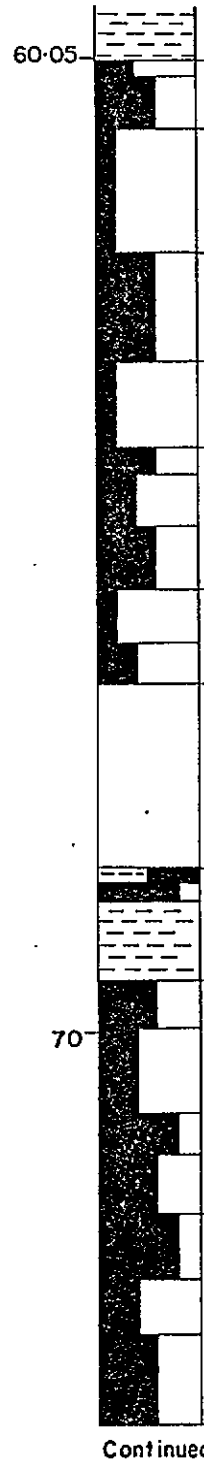
SCALE : 1"=200'

Prepared by :
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED.

STRATIGRAPHIC LOG
DDH M-1A

DATE: September, 1973

PAGE 1 of 1



		WT%	ASH%	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
1	0·70	2·2	1·3	½		
2	1·25	3·8	3·6	½		
3	1·17	2·7	9·6	½		
4	0·83	1·9	2·0	½		
5	1·43	4·5	3·3	0		
6	0·99	3·6	2·6	0		
	Core loss 1·88					
7	1.12	5·4	68·2	0		
8	2·43	6·1	3·9	½		
9	2.15	5·2	4·2	1½		
Continued						

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-1A

DRAWN BY DATE September, 1973 SCALE: 1" to 2'

			WT%	ASH%	C.S.Nº	ASH % CUMULATIVE FROM FLOOR	
						INCL. BANDS	EXCL. BANDS
	10	1·67	2·7	45·6	2		
	11	1·43	3·7	6·5	1		
	12	1·73	4·6	17·2	1		
	13	0·39	1·3	73·0	1		
80	14	2·45	5·0	10·6	1		
	15	1·58	5·7	10·9	1		
	16	1·58	3·0	3·7	1 ½		
	17	1.42	3·2	3·5	1		
	18	1·49	4·2	2·6	1		

Continued

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M–1A

DATE September, 1973 SCALE: 1"to 2'

			WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
19	1·79		6·8	13·3	½		
20	0·65		1·9	5·8	2		
21	0·97		3·6	1·7	1		
22	1·25		4·6	2·3	2		
23	1·18		4·3	1·1	3		
24	2·75		6·7	8·5	4		
25	1·84		1·9	62·8	½		
26	3·75		1·3	53·2	0		
Sheared							
BASE OF SEAM							

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M–1A

DRAWN BY DATE September, 1973 SCALE: 1" to 2'

APPLICANT: COALITION MINING LIMITED,
C/- AUSTEN & BUTTA LIMITED

ATTENTION: MR. F. GARDINER

SUBJECT: WASHABILITY AND ANALYTICAL DATA ON TWENTY SIX (26) ONLY COAL PLY SAMPLES DESIGNATED D.D.H.-MIA - SUKUNKA CORE.

REPORT NO. CS20904

DATE RECEIVED: 13. 7. 73

DATE REPORTED: 20. 7. 73

CARGO SUPERINTENDENTS CO. (A/SIA) PTY. LIMITED.

INTRODUCTION: Twenty six (26) only coal ply samples designated D.D.H.-MIA - Sukunka Core were received in our Sydney laboratory on 13.7.73.

METHOD: Each sample was air dried, weighed, hand crushed to a 1" top size and sized at 30# BSS.

The +30# BSS raw coal fractions were washed in organic liquids at 1.40 S.G. and 1.60 S.G.

The float and sink fractions were weighed, prepared and analysed in accordance with BS1016 for proximate analysis, total sulphur and crucible swelling no.

These results are given in Tables 1 - 26 inclusive.

The raw ash% of each ply is given in Table 27.

TABLE 1: WASHABILITY AND ANALYTICAL DATA FOR PLY 1 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc)
F1.40	345	100.0	2.5	1.3	17.1	79.1	0.69	½	100.0	2.5	1.3	17.1	79.1	0.69	½
S1.40-F1.60	--	Nil	--	--	--	--	--	--	100.0	2.5	1.3	17.1	79.1	0.69	½
S1.60	--	Nil	--	--	--	--	--	--	100.0	2.5	1.3	17.1	79.1	0.69	½
-30#	10	2.8	2.6	5.1	18.6	73.7	0.91	0							

TABLE 2: WASHABILITY AND ANALYTICAL DATA FOR PLY 2 (after crushing to -1")

F1.40	558	95.4	2.5	3.3	15.6	78.6	0.56	½	95.4	2.5	3.3	15.6	78.6	0.56	½
S1.40-F1.60	27	4.6	2.2	10.6	15.7	71.5	0.51	0	100.0	2.5	3.6	15.6	78.3	0.56	½
S1.60 -	--	Nil	--	--	--	--	--	--	100.0	2.5	3.6	15.6	78.3	0.56	½
-30#	20	3.3	2.3	5.1	16.2	76.4	0.66	0							

TABLE 3: WASHABILITY AND ANALYTICAL DATA FOR PLY 3 (after crushing to -1")

F1.40	250	66.0	2.7	3.6	15.1	78.6	0.43	½	66.0	2.7	3.6	15.1	78.6	0.43	½
S1.40-F1.60	101	26.7	2.1	15.6	15.0	67.3	0.47	0	92.7	2.5	7.1	15.1	75.3	0.44	½
S1.60	28	7.3	2.3	42.2	13.5	42.0	0.22	0	100.0	2.5	9.6	15.0	72.9	0.43	0
-30#	49	11.4	2.4	20.4	14.4	62.8	0.47	0							

TABLE 4: WASHABILITY AND ANALYTICAL DATA FOR PLY 4 (after crushing to -1")

F1.40	279	100.0	2.5	2.0	16.9	78.6	0.43	½	100.0	2.5	2.0	16.9	78.6	0.43	½
S1.40 - F1.60	--	Nil	--	--	--	--	--	--	100.0	2.5	2.0	16.9	78.6	0.43	½
S1.60	--	Nil	--	--	--	--	--	--	100.0	2.5	2.0	16.9	78.6	0.43	½
-30#	29	9.4	2.4	2.8	12.6	82.2	0.43	0							

TABLE 5: WASHABILITY AND ANALYTICAL DATA FOR PLY 5 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT.%	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc)
F1.40	581	90.3	2.6	2.5	18.4	76.5	0.40	½	90.3	2.6	2.5	18.4	76.5	0.40	½
Sl.40 - Fl.60	60	9.4	1.8	10.4	21.3	66.5	0.34	0	99.7	2.5	3.2	18.7	75.6	0.39	½
Sl.60	2	0.3	1.3	21.6	18.6	58.5	0.30	0	100.0	2.5	3.3	18.7	75.5	0.39	0
-30#	70	9.8	2.2	3.7	19.6	74.5	0.45	0							

TABLE 6: WASHABILITYAND ANALYTICAL DATA FOR PLY 6 (after crushing to -1")

F1.40	513	98.1	2.4	2.4	18.7	76.5	0.34	½	98.1	2.4	2.4	18.7	76.5	0.34	½
Sl.40 - Fl.60	10	1.9	2.0	10.6	18.5	68.9	0.26	0	100.0	2.4	2.6	18.7	76.3	0.34	½
Sl.60	--	Nil	--	--	--	--	--	--	100.0	2.4	2.6	18.7	76.3	0.34	0
-30#	51	8.9	2.1	2.9	19.7	75.3	0.35	0							

TABLE 7: WASHABILITY AND ANALYTICAL DATA FOR PLY 7 (after crushing to -1")

F1.40	35	4.4	2.1	6.7	20.4	70.8	0.38	1½	4.4	2.0	6.7	20.4	70.8	0.38	1½
Sl.40 - Fl.60	73	9.1	1.9	22.9	16.0	59.2	0.32	0	13.5	2.0	17.6	17.4	63.0	0.34	½
Sl.60	690	86.5	2.0	76.1	7.2	14.7	0.18	0	100.0	2.0	68.2	8.6	21.2	0.20	0
-30#	67	7.7	2.4	39.9	14.0	43.7	0.30	0							

TABLE 8: WASHABILITY AND ANALYTICAL DATA FOR PLY 8 (after crushing to -1")

F1.40	846	93.6	2.3	2.9	18.4	76.4	0.38	1	93.6	2.3	2.9	18.4	76.4	0.38	1
Sl.40 - Fl.60	53	5.9	1.4	14.6	21.0	63.0	1.19	½	99.5	2.2	3.6	18.6	75.6	0.43	1
Sl.60	5	0.5	1.9	62.2	14.1	21.8	0.91	0	100.0	2.2	3.9	18.5	75.4	0.43	½
-30#	69	7.1	2.2	4.9	20.3	72.6	0.51	1½							

TABEE 9: WASHABILITY AND ANALYTICAL DATA FOR PLY 9 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc
F1.40	622	90.5	1.5	2.2	18.9	77.4	0.46	1½	90.5	1.5	2.2	18.9	77.4	0.46	1½
S1.40 - F1.60	50	7.3	0.9	18.3	20.4	60.4	0.40	1½	97.8	1.5	3.4	19.0	76.1	0.46	1½
S1.60	15	2.2	0.8	40.0	13.5	45.7	0.37	0	100.0	.4	4.2	18.9	75.5	0.45	1½
-30#	143	17.2	1.5	4.0	19.3	75.2	0.50	4							

TABLE 10: WASHABILITY DATA AND ANALYTICAL DATA FOR PLY 10 (after crushing to -1")

F1.40	70	16.7	1.3	9.4	20.2	69.1	0.38	7	16.7	1.3	9.4	20.2	69.1	0.38	7
S1.40 - F1.60	121	29.0	1.1	26.9	16.6	55.4	0.38	2	45.7	1.2	20.5	17.9	60.4	0.38	4
S1.60	227	54.3	1.2	66.7	9.4	22.7	0.45	½	100.0	1.2	45.6	13.3	39.9	0.42	2
-30#	13	3.0	1.5	27.4	16.7	54.4	0.72	4							

TABLE 11: WASHABILITY AND ANALYTICAL DATA FOR PLY 11 (after crushing to-1")

F1.40	414	77.0	1.5	3.2	17.4	77.9	0.29	1½	77.0	1.5	3.2	17.4	77.9	0.29	1½
S1.40 - F1.60	95	17.6	1.0	15.2	25.0	58.8	0.96	1½	94.6	1.4	5.4	18.8	74.4	0.41	1½
S1.60	29	5.4	0.8	25.1	26.8	47.3	2.53	½	100.0	1.4	6.5	19.2	72.9	0.53	1
-30#	56	9.4	1.5	4.7	19.4	74.4	0.67	5½							

TABLE 12: WASHABILITY AND ANALYTICAL DATA FOR PLY 12 (after crushing to -1")

F1.40	424	61.5	1.2	3.5	18.1	77.2	0.40	2	61.5	1.2	3.5	18.1	77.2	0.40	2
S1.40 - F1.60	93	13.5	0.8	19.8	20.2	59.2	0.50	1½	75.0	1.1	6.4	18.5	74.0	0.42	2
S1.60	172	25.0	0.5	49.4	15.4	34.7	0.50	½	100.0	1.0	17.2	17.7	64.1	0.44	1½
-30#	45	6.1	1.3	9.0	19.9	69.8	0.78	6½							

TABLE 13: WASHABILITY AND ANALYTICAL DATA FOR PLY 13 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc
Fl.40	Nil	Nil	--	--	--	--	--	--	Nil	--	--	--	--	--	--
Sl.40 - Fl.60	15	8.1	1.1	24.8	18.1	56.0	0.43	7	8.1	1.1	24.8	18.1	56.0	0.43	7
Sl.60	171	91.9	1.5	77.3	7.1	14.1	0.26	½	100.0	1.5	73.0	8.0	17.5	0.27	1
-30#	15	7.5	1.7	34.6	15.6	48.1	0.69	6							

TABLE 14: WASHABILITY AND ANALYTICAL DATA FOR PLY 14 (after crushing to -1")

Fl.40	550	76.8	1.4	3.5	15.3	79.8	0.45	1½	76.8	1.4	3.5	15.3	79.8	0.45	1½
Sl.40 - Fl.60	110	15.3	1.0	12.8	21.4	64.8	0.35	1	92.1	1.3	5.0	16.3	77.4	0.43	1½
Sl.60	57	7.9	1.6	74.8	9.9	14.7	0.22	0	100.0	1.4	10.6	15.7	72.3	0.42	1
-30#	79	9.9	1.7	15.3	15.9	67.1	0.42	1							

TABLE 15: WASHABILITY AND ANALYTICAL DATA FOR PLY 15 (after crushing to -1")

Fl.40	408	48.1	1.1	2.4	18.9	77.6	0.37	2	48.1	1.1	2.4	18.9	77.6	0.37	2
Sl.40 - Fl.60	290	34.1	0.9	15.4	24.5	59.2	0.35	1	82.2	1.0	7.8	21.2	70.0	0.36	1½
Sl.60	151	17.8	0.6	25.1	26.9	47.4	0.30	0	100.0	1.0	10.9	22.2	65.9	0.35	1
-30#	56	6.2	1.3	6.5	20.7	71.5	0.48	4							

TABLE 16: WASHABILITY AND ANALYTICAL DATA FOR PLY 16 (after crushing to -1")

Fl.40	411	90.0	1.2	2.8	18.6	77.4	0.35	1½	90.0	1.2	2.8	18.6	77.4	0.35	1½
Sl.40 - Fl.60	46	10.0	0.9	12.0	23.0	64.1	0.27	1½	100.0	1.2	3.7	19.0	76.1	0.34	1½
Sl.60	Nil	Nil	--	--	--	--	--	--	100.0	1.2	3.7	19.0	76.1	0.34	1½
-30#	23	4.8	1.4	4.4	19.7	74.5	0.34	5½							

TABLE 17: WASHABILITY AND ANALYTICAL DATA FOR PLY 17 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	C.S.NO. (calc)
F1.40	475	96.2	1.2	3.1	18.4	77.3	0.34	1	96.2	1.2	3.1	18.4	77.3	0.34	1
F1.40 - F1.60	19	3.8	1.0	12.7	17.5	68.8	0.38	0	100.0	1.2	3.5	18.4	76.9	0.34	1
S1.60	Nil	Nil	—	--	--	--	--	--	100.0	1.2	3.5	18.4	76.9	0.34	1
-30#	23	4.4	1.5	4.9	19.0	74.6	0.37	2½							

TABLE 18: WASHABILITY AND ANALYTICAL DATA FOR PLY 18 (after crushing to -1")

F1.40	619	98.1	1.3	2.4	17.7	78.6	0.35	1	98.1	1.3	2.4	17.7	78.6	0.35	1
S1.40 - F1.60	9	1.4	1.3	9.9	16.9	67.9	0.37	0	99.5	1.3	2.5	17.7	78.5	0.35	1
S1.60	3	0.5	1.6	12.9	14.5	66.0	0.36	0	100.0	1.3	2.6	17.7	78.4	0.35	1
-30#	41	6.1	1.5	4.0	18.2	76.3	0.35	1							

TABLE 19: WASHABILITY AND ANALYTICAL DATA FOR PLY 19 (after crushing to -1")

F1.40	387	37.3	1.1	3.8	19.1	76.0	0.43	1	37.3	1.1	3.8	19.1	76.0	0.43	1
S1.40 - F1.60	469	45.7	0.7	17.5	26.0	55.8	0.45	0	83.5	0.9	11.3	22.9	64.9	0.44	1
S1.60	169	16.5	0.5	23.5	27.6	48.4	0.38	0	100.0	0.8	13.3	23.7	62.2	0.44	½
-30#	54	5.0	1.3	10.3	22.3	66.1	0.83	2½							

TABLE 20: WASHABILITY AND ANALYTICAL DATA FOR PLY 20 (after crushing to -1")

F1.40	228	80.3	0.9	4.3	20.3	74.5	0.38	3	80.3	0.9	4.3	20.3	74.5	0.38	3
S1.40 - F1.60	53	18.7	0.7	11.6	23.8	63.9	0.51	1½	99.0	0.9	5.7	21.0	72.4	0.40	2½
S1.60	3	1.0	0.8	21.9	20.2	57.1	0.45	0	100.0	0.9	5.8	21.0	72.3	0.41	2
-30#	16	5.3	1.2	4.6	20.8	73.4	0.55	5½							

TABLE 21: WASHABILITY AND ANALYTICAL DATA FOR PLY 21 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc
F1.40	531	99.6	1.2	1.6	18.6	78.6	0.34	1½	99.6	1.2	1.6	18.6	78.6	0.34	1½
S1.40 - F1.60	--	Nil	--	--	--	--	--	--	99.6	1.2	1.6	18.6	78.6	0.34	1½
S1.60	2	0.4	1.0	14.5	19.6	64.9	0.42	0	100.0	1.2	1.7	18.6	78.5	0.34	1
-30#	34	6.0	1.3	2.4	19.1	77.2	0.51	3							

TABLE 22: WASHABILITY AND ANALYTICAL DATA FOR PLY 22 (after crushing to -1")

F1.40	685	99.2	1.2	2.2	18.2	78.4	0.32	2	99.2	1.2	2.2	18.2	78.4	0.32	2
S1.40 - F1.60	3	0.4	1.0	7.8	18.7	72.5	0.36	1	99.6	1.2	2.2	18.2	78.4	0.32	2
S1.60	3	0.4	1.0	17.9	17.9	63.2	0.38	½	100.0	1.2	2.3	18.2	78.3	0.32	2
-30#	41	5.6	1.4	2.7	19.7	76.2	0.34	6½							

TABLE 23: WASHABILITY AND ANALYTICAL DATA FOR PLY 23 (after crushing to -1")

F1.40	582	91.2	1.1	4.9	19.0	75.0	0.27	3½	91.2	1.1	4.9	19.0	75.0	0.27	3½
S1.40 - F1.60	35	5.5	0.9	19.1	18.8	61.2	0.29	3	96.7	1.1	5.7	19.0	74.2	0.27	3½
S1.60	21	3.3	1.0	66.2	11.7	21.1	0.27	½	100.0	1.1	7.7	18.8	72.4	0.27	3
-30#	52	7.5	1.3	5.2	19.1	74.4	0.40	5							

TABLE 24: WASHABILITY AND ANALYTICAL DATA FOR PLY 24 (after crushing to -1")

F1.40	891	88.4	1.0	5.4	19.5	74.1	0.29	5	88.4	1.0	5.4	19.5	74.1	0.29	5
S1.40 - F1.60	92	9.1	0.2	21.1	20.0	58.4	0.32	3½	97.5	0.9	6.9	19.5	72.7	0.29	4½
S1.60	25	2.5	1.7	73.1	11.3	13.9	0.27	0	100.0	0.9	8.5	19.3	71.3	0.29	4
-30#	59	5.5	1.3	8.2	18.4	72.1	0.37	6							

TABLE 25: WASHABILITY AND ANALYTICAL DATA FOR PLY 25 (after crushing to -1")

FRACTION	INDIVIDUAL ANALYSIS WT.GM.	WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO.	CUMULATIVE ANALYSIS WT. %	ADM%	ASH%	V.M.%	F.C.%	T.S.%	C.S.NO. (calc)
Fl.40	13	4.4	0.9	7.0	21.3	70.8	0.35	9	4.4	0.9	7.0	21.3	70.8	0.35	9
Sl.40 - Fl.60	7	2.4	0.7	23.4	20.1	55.8	0.31	6½	6.8	0.8	12.8	20.9	65.5	0.34	8
Sl.60	275	93.2	1.2	66.5	9.9	22.4	0.30	0	100.0	1.2	62.8	10.6	25.4	0.30	½
-30#	15	4.8	1.5	38.3	14.8	45.4	0.51	4½							

TABLE 26: WASHABILITY AND ANALYTICAL DATA FOR PLY 26 (after crushing to -1")

Fl.40	Nil	Nil	--	--	--	--	--	--	Nil	--	--	--	--	--	--
Sl.40 - Fl.60	Nil	Nil	--	--	--	--	--	--	Nil	--	--	--	--	--	--
Sl.60	145	100.0	1.1	53.2	12.2	33.5	0.27	0	100.0	1.1	53.2	12.2	33.5	0.27	0
-30#	67	31.6	1.6	45.9	12.7	39.8	0.40	0							

COMMENTS: The coal recovered from this core is obviously badly affected by heat and pressure effects.

NOTE: Further calculations and deductions may be made if the detailed logging data was made available.

TABLE 27: RAW ASH% OF EACH COAL PLY SAMPLE

PLY NO.	RAW ASH% (1.0% A.D.M.BASIS)	C.S.NO. (calc)
1	1.4	½
2	3.7	½
3	11.0	0
4	2.1	½
5	3.4	0
6	2.6	0
7	66.7	0
8	4.0	½
9	4.2	1½
10	45.1	2
11	6.3	2
12	16.7	2
13	70.5	1
14	11.2	1
15	10.6	1
16	3.7	1½
17	3.6	1
18	2.7	1
19	13.2	½
20	5.7	2
21	1.7	1
22	2.3	2
23	7.5	3
24	8.5	4
25	61.7	½
26	51.0	0

APPLICANT: COALITION MINING LIMITED,
C/- MUSTEH & BUTWA LIMITED.

ATTENTION: MR. D. GARDINER

SUBJECT: ADDITIONAL INFORMATION ON D.D.H.-MIA-SUKUNKA CORE. CALORIFIC VALUE OF THE FLOATS 1.40 S.G. FRACTION OF TWENTY ONE (21) ONLY PIX SAMPLES.

REPORT NO. [illegible]

DATE RECEIVED: 13. 7. 73

DATE REPORTED: 27. 7. 73

S.A. Bradley

CARGO SUPERINTENDENTS CO. (A/SIA) PTY. LIMITED.

RESULTS:	PLY NO.	FRACTION	CALORIFIC VALUE (BTU/lb) A.D.B.
	1	Floats 1.40 SG	14,860
	2	"	14,110
	3	"	14,470
	4	"	14,420
	5	"	14,840
	6	"	14,480
	8	"	14,640
	9	"	14,940
	11	"	15,110
	12	"	15,020
	14	"	14,520
	15	"	15,330
	16	"	14,780
	17	"	15,270
	18	"	14,820
	19	"	14,920
	20	"	14,500
	21	"	15,130
	22	"	14,910
	23	"	14,920
	24	"	14,450

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
NO CORE, soil and unconsolidated material	6.50	6.50	-	
SANDSTONE, light grey, medium grained at top, finer at base, quartz-lithic, occasional calcite filled fractures along bedding or steeply dipping to bedding. Core axis to bedding angle = 85°.	22.36	28.86	22.60	
SILTSTONE AND MUDSTONE INTERBEDS, grey siltstone and dark grey mudstone forming graded units, some phases of fine sandstone throughout, some phases with small dark coloured worm burrows, core axis to bedding angle = 70°	18.72	47.58	18.92	
CLAYSTONE, dark grey, occasional silty bands, core broken along sub-conchoidal fractures, no shearing at breaks is apparent	12.47	60.05	12.60	
COAL, dull with numerous bright bands	0.22	60.27	0.21	
, dull and bright	0.48	60.75	0.45	
, dull with minor bright bands	1.25	62.00	1.18	
, dull and bright	1.17	63.17	0.69	
, dull with numerous shear flows	0.83	64.00	0.60	

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
COAL, dull and bright	0.26	64.26	0.28	
, dull with numerous bright bands	0.53	64.79	0.57	
, dull and bright	0.64	65.43	0.69	
, dull	0.53	65.96	0.57	
, dull with numerous bright bands	0.46	66.42	0.50	
CORE LOSS,	1.88	68.30	0.00	
COAL AND BANDS, grey claystone and bright coal bands	0.14	68.44	0.13	
COAL, bright, minor dull bands	0.17	68.61	0.16	
CLAYSTONE, grey, numerous bright coal bands throughout	0.81	69.42	0.78	
COAL, dull and bright	0.51	69.93	0.40	
, dull with numerous bright bands	0.87	70.80	0.67	
, bright with minor dull bands	0.41	71.21	0.32	
, dull and bright	0.64	71.85	0.50	
, bright with minor dull bands	0.64	72.49	0.50	
, dull with numerous bright bands	0.58	73.07	0.45	
, dull and bright	0.93	74.00	0.72	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
COAL AND BANDS, core broken, bright coal with thin grey claystone interbeds	1.67	75.67	1.09	
COAL, dull and bright	0.19	75.86	0.18	
, dull	0.25	76.11	0.24	
, dull and bright	0.67	76.78	0.64	
, dull with numerous bright bands	0.32	77.10	0.30	
, dull and bright	0.54	77.64	0.47	
, dull with numerous bright bands	0.34	77.98	0.30	
, bright with minor dull bands	0.44	78.42	0.38	
, dull and bright	0.41	78.83	0.36	
CLAYSTONE, carbonaceous, bright coal bands	0.39	79.22	0.26	
COAL, dull and bright, sheared	0.64	79.86	0.43	
, dull with numerous bright bands	0.82	80.68	0.55	
, dull	0.99	81.67	0.66	
, dull with numerous bright bands	0.47	82.14	0.50	
, dull and bright	0.78	82.92	0.83	
, bright, minor dull bands	0.33	83.25	0.35	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
COAL, dull and bright	0.38	83.63	0.27	
, bright with minor dull bands	0.54	84.17	0.39	
, dull with numerous bright bands	0.66	84.83	0.47	
, dull and bright	0.75	85.58	0.54	
, bright with minor dull bands	0.50	86.08	0.36	
, dull	0.17	86.25	0.12	
, dull	0.52	86.77	0.47	
, dull with numerous bright bands	0.97	87.74	0.87	
, dull and bright	0.47	88.21	0.42	
, dull with numerous bright bands	0.76	88.97	0.69	
, dull and bright	0.56	89.53	0.50	
, dull with numerous bright bands	0.37	89.90	0.33	
, dull and bright	0.28	90.18	0.25	
, dull with numerous bright bands	0.51	90.69	0.55	
, dull	0.46	91.15	0.50	
, bright	0.34	91.49	0.37	
, dull and bright	0.51	92.00	0.55	
, bright with minor dull bands	0.40	92.40	0.44	
, dull with numerous bright bands	0.62	93.02	0.67	
, dull and bright	0.18	93.20	0.20	
, bright	0.38	93.58	0.42	
, dull and bright	0.41	93.99	0.37	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
COAL, dull with numerous bright bands	0.35	94.34	0.32	
, bright	0.48	94.82	0.43	
, dull and bright - core broken	0.41	95.23	0.37	
, bright	0.31	95.54	0.28	
, dull and bright	0.28	95.82	0.25	
, dull with numerous bright bands	0.12	95.94	0.11	
, dull and bright	0.39	96.33	0.35	
CARBONACEOUS CLAYSTONE, black, bright coal bands	1.84	98.17	0.62	
COAL AND BANDS, black, carbonaceous claystone	1.66	99.83	0.27	
SHEARED COAL, fragments with listic surfaces, core very soft, angular fragments of carbonaceous claystone included	2.09	101.92	0.34	
CLAYSTONE, dark grey, bright coal bands, core broken, listic surfaces on broken core	0.91	102.83	0.91	
SILTSTONE, light grey, coaly stringers and bright coal bands, bedding angle - 70°	0.21	103.04	0.21	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
SILTSTONE, dark grey, some coaly wisps and inclusions	1.52	104.56	1.52	
COAL AND BANDS, black carbonaceous claystone and bright coal bands interbedded	0.84	105.40	0.84	
SILTSTONE, light grey, coaly stringers and bright coal band	0.19	105.59	0.19	
CLAYSTONE, dark grey, some bright coal bands to 0.01', listic surfaces at core breaks and calcite veins, carbonaceous in top half, core broken	5.51	111.10	5.01	
SILTSTONE, grey, sandstone interbeds, one calcite vein (0.02') 0.55' from top at 52° to core axis, core axis to bedding = 72°	1.23	112.33	1.23	
CLAYSTONE, carbonaceous, black, bright coal band and some sandy interbeds, listic surfaces at core breaks	0.75	113.08	0.75	
SANDSTONE, light grey, medium grained, porous, lithic	0.16	113.24	0.16	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
SILTSTONE, dark grey, some coaly wisps and carbonaceous claystone phases	2.47	115.71	2.47	
COAL, bright and CLAYSTONE, dark grey and carbonaceous, interbedded	0.70	116.41	0.70	
CLAYSTONE, carbonaceous, core broken, bright coal fragments in box	0.32	116.73	0.32	
CLAYSTONE, dark grey, some sandstone interbeds, core axis to bedding = 68^{o}	2.36	119.09	2.36	
SANDSTONE, fine grained, coaly wisps and inclusions	0.55	119.64	0.55	
CLAYSTONE, dark grey, slickensided surfaces and calcite veins in lower half	2.43	122.07	2.43	
CLAYSTONE and SILTSTONE BRECCIATED, possible fault, numerous calcite veins and slickensided surfaces	0.30	122.37	0.30	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
CLAYSTONE, dark grey, some phases of fine sandstone interbeds, some calcite filled veins and fractures throughout listic surfaces and slickensides at most core breaks, phases of coaly bands and inclusions throughout, core axis to bedding = 50°	36.95	159.32	35.95	
CLAYSTONE, black, carbonaceous, 0.10' band coal 0.60' from top	2.10	161.42	2.10	
COAL, dull and bright, core broken in top half	0.97	162.39	0.47	
CLAYSTONE, dark grey, numerous bright coal bands throughout core axis to bedding angle - 45°	3.65	166.04	3.65	
CLAYSTONE, dark grey, some carbonaceous phases, numerous fine calcite veinlets throughout, massive	5.25	171.29	5.25	
CLAYSTONE, light grey, massive, some carbonaceous phases and bright coal bands, some phases of calcite veins near top	8.02	179.31	8.02	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
CLAYSTONE, carbonaceous, black, some bright coal bands throughout, listic surfaces and slickensides on core breaks	8.77	188.08	6.57	
COAL AND BANDS, interbeds and phases of black carbonaceous claystone throughout, sheared coal section	2.88	190.96	2.08	
CLAYSTONE, carbonaceous, black, numerous bright coal bands throughout, some grey claystone phases, listic surfaces and slickensides on core breaks and fractures, phases of calcite veins towards base, core axis to bedding angle = 50°	13.52	204.48	13.52	
CLAYSTONE, carbonaceous, black, massive, porous	0.50	204.98	0.50	
CLAYSTONE, grey, phases of carbonaceous claystone and bright coal bands throughout, pyrite replaced worm burrow 1' from base, listic surfaces and slickensides on bedding at core breaks, core axis to bedding angle = 32°	11.09	216.07	11.09	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
CLAYSTONE, carbonaceous, black, numerous bright coal bands, slickensides and listic surfaces on core breaks	3.18	219.25	2.28	
CLAYSTONE, grey, some carbonaceous claystone phases throughout and bright coal bands, phases of grey siltstone towards base, bedding disturbed in places and phases of calcite veins and slickensides throughout, listic surfaces on core breaks, possible fault at 227' and 255', core axis to bedding angle = 40°.	43.29	262.54	40.66	
SILTSTONE, grey, sandstone interbeds, phases of calcite veins, listic surfaces on core breaks, core axis to bedding = 50°	13.43	275.97	13.53	
CLAYSTONE, dark grey	1.95	277.92	1.95	
SILTSTONE, as above, core broken	0.82	278.74	0.82	
SANDSTONE, medium grained, light grey, quartz-lithic, some siltstone interbeds, numerous calcite veins throughout and zones of brecciation, possibly faulted at base	5.44	284.18	5.44	

SUKUNKA D.D.H. M-1A

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Footage Recovered (ft)*	*Remarks*
SILTSTONE, grey, some sandstone phases, coaly wisps and claystone interbeds, core axis to bedding angle = 58°	17.11	301.29	17.11	
CLAYSTONE, grey, carbonaceous claystone phases, coaly wisps and bands throughout, calcite veins and slickensides towards centre	2.71	304.00	2.71	Base of Hole

652

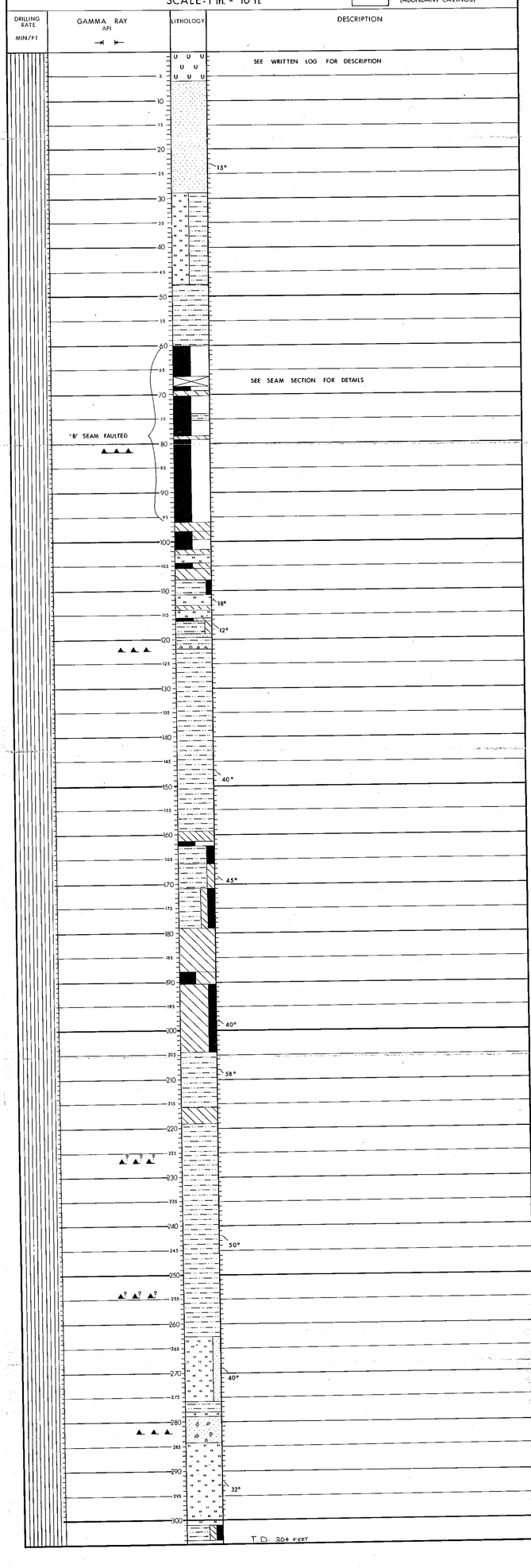
DRILL HOLE STRIP LOG

COMPANY:	COALITION MINING LTD.
PROPERTY:	SUKUNKA COAL PROJECT
HOLE NUMBER:	DDH M-1A
LOCATION:	53,195 N 72,155 E
DATE COMMENCED:	JUNE 19, 1973
DATE COMPLETED:	JUNE 30, 1973
DEPTH:	304 FEET
GROUND ELEVATION:	2743 FEET
LOGGED BY:	G.R. JORDAN
REMARKS:	Strata: Lower Gething Sequence including Seam 'B'; see written description for details of strata penetrated. Lithology included at this scale for comparison with other related drill holes.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) - PERCENT INDICATED; DULL PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC. (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft.



DIAMOND DRILL HOLE M-2

Grid Reference 52,318.6N 74,925.0E

Date commenced 20th September, 1974 Completed 26th September, 1974

Collar R.L. 3331.6 ft Standard Datum

Total Depth 923.00 ft

Drilled with

HQ.TT to 180.42 ft
NQ.TT to 823.30 ft
NQ.STD to 923.00 ft

Radiation Logs - Gamma Ray - Neutron and Density

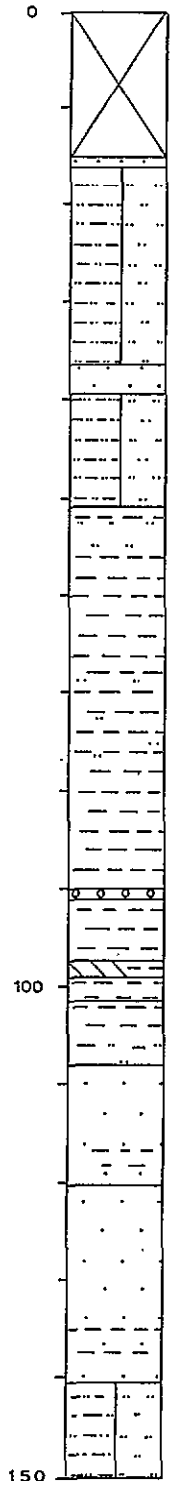
Drilled by Canadian Longyear Ltd.

For Coalition Mining Limited

Logged by G. R. Wallis

COAL SEAM INTERSECTIONS

Intersection	Floor R. L.	Thickness (feet)	Recovery	Comments
Coaly horizon 'A'	3232.9	1.29	N/A	Carbonaceous
'B' Seam	3154.3	11.67	56.6%	D.D.H. M-2
	3154.8	10.62	76.0%	D.D.H. M-2A (Redrill)
'B' Seam	3136.3	4.00	80.5%	Repetition
'C' Horizon (?)	3035.2	7.11	56.35%	
Unnamed	2992.6	5.23	100.0%	
'D' Horizon	2876.0	14.33	90.2%	



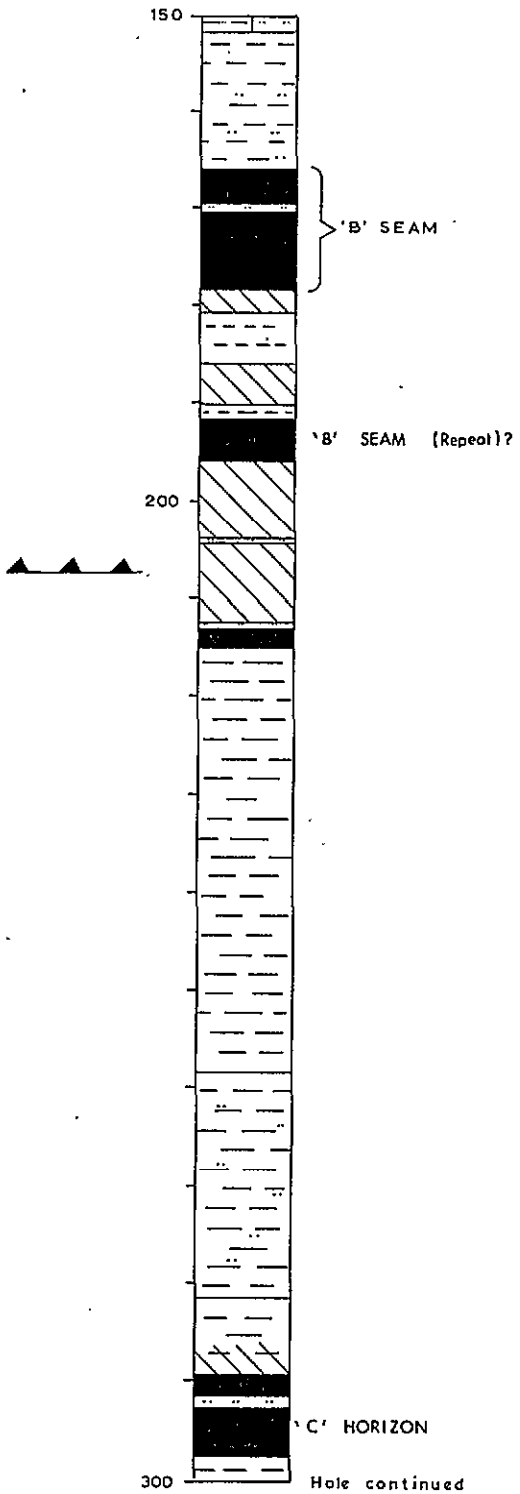
SCALE 1" to 20'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975



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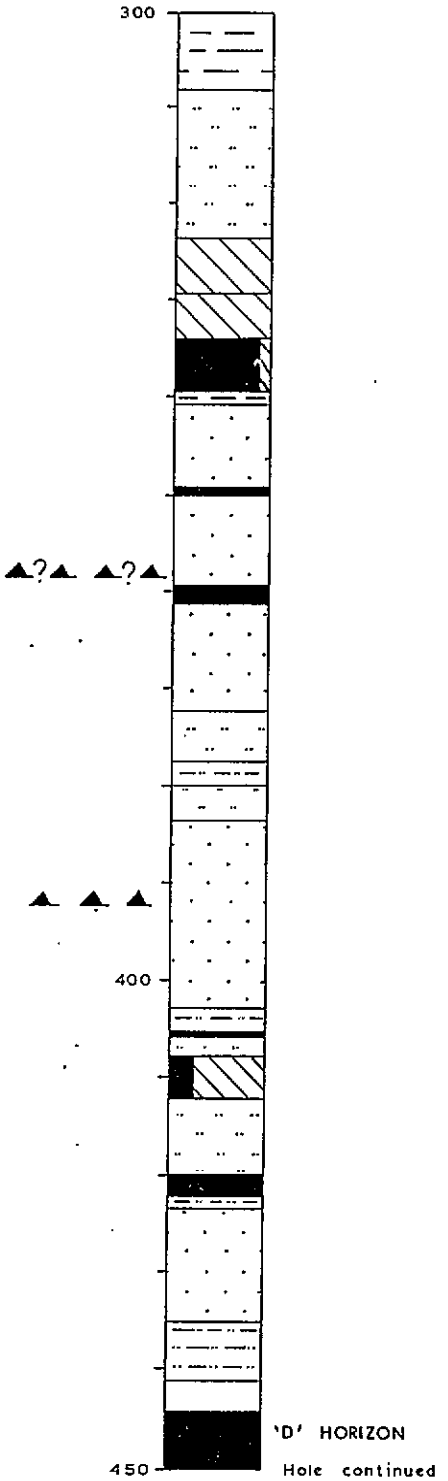
STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975



SCALE 1" to 20'0"

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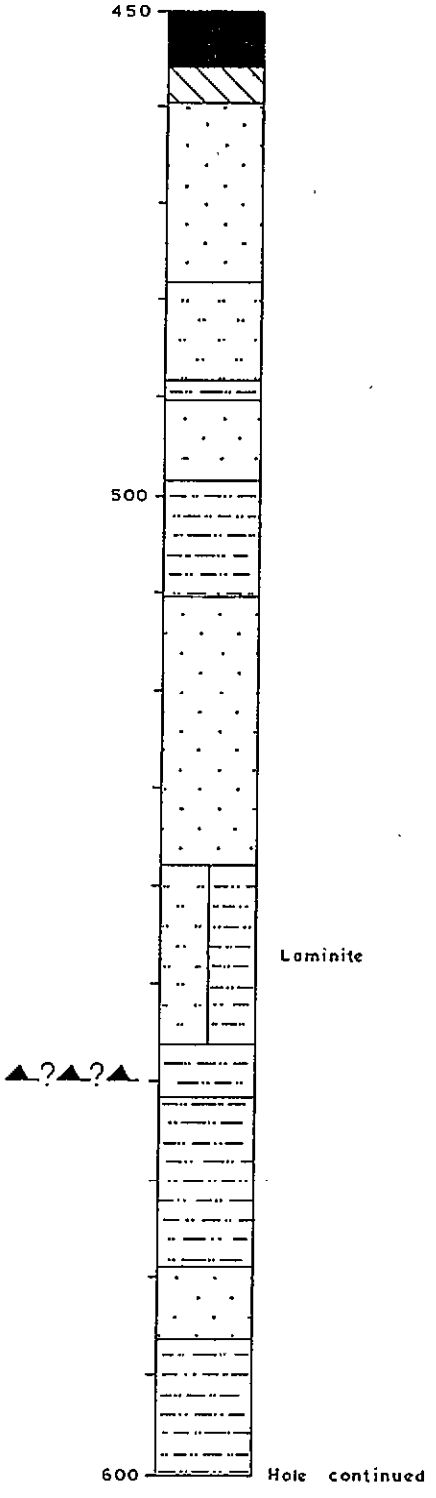
STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975



SCALE 1" to 20'0"

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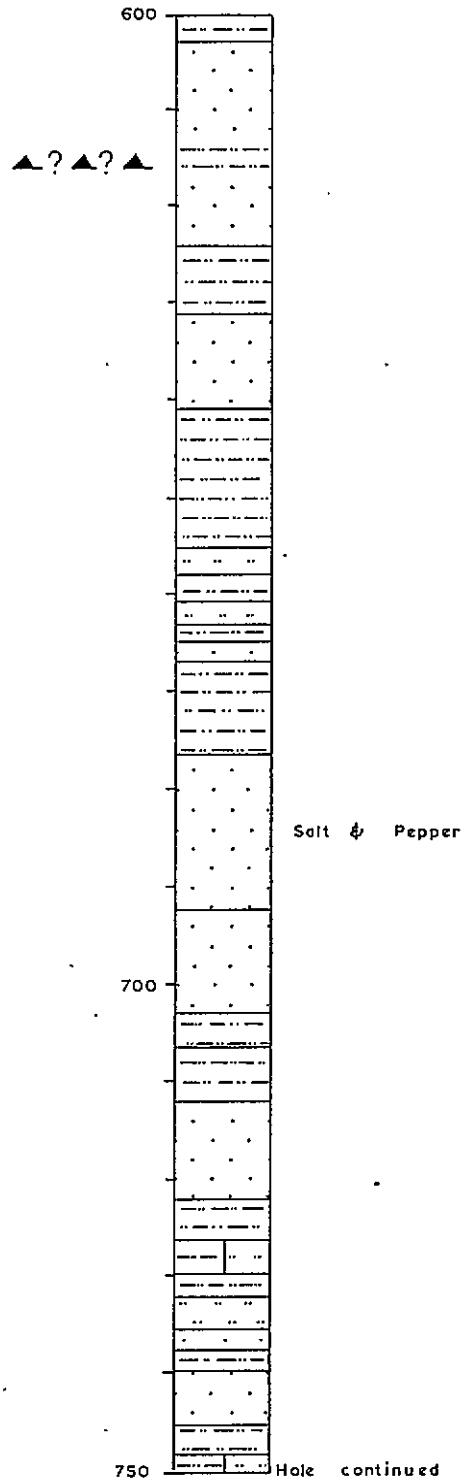
STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975



SCALE 1" to 20'0"

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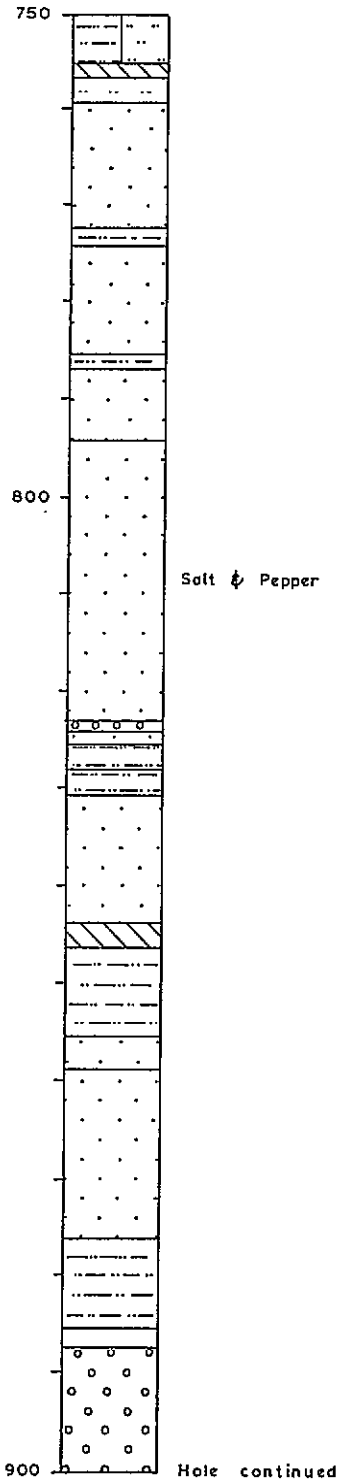
STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975



SCALE 1" to 20'0"

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STRATIGRAPHIC LOGS
DDH M-2

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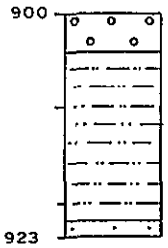
DATE: JANUARY 1975



SCALE 1" to 20'0"

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for
COALITION MINING LIMITED

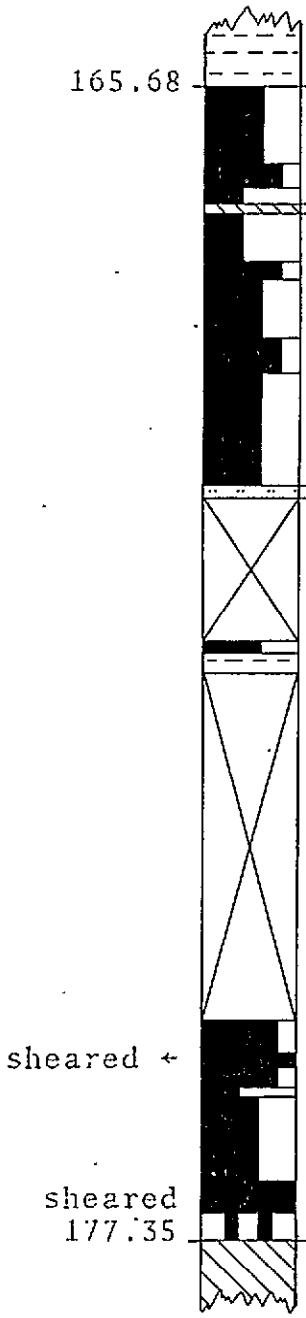
STRATIGRAPHIC LOGS
DDH M-2

DRAWN BY

DATE: JANUARY 1975

SEAM "B"

SAMPLE Nº SKR	THICKNESS (Feet	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
426	1.09	1062	8.8	1½	11.3	
427	0.05	91.8	79.0	-	12.0	
428	2.81	3080	4.5	3	10.2	
436	0.12	235	84.9	-	84.9	



NOT ANALYSED

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-2

DRAWN BY I.L. DATE. JANUARY 1975 PAGE 1 of 1

SEAM "B" _"Middle Coals"

	SAMPLE N° SKR	THICKNESS (FEET)	WT % gm	ASH %	C. S. N°	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
166.21							
	429	0.98	554	6.9	1½		
	430	0.05	62	69.5	-		
	431	2.91	1726	4.3	3		
	432	0.10	101	86.1	-		
sheared →	433	0.44	244	16.6	7½		
		1.73	-	-			
	434	1.42	569	6.1	3½	7.2	
	435	2.99	1583	7.6	3	7.6	
176.83							

SCALE 1" to 2' 0"

Prepared by
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COALITION MINING LIMITED

SEAM SECTION
DDH M-2A

DRAWN BY [illegible] DATE. JANUARY 1975 PAGE 1 of 1

'B' SEAM (REPETITION)?

SAMPLE Nº SKD	THICKNESS (FEET)	WT % gm	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
191.28						
437)		1884	36.8	1½	-	36.8
438)	0.06		(NOT ANALYSED			
)	3.94					
)						
437)						
195.28						

SCALE 1" to 2' 0"

Prepared by
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SEAM SECTION
DDH M-2

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UNNAMED SEAM
(212.50' - 214.50')

SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
	1.65		NOT ANALYSED			

SCALE 1" to 2' 0"

Prepared by
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for
COALITION MINING LIMITED

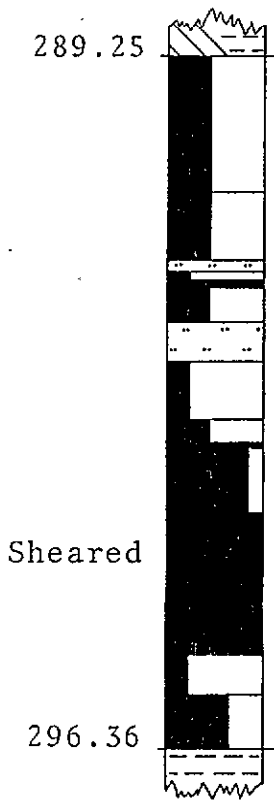
SEAM SECTION
DDH M-2

DRAWN BY I.L.

DATE. JANUARY 1975

'C' HORIZON
(290.61' - 296.36')

SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS



5.75

NOT ANALYSED

SCALE 1" to 2' 0"

Prepared by
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for
COALITION MINING LIMITED

SEAM SECTION
DDH M-2

DRAWN BY I.L. DATE. JANUARY 1975 PAGE 1 of 1

UNNAMED SEAM
(333.75' - 338.80')

SAMPLE N° SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR: INCL. BANDS	ASH % CUMULATIVE FROM FLOOR: EXCL. BANDS
	5.23		NOT ANALYSED			

333.75

338.98

SCALE 1" to 2' 0"

Prepared by
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for
COALITION MINING LIMITED

SEAM SECTION
DDH M-2

DRAWN BY I. L. DATE. JANUARY 1975 PAGE 1 of 1

UNNAMED SEAM

(404.87' - 411.75')

SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS

404.87

6.88

NOT ANALYSED

Core loss
(1.32)

sheared

Core loss
(0.86)

411.75

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-2

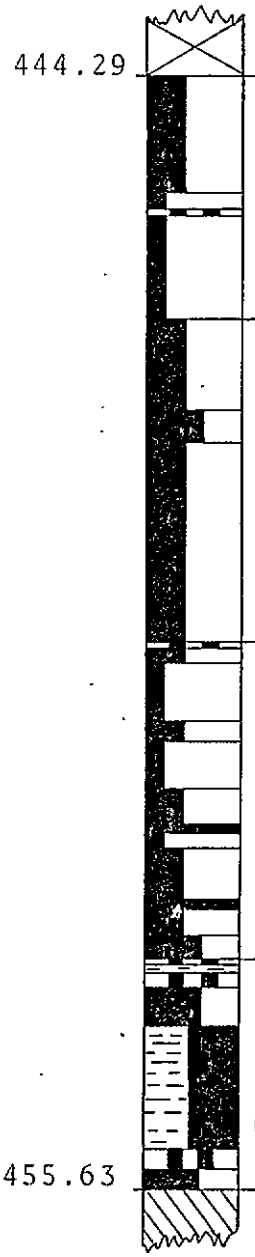
DRAWN BY I.L.

DATE. JANUARY 1975

'D' HORIZON

(444.29' - 455.63')

SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
	444.29					
422		10666	8.5	½	10.3	
423		2023	3.6	½	14.4	
424		1923	6.6	½	20.0	
425		951	53.2	1	53.2	
Core loss (1.11)						
	455.63					



SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-2

DRAWN BY I.L. DATE. JANUARY 1975

ANALYTICAL DATA

D.D.H. M-2/M-2A

Sample No. (SKR-)	Interval (feet)
426	165.68 - 166.77
427	166.77 - 166.82
428	166.82 - 169.63
436	169.63 - 169.75
429	166.21 - 167.19
430	167.19 - 167.24
431	167.24 - 170.15
432	170.15 - 170.25
433	170.25 - 170.69
434	170.69 - 173.84
435	173.84 - 176.83
437	191.28 - 195.28
422	444.29 - 446.74
423	446.74 - 450.05
424	450.05 - 453.30
425	453.30 - 455.63

COALITION MINING

November 14, 1974

Group 5

Client No.	Lab No.	Sample Wt. Grams Air Dried
SKR 426	1318	1062.0G
SKR 427	1319	91.8
SKR 428	1320	3080.0
SKR 436	1328	235.0

COALITION MINING

Group 5

Birtley Engineering (Canada) Ltd.

October 23, 1974

Client No. / Lab No.	A.D.M.	Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	F.S.I.	S.G.	Calc. Factors
SKR 426		1.1	8.8	17.3	72.8	1.29	.19	13,250	1 1/2	1.39	As Rec'd
1318			8.9	17.5	73.6	1.30		13,400			Dry Basis
SKR 427			79.0						N.A.	2.39	As Rec'd
1319											
SKR 428		0.9	4.5	19.1	75.5	.61	.11	14,470	3	1.34	As Rec'd
1320			4.5	19.3	76.2	.62		14,600			Dry Basis
SKR 436			84.9						N.A.	2.54	As Rec'd
1328											

COALITION MINING

November 14, 1974

Group 6

Client No.	Lab No.	Sample Wt. Grams Air Dried
SKR 429	1321	554.0
SKR 430	1322	62.3
SKR 431	1323	1726.5
SKR 432	1324	101.6
SKR 433	1325	244.2
SKR 434	1326	569.0
SKR 435	1327	1582.8

COALITION MINING

February 21, 1975

GROUP 6 (A)

Client No. / Lab No.	A.D.L.	Moist.	Ash %	Vol.	F.C.	S.	P_2O_5	B.T.U.	F.S.I.	S.G.	Calc. Factors
SKR 429 / 1321		0.9	6.8	17.7	74.6	1.38		14,370	1 1/2	1.36	As Rec'd
			6.9	17.9	75.2	1.39		14,500			Dry Basis
SKR 430 / 1322			69.5	N O	W A S H				N.A.	2.18	As Rec'd
SKR 431 / 1323	2.9	0.4	4.3	18.7	76.6	.55		14,865	3	1.31	Air Dried
		3.3	4.2	18.2	74.3	.53		14,435			As Rec'd
			4.3	18.8	76.9	.55		14,925			Dry Basis
SKR 432 / 1324			86.1	N O	W A S H				N.A.	2.47	As Rec'd
SKR 433 / 1325	1.5	0.5	16.6	16.2	66.7	.42		12,960	7 1/2	1.41	Air Dried
		2.0	16.4	16.0	65.6	.41		12,765			As Rec'd
			16.7	16.3	67.0	.42		13,025			Dry Basis
SKR 434 / 1326	3.0	0.5	6.1	18.3	75.1	.38		14,555	3 1/2	1.32	Air Dried
		3.5	5.9	17.8	72.8	.37		14,120			As Rec'd
			6.1	18.4	75.5	.38		14,630			Dry Basis
SKR 435 / 1327		1.0	7.5	17.5	74.0	.40		14,280	3	1.33	As Rec'd
			7.6	17.7	74.7	.40		14,425			Dry Basis

COALITION MINING

February 21, 1975

Composite of SKR 429, 431 and 433 (A)

LAB NO. 1953

RAW ANALYSES

A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	P_2O_5	B.T.U.	F.S.I.	S.G.	Calc. Factors
Raw	0.8	5.5	19.0	74.7	.80		14,590	2 1/2	1.34	Air Dried
		5.5	19.1	75.4	.81		14,710			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	82.8	6.2	82.8	6.2	2 1/2 As Analyzed
- 28 M	17.2	5.5	100.0	6.1	3 1/2 " "

COALITIONING MINING

February 21, 1975

Composite of SKR 429, 431 and 433 (A)

LAB NO. 1953

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	68.2	2.8	68.2	2.3	3
1.30-1.40	22.9	7.0	91.1	3.9	1 1/2
1.40-1.60	5.7	17.2	96.8	4.6	1
+1.60	3.2	44.8	100.0	5.9	1/2

COALITION MINING

February 21, 1975

Compsite of SKR 429, 431 and 433 (A)

** LAB NO. 1953

FROTH FLOTATION ANALYSES - 28 M

F.F. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.	
Stage I	66.0	3.9	66.0	3.9	4	As analyzed
Stage II	9.9	5.4	75.9	4.1	3	As analyzed
Tails	24.1	10.5	100.0	5.6	1 1/2	As analyzed

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.48 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	First minute froth
Stage II	-	Second minute froth

** No more sample available from SKR 430 and 432 for Comp. 1953

COALITIONING MINING

(Composite of SKR 434 & 435 Series) (A)

February 21, 1975

LAB NO. 1952

RAW ANALYSES

A.D.L.	Moist.	Ash %	Vol.	F.C.	S.	P_2O_5	B.T.U.	F.S.I.	S.G.	Calc. Factors
Raw	0.7	7.5	19.1	72.0	.46		14,150	3	1.34	Air Dried
		7.6	19.2	72.5	.46		14,250			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.	
+ 28 M	79.7	8.2	79.7	8.2	2 1/2	As Analyzed
- 28 M	20.3	6.0	100.0	7.8	3 1/2	As Analyzed

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITIONING MINING

February 21, 1975

Composite of SKR 434 & 435 Series (A)

LAB NO. 1952

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	50.3	2.1	50.3	2.1	3 1/2 As Analyzed
1.30-1.40	27.2	5.9	77.5	3.4	1 1/2 " "
1.40-1.60	16.7	19.5	94.2	6.3	1 1/2 " "
+1.60	6.8	31.5	100.0	7.7	1/2 " "

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITIONING MINING

February 21, 1975

Composite of SKR 434 & 435 Series (A)

LAB NO. 1952

FROTH FLOTATION ANALYSES - 28 M

F.F. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.	
Stage I	71.6	3.6	71.6	3.6	4	As analyzed
Stage II	11.4	5.6	83.0	3.9	3	" "
Tails	17.0	11.6	100.0	5.2	2	" "

F.F. Parameters

Pulp Density	-	8%
Reagent Dosage	-	0.48 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

COALITION MINING

February 21, 1975

(SKR 429 to 435 Series)

(A)

Lab No.	Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
1954 Composite floats @ 1.60 S.G. off 1952 & 1953		0.7	5.3	19.4	74.6	.64	14,660	2 1/2	As analyzed
	Raw		5.3	19.5	75.2	.64	14,760		Dry Basis
1955 Composite I & II Stages off 1952 & 1953		0.9	3.9	20.3	74.9	.64	14,800	3 1/2	As analyzed
	Raw		3.9	20.5	75.6	.65	14,930		Dry basis
1956 Composite of 1954 & 1955	92.5	0.8	5.1	19.3	74.8	.63	14,680	2 1/2	As analyzed
			5.1	19.5	75.4	.64	14,800		Dry Basis

N.B. 1956 Analyses represent combined yield of floats @ 1.60 S.G. and Stages I and II froths of SKR 429 to 435

COALITION MINING

November 14, 1974

Group 7

Client No.	Lab No.	Sample Wt. Grams Air Dried
SKR 437	1329	1884.4G
SKR 438	1330	(this sample not received-Missing)

COALITION MINING

Group 7

Birtley Engineering (Canada) Ltd.

October 23, 1974

Client No. / Lab No.	A.D.M.	Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	F.S.I.	S.G.	Calc. Factors
SKR 437		1.0	36.8	21.1	41.1	.40	.03	9,455	1 1/2	1.60	As Rec'd
1329			37.2	21.3	41.5	.40		9,550			Dry Basis
SKR 438	(This Sample not received - MISSING)										
1330											

COALITION MINING

November 14, 1974

Group 4

Client No.	Lab No.	Sample Wt. Grams Air Dried
SKR 422	1314	10666.0G
SKR 423	1315	2023.5
SKR 424	1316	1923.4
SKR 425	1317	950.8

COALITION MINING

Group 4

Birtley Engineering (Canada) Ltd.

October 23, 1974

Client No. / Lab No.	A.D.M.	Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	F.S.I.	S.G.	Calc. Factors
SKR 422											
		1.5	8.5	15.1	74.9	.37	.23	13,690	1/2	1.37	As Rec'd
1314			8.6	15.3	76.1	.38		13,900			Dry Basis
SKR 423											
		1.6	3.6	15.9	78.9	.27	.02	14,435	1/2	1.33	As Rec'd
1315			3.7	16.2	80.1	.27		14,670			Dry Basis
SKR 424											
		1.3	6.6	15.2	76.9	.36	.16	14,025	1/2	1.36	As Rec'd
1316			6.7	15.4	77.9	.36		14,210			Dry Basis
SKR 425											
		1.4	53.2	10.8	34.6	.20	.12	6,580	1	1.73	As Rec'd
1317			54.0	11.0	35.0	.20		6,675			Dry Basis

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
Rock rolled - No core	15.00	15.00	
SANDSTONE, fine grained, light grey, quartz-lithic.	0.44	15.44	
MUDSTONE & SILTSTONE INTERBEDS: Siltstone:Claystone ratio 60:40 in upper part of unit decreasing to 50:50 in lower section. Siltstone, light grey both grading upwards into claystone, and having sharp boundary with claystone. Sedimentary structures present - penetration variety principally. Units varying between 0.05 and 0.10'. Sandstone lenses at 23.3' (0.50') and 28.4' (0.60').	20.66	36.10	
SANDSTONE, fine grained, light grey, quartz-lithic; containing claystone blebs in centre of unit (0.15' thick). Unit contains shear planes, calcite filled, listric surfaces.	3.18	39.28	
SILTSTONE & MUDSTONE INTERBEDS, as for 15.44' to 36.10' above; sandstone unit 0.5' thick at 39.8', 47.6'.	11.52	50.80	
CLAYSTONE, mid to dark grey, contains minor siltstone partings to 0.1' in upper 5', and one fine sandstone unit (0.1'). Throughout unit silty partings present.	38.95	89.75	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
No evidence of distortion, core sticks to 3.0 ft long, commonly 1 ft long. Curved ironstained joint sub parallel to core axis 80 and 82 ft. Two joints noted, at 30° and 45° to core axis. Bedding perpendicular to core axis. Pyrite/marcasite fossil (?) replacement 0.09' diameter at 81.7 ft.			
CONGLOMERATE, medium grained sandy matrix; pebbles to 0.10'.	0.40	90.15	
CLAYSTONE, dark grey, containing plant impressions; sandy phases to 0.06'. Ironstained joint sub parallel to core axis.	1.05	91.20	
CLAYSTONE, dark grey, containing plant remains and coaly flecks and partings throughout; often with calcite on bedding planes; minor pyrite. Evidence of slip movement at 93.6'. Ironstained joints (2) at 10° and 20° to core axis.	6.19	97.39	
STONE, coaly and COAL, dull and bright.	0.30	97.69)	
CLAYSTONE, dark grey to carbonaceous contains abundant plant remains; coaly flecks and partings common with lenses to 0.03'.	0.99	98.68)	'A' Seam Equivalent

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, light grey, containing sandy phases throughout, generally 0.01 ft thick except for gradational zone of silty material 0.30' thick 1 ft from top of unit. Carbonaceous flecks toward base.	2.78	101.46	
CLAYSTONE, carbonaceous and stone, coaly with COAL partings abundant.	0.51	101.97	
CLAYSTONE, light to mid grey, becoming lighter toward base of unit. Silty phase throughout average 0.01 ft thick, few lenses to 0.03 ft thick; becoming sandier toward base of unit with sedimentary structures (slumping, piercement and interrupted bedding).	5.88	107.85	
SANDSTONE, light, mid grey, fine grained, quartz-lithic, massive, containing claystone lenses commonly carbonaceous throughout, becoming more numerous toward base of unit; generally less than 0.01 ft maximum 0.02 ft.	12.36	120.21	
SANDSTONE, quartz-lithic, light grey, fine grained; cross bedded for most part; minor calcite filled joints sub parallel to bedding. Sporadic open joints (ironstained) 10^{o} to 30^{o} to core	20.26	140.47	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
axis. Calcite covered joint with slip movement at 134.7 ft. Two mudstone phases 0.6 ft thick from 135.4 and 137.4 ft.			
MUDSTONE & SILTSTONE INTERBEDS: Mudstone, mid to dark grey, in units ranging from 0.10 to 0.80', average 0.20'. Siltstone light grey in units 0.20 to 0.60. Sporadic silty bed to 0.11'. Between 143.3' and 145.7' core ironstained due to joints parallel to core.	12.00	152.47	
CLAYSTONE, dark grey, containing silty partings and lenses throughout to 0.01'. Minor jointing sub parallel to core.	13.21	165.68	
			ROOF OF SEAM
COAL, dull and bright.	0.70	166.38)	
		)	
COAL, bright with minor dull bands.	0.18	166.56)	
		)	
COAL, dull with minor bright bands.	0.21	166.77)	'B' SEAM
		)	See Redrill of
SILTSTONE, carbonaceous.	0.05	166.82)	this section
		)	D.D.H. M-2A
COAL, dull with minor bright bands.	0.53	167.35)	

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
COAL, bright with minor dull bands.	0.16	167.51)	
		)	
COAL, dull and bright.	0.61	168.12)	
		)	
COAL, bright with minor dull bands.	0.32	168.44)	
		)	
COAL, dull and bright, minor pyrites.	1.19	169.63)	
		)	
SILTSTONE	0.12	169.75)	
		)	
NO CORE RECOVERY	1.50	171.25)	'B' SEAM
		)	
COAL, dull and bright.	0.10	171.35)	
		)	
CLAYSTONE, mid grey.	0.20	171.55)	
		)	
CORE LOSS - Assumed at point - Radiation log data	3.56	175.11)	
		)	
COAL, bright with minor dull bands.	0.30	175.41)	
		)	
COAL, sheared, indistinguishable.	0.15	175.56)	

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
COAL, bright with minor dull bands, minor shear planes present.	0.19	175.75)	
		)	
COAL, dull with minor bright bands.	0.11	175.86)	
		)	
COAL, dull and bright.	0.89	176.75)	'B' SEAM
		)	Minor joints at
COAL, sheared and weathered.	0.33	177.08)	45° to core
		)	axis.
COAL, stony, containing minor penny bands.	0.27	177.35)	
CORE LOSS assumed at this depth. Claystone, carbonaceous.	0.80	178.15	FLOOR OF SEAM Radiation log data
CLAYSTONE, carbonaceous, contains minor penny bands in upper 2 feet.	2.14	180.29	
CLAYSTONE, dark grey.	0.13	180.42	
SILTSTONE, light grey, ironstained.	0.30	180.72	
CLAYSTONE, dark grey.	0.30	181.02	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, mid grey, containing siltstone units to 0.20' toward top of unit; becoming darker toward base.	4.55	185.57	
CLAYSTONE, carbonaceous, slip movement evident on bedding planes.	4.41	189.98	
CLAYSTONE, light to mid grey.	1.30	191.28	ROOF OF SEAM
COAL, dull with minor bright bands.	0.73	192.01)	
COAL, dull and bright.	0.17	192.18)	
COAL, bright.	0.35	192.53)	
COAL, dull and bright.	0.19	192.72)	'B' SEAM (Repeat)?
CLAYSTONE, mid grey.	0.06	192.78)	
COAL, bright with minor dull bands.	0.31	193.09)	
, dull with minor bright bands.	0.27	193.36)	
, weathered.	0.34	193.70)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
COAL, dull with minor bright bands.	0.88	194.58)	
		)	'B' SEAM
, bright with minor dull bands.	0.70	195.28)	(Repeat)?
			FLOOR OF SEAM
CLAYSTONE, carbonaceous, plant remains, coaly blebs, partings and lenses to 0.15'. Sporadic slickensided surface.	8.37	203.65	
SILTSTONE, carbonaceous flecks and blebs throughout.	0.20	203.85	
CLAYSTONE, predominantly carbonaceous, dark grey; contains minor units to 0.02' of dark grey, barely carbonaceous claystone. Contains coaly flecks and penny bands throughout with minor coaly units of bright coal varying from 0.02' to 0.07'. Slickensides and listric surfaces occur sporadically in unit - bedding plane slip only for most part except at 207' - ? fault.	8.35	212.20	
SILTSTONE, light grey, coaly partings.	0.30	212.50	
COAL, bright and dull, sheared in part, calcite veins on joint faces.	0.70	213.20	
CLAYSTONE, carbonaceous.	0.15	213.35	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL & CLAYSTONE, carbonaceous interbedded; bright COAL lenses to 0.05'.	0.80	214.15	
CLAYSTONE, mid to dark grey, carbonaceous in part. Contains very minor coaly lenses (0.02') throughout; sporadic joint sub parallel to core axis. Sporadic silty phases present and slickensided surface.	43.85	258.00	
SILTSTONE, light to mid grey, grading to very fine sandstone in basal 2', though interbedded with mudstone phases. Calcite veining on, and sub parallel to, bedding planes. Minor slickensiding developed but no fault breccia evident. Sporadic carbonaceous material present.	22.90	280.90	
CLAYSTONE, mid to dark grey, carbonaceous and containing coaly parting in upper 4 ft of unit.	8.35	289.25	ROOF
COAL, dull with minor bright bands.	1.36	290.61)	
, sooty.	0.02	290.63)	
, dull with minor bright bands.	0.70	291.33)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
SILTSTONE, carbonaceous, and COAL interbedded.	0.09	291.42)	
COAL, dull	0.07	291.49)	
, bright.	0.05	291.54)	Core loss in this seam
, dull with minor bright bands.	0.43	291.97)	section 0.68'
SILTSTONE, carbonaceous.	0.38	292.35)	'C' Horizon (?)
COAL, dull.	0.62	292.97)	
, dull with minor bright bands.	0.24	293.21)	
, bright with minor dull bands (contains sooty coal band (0.01') at 45° angle to bedding).	0.74	293.95)	
, bright.	0.22	294.17)	
, sheared, unidentifiable.	1.17	295.34)	
, dull.	0.49	295.83)	

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
COAL, dull and bright.	0.53	296.36)	'C' HORIZON
CLAYSTONE, mid grey.	0.90	297.26	FLOOR
COAL, sheared, weathered.	0.30	297.56	
CLAYSTONE, mid grey, contains coaly lenses to 0.02'; becoming slightly darker toward base of unit.	10.79	308.35	
SILTSTONE, light grey, containing intercalations of claystone, mid grey. One slickensided joint at 40° to Core axis and one disturbed zone 0.3' thick.	15.40	323.75	
CLAYSTONE, carbonaceous, containing coal bands to 0.14'. Minor silty phases.	4.71	328.46	
STONE, coaly, containing bands of coal, bright and dull, to 0.03'. Minor shearing. Grading to claystone, carbonaceous at base.	5.29	333.75	1.07' Core Loss
COAL, dull and bright.	0.36	334.11	
CLAYSTONE, carbonaceous with coaly lenses to 0.01'.	0.77	334.88	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL, stony.	0.40	335.28	
, dull with minor bright bands.	0.15	335.43	
, bright with minor dull bands.	0.90	336.33	
, stony.	0.10	336.43	
CLAYSTONE, carbonaceous.	0.50	336.93	
COAL, stony.	0.06	336.99	
COAL, dull, possible gradations of coal, stony.	0.69	337.68	
, dull and bright.	0.46	338.14	
, dull.	0.07	338.21	
, bright with minor dull bands.	0.49	338.70	
, bright.	0.28	338.98	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, dark grey, partly carbonaceous.	1.37	340.35	
SANDSTONE, light grey, fine grained, tending toward siltstone in upper 1.5'. Sandstone, quartz-lithic, cross bedded in part; dark wisps of dark grey claystone throughout, sporadic zones 0.1 to 1.0' thick of closely alternating sandstone and claystone, though still wispy. Zones of coaly blebs and wisps at 349 ft (0.9'), 359 ft (2.0') and in lower 3.0 ft of unit; also contains blebs of claystone and siltstone to 0.04'. Sporadic claystone lenses to 0.1' and one zone of minor shearing at 358.6 ft.	31.90	372.25	
MUDSTONE, carbonaceous, lenses of bright COAL to 0.01'.	0.50	372.75	
SILTSTONE, mid grey, contains coaly partings, and fine grained sandstone lenses and wisps to 0.02'.	4.10	376.85	
MUDSTONE, dark grey to mid grey, carbonaceous in lower 2.0', containing coaly partings and lenses.	2.60	379.45	
SILTSTONE, grading toward a fine sandstone in basal part of unit; slightly carbonaceous in upper section of unit. Minor slip planes at 45° to core axis.	3.60	383.05	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SANDSTONE, fine grained, contain minor siltstone phases throughout and sporadic medium grained sandstone phase. Calcite filled joints, open in part, at 45° to core axis at 394'. Carbonaceous partings throughout lower 5 ft of unit; one coaly lens and carbonaceous mudstone 0.20'.	19.60	402.65	Probable Fault
MUDSTONE, mid grey, carbonaceous in part throughout, lower 0.40' carbonaceous and coaly.	2.22	404.87	
COAL, dull with minor bright bands.	0.36	405.23	
SILTSTONE, dark grey, coaly partings throughout.	2.40	407.63	
COAL, dull and bright, minor carbonaceous claystone bands 0.01'.	1.79	409.42	Core loss 1.3
COAL, dull and coal stony; slickensides on surfaces of pieces.	0.58	410.00	
, sheared, mixed with coal stony in lenses to 0.03'.	1.15	411.15	Core loss 0.8
COAL STONY, containing bright coal lenses to 0.02'.	0.60	411.75	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE, mid to dark grey with fine sandstone and claystone phases to 0.50' - carbonaceous zone at 414.5'. Slickensided zone (0.50') at 415 ft, minor slickensided surfaces above this level - probable fault.	8.10	419.85	
STONE, coaly.	0.08	419.93	
COAL, stony.	0.13	420.06	
, macerated.	0.21	420.27	
, dull with minor bright bands.	1.41	421.68	
STONE, coaly.	0.17	421.85	
MUDSTONE, carbonaceous in upper 0.5'.	1.30	423.15	
SANDSTONE, fine grained, light to med grey; becoming silty toward base of unit. Contains laminations of mudstone and minor carbonaceous bands. Bedding wavy in lower section of unit - alternating mudstone/sandstone units similar to laminite but not as uniform. One sub vertical joint - uneven joint face exhibiting	11.75	434.90	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
carbonaceous material and pyrite deposition.			
SILTSTONE, mid grey, grading to mudstone in basal part of unit.	3.30	438.20	
COAL, stony and dull and stone, coaly (1') at 430.50'. Slickensided zones at 430' (0.5' and minor) and 432' (1.8').	3.10	441.30	
CORE LOSS	2.99	444.29	ROOF OF SEA
COAL, weathered.	0.10	444.39)	
, dull with minor bright bands; cleat at 15° angle to core axis.	1.09	445.48)	
, dull.	0.13	445.61)	'D' HORIZON
, stony.	0.08	445.69)	
, dull.	1.05	446.74)	
, dull with minor bright bands; joints 20° to core axis.	0.90	447.64)	
, dull and bright.	0.30	447.94)	
, dull with minor bright bands.	2.11	450.05)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL, stony.	0.02	450.07)	
, dull with minor bright bands.	0.16	450.23)	
, dull.	0.65	450.88)	
, dull with minor bright bands.	0.16	451.04)	
, dull.	0.48	451.52)	
, dull with minor bright bands.	0.37	451.89)	'D' HORIZON
, bright.	0.03	451.92)	
, dull.	0.24	452.16)	
, dull with minor bright bands.	0.51	452.67)	
, bright.	0.05	452.72)	
, dull with minor bright bands.	0.37	453.09)	
, dull and bright.	0.21	453.30)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
COAL, stony.	0.04	453.34)	
MUDSTONE, carbonaceous.	0.19	453.53)	
COAL, stony.	0.57	454.10)	'D' HORIZON
, dull and bright; lineations on joint faces (not listric surfaces - ? deformation.	0.38	454.48)	
COAL, & CLAYSTONE	0.73	455.21)	
		)	Core loss 0.5
STONE, coaly.	0.23	455.44)	
COAL, dull and bright.	0.19	455.63)	
			SEAM FLOOR
CLAYSTONE, carbonaceous, with coaly flecks throughout, grading to mid grey claystone in centre of unit.	3.35	458.98	
SANDSTONE, fine grained, quartz-lithic, light to mid grey, containing silty phases in upper part of unit; sporadic mudstone units to 1.5'. Mudstone lenses and blebs with carbonaceous material throughout unit. Bedding horizon exhibiting sedimentary slump structures and	19.02	478.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
swirls; graded in part. Calcite filled joints rare.			
SILTSTONE, mid grey, containing intercalations of mudstone and sporadic sandstone, fine, units toward base of section.	9.78	487.78	
MUDSTONE, mid to dark grey containing sporadic carbonaceous remains and flecks.	2.22	490.00	
SANDSTONE, fine grained, light grey; contains carbonaceous flecks and wisps throughout; bedding graded in units to 0.20' average up to siltstone; bedding wavy in part. 0.1' mudstone unit toward base.	8.35	498.35	
MUDSTONE, dark grey, carbonaceous for most part. Stone coaly and COAL units at 501.5' (0.80') and 505' (1.70').	11.65	510.00	
SANDSTONE, fine grained, as above and sporadic medium grained sandstone units.	27.50	537.50	
LAMINITE - Mudstone and Siltstone containing both mudstone and siltstone phases; light to mid grey; carbonaceous and coaly partings in basal part of unit. Slickensided joint planes at 546 and 551.5'.	18.35	555.85	

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Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
MUDSTONE, carbonaceous, containing sporadic coaly lenses and blebs. Slickensided planes present, but uncommon, with sporadic calcite filled joints 0.9' non carbonaceous 1.0 ft from base.	5.40	561.25	Fault possibl
MUDSTONE, light to mid grey, containing one silty phase and unit to 3.0 ft. Carbonaceous/coaly zones present to 0.30'.	17.15	578.40	
SANDSTONE, fine grained, light grey, mudstone partings and intercalations throughout, sporadic slickenside surface.	7.50	585.90	
MUDSTONE, mid grey, carbonaceous in part, sporadic calcite filled joints, becoming silty in part and sporadic zones of laminite to 1.5 ft thick. Coaly units containing carbonaceous mudstone and coal at 588 ft (1.5'). 598.5'(0.5') and base of unit (0.5'). Basal 4 ft very carbonaceous with coaly parting, slickensided or at 45° to bedding plane.	16.15	602.05	
SANDSTONE, fine grained, light to mid grey with sporadic medium grained phases to 0.10'. Bedding graded, and containing both mudstone and carbonaceous partings with sporadic coaly parting to 0.01'; mud swirls and sedimentary slump structures present throughout most of unit. Silty mudstone unit 2 ft thick from 614.5'. 616.5', 0.90' heavily jointed, calcite filled - ? fault	21.55	623.60	

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Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
calcite filled bedding planes, slickensided present for 7 ft above and 1.5 ft below this zone. Pyrites present on some joint faces.			
MUDSTONE, with minor silty intercalations; carbonaceous phases throughout with sporadic coal lenses to 0.10', basal part of unit carbonaceous.	7.00	630.60	
SANDSTONE, fine grained, light to mid grey, carbonaceous zones and minor mudstone phases throughout; sporadic medium grained sandstone phases.	10.00	640.60	
MUDSTONE, dark grey; carbonaceous partings.	0.60	641.20	
SILTSTONE, light grey, mudstone partings and swirls.	1.12	642.32	
MUDSTONE, dark grey, carbonaceous.	0.75	643.07	
SILTSTONE, as in unit 1.12' above.	0.55	643.62	
MUDSTONE, dark grey, carbonaceous in part; coaly bands and stone, coaly in lower 1.0 ft.	7.63	651.25	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE, mid grey.	0.80	652.05	
MUDSTONE, mid grey, carbonaceous in lower 0.1 ft.	2.30	654.35	
SILTSTONE, mid to dark grey, sporadic fine sandy lenses to 0.05'.	2.65	657.00	
MUDSTONE, dark grey, minor carbonaceous phases.	2.70	659.70	
SILTSTONE, mid to dark grey carbonaceous in upper part.	2.00	661.70	
MUDSTONE, dark grey.	2.25	663.95	
SANDSTONE, fine grained, silty in upper 1 ft contains lenses of mudstone throughout.	3.80	667.75	
SANDSTONE, medium grained, quartz-lithic, white and black speckled. Rare carbonaceous parting.	3.80	671.55	
MUDSTONE, dark grey, becoming silty toward base of section.	4.30	675.85	
SANDSTONE, fine grained, light grey becoming darker toward base. Minor phases of siltstone and medium grained sandstone in lower	15.75	691.60	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remark
8 ft. Cross bedded in part, minor. Sporadic phases of mudstone to 0.1 ft and thin partings throughout. Lower 0.7 ft carbonaceous and contains coaly lenses and partings. Carbonaceous faced sub vertical joint in lower 2.0 ft (Salt and Pepper sandstone).			
SANDSTONE, silty in part, dark grey sandstone, light to dark grey, with mudstone and wisps and partings throughout. Cross bedding and swirls common. Sporadic carbonaceous partings.	11.10	702.70	
SILTSTONE, mid to dark grey, carbonaceous, sheared, minor, in upper 0.8', and contains coaly blebs. Sandy phase at base.	3.52	706.22	
SILTSTONE, mid grey, sporadic carbonaceous mudstone zones to 0.2', and laminations.	5.13	711.35	
SANDSTONE, fine grained, minor cross bedding and flume structures in lower 2.5'. Mudstone laminations in upper 4.0 ft, and carbonaceous silty mudstone zone 1.0' at 715 ft.	10.05	721.40	
SILTSTONE, mid grey, two carbonaceous and coaly beds, sandy in lower 1.5'.	4.50	725.90	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
SILTSTONE & MUDSTONE INTERBEDS; siltstone 0.03', mudstone 0.02' average.	3.65	729.55	
MUDSTONE, silty toward base, carbonaceous. 0.60' coal, dull, sheared at 729.90'.	2.20	731.75	
SILTSTONE, light grey, speckled; carbonaceous toward base.	3.25	735.00	
SANDSTONE, fine grained, light grey, contains mudstone laminae.	2.05	737.05	
SILTSTONE, light grey; mudstone laminae, sporadic blebs present.	2.35	739.40	
SANDSTONE, fine grained, mid to dark grey; mudstone and carbonaceous partings throughout; 0.5' mudstone in centre of unit; minor slickensides.	5.90	745.30	
MUDSTONE, dark grey, carbonaceous, contain 0.10' coal, dull and bright; silty phases present.	2.95	748.25	
SILTSTONE & MUDSTONE INTERBEDS; siltstone, light grey, 0.01' to 0.15', and tending toward fine grained sandstone at base; mudstone varying from wisps to 0.10', with one unit to 0.40'; carbonaceous. Undulating bedding between units in part.	6.35	754.60	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
MUDSTONE, carbonaceous, with coaly lenses.	1.30	755.90	
SILTSTONE, mid grey, containing mudstone intercalations throughout.	3.05	758.95	
SANDSTONE, fine grained, contains mudstone laminae and lenses throughout except for upper 3.0 ft; cross bedding present, with mudstone in bedding; carbonaceous (coaly wisp), medium grained sandstone phase 1.20' thick from 769.50'. Mud blebs, parallel to bedding in lower 1.0'.	13.22	772.17	
SILTSTONE, mid grey, containing mud blebs and partings, carbonaceous in lower 0.40'.	1.25	773.42	
SANDSTONE, fine grained, light to dark grey, variable; contains minor medium grained sandstone units and mudstone lenses and laminae, with one zone of mudstone blebs. Bedding exhibits cross bedding and swirls. Carbonaceous zones and coaly partings common.	11.48	784.90	
SILTSTONE, dark grey.	1.10	786.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SANDSTONE, fine grained, light grey with pale grey phases; cross bedded; mudstone laminae throughout; one phase medium grained coaly wisp sandstone. Carbonaceous in part and contains 0.30' mudstone coaly. Tending toward medium grained in basal section.	7.75	793.75	
SANDSTONE, medium grained, quartz-lithic, cross bedding present. Contains mudstone laminae and sporadic carbonaceous phases throughout; becomes coarser toward base of unit - (salt and pepper appearance). Minor slickensided surfaces.	29.25	823.00	
CONGLOMERATE, mudstone, minor chert pebbles to 0.08', average size 0.04', coaly parting at base.	0.30	823.30	
SANDSTONE, as in 29.25' unit above.	1.85	825.15	
SILTSTONE, mid grey.	2.50	827.65	
MUDSTONE, dark grey to carbonaceous, minor slickensided zone.	3.00	830.65	
SANDSTONE, fine grained with medium grained phases, light grey, quartz-lithic; mudstone phases to 0.10' but generally 0.01' or less, tending toward laminae. Wavy bedding planes and graded bedding in lower 4 feet. Sporadic carbonaceous parting with slickensides sometimes calcite coated.	12.85	843.50	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
MUDSTONE, dark grey, silty toward base. Coaly unit 1.0' at top, carbonaceous in part in upper 3 ft. Joint angles 30° to 40° to core axis, sporadically slickensided.	12.05	855.55	
SANDSTONE, medium grained, containing coarse grained phases in upper 1.0', carbonaceous and coaly lenses and swirls throughout.	3.10	858.65	
SANDSTONE, fine grained, tending to medium grained toward base, bedding planes sporadically contain muddy or carbonaceous material, slump structures in basal 3 ft. Mudstone zone 3 ft thick from 863.75 ft; carbonaceous in part.	17.45	876.10	
MUDSTONE, dark grey, becoming silty toward base of unit. Silty and fine sandy phases to 0.5' throughout.	8.85	884.95	
SANDSTONE, fine grained, medium grained toward base; muddy partings on bedding planes.	2.30	887.25	
CONGLOMERATE, pebble size - maximum 0.13', average 0.05', pebbles predominate white chert and quartz mudstone pebbles common; ranging from rounded to elongate and are sub spherical to spherical, sporadic	16.20	903.45	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
sub angular pebble. Groundmass varies from medium to coarse grained and quartzose. Two 0.2' thick phases of medium grained sandstone and one 0.60' thick zone of fine grained conglomerate; carbonaceous material present but not common.			
MUDSTONE, silty in part, dark grey, contains a 1 ft siltstone zone at 908 ft.	18.25	921.70	
SANDSTONE, medium grained, mid grey.	1.30	923.00	BASE OF HOLE

SUKUNKA D.D.H. M-2A

REDRILL D.D.H. M-2: 166.21 FT. - 191.83 FT.

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
MUDSTONE, silty in part toward base of unit; mid to dark grey.	9.96	166.21	
			SEAM ROOF
COAL, dull with minor bright bands.	0.30	166.51)	
, stony.	0.03	166.54)	
, dull with minor bright bands, joint at 30° to core axis.	0.65	167.19)	
		)	
CLAYSTONE.	0.05	167.24)	
		)	
COAL, dull with minor bright bands.	0.35	167.59)	
, dull.	0.25	167.84)	
, dull with minor bright bands.	0.12	167.96)	
, bright with minor dull bands.	1.10	169.06)	'B' SEAM
, bright.	0.16	169.22)	
, dull.	0.03	169.25)	
, dull and bright.	0.32	169.57)	
, dull with minor bright bands, joints at 30° to core axis.	0.23	169.80)	
, dull and bright.	0.35	170.15)	
		)	
SILTSTONE, mid grey, pyrite on joint face.	0.10	170.25)	
		)	
COAL, bright.	0.25	170.50)	
, stony.	0.07	170.57)	

SUKUNKA D.D.H. M-2A

REDRILL D.D.H. M-2: 166.21 FT - 191.83 FT.

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
COAL, sheared.	0.12	170.69)	
		)	
CORE LOSS assumed here.	1.73	172.42)	GRN Log data
		)	
COAL, dull.	0.06	172.48)	Lower sectio
, sheared, very minor stone partings.	1.36	173.84)	sheared to
, bright.	0.04	173.88)	some degree
, dull with minor bright bands.	0.43	174.31)	throughout.
, sheared, possibly dull.	0.31	174.62)	0.82' core
, dull and bright, minor shearing.	0.34	174.96)	loss betwee
, dull and bright, sheared.	0.22	175.18)	172.42' and
, dull and bright.	0.28	175.46)	176.83'.
, dull with minor bright bands.	0.42	175.88)	
, bright.	0.10	175.98)	
, dull and bright.	0.24	176.22)	
, sheared, probably dull and bright with minor stone partings.	0.28	176.50)	
, dull with minor bright bands.	0.33	176.83)	
		)	
CLAYSTONE, carbonaceous, not sheared.	4.17	181.00)	Core loss
		)	assumed here
CLAYSTONE, dark grey.	0.95	181.95)	GRN data.
			Seam Floor.

SUKUNKA D.D.H. M-2A

REDRILL D.D.H. M-2: 166.21 FT. - 191.83 FT.

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
SILTSTONE, mid grey, grading to mudstone in part; sandstone, medium grained, lenses to 0.01' present but rare.	3.55	185.50	
MUDSTONE, carbonaceous, contains minor slip surfaces, some coated with calcite; fracture zone, calcite filled joints, 0.15' at top occasional medium grained sandstone lense containing coaly fragments.	4.83	190.33	? Fault
SANDSTONE, fine to medium grained at base. Coaly in basal 0.30', minor slip surfaces.	1.50	191.83	Base of Hole

ROKE OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

FILE NO.	
COMPANY	COALITION MINING LIMITED
WELL	DDH M-2
LOCATION	
FIELD	SUKUNKA
PROVINCE	BRITISH COLUMBIA
LSD / SEC / TWP / RGE / W___M	
Other Services:	DENS, GRN-DENS

Permanent Datum GROUND LEVEL Elev. K.B.
Log Measured from RIG FLOOR 1.5 Ft. Above Perm. Datum CSG
Well Depths Measured from RIG FLOOR G.L.

Run. No.	ONE			
Date	27 SEPTEMBER 1974			
First Reading	922			
Last Reading	000			
Footage Logged	922			
Depth Reached	923			
Depth Driller	923			
Casing Roke				
Casing Driller				
Fluid Type	WATER			
Liquid Level				
Min. Diam.	NQ			
Rm @ °F				
Operating Time	3 HOURS			
Truck No.	35			
Recorded By	PETERSON	Witnessed By	WALLIS	

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EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO.	35	SERIAL NO.	50
INSTRUMENT TRUCK NO.		SPACING	17 INCH
TOOL SERIAL NO.	177	TYPE	AmBe
		STRENGTH	3 CURIES

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS 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	000	922	12	3	500	OL	15	3	1000	1L	150

REMARKS SCALE - 1 INCH PER 20 FEET

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES → API 15 (0 – 150)		NEUTRON INCREASES → API 150 (150 – 3150)

ROKE
OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

FILE NO.	
LSD / SEC / TWP / RGE / W M	
COMPANY	COALITION MINING LIMITED
WELL	DDH M-2
LOCATION	SCALE: 1" = 20 ft.
FIELD	SUKUNKA
PROVINCE	BRITISH COLUMBIA
Other Services:	DENS, GRN-DENS
Permanent Datum	GROUND LEVEL Elev.
Log Measured from	RIG FLOOR 1.5 Ft. Above Perm. Datum
Well Depths Measured from	RIG FLOOR
K.B.	
CSG	
G.L.	

Run No.	ONE	
Date	27 SEPTEMBER 1974	
First Reading	922	
Last Reading	000	
Footage Logged	922	
Depth Reached	923	
Depth Driller	923	
Casing Roke		
Casing Driller		
Fluid Type	WATER	
Liquid Level		
Min. Diam.	NQ	
Max. Diam.		
Rm @ °F		
Truck No.	35	
Operating Time	3 HOURS	
Recorded By	PETERSON	Witnessed By WALLIS

652

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO.	35	SERIAL NO.	50
INSTRUMENT TRUCK NO.		SPACING	17 INCH
TOOL SERIAL NO.	177	TYPE	AmBe
		STRENGTH	3 CURIES

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS 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	000	922	12	3	500	OL	15	3	1000	1L	150

REMARKS SCALE - 1 INCH PER 20 FEET

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES → API 15		NEUTRON INCREASES → API 150
0 — 150		150 — 3150

ROKE

GAMMA RAY NEUTRON LOG
DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	
COMPANY	COALITION MINING LIMITED
WELL	DDH M-2
LOCATION	SCALE: 1" = 10 ft.
FIELD	SUKUNKA
PROVINCE	BRITISH COLUMBIA
LSD / SEC / TWP / RGE / W _M	
Other Services:	GRN, DENS
Permanent Datum	GROUND LEVEL Elev.
Log Measured from	RIG FLOOR 1.5 Ft. Above Perm. Datum
Well Depths Measured from	RIG FLOOR
K.B. / CSG / G.L.	

Run. No.	ONE
Date	27 SEPTEMBER 1974
First Reading	525
Last Reading	000
Footage Logged	525
Depth Reached	526
Depth Driller	923
Casing Roke	
Casing Driller	
Fluid Type	WATER
Liquid Level	
Min. Diam.	NQ
Rm @ °F	
Operating Time	2 HOURS
Truck No.	35
Recorded By	PETERSON
Witnessed By	WALLIS

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EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
GENERAL		SOURCE MODEL NO.	MRC-N-SS-W
HOIST TRUCK NO.	35	SERIAL NO.	50
INSTRUMENT TRUCK NO.		SPACING	17 INCH
TOOL SERIAL NO.	177	TYPE	AmBe
		STRENGTH	3 CURIES

LOGGING DATA

RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	API G. R. UNITS PER LOG DIV.	NEUTRON T.C. SEC.	NEUTRON SENS SETTINGS	NEUTRON ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	000	525	12	3	500	0L	15	3	1000	1L	150

REMARKS SCALE - 1 INCH PER 10 FEET

GAMMA RAY
DEPTHS
NEUTRON
GAMMA RAY INCREASES
NEUTRON INCREASES
API 15
API 150
0
150
150
3150
BULK DENSITY (GRAMS/CC)
1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
2.20
2.30
2.40
2.50
2.60
2.70
2.80
000
No Core
'A' HORIZON
100
'B' SEAM
'B' SEAM (REPETITION)?
200
'C' HORIZON
300
400
Core Loss
500
F.R.

DIAMOND DRILL HOLE M-3

Grid Reference: 52 682.7N 71 841.2E

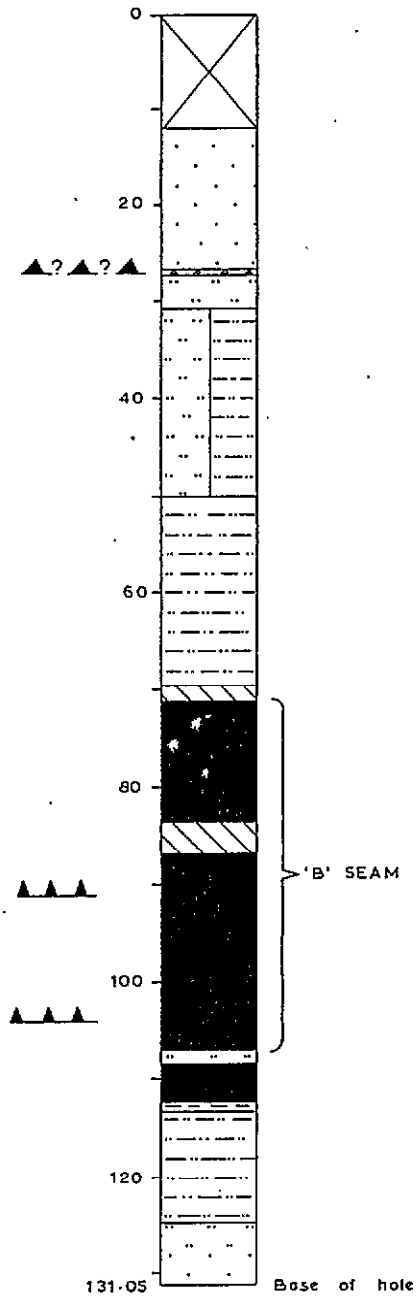
Date Commenced: October 26, 1974 Completed: October 27, 1974

Collar R.L.: 2662 feet Standard Datum
Total Depth: 131.05 feet
Drilled using Christensen Core Barrel; 3½" diam. core
Radiation Logs: Gamma Ray - Neutron and Density

Drilled By: Sedcon Drilling Ltd
For: Coalition Mining Ltd
Logged By: G.R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft)	Recovery	Comments
"B" Seam (Middle Coals)	2550.1	38.70	(81.4% Seam (74.6% Coal	(67% of coal (in Seam. (Seam (structurally (thickened.



SCALE 1" to 20'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

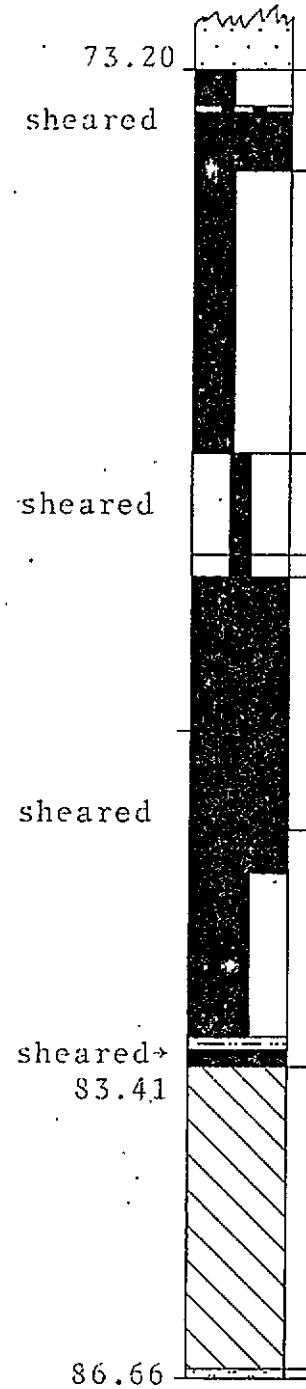
STRATIGRAPHIC LOGS
DDH M-3

DRAWN BY

DATE: JANUARY 1975

SEAM "B" - "Middle Coals"

SAMPLE N° SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. N°	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
447	1.05	2123	2.7	1 1/2	6.6 SKR 447 to 452	
448	2.85	6325	2.9	1 1/2		
449	1.15	2515	7.3	1 1/2		
450	0.20	655	50.5	1		
451	2.55	4220	4.4	1 1/2		
452	2.41	4910	11.7	7		
453	3.15	767	60.6	1/2		



SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-3

DRAWN BY I. L. DATE. JANUARY 1975

SEAM "B" Cont'd - "Middle Coals"

	SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
86.66							
SHEARED							
89.55							
SHEARED	454	3.45	2185	19.0	5 1/2	27.8	
	Core loss (2.55)						
SHEARED	455	0.65	1360	16.8	1		
	456	1.05	2253	3.2	7		
SHEARED	457	0.85	1942	2.8	1 1/2		
	458	0.55	1295	2.8	1 1/2		
	459	0.15	528	78.6	1/2		
	460	1.61	2325	26.1	8		
	461	0.80	2690	74.6	1/2		
98.66							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-3

DRAWN BY I.L.

DATE. JANUARY 1975

SEAM "B" Cont'd - "Middle Coals"

	SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
98.66							
sheared	462	2.34	4760	18.4	2 1/2		
	463	0.60	1952	84.5	1/2		
	464	1.20	3912	56.4	N.A.		
Sheared							
sheared							
sheared							
sheared			NOT ANALYSED				
sheared							
111.90							

SCALE 1" to 2'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-3

DRAWN BY I.L.

DATE. JANUARY 1975

ANALYTICAL DATA

D.D.H. M-3

Sample Nos. (SKR-)	Interval (feet)
447	73.20 - 74.25
448	74.25 - 77.10
449	77.10 - 78.25
450	78.25 - 78.45
451	78.45 - 81.00
452	81.00 - 83.24
453	83.24 - 86.56
454	89.56 - 93.00
455	93.00 - 93.65
456	93.65 - 94.70
457	94.70 - 95.55
458	95.55 - 96.10
459	96.10 - 96.25
460	96.25 - 97.86
→ 461	→97.86 - 98.66
462	98.66 - 101.00
463	101.00 - 101.60
464	101.60 - 102.80

EXPLANATION OF ANALYTICAL DATA ON PAGE 10

(Samples SKR 447 to 464)

	Lab No.	Data Source
1)	1957:	
	Comp. 1781 & 1782	1781: See 4) below 1782: See 5) below
2)	1958:	
	Comp. F.F. Stages I & II of 1644 & 1645	1644: Froth Flotation Analysis -28 M (SKR 447-452) - p.4 1645: Froth Flotation Analysis -28 M (SKR 454-464) - p.9
3)	1959:	
	Comp. of 1957 & 1958	1957: See 1) above 1958: See 2) above
4)	1781:	
	Comp. Floats @ 1.60 S.G. of 1644	1644: Sink/Float Analysis +28 M of SKR 447 to 452 - p. 3 -
5)	1782:	
	Comp. Floats @ 1.60 S.G. of 1645	1645: Sink/Float Analysis +28 M of SKR 454 to 464 - p. 8 -

COALITION MINING

February 21, 1975

Sample: Core Samples (SKR 447 - 453) (C)

Client # / Lab No.	A.D.L.	Moist.	Ash %	Vol.	F.C.	S.	P_2O_5	B.T.U.	F.S.I.	S.G.	Gm Wt	Calc. Factors
SKR 447 / 1577		.5	2.7	18.4	78.4	.29		15,170	1 1/2	1.23	2,123	As Rec'd
			2.7	18.5	78.8	.29		15,245				Dry Basis
SKR 448 / 1578		.6	2.9	18.3	78.2	.42		15,130	1 1/2	1.31	6,325	As Rec'd
			2.9	18.4	78.7	.42		15,220				Dry Basis
SKR 449 / 1579		.7	7.2	17.4	74.7	.33		14,440	1 1/2	1.36	2,515	As Rec'd
			7.3	17.5	75.2	.33		14,540				Dry Basis
SKR 450 / 1580			50.5						1	1.82	655	Dry Basis
SKR 451 / 1581		.5	4.4	18.3	76.8	.28		14,900	1 1/2	1.33	4,220	As Rec'd
			4.4	18.4	77.2	.28		14,975				Dry Basis
SKR 452 / 1582		.6	11.6	19.0	68.8	.26		13,730	7	1.37	4,910	As Rec'd
			11.7	19.1	69.2	.26		13,815				Dry Basis
SKR 453 / 1583			60.6						1/2	1.95	767	As Rec'd

M-3 - 1

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITION MINING

February 21, 1975

Sample: Composite SKR 447 to 452 (C)

LAB NO. 1644

HEAD RAW ANALYSES

Moist.	Ash %	Vol.	F.C.	S.	S.G.	B.T.U.	F.S.I.	Calc. Factors
0.4	6.6	18.0	75.0	.33	1.34	14,520	1 1/2	Air Dried Basis
	6.6	18.1	75.3	.33		14,580		" " "

SIZE ANALYSES (Dry)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	72.9	6.3	72.9	6.3	1 1/2
- 28 M	27.1	7.1	100.0	6.5	2 1/2

M-3 1 2

COALITION MINING

February 21, 1975

Sample: Composite SKR 447 to 452 (C)

LAB NO. 1644

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	58.7	2.3	58.7	2.3	2 1/2
1.30-1.40	30.0	5.0	88.7	3.2	1 1/2
1.40-1.60	7.6	20.9	96.3	4.6	1 1/2
+1.60	3.7	52.7	100.0	6.4	1/2

COALITION MINING

February 21, 1975

Sample: Composite SKR 447 to 452 (C)

LAB NO. 1644

FROTH FLOTATION ANALYSES - 28 M

F.F. Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	58.0	3.9	58.0	3.9	2 1/2
Stage II	8.8	6.7	66.8	4.3	2 1/2
Tails	33.2	12.5	100.0	7.0	1 1/2

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	1 minute
Stage I	-	First minute froth
Stage II	-	Second minute froth

COALITION MINING

November 26th, 1974

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gms)	Calc. Factors
SKR 454	4.7	0.6	18.9	20.2	60.3	.19	.06	12,490	1.45	5 1/2	2,185	Air Dried
1584		5.3	18.0	19.3	57.4	.18	.06	11,905				As Rec'd
			19.0	20.3	60.7	.19	.06	12,565				Dry Basis
SKR 455												
1585			16.8						1.47	1	1,360	As Rec'd
SKR 456												
1586		0.6	3.2	20.2	76.0	.15	.06	15,080	1.31	7	2,253	As Rec'd
			3.2	20.3	76.5	.15	.06	15,170				Dry Basis
SKR 457												
1587		0.4	2.8	19.0	77.8	.20	.17	15,150	1.31	1 1/2	1,942	As Rec'd
			2.8	19.1	78.1	.20	.17	15,210				Dry Basis
SKR 458												
1588		0.4	7.3	20.5	71.8	.26	.16	14,410	1.36	8	1,295	As Rec'd
			7.3	20.6	72.1	.26	.16	14,470				Dry Basis
SKR 459												
1589			78.6						2.30	1/2	528	As Rec'd
SKR 460		0.8										
1590		0.8	25.9	18.2	55.1	.18	.05	11,320	1.47	8	2,325	As Rec'd
			26.1	18.3	55.6	.18	.05	11,410				Dry Basis
SKR 461												
1591			74.6						2.10	1/2	2,690	As Rec'd

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gms)	Calc. Factors
SKR 462	2.2	.7	18.3	17.6	63.4	.26	.05	12,690	1.44	2 1/2	4,760	Air Dried
1592		2.9	17.9	17.2	62.0	.25	.05	12,410				As Rec'd
			18.4	17.7	63.9	.26	.05	12,780				Dry Basis
SKR 463												
1593			84.5						2.40	1/2	1,952	As Rec'd
SKR 464												
1594		.8	55.9	11.7	31.6	.12	.06	6,310	1.83	N.A.	3,912	As Rec'd
			56.4	11.8	31.8	.12	.06	6,360				Dry Basis

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COALITION MINING

February 21, 1975

Sample: Composite SKR 454 to 464 (C)

LAB NO. 1645

HEAD RAW ANALYSES

Moist.	Ash %	Vol.	F.C.	S.	S.G.	B.T.U.	F.S.I.	Calc. Factors
0.4	27.8	18.0	53.8	.31	1.51	11,000	3 1/2	Air Dried Basis
	27.9	18.1	54.0	.31		11,040		" " "

SIZE ANALYSES (Dry)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	73.8	30.5	73.8	30.5	2
- 28 M	26.2	19.1	100.0	27.5	6 1/2

COALITION MINING

February 21, 1975

Sample: Composite SKR 454 to 464 (C)

LAB NO. 1645

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	30.5	2.1	30.5	2.1	7 1/2
1.30-1.40	18.3	6.2	48.8	3.6	3
1.40-1.60	15.7	21.6	64.5	8.0	2 1/2
+1.60	35.5	68.7	100.0	29.6	1/2

COALITION MINING

February 21, 1975

Sample: Composite SKR 454 to 464 (C)

LAB NO. 1645

FROTH FLOTATION ANALYSES - 28 M

F.F. Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	37.4	8.8	37.4	8.8	7 1/2
Stage II	7.0	12.5	44.4	9.4	7
Tails	55.6	26.7	100.0	19.0	4

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

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COALITION MINING

February 21, 1975

SKR 447 to 464 (excluding 453) (C)

Lab No.	Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
1957		0.7	6.6	19.7	73.0	.44	14,440	2	As Analyzed
Comp. 1781 and 1782			6.6	19.8	73.6	.44	14,540		Dry Basis
1958		0.7	6.8	19.4	73.1	.50	14,500	3 1/2	As Analyzed
Comp. I & II Stages off 1644 & 1645			6.8	19.5	73.7	.50	14,600		Dry Basis
1959	71.8	0.7	6.4	19.3	73.6	.44	14,540	2 1/2	As analyzed
Comp. of 1957 & 1958			6.4	19.4	74.2	.44	14,640		Dry Basis
1781		0.6	4.5	18.6	76.3	.42	14,780	1 1/2	As analyzed
Comp. Floats @ 1.60 S.G. of 1644			4.5	18.7	76.8	.42	14,870		Dry Basis
1782		0.5	8.1	20.8	70.6	.42	14,230	4	As analyzed
Comp. Floats @ 1.60 S.G. of 1645			8.1	20.9	71.0	.42	14,300		Dry Basis

N.B. 1959 represents c.c yield for the series SKR 447 to 464 (excluding SKR 453)

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, partly carbonaceous with coaly bands throughout.	0.80	98.66)	
COAL, dull with minor bright bands, listric surfaces throughout and becoming intensely sheared toward base of unit.	2.34	101.00)	
SILTSTONE, light grey, with mid grey mudstone intercalations.	0.35	101.35)	
CLAYSTONE, carbonaceous.	0.25	101.60)	
COAL, sheared and claystone intermixed.	0.65	102.25)	"B" Seam
, dull with minor bright bands.	0.25	102.50)	
CLAYSTONE, mid grey.	0.05	102.55)	
COAL, dull with minor bright bands.	0.10	102.65)	
STONE, coaly.	0.05	102.70)	
COAL, dull with minor bright bands.	0.10	102.80)	
CLAYSTONE, carbonaceous.	0.02	103.00)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
NO CORE - overburden.	12.00	12.00	
SANDSTONE, light grey, quartz-lithic, cross bedded, joints, weathered, subparallel to core axis; minor mudstone lenses toward base to 0.015'.	14.55	26.55	
SILTSTONE & MUDSTONE, Interbedded units graded up to 0.15'.	0.55	27.10	
SILTSTONE, MUDSTONE & QUARTZ, breccia (large scale) units inter-tongued and wedging.	0.15	27.25	Probable Fault
SILTSTONE, light grey, containing zones of interbedded mudstone and siltstone to 0.50'. Bedding to core axis 15^{o}.	3.15	30.40	
SILTSTONE & MUDSTONE INTERBEDS, maximum units to 0.15' averaging 0.10' for most part. Slump structures present; bedding to core axis 15^{o}-20^{o}. At 36.10' 0.40' mudstone unit slickensided faces on blocks, core broken - fault (possible). Slip planes evident on some bedding planes. At 50' core broken, iron oxide on joint surface.	21.60	52.00	
MUDSTONE, dark grey.	18.95	70.95	
MUDSTONE, mid grey.	0.83	71.78	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, carbonaceous, dark grey; contains siltstone bands to 0.01' at base. Slickensided joint 40° to core axis.	1.35	73.13	
SANDSTONE, fine grained, carbonaceous.	0.07	73.20	Roof of Seam
COAL, dull with minor bright bands, sheared in part.	0.35	73.55	H_2S odour
, stony, 70° to core axis.	0.05	73.60	strong
, intensely sheared, slightly weathered.	0.65	74.25	
, dull with minor bright bands (?), sheared to varying degrees throughout; shear planes 15° and 45° to core axis prominent.	2.85	77.10	
, intensely sheared, ? weathered.	1.15	78.25	
, weathered and clay, banded.	0.20	78.45	'B' Seam
, moderately sheared.	3.00	81.45	
, dull and bright, sheared, shear planes at 30° and 60° to core axis.	1.69	83.14	
MUDSTONE.	0.10	83.24	
COAL, sheared.	0.17	83.41	
CLAYSTONE, carbonaceous; 60° to core axis bedding plane with overlying coal, though bedding 75° to core axis. Slight shearing.	3.15	86.56	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE.	0.10	86.66)	
		)	
COAL, sheared.	1.24	88.00)	Core Loss
		)	1.19'
CLAYSTONE, mid grey, becoming carbonaceous toward base.	1.55	89.55)	
		)	
COAL, sheared.	3.45	93.00)	Core Loss
		)	2.55'
CLAYSTONE, carbonaceous, shear planes 65° to core axis.	0.65	93.65)	
		)	
COAL, sheared.	0.30	93.95)	'B' Seam
, dull and bright, listric surfaces throughout.	0.75	94.70)	
, sheared, throughout; weathered (?) shear planes 40° and 80° to core axis.	0.85	95.55)	
		)	
, dull with minor bright bands.	0.20	95.75)	
, bright with minor dull bands.	0.10	95.85)	
, dull and bright.	0.25	96.10)	
		)	
SILTSTONE, light grey and mudstone with coaly lenses.	0.15	96.25)	
		)	Density log
COAL, bright with minor dull bands, sheared.	0.80	97.05)	indicates
, dull with minor bright bands.	0.14	97.19)	weathered
, bright with minor dull bands.	0.30	97.49)	coal from

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
COAL, stony.	0.17	97.66)	93.0' to
, dull and bright.	0.20	97.86)	98.70'
		)	
CLAYSTONE, partly carbonaceous with coaly bands throughout.	0.80	98.66)	
		)	
COAL, dull with minor bright bands, listric surfaces throughout and becoming intensely sheared toward base of unit.	2.34	101.00)	
		)	
SILTSTONE, light grey, with mid grey mudstone intercalations.	0.35	101.35)	
		)	
CLAYSTONE, carbonaceous.	0.25	101.60)	'B' Seam.
		)	
COAL, sheared and claystone intermixed.	0.65	102.25)	
, dull with minor bright bands.	0.25	102.50)	
		)	
CLAYSTONE, mid grey.	0.05	102.55)	
		)	
COAL, dull with minor bright bands.	0.10	102.65)	
		)	
STONE, coaly.	0.05	102.70)	
		)	
COAL, dull with minor bright bands.	0.10	102.80)	
		)	
CLAYSTONE, carbonaceous.	0.20	103.00)	

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
COAL, sheared.	0.30	103.30)	
, sheared and mudstone interbedded in 0.10' unit.	0.65	103.95)	
, sheared.	0.30	104.25)	
		)	'B' Seam
MUDSTONE, mid grey.	0.10	104.35)	
		)	
COAL, sheared.	0.45	104.80)	
SILTSTONE, light grey with mudstone intercalations.	0.51	105.31	
COAL, dull with minor bright bands.	0.40	105.71	
CLAYSTONE, partly carbonaceous.	0.15	105.86	
COAL, dull and bright.	0.16	106.02	
CLAYSTONE, light grey.	0.10	106.12	
COAL, sheared.	0.20	106.22	
CLAYSTONE, carbonaceous.	0.08	106.30	
COAL, sheared.	0.70	107.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE, with minor mudstone intercalations.	1.23	108.23	Corrected using
COAL, dull with minor bright bands.	1.53	109.76	radiation logs.
CLAYSTONE, carbonaceous, with coaly lenses.	1.13	110.89	
COAL, sheared.	1.01	111.90	
CLAYSTONE, dark grey.	0.82	112.72	
CLAYSTONE, dark grey to carbonaceous, containing coaly lenses to 0.005'.	0.25	112.97	
MUDSTONE, dark to mid grey; coaly partings throughout. Core broken in slickensided planes at 0.50' intervals throughout upper 5.0'. Becomes slightly silty in lower 2.00' and containing coaly blebs.	11.08	124.05	
SILTSTONE, mid grey in upper 2' grading to Sandstone, light grey, containing mudstone phases and coaly lenses. Mudstone occurring as both graded units, pellets and fragments. Cross bedding present in lower 5'.	7.45	131.05	Base of Hole

ROKE

GAMMA RAY NEUTRON LOG

DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	COMPANY COALITION MINING LIMITED
LSD	
SEC	WELL DDH-M-3
TWP	
RGE	LOCATION
W M	
	FIELD SUKUNKA
	PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev.
Log Measured from GROUND LEVEL Ft. Above Perm. Datum
Well Depths Measured from GROUND LEVEL

Other Services: NIL

K.B.
CSG
G.L.

Run. No.	ONE			
Date	27 OCTOBER 1974			
First Reading	130			
Last Reading	000			
Footage Logged	130			
Depth Reached	131.6			
Depth Driller	131.9			
Casing Roke				
Casing Driller				
Fluid Type	AIR/WATER			
Liquid Level	19			
Min. Diam.	6-1/4			
Rm @ °F				
Operating Time	3 HOURS			
Truck No.	35			
				652
Recorded By PETERSON		Witnessed By WALLIS		

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	
HOIST TRUCK NO.		SPACING	17 INCH
INSTRUMENT TRUCK NO.	35	TYPE	AmBe
TOOL SERIAL NO.	177	STRENGTH	3 CURIES

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS 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	000	130	12	3	500	OL	20	3	1000	2.6R	44.23
	000	16	12	3	1000	10L	150				
	16	130	12	3	1000	OL	150				

NEUTRON

REMARKS

DENSITY TOOL SERIAL NO 128 SOURCE #50

GAMMA RAY | DEPTHS | NEUTRON

GAMMA RAY INCREASES → API 0 — 20 — 200

NEUTRON INCREASES → API 1500 — 150 — 4500

BULK DENSITY (GRAMS/CC)

1.00 1.10 | 1.20 | 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

000

NO CORE

SCALE CHANGE AT 16 FEET

0 1500 3000

WATER LEVEL AT 19 FEET

85°

70-75°

'B' SEAM (FAULTED)

15°

25°

100

F.R.

20 API

150 API

DIAMOND DRILL HOLE M-4

Grid Reference: 52840.9N 71 535.2E

Date Commenced: October 27, 1974 Completed: October 27, 1974

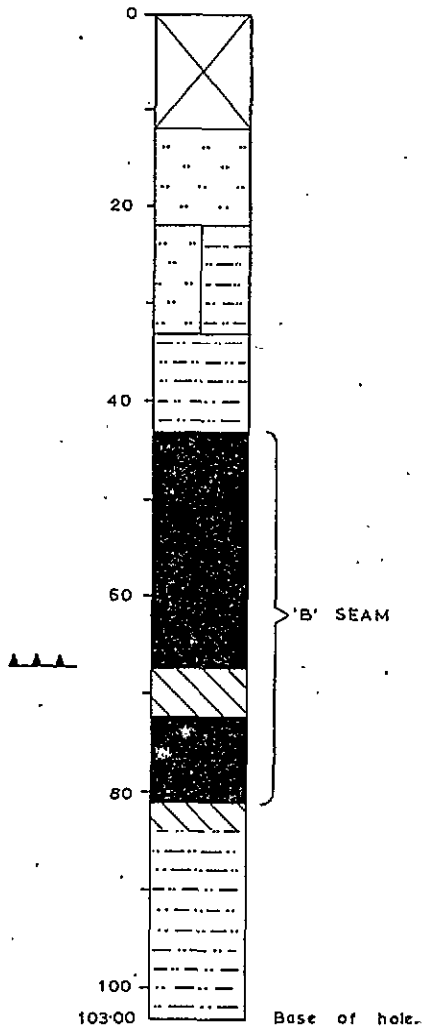
Collar R.L.: 2561 ft Standard Datum
Total Depth: 103.0 ft
Drilled using: Christensen Core Barrel, 3½" diameter core

Radiation Logs: Gamma Ray, Neutron and Density

Drilled By: Sedco Drilling Ltd
For: Coalition Mining Ltd
Logged By : G.R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft)	Recovery	Comments
"B" Seam	2479.48	38.02	85.3%	Seam structurally thickened by faulting



SCALE 1" to 20'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH M-4

DRAWN BY

DATE: JANUARY 1975

SEAM "B" - "Middle Coals"

SAMPLE Nº SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
	43.50					
sheared	Partial core loss (5.00)					
	10.50					
	54.00					
sheared						
480	3.33	7564	4.8	3 1/2	38.9	
481	0.10	109.2	14.0	2 1/2		
	57.68					

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-4

DRAWN BY I.L.

DATE. JANUARY 1975

SEAM "B" - Cont'd - "Middle Coals"	SAMPLE N° SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
57.68							
sheared	482	2.53	6471	42.6	7		
	483	0.39	1093	75.0	NA.		
sheared	484	2.75	6563	5.7	2 1/2		
sheared	485	3.25	3660	9.7	7 1/2		
66.60							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-4

DRAWN BY I. L. DATE. JANUARY 1975

SEAM "B" Cont'd - "Middle Coals"

	SAMPLE N° SKR	THICKNESS (FEET)	WT gm	ASH %	C. S. N°	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
66.60							
	486	1.10	3866	57.6	1		
core loss		1.10					
70.00	487	3.35	4858	79.5	N.A.		
sheared	488	1.58	4819	62.2	1		
sheared	489	1.40	3540	65.0	1		
	490	0.35	1598	80.0	N.A.		
	491	0.77	2883	41.9	4 1/2		
	492	1.35	3620	76.1	1/2		
sheared	493	0.85	1851	32.2	4		
	494	0.28	1063	70.6	1		
sheared	495	1.08	2935	37.6	5		
80.00							
sheared	496	0.76	2101	82.7	N.A.		
sheared	497	0.95	1881	10.5	8		
81.52							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-4

DRAWN BY I.L. DATE. JANUARY 1975

ANALYTICAL DATA

D.D.H. M-4

Sample Nos. (SKR-)	Interval (feet)
480	54.00 - 57.58
481	57.58 - 57.68
482	57.68 - 60.21
483	60.21 - 60.60
484	60.60 - 63.35
485	63.35 - 66.60
486-	66.60 - 67.70
487	68.80 - 72.15
488	72.15 - 73.73
489	73.73 - 75.13
490	75.13 - 75.48
491	75.48 - 76.70
492	76.70 - 77.60
493	77.60 - 78.45
494	78.45 - 78.73
495	78.73 - 79.81
496	79.81 - 80.57
497	80.57 - 81.52

COALITION MINING

February 21, 1975

SKR 480 to 497 Series (D)

Client # / Lab No.	A.D.L.	Moist.	Ash %	Vol.	F.C.	S.	B.T.U.	F.S.I.	S.G.	Gm Wt	Calc. Factors
SKR 480		0.4	4.8	19.3	75.5	.26	14,82-	3 1/2	1.31	7,564	Air Dried
1610		0.4	4.8	19.3	75.5	.26	14,820	3 1/2	1.31	7,564	As Rec'd
			4.8	19.4	75.8	.26	14,880				Dry Basis
SKR 481		0.6	14.0	19.9	65.5	.29	13,230	2 1/2	1.45	109.2	Air Dried
1611			14.1	20.0	65.9	.29	13,310				Dry Basis
SKR 482		0.7	42.6	15.7	41.0	.24	8,550	7	1.64	6,471	Air Dried
1612			42.9	15.8	41.3	.24	8,610				Dry Basis
SKR 483		1.3	75.0	7.5	16.2	.22		N.A.	2.15	1093.1	Air Dried
1613			76.0	7.6	16.4	.22					Dry Basis
SKR 484		0.4	5.7	19.4	74.5	.29	14,680	2 1/2	1.32	6,563	Air Dried
1614			5.7	19.5	74.8	.29	14,740				Dry Basis
SKR 485		0.4	9.7	21.2	68.7	.24	14,020	7 1/2	1.34	3,660	Air Dried
1615			9.7	21.3	69.0	.24	14,075				Dry Basis
SKR 486		0.9	57.6	13.1	28.4	.35	5,950	1	1.91	3,866	Air Dried
1616			58.1	13.2	28.7	.35	6,000				Dry Basis
SKR 487		0.8	79.5	16.9	2.8	.19		N.A.	2.41	4,858	Air Dried
1617			80.1	17.0	2.9	.19					Dry Basis
SKR 488			62.2					1	1.88	4,819	Air Dried
1618											

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Birtley Engineering
Subsidiary of Great West Steel Industries

COALITION MINING

February 21, 1975

SKR 480 - 497 Series (Cont'd) (D)

Client # / Lab No.	A.D.L.	Moist.	Ash %	Vol.	F.C.	S.	B.T.U.	F.S.I.	S.G.	Gm Wt	Calc Factors
SKR 489	4.9	0.9	65.0	10.5	23.6	.29	4,710	1	2.01	3,540	Air Dried
1619		5.8	61.8	10.0	22.4	.28	4,250				As Rec'd
			65.6	10.6	23.8	.29	4,750				Dry Basis
SKR 490		0.7	80.0	16.9	2.4	.14		N.A.	2.49	1,598	Air Dried
1620			80.6	17.0	2.4	.14					Dry Basis
SKR 491		0.8	41.9	14.8	42.5	.40	8,810	4 1/2	1.64	2,883	Air Dried
1621			42.2	14.9	42.9	.40	8,880				Dry Basis
SKR 492		1.0	76.1	7.9	15.0	.27		1/2	2.17	3,620	Air Dried
1622			76.9	8.0	15.1	.27					Dry Basis
SKR 493		0.7	32.2	16.2	50.9	.55	10,220	4	1.55	1,851	Air Dried
1623			32.4	16.3	51.3	.55	10,290				Dry Basis
SKR 494		1.0	70.6	8.7	19.7	.28	3,760	1	2.07	1,063	Air Dried
1624			71.3	8.8	19.9	.28					Dry Basis
SKR 495	3.8	0.8	37.6	15.2	46.4	.47	9,275	5	1.62	2,935	Air Dried
1625		4.6	36.2	14.6	44.6	.45	8,920				As Rec'd
			37.9	15.3	46.8	.47	9,350				Dry Basis
SKR 496		1.2	82.7	6.6	9.5	.22		N.A.	2.33	2,101	Air Dried
1626			83.7	6.7	9.6	.22					Dry Basis
SKR 497		0.5	10.5	20.7	68.3	.75	13,930	8	1.35	1,881	Air Dried
1627			10.6	28.8	60.6	.75	14,000				Dry Basis

N.B. In Lab Nos. where no A.D.L. figure appears, air dried basis = as Rec'd basis

COALITION MINING

November 26th, 1974

Sample: Core Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gms)	Calc. Factors
SKR 480												
1610		.4	4.8	19.3	75.5	.26	.14	14,820	1.31	3 1/2	7,564	As Rec'd
			4.8	19.4	75.8	.26	.14	14,880				Dry Basis
SKR 482												
1612		.7	42.6	15.7	41.0	.24	.08	8,550	1.64	7	6,471	As Rec'd
			42.9	15.8	41.3	.24	.08	8,610				Dry Basis
SKR 484												
1614		.4	5.7	19.4	74.5	.29	.07	14,680	1.32	2 1/2	6,563	As Rec'd
			5.7	19.5	74.8	.29	.07	14,470				Dry Basis
SKR 485												
1615		.4	9.7	21.2	68.7	.24	.08	14,020	1.34	7 1/2	3,660	As Rec'd
			9.7	21.3	69.0	.24	.08	14,075				Dry Basis
SKR 488												
1618			62.2						1.88	1	4,819	As Rec'd

M-4 - 3

Birtley Engineering

Subsidiary of Great West Steel Industries

COALITION MINING (D) February 21, 1975

Sample: SKR 480 to 497 LAB NO. 1646

HEAD RAW ANALYSES

R.M.	Ash %	V.M.	F.C.	S.	S.G.	B.T.U.	F.S.I.	Calc. Factors
0.7	38.9	16.0	44.4	.33	1.63	9,330	2 1/2	Air Dry Basis
	39.2	16.1	44.7	.33		9,400		Dry Basis

SIZE ANALYSES (Dry)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	79.6	40.9	79.6	40.9	2
- 28 M	20.4	27.8	100.0	38.2	5 1/2

M-4 - 4

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITION MINING

February 21, 1975

SKR 480 to 497 (D)

LAB NO. 1646

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	27.2	2.2	27.2	2.2	7 1/2
1.30-1.40	12.4	6.3	39.6	3.5	4 1/2
1.40-1.60	9.6	17.8	49.2	6.3	3 1/2
+1.60	50.8	75.1	100.0	41.2	N.A.

COALITION MINING

February 21, 1975

SKR 480 to 497 (D)

LAB NO. 1646

FROTH FLOTATION ANALYSES 28 M x 0

F.F. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	41.7	9.7	41.7	9.7	7 1/2
Stage II	8.0	17.5	49.7	11.0	6 1/2
Tails	50.3	43.1	100.0	27.1	2 1/2

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

M-4 - 9

COALITION MINING (D) February 21, 1975

SKR 480 - 497 Series

LAB NO. 1651 - Comp. Floats @ 1.60 S.G. off 1646 Raw

Total Yield %	Moisture	Ash %	Vol.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
	0.6	6.3	20.4	72.7	.52	14,580	5 1/2	As analyzed
		6.3	20.5	73.2	.52	14,670		Dry Basis

LAB NO. 1960 - Comp. I and II Stages off 1646

	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
	0.6	10.8	20.2	68.4	.44	13,860	7	As analyzed
		10.9	20.3	68.8	.44	13,940		Dry Basis

LAB NO. 1961 - Comp. of 1651 and 1960

Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
49.3	0.8	7.4	20.4	71.4	.44	14,430	6	As analyzed
		7.5	20.6	71.9	.44	14,550		Dry Basis

** 1961 represents total c.c. yield off SKR 480 - 497 @ 1.60 S.G. floats and Stages I and II

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
NO CORE - Overburden.	12.00	12.00	
SILTSTONE, tending toward mudstone, contains both siltstone and mudstone lens to 0.15'. Weathered on joint faces.	10.00	22.00	
MUDSTONE & SILTSTONE Interbeds, Units to 0.15'.	11.00	33.00	
MUDSTONE, mid grey, sporadic calcite filled joints.	10.50	43.50	Roof of Seam
COAL, sheared.	10.50	54.00)	5.00' Core
, dull with minor bright bands.	0.25	54.25)	Loss
, sheared.	3.33	57.58)	
		)	
STONE, coaly.	0.10	57.68)	
		)	
COAL, sheared, intensely.	2.10	59.78)	SEAM "B"
, sheared.	0.43	60.21)	
		)	
COAL & MUDSTONE intermixed.	0.39	60.60)	
		)	
COAL, sheared, shear planes 0^{o} to 25^{o} to core axis.	6.00	66.60)	
		)	
COAL & STONE, intermixed.	0.60	67.20)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
CLAYSTONE, carbonaceous.	0.50	67.70	Core loss corrected by radiation log.
CORE LOSS.	1.10	68.80	
CLAYSTONE, with intermixed sheared coal and stone.	3.35	72.15	
COAL, sheared.	0.40	72.55	
STONE & COAL, intermixed.	0.28	72.83	
CLAYSTONE, carbonaceous "bedding" angle 60° to core axis.	0.30	73.13	"B" Seam
COAL, sheared.	0.15	73.28	
CLAYSTONE.	0.05	73.33	
COAL, sheared.	0.15	73.48	
CLAYSTONE.	0.05	73.53	
COAL, sheared.	0.10	73.63	
CLAYSTONE.	0.10	73.73	

(2)

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL, sheared and macerated.	1.40	75.13	
SILTSTONE with MUDSTONE lenses to 0.03'.	0.35	75.48	
COAL, sheared, minor carbonaceous claystone lenses.	0.77	76.25	
MUDSTONE, mid grey to carbonaceous containing coal lenses to 0.08'.	0.45	76.70	
MUDSTONE, mid grey, containing siltstone lenses to 0.002'. "Bedding" angle 60° to core axis.	0.90	77.60	
COAL, sheared.	0.85	78.45	"B" Seam
MUDSTONE, dark grey to carbonaceous.	0.28	78.73	
COAL, sheared.	1.08	79.81	
MUDSTONE.	0.28	80.09	
COAL, sheared.	0.40	80.49	
MUDSTONE.	0.08	80.57	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
COAL, sheared.	0.95	81.52)	) "B" Seam
MUDSTONE, carbonaceous to dark grey; coaly partings in upper 0.40' Bedding angle 60° to core axis.	3.45	84.97	Floor of Seam
MUDSTONE, mid to dark grey. Minor silty phases present throughout. Sporadic coal lenses to 0.25' thick, associated with carbonaceous zones. Bedding angle 75° to core axis.	18.03	103.00	Base of Hole

ROKE

GAMMA RAY NEUTRON LOG

DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.
LSD
SEC
TWP
RGE
W_____M

COMPANY COALITION MINING LIMITED

WELL DDH-M-4

LOCATION

FIELD SUKUNKA

PROVINCE BRITISH COLUMBIA

Other Services: NIL

Permanent Datum GROUND LEVEL Elev.
Log Measured from GROUND LEVEL Ft. Above Perm. Datum
Well Depths Measured from GROUND LEVEL

K.B.
CSG
G.L.

Run. No.	ONE		
Date	29 OCTOBER 1974		
First Reading	103		
Last Reading	000		
Footage Logged	103		
Depth Reached	104		
Depth Driller	104		
Casing Roke			
Casing Driller			
Fluid Type	WATER		
Liquid Level	0		
Min. Diam.	6-1/4		
Rm @ °F			
Operating Time	3 HOURS		
Truck No.	35		

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Recorded By PETERSON Witnessed By WALLIS

EQUIPMENT DATA

	GAMMA RAY	NEUTRON
RUN NO.	ONE	ONE
TOOL MODEL NO.		NEUTRON/NEUTRON
DIAMETER	1 1/8	1 1/8
DETECTOR MODEL NO.		
TYPE	GEIGER	PROPORTIONAL
LENGTH	18 INCH	6 INCH
DISTANCE TO N. SOURCE	8.55 FT.	
SOURCE MODEL NO.		MRC-N-SS-W
SERIAL NO.		
SPACING		17 INCH
TYPE		AmBe
STRENGTH		3 CURIES

GENERAL

HOIST TRUCK NO.	35
INSTRUMENT TRUCK NO.	
TOOL SERIAL NO.	177

LOGGING DATA

GENERAL

RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.
1	000	103	12	3
	NEUTRON -			

	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY AP. G. R. UNITS PER LOG DIV.	NEUTRON T.C. SEC.	NEUTRON SENS SETTINGS	NEUTRON ZERO DIV. L OR R	NEUTRON API N. UNITS PER LOG DIV.
	500	OL	20	3	1000	2.68	44.23
	1000	OL	150				

REMARKS

DENSITY TOOL SERIAL NO. 128. SOURCE #50.

NEUTRON

NEUTRON INCREASES

API 150 3000 0

DEPTHS

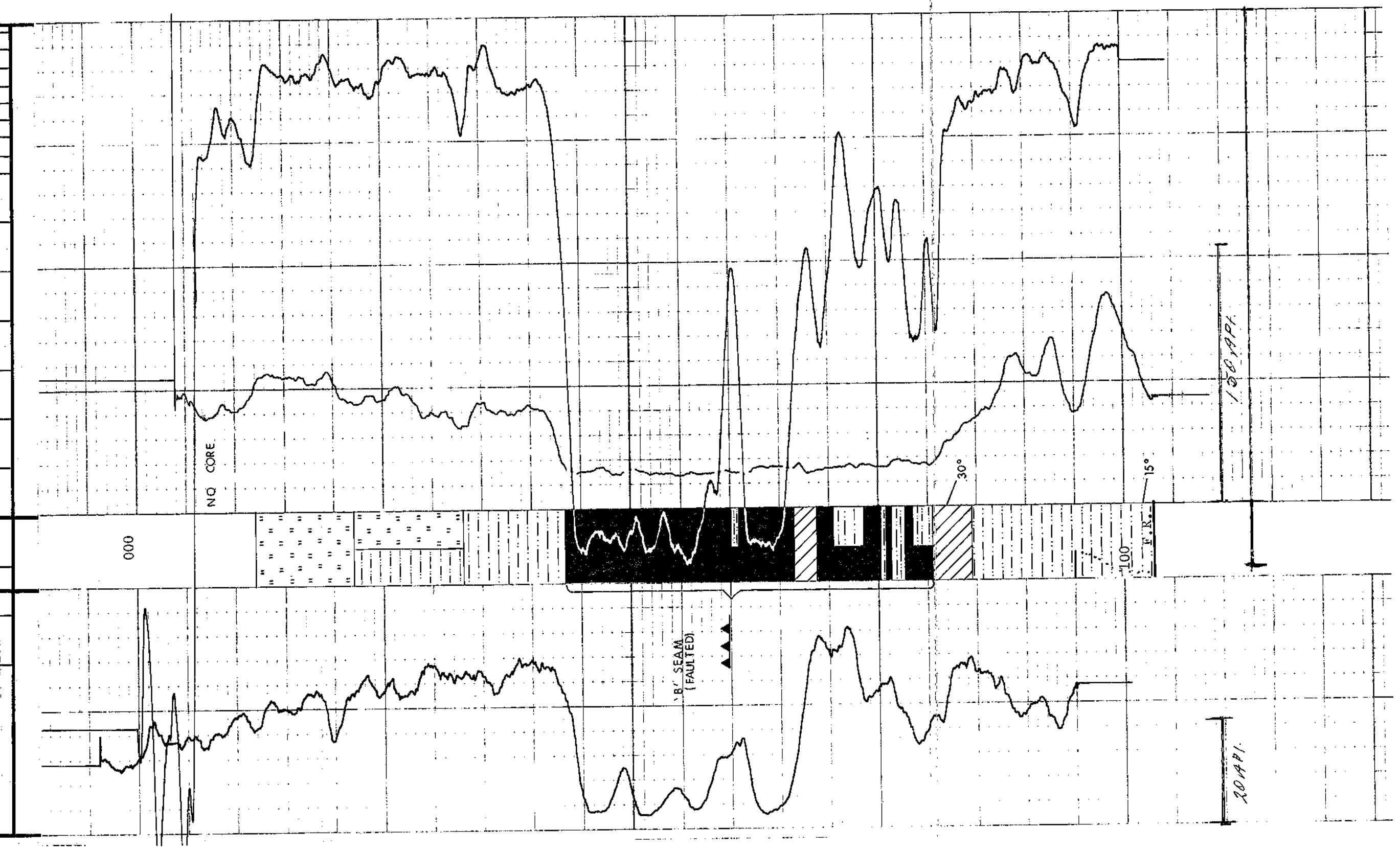
GAMMA RAY

GAMMA RAY INCREASES

API 20 200 0

BULK DENSITY (GRAMS/CC)

2.80 2.70 2.60 2.50 2.40 2.30 2.20 2.10 2.00 1.90 1.80 1.70 1.60 1.50 1.40 1.30 1.20 1.10 1.00



DIAMOND DRILL HOLE M-5

Grid Reference: 52 960N 72 462E

Date Commenced: October 29, 1974 Completed: October 31, 1974

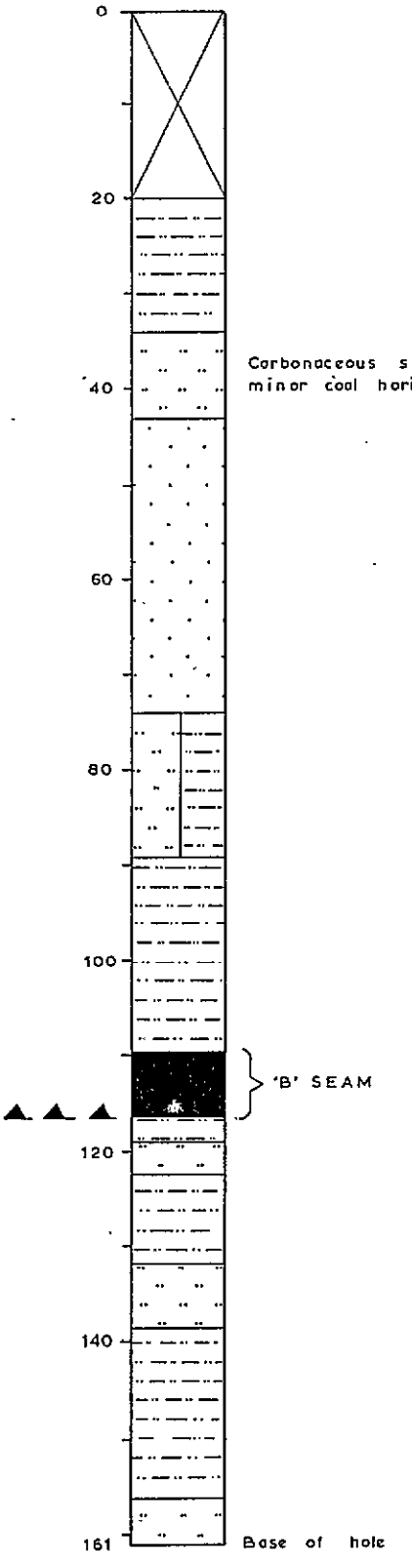
Collar R.L.: 2861 ft Standard Datum
Total Depth: 161.00 ft
Drilled Using: Christensen Core Barrel, 3½" diameter core

Radiation Logs: Gamma Ray - Neutron and Density

Drilled By: Sedco Drilling Ltd
For: Coalition Mining Ltd
Logged By: G.R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Thickness (ft)	Recovery	Comments
"A" Horizon	2825.8	1.00	100%	
"B" Seam (Middle Coals)	2747.0	4.50	100%	Seam faulted



SCALE 1" to 20'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH M-5

DRAWN BY

DATE: JANUARY 1975

SEAM "B" - "Middle Coals"

SAMPLE Nº SKR	THICKNESS (FEET)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
	109.50					
sheared	4.50		NOT ANALYSED			
	114.00					

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-5

DRAWN BY I. L. DATE. JANUARY 1975 PAGE 1 of 1

SUKUNKA D.D.H. M-5

Geological Description of Strata	*Estimated Thickness (ft)*	*Estimated Depth to Stratum Floor(ft)*	*Remarks*
NO CORE, overburden and weathered rock - no core.	20.00	20.00	
MUDSTONE, mid grey, lower 0.50 ft sheared; pebble band at 32.5 ft.	14.00	34.00	
SILTSTONE, light to mid grey; weathered, carbonaceous partings common; 1.0 ft coal and stone, coaly at 35.2 ft, rock sheared throughout to some degree and intensely sheared in lower 3.0 ft.	5.00	39.00	'A' HORIZON Fault
SILTSTONE, mid grey, minor shearing present in unit; 0.75 ft coal, sheared at 39.00 ft.	4.00	43.00	
SANDSTONE, fine grained, light grey; cross bedded in upper 15 ft of unit, with associated mudstone partings and laminae to 0.01 ft thick maximum. Bedding angle 70° to core axis.	31.40	74.40	
MUDSTONE & SILTSTONE INTERBEDS, bedding graded unit varying between 0.10 ft and 0.20 ft thick. Sporadic siltstone lenses to 1.0 ft thick maximum. Joints weathered. Bedding angle 70° to core axis.	14.60	89.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
MUDSTONE, mid to dark grey; joints sub vertical and generally weathered. Sporadic calcite filled joints associated with slickensided surfaces. Some siltstone phases to 0.40 ft. Bedding angle 60° to core axis.	20.50	109.50	Seam Roof
COAL, dull and bright.	1.07	110.57)	
, sheared.	3.43	114.00)	"B" SEAM
		)	
MUDSTONE, sheared.	2.15	116.15	Fault Seam Floor
MUDSTONE AND COAL, sheared.	0.70	116.85	Fault - Probable
MUDSTONE, 65° to core axis, becomes silty toward base and contains silty intercalations.	2.15	119.00	
SILTSTONE, with mudstone lenses and sporadic coaly wisps. 50° to 60° to core axis - variable. Calcite filled joint at 30° to core axis.	3.55	122.55	
MUDSTONE, contains silty lenses and partings. At 126.5 ft - joint, 15° to core axis coated with calcite (tension joint as in 3.55 ft unit. above.)	9.35	131.90	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE, mid grey, joints sub parallel to core axis, sporadic slickensided bedding planes, calcite present. 75° to core axis.	6.65	138.55	
MUDSTONE, dark grey; slickensided bedding planes and joints common; open joint with quartz and pyrite crystals present. 1.5 ft siltstone at 151 ft, 1.30 ft slickensided zone in basal section of unit.	17.45	156.00	
SILTSTONE, light to mid grey. Quartz and calcite filled tension joints common.	5.00	161.00	Base of Hole

ROKE

GAMMA RAY NEUTRON LOG
DENSITY

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.

COMPANY COALITION MINING LIMITED

WELL DDH-M-5

FIELD SUKUNKA

LOCATION

LSD
SEC
TWP
RGE
W ____ M

PROVINCE BRITISH COLUMBIA

Permanent Datum: GROUND LEVEL Elev.
Log Measured from: GROUND LEVEL Ft. Above Perm. Datum
Well Depths Measured from: GROUND LEVEL

K.B.
C.S.G.
G.L.

Other Services: NTL

Run No.	ONE
Date	31 OCTOBER 1974
First Reading	155
Last Reading	000
Footage Logged	155
Depth Reached	156
Depth Driller	156
Casing Rake	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	54
Min. Diam.	6-1/4
Rm @ °F	
Operating Time	3 HOURS
Truck No.	33

Recorded By PETERSON

Witnessed By SHELDS

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EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
		SERIAL NO.	
		SPACING	17 INCH
		TYPE	AmBe
		STRENGTH	3 CURIES

GENERAL	
HOIST TRUCK NO.	
INSTRUMENT TRUCK NO.	35
TOOL SERIAL NO.	177

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS 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	000	155	12	3	500	0L	200	3	1000	2.6R	44.23
	0	51	12	3	1000	10L	150 - NEUTRON				
	51	155	12	3	1000	0L	150				

REMARKS

DENSITY TOOL SERIAL NO 128 SOURCE #50

DIAMOND DRILL HOLE M-6

Grid Reference: 52 378.0N 72 174.4E

Date Commenced: November 6, 1974 November 12, 1974
Deepened : November 22, 1974

Collar R.L.: 2730 ft Standard Datum
Total Depth: 361 ft
Drilled Using: Christensen Core Barrel, 3½" diameter core to 230 ft
Tricone bit 230 to 361 ft

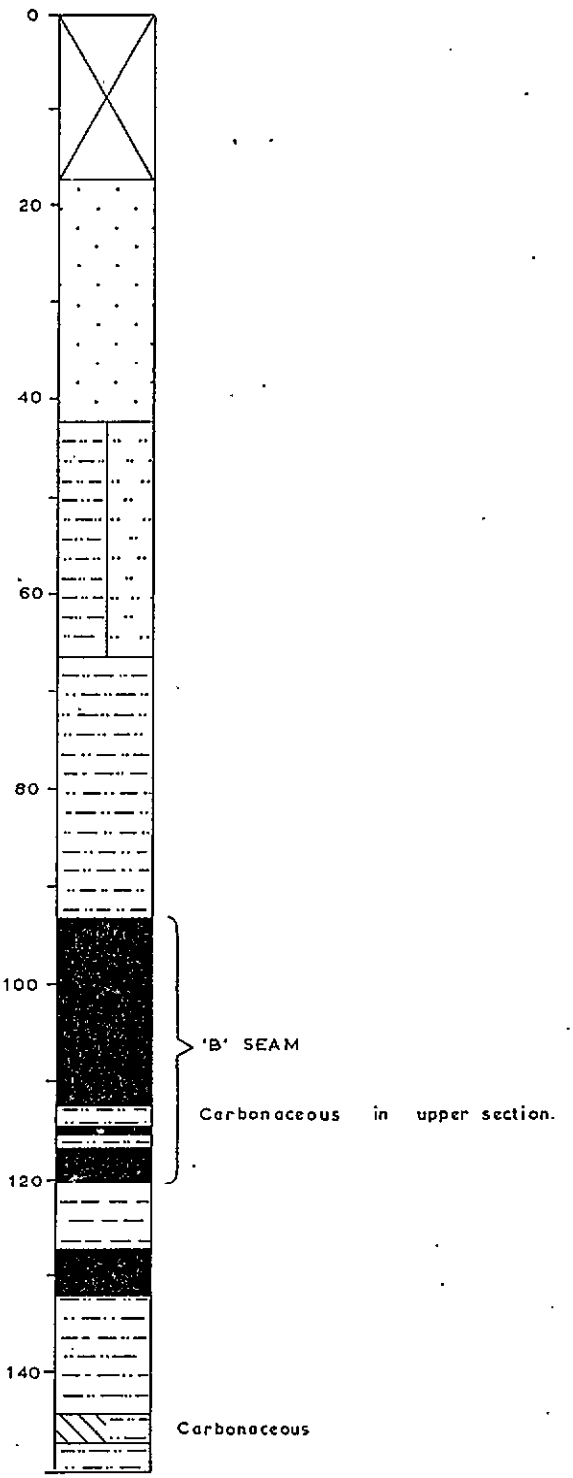
Radiation Logs: Gamma Ray - Neutron and Density

Drilled By: Sedco Drilling Ltd
For: Coalition Mining Ltd
Logged By: G.R. Wallis and R.E. Shields

COAL SEAM INTERSECTIONS

	Floor R.L.	Thickness (ft)	Recovery	Comments
"B" Seam (Middle Coals)	2620.60	26.90	93.7%	Structurally thickened
'B' Seam	2598.50	4.55	78.0%	Repetition (?)
'C' Horizon	2469.0	4.00	N/A*	)
	2408.0	2.50	N/A*	)
	2389.0	3.00	N/A*	) - Coal and carbonaceous claystone

*Rotary drill cuttings



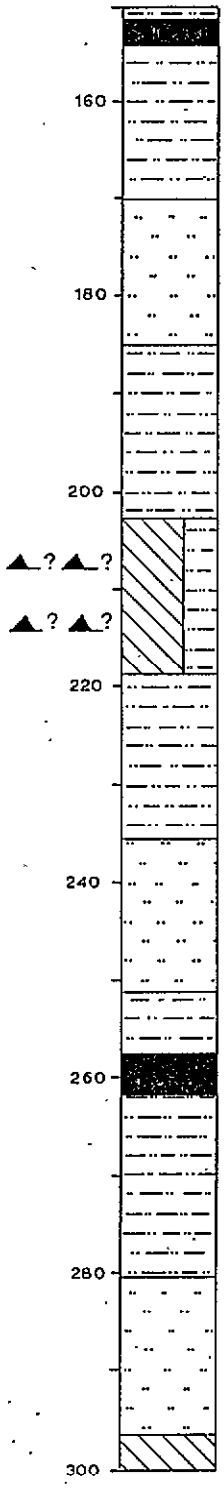
SCALE 1" to 20'0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

STRATIGRAPHIC LOGS
DDH M-6

DRAWN BY

DATE: JANUARY 1975



Mudstone, tending carbonaceous.

Coal lenses

Siltstone lenses.

Siltstone with mudstone lenses.

Mudstone tending carbonaceous

Very minor coal lenses

'C' HORIZON -

Carbonaceous

becoming

Silty

SCALE 1" to 20'0"

Prepared by

CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD..

for

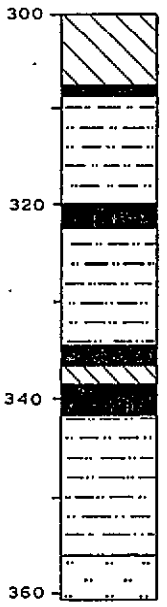
COALITION MINING LIMITED

STRATIGRAPHIC LOGS

DDH M-6

DRAWN BY

DATE: JANUARY 1975



SCALE 1" to 20'0"

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STRATIGRAPHIC LOGS
DDH M-6

DRAWN BY

DATE: JANUARY 1975

"SEAM "B" - "Middle Coals"

	SAMPLE N° SKR	THICKNESS (FEET)	WT %	ASH %	C. S. N°	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
93.00							
sheared	498	2.90		5.1	1 1/2	20.3	
sheared	499	4.40		5.6	4 1/2		
100.00	500	0.17		83.4	N.A.		
sheared	501	0.95		8.7	9		
	502	1.75		36.5	6 1/2		
	503	0.85		53.8	1		
	504	2.45		3.7	3 1/2		
106.47							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-6

DRAWN BY I.L. DATE. JANUARY 1975

SEAM "B" Cont'd

SAMPLE Nº SKR	THICKNESS (FEET)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
505	1.20 0.10		58.1	1/2		
506	1.63		6.8	5		
	10.50		NOT ANALYSED			

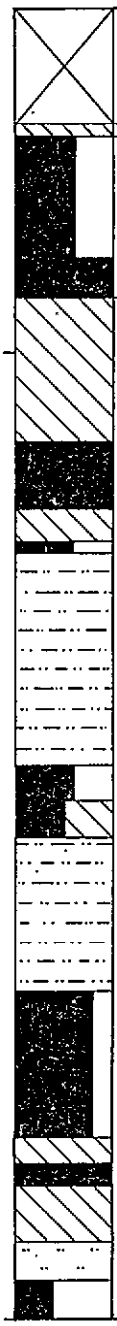
106.47

sheared
109.40

sheared

sheared

119.90



SCALE 1" to 2' 0"

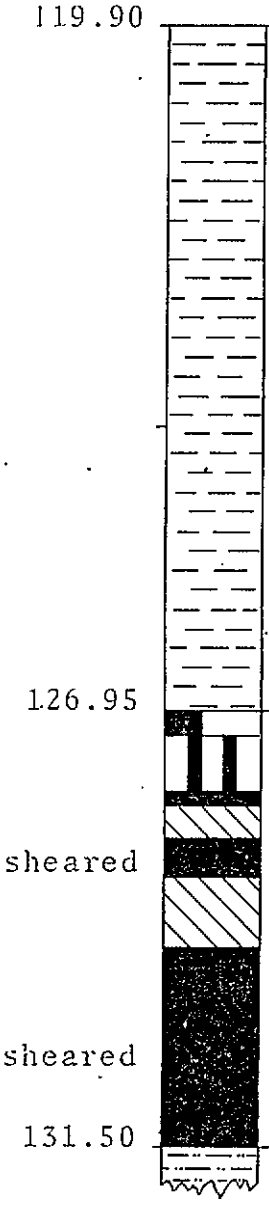
Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-6

DRAWN BY I.L. DATE. JANUARY 1975

SEAM 'B' cont'd

SAMPLE Nº SKR	THICKNESS (FEET)	WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
119.90						
	7.05		NOT ANALYSED			
126.95						
sheared	4.55		NOT ANALYSED			
sheared						
131.50						



SCALE 1" to 2' 0"

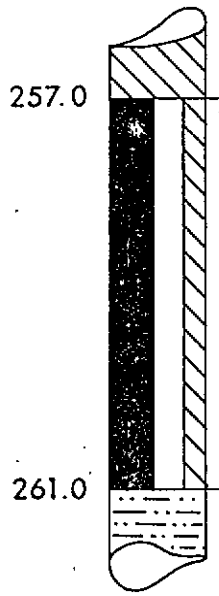
Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTION
DDH M-6

DRAWN BY T.L. DATE. JANUARY 1975

LOWER GETHING SEQUENCE
'C' HORIZON.

			ASH % CUMULATIVE FROM FLOOR	
WT %	ASH %	C.S.Nº	INCL. BANDS	EXCL. BANDS



4.00

NOT ANALYSED
ROTARY DRILL CUTTINGS.

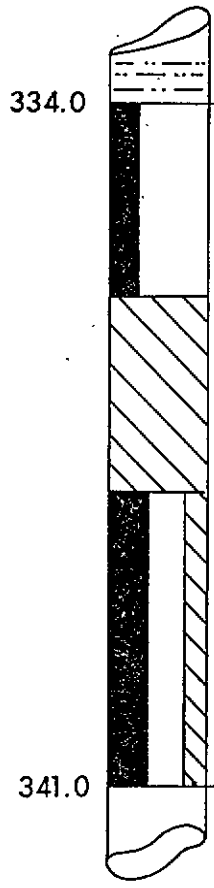
Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH M-6

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

LOWER GETHING SEQUENCE

	WT %	ASH %	C.S.№	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
334.0					
7.00	NOT ANALYSED ROTARY DRILL CUTTINGS.				
341.0					



Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH M-6

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

ANALYTICAL DATA

D.D.H. M-6

Sample Nos. (SKR-)	Interval (feet)
498	93.00 - 95.90
499	95.90 - 100.30
500	100.30 - 100.47
501	100.47 - 101.42
502	101.42 - 103.17
503	103.17 - 104.02
504	104.02 - 106.47
505	107.67 - 107.77
506	107.77 - 109.40

COALITION MINING

February 27, 1975

Sample: SKR Cores 498 - 506

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 498	5.4	0.3	5.1	17.9	76.7	1.19	14,790	1.32	1 1/2	Air Dry Basis
2106		5.7	4.8	16.9	72.6	1.13	13,990			As Rec'd
			5.1	18.0	76.9	1.19	14,830			Dry Basis
SKR 499	0.6	0.4	5.6	20.1	73.9	0.67	14,690	1.30	4 1/2	Air Dry Basis
2107		1.0	5.6	20.0	73.4	0.67	14,600			As Rec'd
			5.6	20.2	74.2	0.67	14,750			Dry Basis
2186 Comp. of SKR 498 & 499	Raw	-	-	-	-	-	-	-	-	-

SIZE ANALYSES LAB NO. 2186

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 100 M	91.3	5.4	91.3	5.4	
- 100 M	8.7	9.2	100.0	5.7	2

SINK-FLOAT ANALYSES + 100 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	40.4	1.6	40.4	1.6	2
1.30-1.40	43.9	4.7	84.3	3.2	4 1/2
1.40-1.60	11.8	13.9	96.1	4.5	1 1/2
+1.60	3.9	27.0	100.0	5.4	1 1/2

The above Size Analyses and Sink-Floats are on an Air Dry Basis

COALITION MINING

February 27, 1975

Sample: SKR Cores 498 - 506

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 500	2.3	0.5	83.4	12.0	4.1	0.32		2.33	N.A.	Air Dry Basis
2108		2.8	81.5	11.7	4.0	0.31				As Rec'd
			83.5	12.1	4.1	0.32				Dry Basis
SKR 501	4.8	0.5	8.7	22.3	68.5	0.44	14,250	1.32	9	Air Dry Basis
2109		5.3	8.3	21.2	65.2	0.42	13,560			As Rec'd
			8.7	22.4	68.9	0.44	14,320			Dry Basis
SKR 502	8.4	0.6	36.5	16.2	46.7	0.42	9,760	1.55	6 1/2	Air Dry Basis
2110		8.9	33.4	14.8	42.9	0.38	8,940			As Rec'd
			36.7	16.3	47.0	0.42	9,820			Dry Basis
SKR 503	2.7	0.9	53.8	11.2	34.1	0.53	6,940	1.79	1	Air Dry Basis
2111		3.6	52.3	10.9	33.2	0.52	6.750			As Rec'd
			54.3	11.3	34.4	0.53	7.000			Dry Basis
2187 Comp. of SKR 501, 502, 503	Raw		32.8							Air Dry Basis

SIZE ANALYSES LAB NO. 2187

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 100 M	88.9	34.4	88.9	34.4	
- 100 M	11.1	20.1	100.0	32.8	7 1/2

SINK-FLOAT ANALYSES +100 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	28.3	2.6	28.3	2.6	9
1.30-1.40	12.4	7.0	40.7	3.9	8
1.40-1.60	9.2	15.7	49.9	6.1	5
+1.60	50.1	62.5	100.0	34.4	1

M-6 - 2

COALITION MINING

February 27, 1975

SKR (498 - 506)

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 504	1.2	0.4	3.7	19.5	76.4	0.54	15,010	1.31	3 1/2	Air Dry Basis
2112	Raw	1.6	3.7	19.3	75.4	0.53	14,830			As Rec'd
			3.7	19.6	76.7	0.54	15,070			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 100 M	91.2	3.6	91.2	3.6	
- 100 M	8.8	7.7	100.0	4.0	3

SINK-FLOAT ANALYSES + 100 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	52.6	1.6	52.6	1.6	5 1/2
1.30-1.40	39.6	3.5	92.2	2.4	1 1/2
1.40-1.60	5.9	13.5	98.1	3.1	1 1/2
+1.60	1.9	28.6	100.0	3.6	1/2

M-6 - 3

COALITION MINING

SKR (498 - 506)

February 27, 1975

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 505		0.6	58.1	12.0	29.3	0.29	6,270	1.85	1/2	Air Dry Basis
2113		0.6	58.1	12.0	29.3	0.29	6,270			As Rec'd
			58.5	12.1	29.4	0.29	6,310			Dry Basis

COALITION MINING

February 27, 1975

SKR (498 - 506)

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 506	2.5	0.4	6.8	20.7	72.1	0.59	14,500	1.34	5	Air Dry Basis
2114	Raw	2.9	6.6	20.2	70.3	0.58	14,140			As Rec'd
			6.8	20.8	72.4	0.59	14,560			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 100 M	91.1	6.4	91.1	6.4	
- 100 M	8.9	10.6	100.0	6.8	6

SINK-FLOAT ANALYSES +100 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	49.3	1.9	49.3	1.9	8
1.30-1.40	27.9	5.0	77.2	3.0	4 1/2
1.40-1.60	15.7	13.8	92.9	4.8	1 1/2
+1.60	7.1	26.1	100.0	6.4	1/2

COALITION MINING SKR (498 - 506) February 27, 1975

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
2182 Comp. of SKR 498 to 506 Incl.	Raw		20.3						3	

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	68.5	18.8	68.5	18.8	2 1/2
- 28 M	31.5	18.6	100.0	18.7	3

SINK-FLOAT ANALYSES + 28 M

-1.30	44.8	2.1	44.8	2.1	5 1/2
1.30-1.40	25.4	5.3	70.2	3.3	1 1/2
1.40-1.60	10.8	14.7	81.0	4.8	1 1/2
+1.60	19.0	67.9	100.0	16.8	1/2

FROTH FLOTATION ANALYSES - 28 M

Stage I	75.1	7.0	75.1	7.0	4
Stage II	6.0	20.1	81.1	8.0	2 1/2
Tails	18.9	68.7	100.0	19.4	N.A.

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

FLOATS @ 1.60 S.G. Plus STAGES I & II

Yield %	R.M.	Ash %	Vol.	F.C.	B.T.U./lb.	F.S.I.	Calc. Factors
81	0.4	5.8	20.3	73.5	14,700	3 1/2	Air Dry Basis
		5.8	20.4	73.8	14,760		Dry Basis

M-6 - 9 - 6

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
NO CORE, overburden.	17.00	17.00	
SANDSTONE, fine grained, quartz-lithic, light grey, massive, bedding angle 70° to core axis. Sporadic cross bedded sequences. Calcite filled joints common throughout, widely spaced. Slickensided bedding planes present. Weathered zone 2.5' at 32'	25.00	42.00	
MUDSTONE & SILTSTONE Interbeds, units of each lithology varying from 0.05' to 0.20' thick. Siltstone, as above; mudstone, mid grey. Graded units common and swirl structures present in upper part of unit. Bedding angle variable 30° to 60° to core axis. Slickensided bedding faces present. Sporadic silty units to 1' in lower 15'.	24.00	66.00	
MUDSTONE, mid grey, slickensides on joint faces at varying angles to core axis, commonly 45° to sub parallel. Core badly broken between 70 and 72'.	27.00	93.00	Seam Roof
COAL, sheared and broken.	0.30	93.30)	
, dull and bright, minor shearing throughout.	1.70	95.00)	
, sheared.	0.90	95.90)	'B' Seam
, dull and bright, minor shearing.	0.35	96.25)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL, dull and bright; very minor shearing throughout; slip plane movement evident.	4.05	100.30	
MUDSTONE, mid grey.	0.17	100.47	
COAL, sheared.	0.70	101.17	
COAL & MUDSTONE, interbedded.	0.25	101.42	
COAL, intensely sheared.	1.75	103.17	'B' Seam
MUDSTONE, carbonaceous, coaly wisps.	0.34	103.51	
COAL, dull and bright, minor shearing.	0.13	103.64	
MUDSTONE, mid grey.	0.06	103.70	
COAL, bright.	0.04	103.74	
MUDSTONE, mid grey.	0.02	103.76	
COAL, dull and bright.	0.18	103.94	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
MUDSTONE, mid grey.	0.08	104.02)	
		)	
COAL, dull and bright, sporadic bright bands, minor shearing.	2.45	106.47)	
, undifferentiated.	1.20	107.67)	Core loss
		)	1.20'
CLAYSTONE, carbonaceous.	0.10	107.77)	
		)	
COAL, dull and bright, trace shearing.	1.23	109.00)	
, intensely sheared.	0.40	109.40)	
		)	
CLAYSTONE, carbonaceous, sheared in upper 0.2'.	1.50	110.90)	
		)	'B' Seam
COAL, sheared.	0.68	111.58)	
		)	
CLAYSTONE, carbonaceous.	0.33	111.91)	
		)	
COAL, dull and bright.	0.10	112.01)	
		)	
MUDSTONE, dark grey, carbonaceous in upper 0.30'.	2.20	114.21)	
		)	
COAL, dull and bright.	0.36	114.57)	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
COAL & CLAYSTONE, interbedded. Units to 0.03'.	0.40	114.97)	
		)	
MUDSTONE, mid grey, silty in lower 0.50'.	1.55	116.52)	
		)	
COAL, bright with minor dull bands.	1.50	118.02)	
		)	
CLAYSTONE, carbonaceous.	0.28	118.30)	
		)	'B' Seam
COAL, sheared.	0.20	118.50)	
		)	
CLAYSTONE, dark grey to carbonaceous with coaly wisps.	0.60	119.10)	
		)	
SILTSTONE.	0.40	119.50)	
		)	
COAL, dull with minor bright bands.	0.40	119.90)	
		)	
CLAYSTONE, dark grey containing coaly penny bands.	7.05	126.95	Floor of Sea
COAL, dull with minor bright bands.	0.20	127.15	
, stony with sporadic bright bands.	0.58	127.73	
, bright.	0.10	127.83	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarl
CLAYSTONE, carbonaceous.	0.35	128.18	
COAL, sheared.	0.40	128.58	
CLAYSTONE, carbonaceous.	0.75	129.33	
COAL, sheared.	2.17	131.50	'B' SEAM Repeti-tion(?)
MUDSTONE, dark grey, containing coal lenses and blebs throughout. Coal lens to 0.10'.	12.40	143.90	
MUDSTONE, carbonaceous.	3.40	147.30	
MUDSTONE, dark grey.	4.20	151.50	
COAL, stony, contains bright coal bands to 0.05' and claystone, dark dark grey.	2.20	153.70	
MUDSTONE, dark grey to carbonaceous containing coal, stony and minor bright coal lenses 0.05' to 0.40' thick. Silty toward base of unit with siltstone lenses to 0.05'.	16.50	170.20	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
SILTSTONE, mid grey, contains mudstone lenses to 0.05', bedding angle 75° to core axis. Sporadic coaly and carbonaceous partings present.	8.80	179.00	
CLAYSTONE, carbonaceous, containing stone, coaly, units to 0.50' and bright coal lenses to 0.20'.	6.00	185.00	
MUDSTONE, silty in part, mid to dark grey; contains coaly partings and penny bands at 191', carbonaceous phases present in basal section of unit.	17.40	202.40	
MUDSTONE, dominantly carbonaceous but some phases dark grey. Coal present throughout - thickness ranging between partings on bedding planes to 0.45'. Possible faults at 208' and 214.50'. Bedding to core axis 75°.	16.10	218.50	? Faults
MUDSTONE, mid to dark grey, sporadic coaly partings and one coal lens 0.20' thick.	11.50	230.00	Total depth of cored zone; rotary drill cuttings from 230.00' to T.D.
MUDSTONE, dark grey.	5.00	235.00	
SILTSTONE, brown grey, calcareous, argillaceous, sporadic mudstone interbeds.	16.00	251.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor (ft)	Remarks
CLAYSTONE, dark grey, carbonaceous, argillaceous.	6.00	257.00	
COAL, bright and dull (50:50); carbonaceous claystone interbedded.	4.00	261.00	'C' HORIZON
MUDSTONE, dark grey, carbonaceous becoming argillaceous and silty towards base.	19.00	280.00	
SILTSTONE, light brown to grey, calcareous, argillaceous, sporadic thin mudstone bands.	16.00	296.00	
MUDSTONE, dark grey, carbonaceous.	11.00	307.00	
COAL, dull with minor bright bands, (dull 80%) rare shearing.	1.00	308.00	
MUDSTONE, dark grey, silty towards base.	11.50	319.50	
COAL, dull with minor bright bands.	2.50	322.00	
MUDSTONE, dark grey, carbonaceous band, sporadic siltstone partings.	12.00	334.00	
COAL, dull and bright, (75:25); sporadic sheared fragments.	2.00	336.00	

Geological Description of Strata	Estimated Thickness (ft)	Estimated Depth to Stratum Floor(ft)	Remarks
CLAYSTONE, carbonaceous.	2.00	338.00	
COAL, dull and bright, carbonaceous claystone bands.	3.00	341.00	
MUDSTONE, dark grey.	14.00	355.00	
SILTSTONE, light brown.	5.00	360.00	Base of Hole

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

LEVEL LOG

FILE NO.

LSD
SEC
TWP
RGE
W ____ M

COMPANY COALITION MINERS LIMITED

WELL DMH-16

LOCATION

FIELD SEDONA

PROVINCE BRITISH COLUMBIA

Permanent Datum GROUND LEVEL Elev.
Log Measured From K.B. Elev.
Drill Depth Measured From GROUND LEVEL G.L.

Other Services: NEU

Run No. ONE
Date 9 NOVEMBER 1974 | 25 Nov 1974
First Reading 190 | 340
Last Reading 340 | 0
Footage Logged 150 | 340
Depth Reached 191 | 341
Depth Driller 191 | 341
Depth Logger 191 | 341
Casing Diameter
Casing Depth
Fluid Type ATR/WATER
Liquid Level 60
Max. Diam. 6-1/4 | 4-3/4
Rm @ °F

Operating Time 3 HOURS
Truck No. 39 | 38

Recorded By PETERSON
Witnessed By WALLIS / SHERLOCK

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	1 11/16	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	1 11/16
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N SOURCE	8.65 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	
HOIST TRUCK NO.		SPACING	17 INCH
INSTRUMENT TRUCK NO.	35	TYPE	AmBe
TOOL SERIAL NO.	177	STRENGTH	3 CURIES

LOGGING DATA

RUN NO	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY API G. R. UNITS PER LOG DIV.	SIDEWALL DENSITY T. C. SEC.	SIDEWALL DENSITY SENS SETTINGS	SIDEWALL DENSITY ZERO DIV. L OR R	SIDEWALL DENSITY API N. UNITS PER LOG DIV.
1	000	190	12	3	500	OL	20	3	1000	2.6R	44.23
	000	38	12	3	1000	10L	150	NEUTRON			
2	38	190	12	3	1000	OL	150				
	190	340	12	3	1000	OL	20	3	1000	2.6 R	44.23
								NEUTRON			

REMARKS: DENSITY TOOL, SERIAL NO 128 SOURCE #50
Run 2: Geo Tool #65 Source # 598

GAMMA RAY | DEPTHS | NEUTRON

GAMMA RAY INCREASES
API 0 20 200

NEUTRON INCREASES
API 1500 1750 4500

BULK DENSITY (GRAMS/CC)
1.90 1.70 1.50 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

000
No Core
30°
30° to 60°
'B' SEAM (FAULTED)
75°
200
45°
T.D. Diamond Core
Rodney Curtings
To T.D.
'C' HORIZON

SUKUNKA COAL PROJECT

MIDDLE COALS AREA

APPENDIX C-2

ROTARY DRILL HOLE DATA

COAL SEAM ANALYSED

R.D.H.'s 'C', 'H', 'T', 'V', 'W'

BORE NUMBER R.D.H. 'C'

Grid Reference: 58916.38 N 77658.70 E

Date Commenced: October 10, 1974 Date Completed: October 10, 1974.

Collar R.L.: 3,893 feet Standard Datum.
Total Depth: 202 feet

Drilled by: Sedco Drilling
For: Coalition Mining Limited
Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density
By: Roke Oil Enterprises Limited

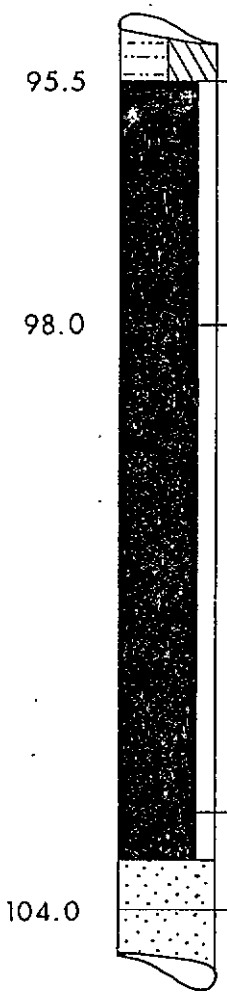
Logged by: R. E. Shields and G. R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
Skeeter	3789.5	95.5 - 103.5	8.0		
Skeeter(?)	3726.0	160.5 - 167.0	6.5	6.5	
?	-	179.0 - 181.0	2.0		
		186.0 - 189.7	3.7		Seam repetitions
		192.0 - 196.2	4.2		

*) Thickness uncorrected for dip.

UPPER GETHING
SKEETER SEAM



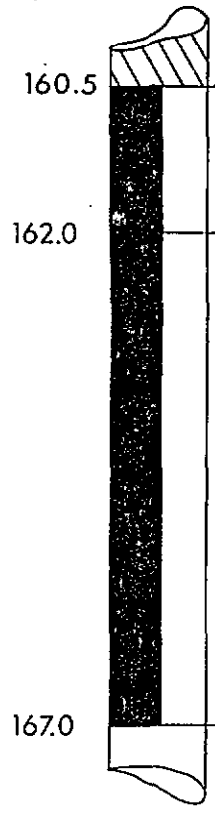
(FEET)			WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
95.5							
98.0							
	515	5.0		16.9	7½		
	516	1.0		61.7	1		
104.0							

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'C'

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

UPPER GETHING SKEETER SEAM(?)



	WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
160.5					
162.0					
517		39.7	2½		
167.0					

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'C'

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

ANALYTICAL DATA

R.D.H. "C"

Sample No. (SKR-)	Interval (feet)
515	98 - 103
516	103 - 104
517	162 - 167

(i) Analysis of:
Individual Ply
Size
Sink-Float
Froth Flotation; of
(a) Composite of Samples SKR 515 & 517 p. 1
(b) Sample SKR 517 p. 3

(ii) Analyses of:
Product Comp. Floats
@ 1.60 S.G. and F.F. Stages I & II; of
(i)(a), and p. 2
(i)(b), above p. 4

COALITION MINING

February 27, 1975

Samples SKR 515 to 517

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 515 / 2117	28.7 Raw		16.9						7 1/2	Air Dry Basis
SKR 516 / 2118	12.0 Raw		61.7						1	Air Dry Basis
2177		0.3	24.9	19.8	55.0	2.48	11,610	1.51	5 1/2	Air Dry Basis
Comp. of SKR 515 and 516			25.0	19.9	55.1	2.49	11,645			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	70.7	26.3	70.7	26.3	4 1/2
- 28 M	29.3	20.4	100.0	24.5	6

SINK-FLOAT ANALYSES +28 M

-1.30	22.8	2.4	22.8	2.4	8 1/2
1.30-1.40	28.3	4.8	51.1	3.7	4 1/2
1.40-1.60	13.0	11.3	64.1	5.3	1 1/2
+1.60	35.9	63.9	100.0	26.3	1/2

FROTH FLOTATION ANALYSES -28 M

Stage I	36.1	11.8	36.1	11.8	8
Stage II	8.4	17.6	44.5	12.9	5
Tails	55.5	26.5	100.0	20.4	5

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

"C"-1

COALITION MINING

February 27, 1975

Samples: SKR 515 to 517 (cont'd)

	R.M.	Ash %	V.M.	F.C.	F.S.I.	BTU/lb	Calc. Factors
2233 product comp. floats @ 1.60 S.G.	0.6	7.1	21.0	71.3	7	14,520	Air Dry Basis
Stages I & II		7.1	21.1	71.8		14,600	Dry Basis

COALITION MINING

February 27, 1975

Samples: SKR 515 to 517

Client # / Lab No.	A.D.L.	R.M.	Ash %	Vol.	F.C.	S.	B.T.U.	S.G.	F.S.I.	Calc. Factors
SKR 517	14.1	0.4	39.7	15.9	44.0	.43	9,270	1.63	2 1/2	Air Dry Basis
2119	Raw	14.4	34.1	13.7	37.8	.37	7,960			As Rec'd
			39.9	16.0	44.2	.43	9,310			Dry Basis

SIZE ANALYSES

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	66.4	47.6	66.4	47.6	1 1/2
- 28 M	33.6	27.5	100.0	40.8	3

SINK-FLOAT ANALYSES +28 M

-1.30	12.5	2.5	12.2	2.5	9
1.30-1.40	24.0	5.2	36.5	4.3	6
1.40-1.50	7.4	12.2	43.9	5.6	2
+1.60	56.1	80.5	100.0	47.6	N.A.

FROTH FLOTATION ANALYSES - 28 M

Stage I	46.6	10.9	46.6	10.9	7 1/2
Stage II	13.6	18.7	60.2	12.7	5
Tails	39.8	50.0	100.0	27.5	1

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

COALITION MINING

February 27, 1975

Samples: SKR 515 to 517

	R.M.	Ash %	V.M.	F.C.	B.T.U./lb	F.S.I.	Calc. Factors
2234 Product Comp. of Floats @ 1.60	0.6	8.0	21.1	70.3	14,280	7	Air Dry Basis
Plus Stages I & II		8.0	21.2	70.8	14,370		Dry Basis

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

DENSILOG

FILE NO.

LSD
SEC
TWP
RGE
W M

COMPANY COALITION MINING LIMITED

WELL RDH-C

LOCATION

FIELD SUKUNKA

PROVINCE BRITISH COLUMBIA

Other Services: NIL

Permanent Datum GROUND LEVEL Elev.

Log Measured from GROUND LEVEL Ft. Above Perm. Datum

Well Depths Measured from GROUND LEVEL

K.B.
CSG
G.L.

Run. No.	ONE
Date	12 OCTOBER 1974
First Reading	201
Last Reading	000
Footage Logged	201
Depth Reached	202
Depth Driller	202
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	28
Min. Diam.	4-3/4
Rm @ °F	
Operating Time	3 HOURS
Truck No.	35

Recorded By PETERSON Witnessed By WALLIS

652

EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	177
HOIST TRUCK NO.	35	SPACING	17 INCH
INSTRUMENT TRUCK NO.		TYPE	AmBe
TOOL SERIAL NO.	177	STRENGTH	3 CURIES

LOGGING DATA

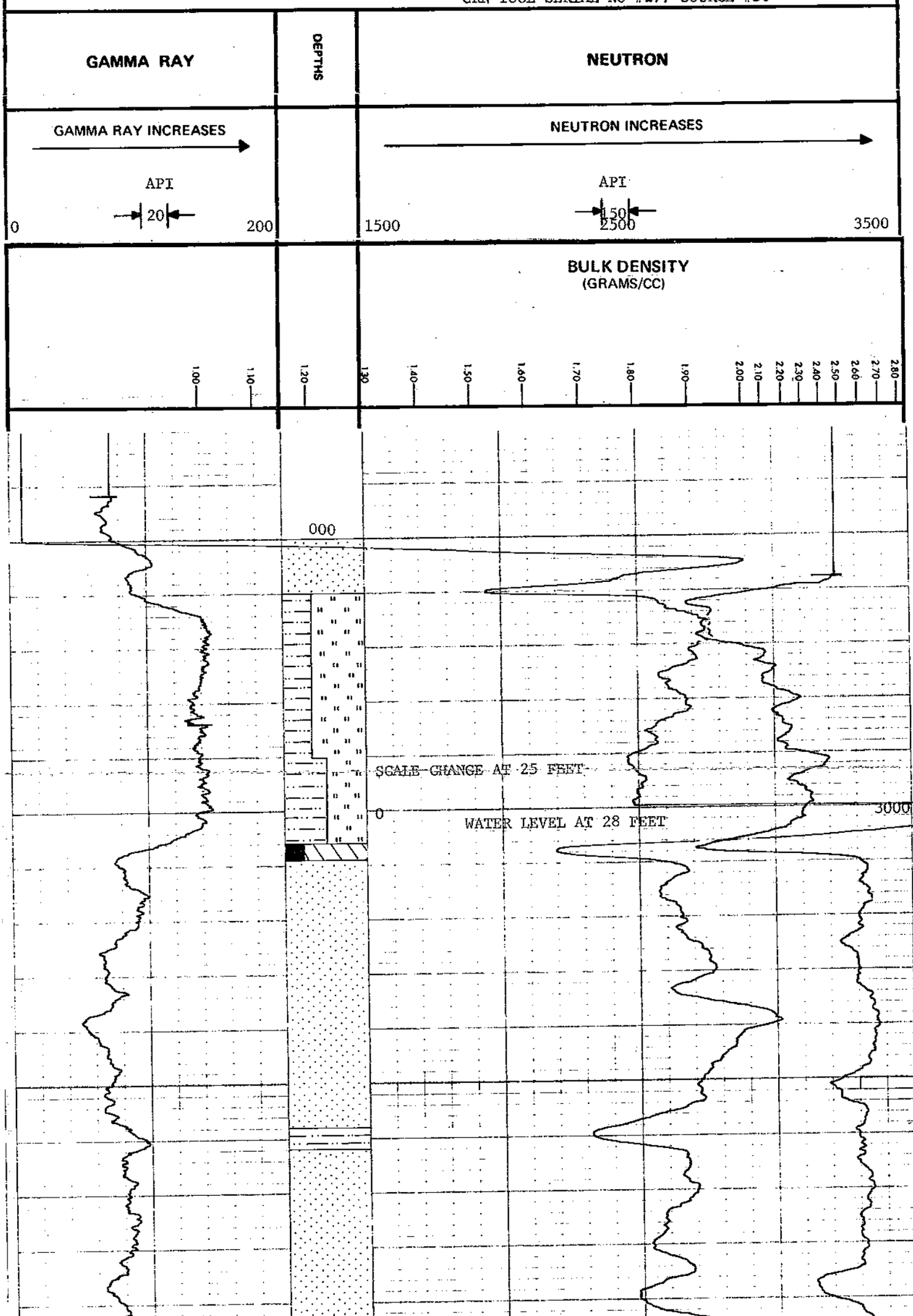
GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS TO	SPEED FT/MIN	T.C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API G. R. UNITS PER LOG DIV.	T. C. SEC.	SENS SETTINGS	ZERO DIV. L OR R	API N. UNITS PER LOG DIV.
1	000	201	12	3	500	OL	20	3	1000	2.6R	44.23
	000	25		3	1000	10L	150				
	25	201		3	1000	OL	150				

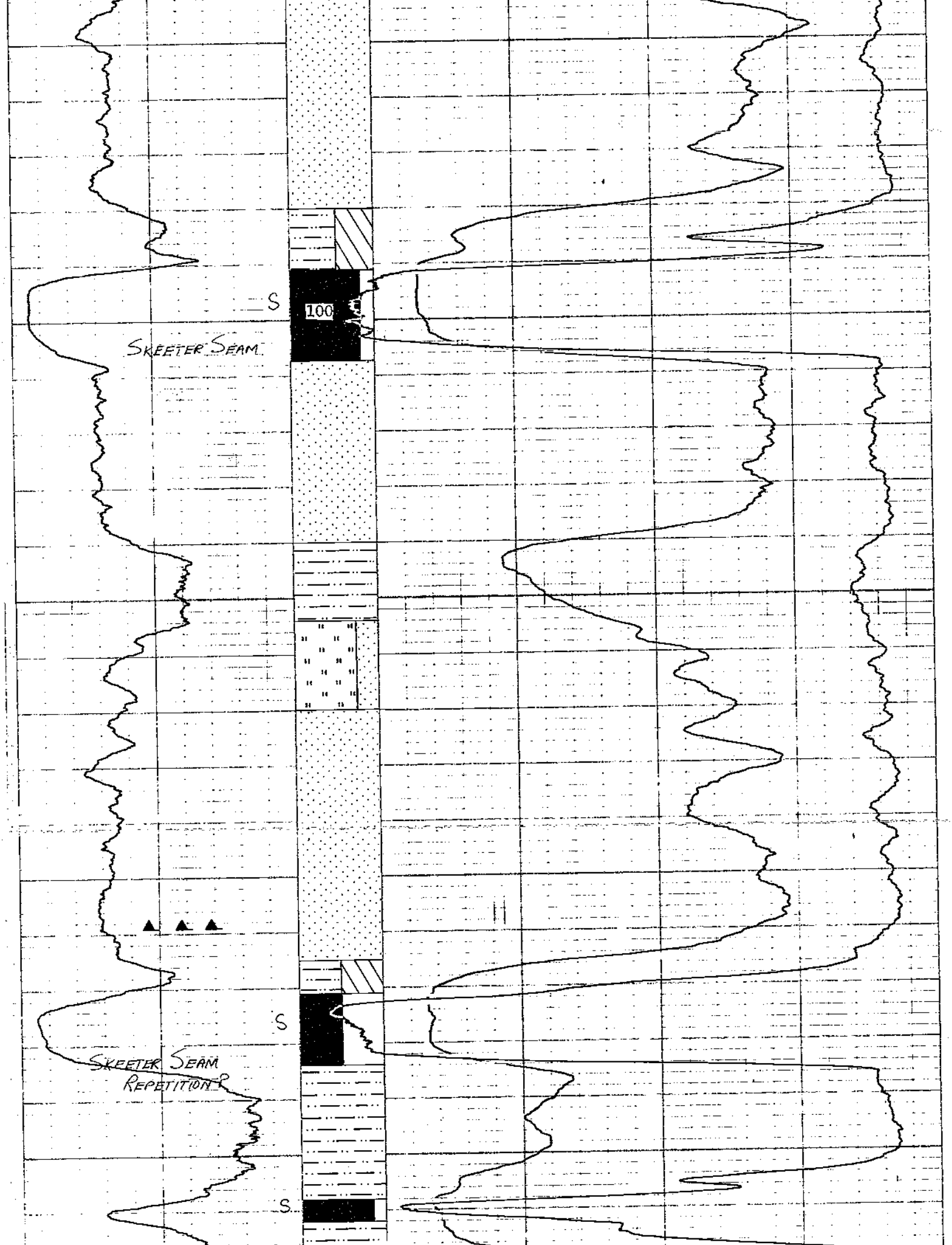
NEUTRON

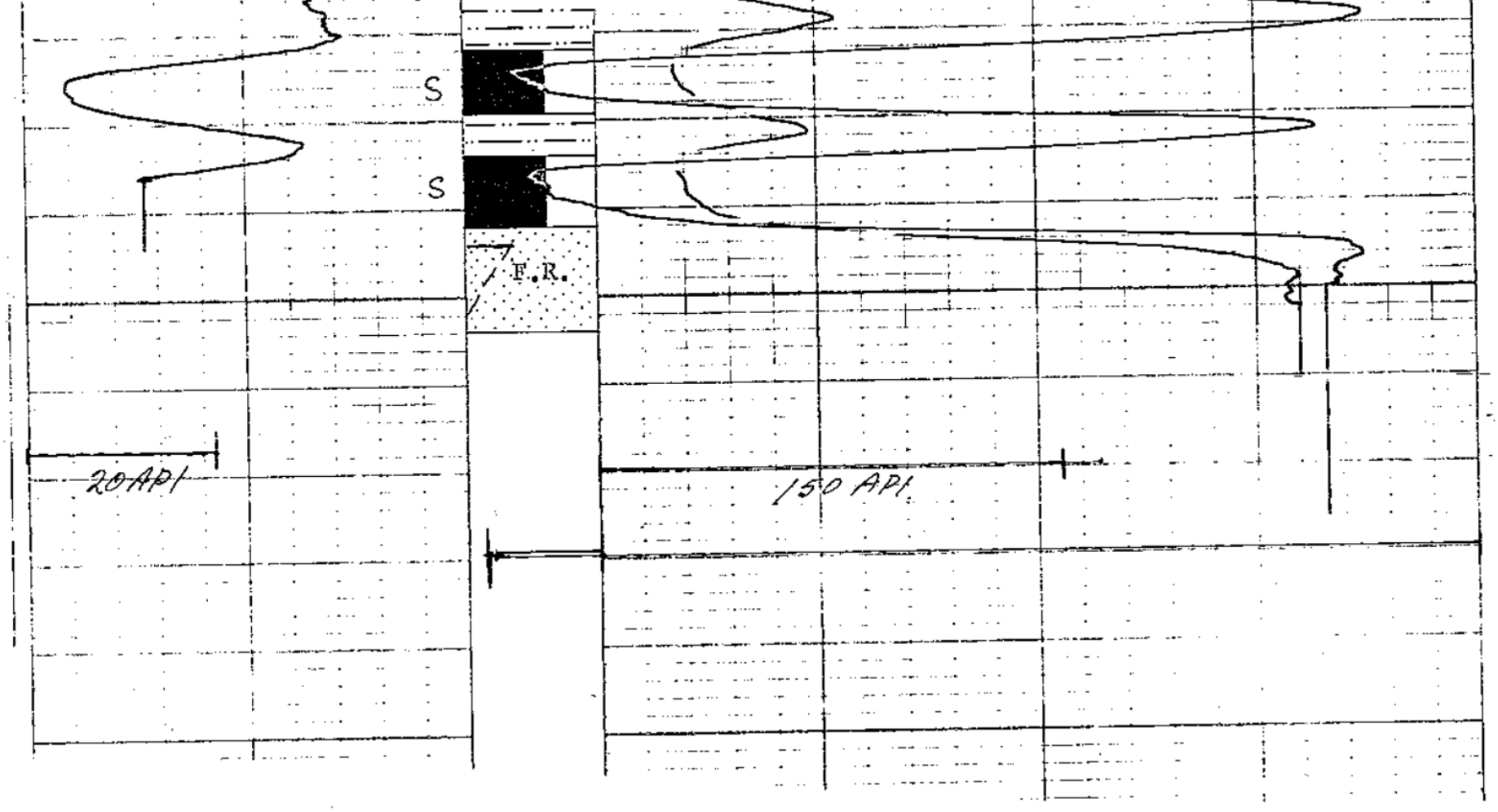
REMARKS

DENSITY TOOL SERIAL NO A-128

GRN TOOL SERIAL NO #177 SOURCE #50




S
100
SKEETER SEAM
S
SKEETER SEAM
REPETITION?
S


S
S
F.R.
20API
150 API

652

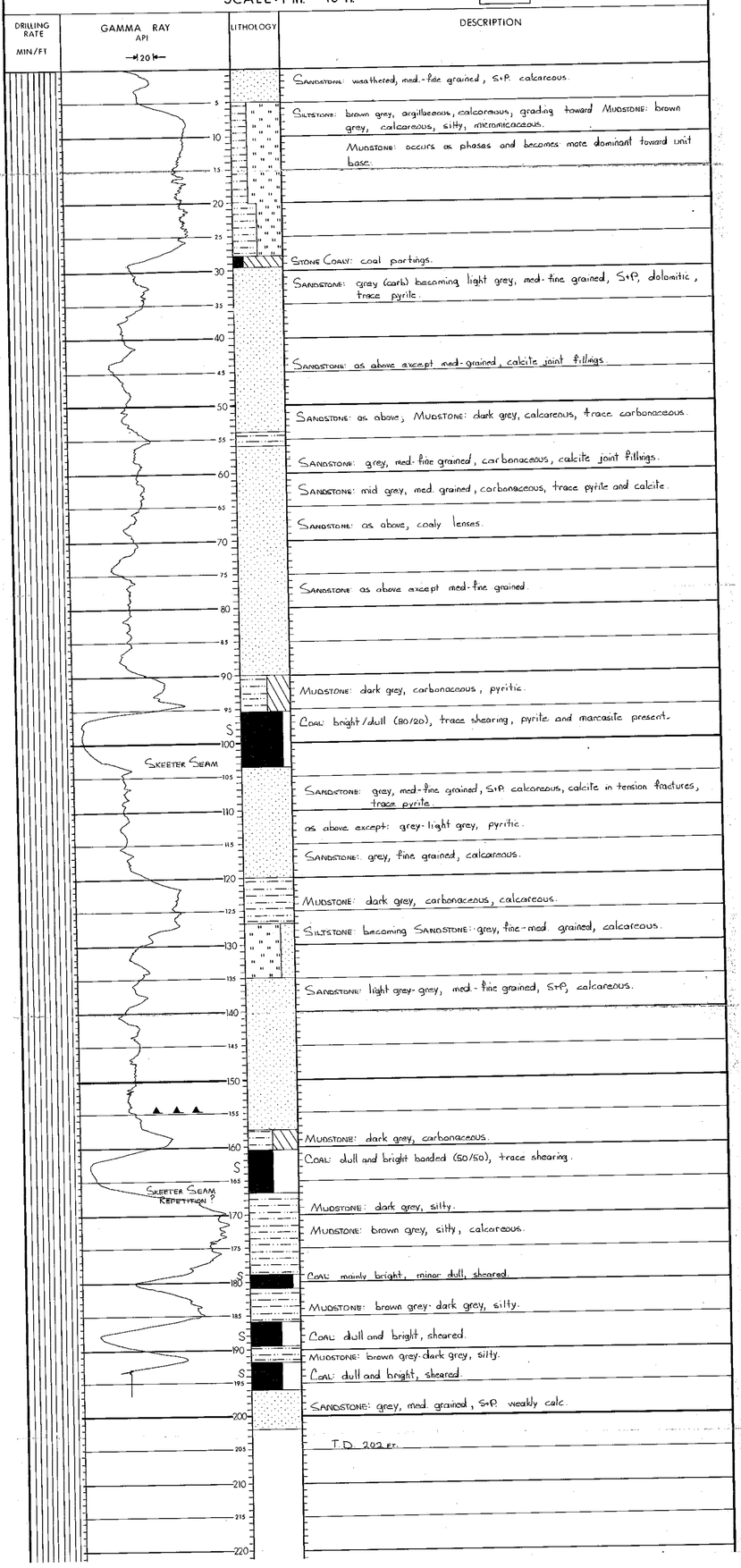
ROTARY DRILL HOLE STRIP LOG

COMPANY:	COALITION MINING LTD.
PROPERTY:	SUKUNKA COAL PROJECT
HOLE NUMBER:	RDH-C
LOCATION:	58,916.38 N 77,658.70 E
DATE COMMENCED:	OCTOBER 10, 1974
DATE COMPLETED:	OCTOBER 11, 1974
DEPTH:	202 FEET
GROUND ELEVATION:	3893 FEET
LOGGED BY:	R.E. SHIELDS & G.R. WALLIS
REMARKS:	Strata: Upper Gething Sequence. Identification of Seams not definite. See also analytical details.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) - PERCENT INDICATED; DULL PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft



BORE NUMBER R.D.H. 'H'

Grid Reference: 52,252.16 N 71,874.31 E

Date Commenced: Oct. 4, 1974 Date Completed: Oct. 5, 1974

Collar R.L.: 2633 feet Standard Datum.
Total Depth: 200.0 feet

Drilled by: Sedco Drilling
For: Coalition Mining Limited
Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density
By: Roke Oil Enterprises Limited

Logged by: R.S. Vogan and G.R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
'B'	2536	59.0 - 70.1	11.1		Total coal
		71.8 - 74.0	2.2		= 29.3 ft.
		75.0 - 78.0	3.0		
		82.0 - 90.0	8.0		
		93.0 - 97.0	4.0	38.0	

*) Thickness uncorrected for dip.

BORE NUMBER R.D.H. 'H'

Grid Reference: 52,252.16 N 71,874.31 E

Date Commenced: Oct. 4, 1974 Date Completed: Oct. 5, 1974

Collar R.L.: 2633 feet Standard Datum.
Total Depth: 200.0 feet

Drilled by: Sedco Drilling
For: Coalition Mining Limited
Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density
By: Roke Oil Enterprises Limited

Logged by: R.S. Vogan and G.R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
'B'	2536	59.0 - 70.1	11.1		Total coal = 29.3 ft.
		71.8 - 74.0	2.2		
		75.0 - 78.0	3.0		
		82.0 - 90.0	8.0		
		93.0 - 97.0	4.0	38.0	
			28.3		

*) Thickness uncorrected for dip.

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
57.0							
	446	6.0	16.2	38.8	—	21.2	
	439	5.0	10.7	12.7	1½	18.3	
68.0							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'H'

DRAWN BY

DATE. APRIL 1975

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
68.0							
	440	5.0	20.6	23.8	1½	19.2	
	441	5.0	9.2	10.8	3½	18.2	
78.0							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
R DH 'H'

DRAWN BY

DATE APRIL 1975

MIDDLE COALS
SEAM 'B'

SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
442	5.0	10.5	24.8	6½	20.0	
443	5.0	13.7	8.6	2½	18.3	

78.0

88.0

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'H'

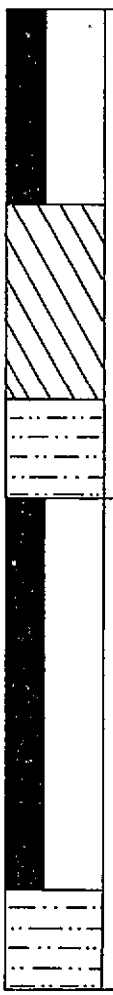
DRAWN BY DATE. APRIL 1975

MIDDLE COALS
SEAM 'B'

SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
444	5.0	10.6	15.3	7	22.8	
445	5.0	8.4	29.6	6	29.6	

88.0

98.0



SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'H'

DRAWN BY

DATE. APRIL 1975

ANALYTICAL DATA

R.D.H. "H"

Sample No. (SKR-)	Interval (feet)
439	63 - 68
440	68 - 73
441	73 - 78
442	78 - 83
443	83 - 88
444	88 - 93
445	93 - 98
446	57 - 63

COALITION MINING

November 14, 1974

Group 8

Client No.	Lab No.	Sample Wt. Grams Air Dried
SKR 439	1331	4561.0G
SKR 440	1332	8760.0
SKR 441	1333	3921.0
SKR 442	1334	4460.9
SKR 443	1335	5804.1
SKR 444	1336	4525.0
SKR 445	1337	3559.0
SKR 446	1338	6897.0

COALITION MINING

Group 8

Birtley Engineering (Canada) Ltd.

October 23, 1974

Client No. / Lab No.	A.D.M.	Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	F.S.I.	S.G.	Calc. Factors
SKR 439	27.0	0.4	12.7	18.1	68.8	.32	.20	13,245	1 1/2	1.35	Air Dried
		27.3	9.3	13.2	50.2	.23		9,670			As Rec'd
1331			12.8	18.2	69.0	.32		13,300			Dry Basis
SKR 440	24.4	0.3	23.8	18.3	57.6	.46	.10	11,435	1 1/2	1.44	Air Dried
		24.6	18.0	13.8	43.6	.35		8,650			As Rec'd
1332			23.9	18.4	57.7	.46		11,470			Dry Basis
SKR 441	30.4	0.3	10.8	21.1	67.8	.46	.08	13,500	3 1/2	1.34	Air Dried
		30.6	7.5	14.7	47.2	.32		9,395			As Rec'd
1333			10.8	21.2	68.0	.46		13,540			Dry Basis
SKR 442	19.6	0.4	24.8	19.0	55.8	.34	.04	11,255	6 1/2	1.45	Air Dried
		19.9	19.9	15.3	44.9	.27		9,050			As Rec'd
1334			24.9	19.1	46.0	.34		11,300			Dry Basis
SKR 443	26.5	0.3	8.6	19.8	71.3	.36	.08	13,860	2 1/2	1.32	Air Dried
		26.7	6.3	14.6	52.4	.27		10,190			As Rec'd
1335			8.6	19.9	71.5	.36		13,900			Dry Basis
SKR 444	24.4	0.3	15.3	20.1	64.3	.48	.05	12,790	7	1.37	Air Dried
		24.6	11.6	15.2	48.6	.36		9,675			As Rec'd
1336			15.3	20.2	64.5	.48		12,830			Dry Basis
SKR 445	25.5	0.4	29.6	18.6	51.4	.43	.03	10,500	6	1.49	Air Dried
		25.8	22.1	13.9	38.2	.32		7,820			As Rec'd
1337			29.7	18.7	51.6	.43		10,540			Dry Basis
SKR 446	19.7	0.4	38.8	15.5	45.3	.33	.06	8,995	N.A.	1.63	Air Dried
		20.0	31.2	12.4	36.4	.26		7,225			As Rec'd
1338			39.0	15.6	45.4	.33		9,030			Dry Basis

COALITION COAL

Sample: SKR 439

November 13, 1974

LAB NO. 1331

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	89.3	12.0	89.3	12.0	1 1/2
- 28 M	10.7	18.7	100.0	12.7	1 1/2
RAW		12.7			1 1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	13.2	2.6	13.2	2.6	1 1/2
1.30-1.40	56.7	5.9	69.9	5.3	1 1/2
1.40-1.60	20.3	16.6	90.2	7.8	1
+1.60	9.8	45.9	100.0	11.6	1/2

COALITION COAL

Sample: SKR 439

November 13, 1974

LAB NO. 1331

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	45.2	9.6	45.2	9.6	1 1/2
Stage II	7.4	18.6	52.6	10.9	1/2
Tails	47.4	26.5	100.0	18.3	1/2

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

"H"-4

COALITION COAL

Sample: SKR 440

November 13, 1974

LAB NO. 1332

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	88.3	24.2	88.3	24.2	1 1/2
- 28 M	11.7	23.7	100.0	24.1	1 1/2
RAW		23.8			1 1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	23.3	2.1	23.3	2.1	3 1/2
1.30-1.40	30.4	5.3	53.8	3.9	1 1/2
1.40-1.60	13.6	12.9	67.4	5.7	1 1/2
+1.60	32.6	62.1	100.0	24.1	N.A.

COALITION COAL

Sample: SKR 440

November 13, 1974

LAB NO. 1332

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	43.3	7.7	43.3	7.7	2 1/2
Stage II	8.7	17.3	52.0	9.3	2
Tails	48.0	39.0	100.0	23.6	1/2

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

9-"H"-6

COALITION COAL

Sample: SKR 441

November 13, 1974

LAB NO. 1333

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	88.5	9.9	88.5	9.9	2 1/2
- 28 M	11.5	15.3	100.0	10.5	3 1/2
RAW		10.8			2 1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	35.8	2.7	35.8	2.7	7
1.30-1.40	40.2	5.0	76.0	3.9	2 1/2
1.40-1.60	15.2	16.3	91.2	6.0	1 1/2
+1.60	8.8	44.2	100.0	9.3	1/2

"H"-7

COALITION COAL

November 13, 1974

Sample: SKR 441

LAB NO. 1333

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	41.9	8.0	41.9	8.0	5 1/2
Stage II	9.2	11.5	51.1	8.6	4
Tails	48.9	20.7	100.0	14.5	1 1/2

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

8-"H"-8

COALITION COAL

Sample: SKR 442

November 13, 1974

LAB NO. 1334

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	89.9	23.7	89.9	23.7	4 1/2
- 28 M	10.1	24.9	100.0	23.8	5 1/2
RAW		24.8			5

SINK-FLOAT ANALYSIS +28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	36.5	3.2	36.5	3.2	8
1.30-1.40	21.4	8.0	57.9	5.0	6
1.40-1.60	15.3	21.2	73.2	8.4	2 1/2
+1.60	26.8	65.9	100.0	23.8	1/2

6-"H"-9

COALITION COAL

Sample: SKR 442

FROTH FLOTATION ANALYSIS - 28 M

November 13, 1974

LAB NO. 1334

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	32.9	12.1	32.9	12.1	7
Stage II	7.2	14.4	40.1	12.5	6 1/2
Tails	59.9	31.9	100.0	24.1	4

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

COALITION COAL

November 13, 1974

Sample: SKR 443

LAB NO. 1335

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	88.8	7.8	88.8	7.8	2 1/2
- 28 M	11.2	10.5	100.0	8.1	3
RAW		8.6			2 1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	70.7	3.3	70.7	3.3	3 1/2
1.30-1.40	19.2	5.5	89.9	3.8	1 1/2
1.40-1.60	4.2	14.7	94.1	4.3	1 1/2
+1.60	5.9	65.5	100.0	7.9	1/2

COALITION COAL

November 13, 1974

Sample: SKR 443

LAB NO. 1335

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	45.7	6.0	45.7	6.0	4
Stage II	13.5	7.7	59.2	6.4	3 1/2
Tails	40.8	17.6	100.0	11.0	1

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

COALITION COAL

Sample: SKR 444

November 13, 1974

LAB NO. 1336

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	85.3	14.6	85.3	14.6	7
- 28 M	14.7	17.3	100.0	15.0	7
RAW		15.3			7

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	27.6	3.3	27.6	3.3	8 1/2
1.30-1.40	42.6	6.5	70.2	5.2	7
1.40-1.60	16.6	16.8	86.8	7.5	3 1/2
+1.60	13.2	57.1	100.0	14.0	1

COALITION COAL

Sample: SKR 444

FROTH FLOTATION ANALYSIS - 28 M

November 13, 1974

LAB NO. 1336

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	46.2	8.6	46.2	8.6	7 1/2
Stage II	10.7	13.8	56.9	9.6	7
Tails	43.1	25.8	100.0	16.6	4

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First Minute froth
Stage II	-	Second Minute froth
Conditioning Time	-	1 minute

COALITION COAL

Sample: SKR 445

November 13, 1974

LAB NO. 1337

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	89.2	29.8	89.2	29.8	5 1/2
- 28 M	10.8	25.5	100.0	29.3	6 1/2
RAW		29.6			5 1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	13.4	4.6	13.4	4.6	9
1.30-1.40	27.0	9.4	40.4	7.8	8 1/2
1.40-1.60	14.3	23.7	54.7	9.9	4
+1.60	45.3	49.7	100.0	29.1	1

COALITION COAL

November 13, 1974

Sample: SKR 445

LAB NO. 1337

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	34.1	13.9	34.1	13.9	8
Stage II	8.1	20.8	42.2	15.2	6
Tails	57.8	32.2	100.0	25.0	3

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First minute froth
Stage II	-	Second minute froth
Conditioning Time	-	1 minute

"H"-16

COALITION COAL

Sample: SKR 446

November 13, 1974

LAB NO. 1338

SIZE AND RAW ANALYSIS

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	94.4	37.6	94.4	37.6	1/2
- 28 M	5.6	32.7	100.0	37.3	1/2
RAW		38.8			1/2

SINK-FLOAT ANALYSIS + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	22.0	2.6	22.0	2.6	1 1/2
1.30-1.40	30.0	4.6	52.0	3.8	1/2
1.40-1.60	4.0	16.0	56.0	4.6	1/2
+1.60	44.0	77.2	100.0	36.6	N.A.

COALITION COAL

November 13, 1974

Sample: SKR 446

LAB NO. 1338

FROTH FLOTATION ANALYSIS - 28 M

Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	22.2	19.5	22.2	19.5	1/2
Stage II	7.9	24.1	30.1	20.7	N.A.
Tails	69.9	36.5	100.0	31.8	N.A.

F.F. Parameters

Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Pulp Density	-	10 %
Stage I	-	First minute froth
Stage II	-	Second minute froth
Conditioning time	-	1 minute

652

ROTARY DRILL HOLE STRIP LOG

COMPANY: COALITION MINING LTD.
PROPERTY: SUKUNKA COAL PROJECT
HOLE NUMBER: RDH – T
LOCATION: 52,000.20 N 72,907.82 E
DATE COMMENCED: OCTOBER 31, 1974
DATE COMPLETED: NOVEMBER 1, 1974
DEPTH: 271 FEET
GROUND ELEVATION: 2856 FEET
LOGGED BY: R.S. VOGAN & G.R. WALLIS
REMARKS: Strata: Lower Gething Sequence. Faulted intersection of Seam 'B' from 178 ft. to 220.5 ft

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) – PERCENT INDICATED; DULL – PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC. (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft

DRILLING RATE MIN/FT	GAMMA RAY API (20)	LITHOLOGY	DESCRIPTION
			Overburden.
			Mudstone: brown grey silty to very silty to very fine sandy, calcareous grading to Siltstone, grading to very fine grained Sandstone, oxidized in part.
			slightly oxidized.
			Mudstone: as above grading to Siltstone: Sandstone: light to medium brown grey, S+P. very fine grained, calcareous, argillaceous.
			Mudstone: brown grey, silty to very silty, calcareous, grading to Siltstone.
			Mudstone: as above grading to Siltstone, grading to very fine grained Sandstone.
			Mudstone: brown grey, silty to very silty, calcareous, grading to Siltstone: trace calcite.
			Mudstone: as above, grading to Siltstone, grading to very fine grained Sandstone.
			Sandstone: light to medium grey, S+P. very fine grained, calcareous, argillaceous, grading to Siltstone: Mudstone: as above.
			Mudstone: as above, grading to Siltstone: minor Sandstone: as above.
			Sandstone: brown grey, S+P. very fine grained, calcareous, argillaceous, grading to Siltstone: Mudstone: as above. Mudstone: brown grey, silty to very silty, calcareous.
			Mudstone: as above, grading to Siltstone.
			Mudstone: brown grey, silty, calcareous, micromicaceous.
			Mudstone: brown grey, silty, calcareous, very sandy in part; scattered light to dark grey chert fragments.
'A' Horizon			Sandstone: light brown grey, fine grained, calcareous, argillaceous, scattered fractures filled with calcite. Mudstone: dark grey, carbonaceous to coaly.
			Mudstone: brown grey, very silty. Coal: bright to dull sheared.
			Sandstone: brown grey, fine grained, calcareous, very argillaceous.
			Sandstone: light brown grey, S+P. fine grained, calcareous, argillaceous.
			Sandstone: as above except very fine to fine grained.
			Mudstone: brown grey, silty to very silty, calcareous.
			Sandstone: light to medium brown grey, S+P. very fine grained, calcareous, argillaceous.
			Mudstone: brown grey, silty to very silty, calcareous, grading to Siltstone.
			Mudstone: medium to dark brown grey, silty, dolomitic to slightly dolomitic.
		Ironstone	Mudstone: as above except slightly dolomitic: scattered ironstone.
			Coal: Brt/dull (4/5ths): minor sheared fragments. Mudstone: dark grey, calcareous, silty, carbonac in part.
			Mudstone: as above, pyritic: Stone Coaly: containing coaly blobs, pyritic: Coal: Brt/dull (1/5th), intensely sheared in part.
			Coal: brt/dull (4/5ths) moderate shearing: Claystone: carbonac: pyritic.
'B' Seam (Faulted)			Coal: brt/dull (4/5ths) minor shearing. Claystone: carbonac: trace pyritic.
			Coal: as above: Siltstone: as above: Claystone, carbonac.
			Coal: brt/dull (4/5ths): minor shearing: Mudstone: dark grey to carbonac: trace pyrite.
			Coal: brt/dull (4/5ths) very minor shearing. Stone: coaly.
			Coal: as above, moderate shearing. Stone: coaly.
			Coal: brt/dull (4/5ths), minor shearing. Mudstone: as above.
			Mudstone: dark grey, silty, carbonac in part.
			Siltstone: mid grey, arenaceous, very minor fine sandy phases, trace coaly blebs.
			Mudstone: dark grey, silty argillac, carbonac phases.
			Mudstone: as above. Fault (?)
'B' Seam (Repetition)			Coal: (V.P.S.)
			Coal: intensely sheared, indeterminate types.
			Mudstone: as above.
			Mudstone: as above.
			Siltstone: as for 225-230 ft.
			Mudstone: as above.
			Siltstone, as above (V.P.S.)
			No Sample T.D. 271 feet

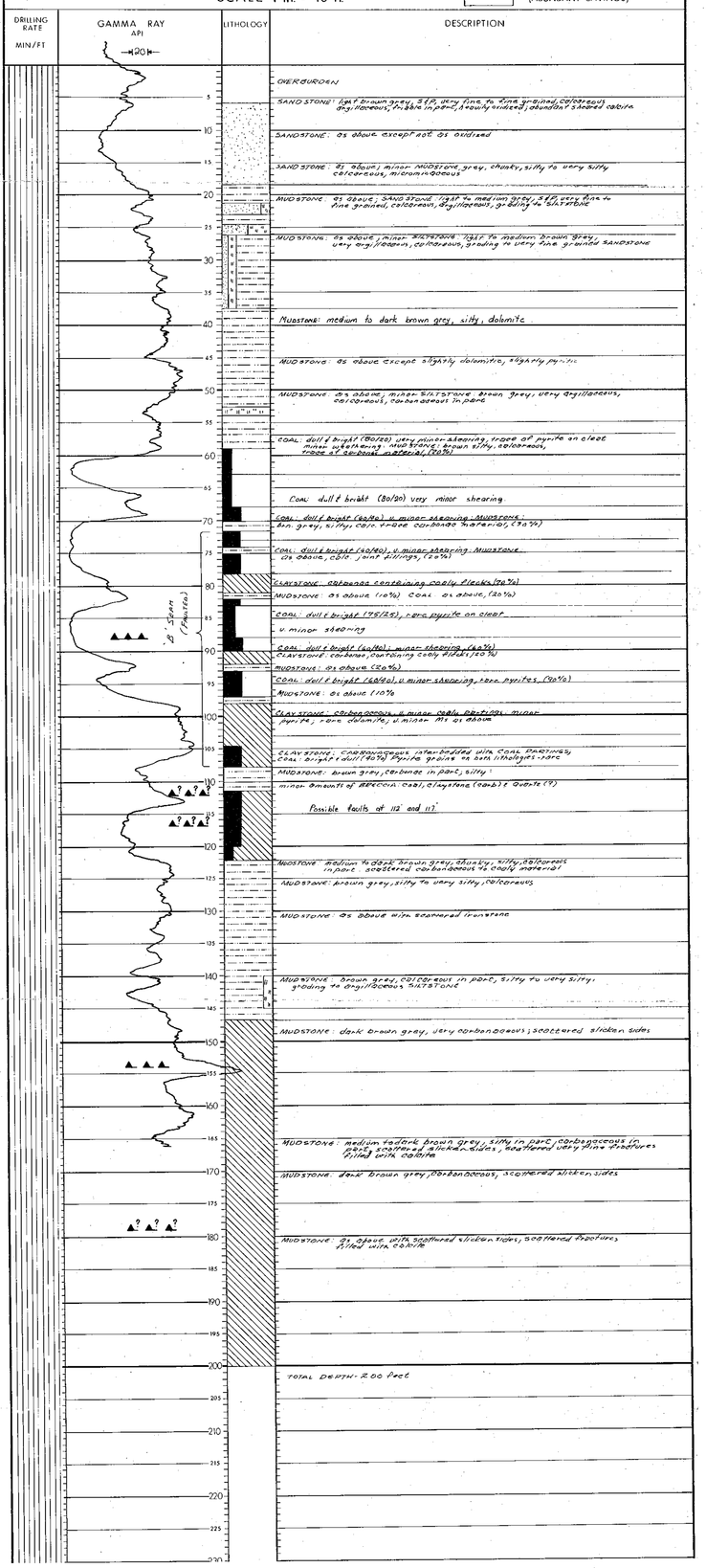
ROTARY DRILL HOLE STRIP LOG

COMPANY: COALITION MINING LTD.
PROPERTY: SUKUNKA
HOLE NUMBER: RDH - H
LOCATION: 52, 252.16 N 71,874.31 E
DATE COMMENCED: OCT. 4, 1974
DATE COMPLETED: OCT. 5, 1974
DEPTH: 200 feet
GROUND ELEVATION: 2633 FEET
LOGGED BY: R.S. VOGAN, G.R. WALLIS
REMARKS: Strata: Lower Gething Sequence. Faulted 'B' Seam between 59ft. & 122 ft. Gamma Ray Log used for rock correlation. Density log used for coal seam correlation. See also analytical details.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) - PERCENT INDICATED; DULL PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft.



BORE NUMBER R.D.H. 'T'

Grid Reference: 52,000.20 72,907.82

Date Commenced: October 31, 1974 Date Completed: November 1, 1974

Collar R.L.: 2856 feet Standard Datum.

Total Depth: 271 feet

Drilled by: Sedco Drilling

For: Coalition Mining Limited

Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density

By: Roke Oil Enterprises Limited

Logged by: R.S. Vogan and G.R. Wallis

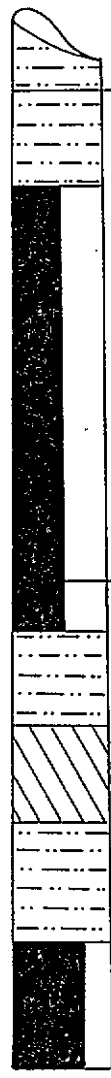
COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
'A'	2741.0	107.8 - 115.0	7.2	7.2	Coal = 1.4 ft
'B'	2635.5	178.0 - 182.5	4.5		Total coal = 28.3 ft, excluding 196.0-213.0 split which contains 11.8 ft of coal.
		185.7 - 197.0	1.3		
		188.5 - 195.0	6.5		
		196.0 - 213.0	17.0		
		216.0 - 220.5	4.5	42.5	
'B'	2613.0	238.3 - 243.0	4.7	4.7	Repetition by faulting.

*) Thickness uncorrected for dip.

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
177.0							
	465	5.0	10.1	16.6	1½	23.9	
	466	5.0	13.3	42.3	1	24.8	
187.0							



SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'T'

DRAWN BY

DATE APRIL 1975

MIDDLE COALS
SEAM 'B'

SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
187.0						
467	5.0	13.1	40.2	1	22.0	
468	5.0	9.1	16.2	4½	18.6	
197.0						

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'T'

DRAWN BY

DATE APRIL 1975

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
197.0							
	469	5.0	11.6	33.2	1½	19.0	
	470	5:0	7.6	19.5	1	15.3	
207.0							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'T'

DRAWN BY

DATE APRIL 1975

MIDDLE COALS
SEAM 'B'

SAMPLE Nº	THICKNESS (feet)	WT %	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
471	5.0	10.6	12.3	2	13.9	
472	5.0	11.2	14.6	2	14.65	

207.0

217.0

SCALE 1" to 2' 0"

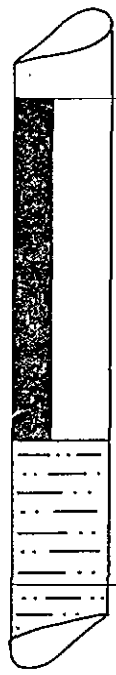
Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'T'

DRAWN BY

DATE. APRIL 1975

MIDDLE COALS SEAM 'B'	(feet)		WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
217.0							
	473	5.0	13.4	14.7	1	14.7	
222.0							



Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'T.'

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

ANALYTICAL DATA

R.D.H. "T"

Sample No. (SKR-)	Interval (feet)
465	177 - 182
466	182 - 187
467	187 - 192
468	192 - 197
469	197 - 202
470	202 - 207
471	207 - 212
472	212 - 217
473	217 - 222

COALITION MINING

November 26th, 1974

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gm)	Calc. Factors
SKR 465	24.2	.8	16.6	18.1	64.5	.35	.10	12,870	1.42	1 1/2	4,528	Air Dried
1595		24.8	12.6	13.7	48.9	.27	.08	9,755			3,432	As Rec'd
			16.7	18.2	65.1	.35	.10	12,975			4,565	Dry Basis
SKR 466	15.7	1.2	42.3	14.4	42.1	.21	.06	8,600	1.66	1	5,997	Air Dried
1596		16.7	35.7	12.1	35.5	.18	.05	7,250				As Rec'd
			42.8	14.6	42.6	.21	.06	8,705				Dry Basis
SKR 467	15.6	1.3	40.2	14.4	44.1	.19	.06	8,950	1.63	1	5,898	Air Dried
1597		16.7	33.9	12.2	37.2	.16	.05	7,555				As Rec'd
			40.7	14.6	44.7	.19	.06	9,070				Dry Basis
SKR 468	28.0	.6	16.2	18.7	64.5	.28	.07	12,910	1.42	1 1/2	4,119	Air Dried
1598		28.4	11.7	13.5	46.4	.20	.05	9,295				As Rec'd
			16.3	18.8	64.9	.28	.07	12,990				Dry Basis
SKR 469	20.4	.8	33.2	17.2	48.8	.31	.06	10,100	1.53	1 1/2	5,223	Air Dried
1599		21.0	26.4	13.7	38.9	.25	.05	8,040				As Rec'd
			33.5	17.3	49.2	.31	.06	10,180				Dry Basis
SKR 470	21.7	.6	19.5	17.6	62.3	.46	.21	12,395	1.44	1	3,415	Air Dried
1600		22.2	15.3	13.8	48.7	.36	.16	9,705				As Rec'd
			19.6	17.7	62.7	.46	.21	12,470				Dry Basis
SKR 471	26.4	.5	12.3	19.8	67.4	.28	.09	13,600	1.37	2	4.760	Air Dried
1601		26.8	9.1	14.6	49.5	.21	.07	10,010				As Rec'd
			12.4	19.9	67.7	.28	.09	13,670				Dry Basis
SKR 472	23.6	.4	14.6	18.7	66.3	.33	.06	13,200	1.40	2	5,060	Air Dried
1602		23.9	11.2	14.3	50.6	.25	.05	10,085				As Rec'd
			14.7	18.8	66.5	.33	.06	13,255				Dry Basis

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gm)	Calc. Factors
SKR 473	22.9	.7	14.7	15.4	69.2	.21	.07	13,195	1.61	1	6,030	Air Dried
1603		23.4	11.3	11.9	53.4	.16	.05	10,175				As Rec'd
			14.8	15.5	69.7	.21	.07	13,290				Dry Basis

COALITION MINING

February 21, 1975

Sample: Composite SKR 465 to 473 incl. (E)

LAB NO. 1641

HEAD RAW ANALYSES

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	S.G.	Calc. Factors
0.9	27.9	16.6	54.6	.40	10,990	1 1/2	1.53	Air Dry Basis
	28.2	16.7	55.1	.40	11,090			Dry Basis

SIZE ANALYSES (Wet)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	65.4	28.8	65.4	28.8	1 1/2
28 M x 200 M	18.4	21.1	83.8	27.1	4
200 M x 0	16.2	(32.0) Calc.	100.0	27.9	

COALITION MINING

February 21, 1975

Sample: Composite SKR 465 to 473 incl. (E)

LAB NO. 1641

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	31.2	2.0	31.2	2.0	5
1.30-1.40	21.7	6.1	52.9	3.7	2
1.40-1.60	12.4	22.0	65.3	7.2	1 1/2
+1.60	34.7	67.5	100.0	28.1	1/2

COALITION MINING

February 21, 1975

Sample: Composite SKR 465 to 473 incl. (E)

LAB NO. 1641

FROTH FLOTATION ANALYSES 28 M x 200 M

F.F. Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	40.8	6.9	40.8	6.9	7
Stage II	12.0	10.7	52.8	7.8	5 1/2
Tails	47.2	35.2	100.0	20.7	1 1/2

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

COALITION MINING

February 21, 1975

Sample: Composite SKR 465 to 473 incl. (E)

LAB NO. 1778

Comp. Floats
@ 1.60 S.G. of 1641

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
.5	7.3	19.6	72.6	.48	14,445	2	As analyzed
	7.3	19.7	73.0	.48	14,520		Dry Basis

LAB NO. 1962 - Composite I and II Stages off 1641

Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
	0.7	7.6	19.8	71.9	.53	14,400	5 1/2	As analyzed
		7.7	19.9	72.4	.53	14,500		Dry Basis

LAB NO. 1963 - Composite of 1962 and 1778

	0.7	7.3	20.8	71.2	.53	14,420	2 1/2	As analyzed
		7.4	20.9	71.7	.53	14,520		Dry Basis

ROKE

GAMMA RAY NEUTRON LOG

DENSILOG

OIL ENTERPRISES LTD. CALGARY, ALBERTA

FILE NO.	
LSD	
SEC	
TWP	
RGE	
W___M	
COMPANY	COALITION MINING LIMITED
WELL	RDH-T
LOCATION	
FIELD	SUKUNKA
PROVINCE	BRITISH COLUMBIA
Other Services:	NIL
Permanent Datum	GROUND LEVEL Elev.
Log Measured from	GROUND LEVEL Ft. Above Perm. Datum
Well Depths Measured from	GROUND LEVEL
K.B.	
CSG	
G.L.	

Run. No.	ONE
Date	1 NOVEMBER 1974
First Reading	270
Last Reading	000
Footage Logged	270
Depth Reached	271
Depth Driller	271
Casing Roke	
Casing Driller	
Fluid Type	AIR/WATER
Liquid Level	33
Min. Diam.	4-3/4
Rm @ °F	
Operating Time	3 HOURS
Truck No.	35
Recorded By	PETERSON
Witnessed By	SHEILDS

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EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	
HOIST TRUCK NO.		SPACING	17 INCH
INSTRUMENT TRUCK NO.	35	TYPE	AmBe
TOOL SERIAL NO.	177	STRENGTH	3 CURIES

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON				
RUN NO.	DEPTHS FROM	DEPTHS 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	000	270	12	3	500	0L	20	3	1000	2.6	44.23
	000	30	12	3	1000	10L	150 - NEUTRON				
	30	270	12	3	1000	0L	150				

REMARKS

DENSITY TOOL SERIAL NO 127 SOURCE #50

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
API →|20|←		API →|150|←
0 … 200		1500 … 4500

BULK DENSITY (GRAMS/CC)

1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80

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ROTARY DRILL HOLE STRIP LOG

COMPANY: COALITION MINING LTD.
PROPERTY: SUKUNKA COAL PROJECT
HOLE NUMBER: RDH – T
LOCATION: 52,000.20 N 72,907.82 E
DATE COMMENCED: OCTOBER 31, 1974
DATE COMPLETED: NOVEMBER 1, 1974
DEPTH: 271 FEET
GROUND ELEVATION: 2856 FEET
LOGGED BY: R.S. VOGAN & G.R. WALLIS
REMARKS: Strata: Lower Gething Sequence. Faulted intersection of Seam 'B' from 178 ft. to 220.5 ft.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) – PERCENT INDICATED; DULL PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC. (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft

DRILLING RATE MIN/FT	GAMMA RAY API (20)	LITHOLOGY	DESCRIPTION
			OVERBURDEN.
			MUDSTONE: brown grey silty to very silty to very fine sandy, calcareous grading to SILTSTONE, grading to very fine grained SANDSTONE, oxidized in part.
			slightly oxidized.
			MUDSTONE: as above grading to SILTSTONE: SANDSTONE: light to medium brown grey, S+P, very fine grained, calcareous, argillaceous.
			MUDSTONE: brown grey, silty to very silty, calcareous, grading to SILTSTONE.
			MUDSTONE: as above grading to SILTSTONE, grading to very fine grained SANDSTONE.
			MUDSTONE: brown grey, silty to very silty, calcareous, grading to SILTSTONE: trace calcite.
			MUDSTONE: as above, grading to SILTSTONE, grading to very fine grained SANDSTONE
			SANDSTONE: light to medium grey, S+P, very fine grained, calcareous, argillaceous, grading to SILTSTONE: MUDSTONE: as above.
			MUDSTONE: as above, grading to SILTSTONE: minor SANDSTONE: as above
			SANDSTONE: brown grey, S+P, very fine grained, calcareous, argillaceous, grading to SILTSTONE: MUDSTONE: as above.
			MUDSTONE: brown grey, silty to very silty, calcareous.
			MUDSTONE: as above, grading to SILTSTONE
			MUDSTONE: brown grey, silty, calcareous, micromicaceous
			MUDSTONE: brown grey, silty, calcareous, very sandy in part, scattered light to dark grey chert fragments.
			SANDSTONE: light brown grey, fine grained, calcareous, argillaceous, scattered fractures filled with calcite. MUDSTONE: dark grey, carbonaceous to coaly
'A' HORIZON			MUDSTONE: brown grey, very silty
			COAL: bright to dull sheared.
			SANDSTONE: brown grey, fine grained, calcareous, very argillaceous
			SANDSTONE: light brown grey, S+P, fine grained, calcareous, argillaceous
			SANDSTONE: as above except very fine to fine grained
			MUDSTONE: brown grey, silty to very silty, calcareous
			SANDSTONE: light to medium brown grey, S+P, very fine grained, calcareous, argillaceous
			MUDSTONE: brown grey, silty to very silty, calcareous, grading to SILTSTONE.
			MUDSTONE: medium to dark brown grey, silty, dolomitic to slightly dolomitic.
		IRONSTONE	MUDSTONE: as above except slightly dolomitic: scattered ironstone
			COAL: bri/dull (bri/dl) minor sheared fragments: MUDSTONE: dark grey, calcareous, silty, carbonac in part
			MUDSTONE: as above, pyritic: STONE COALY: containing coaly blebs, pyritic: COAL: bri/dull (bri/dl), intensely sheared in part.
			COAL: bri/dull (bri/dl), moderate shearing: CLAYSTONE:
			carbonac: pyritic
			COAL: bri/dull (bri/dl) minor shearing
			CLAYSTONE: carbonac: trace pyritic
			COAL: as above: SILTSTONE: as above: CLAYSTONE, carbonac.
'B' SEAM (FAULTED)			COAL: bri/dull (bri/dl): minor shearing:
			MUDSTONE: dark grey to carbonac: trace pyrite.
			COAL: bri/dull (bri/dl) very minor shearing
			STONE COALY
			COAL: as above, moderate shearing
			STONE COALY
			COAL: bri/dull (bri/dl), minor shearing
			MUDSTONE: as above
			MUDSTONE: dark grey, silty, carbonac in part
			SILTSTONE: mid grey, arenaceous, very minor fine sandy phases, trace coaly blebs
			MUDSTONE: dark grey, silty argillac, carbonac phases
			MUDSTONE: as above Fault (?)
			COAL: (V.P.S.)
'B' SEAM (REPETITION)			COAL: intensely sheared, indeterminate types
			MUDSTONE: as above
			MUDSTONE: as above.
			SILTSTONE: as for 225-230 ft.
			MUDSTONE: as above
			SILTSTONE, as above (V.P.S.)
			No Sample T.D. 271 feet

BORE NUMBER R.D.H. 'V'

Grid Reference: 51935.95 N 72633.39 E

Date Commenced: November 4, 1974 Date Completed: November 4, 1974

Collar R.L.: 2,800 feet Standard Datum.
Total Depth: 160 feet

Drilled by: Sedco Drilling
For: Coalition Mining Limited
Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density
By: Roke Oil Enterprises Limited

Logged by: R. S. Vogan and G. R. Wallis

COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
'B'		53.5 - 56.0	2.5		Total coal
		57.4 - 60.7	3.3		in seam
		61.8 - 62.5	0.7		= 11.5 ft.
	2731.0	64.0 - 69.0	5.0	15.5	

*) Thickness uncorrected for dip.

MIDDLE COALS

SEAM 'B'

		(FEET)	WT % (gms)	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
53.5							
55.0							
	478	5.0	10536	39.5	1	28.8	
	479	5.0	8058	16.2	1½		
65.0							

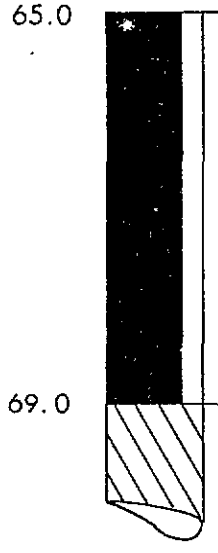
Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'V'

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

MIDDLE COALS
SEAM 'B'

(FEET)



WT %	ASH %	C.S.Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
NOT	ANALYSED			

Prepared by:
CLIFFORD McELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'V'

DRW BY G.R. WALLIS DATE: FEB. 27, 1975 SCALE: 1" = 2'

ANALYTICAL DATA

R.D.H. "V"

Sample No. (SKR-)	Interval (feet)
478	55 - 60
479	60 - 65

COALITION MINING

November 26th, 1974

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gms)	Calc. Factors
SKR 478	21.4	.7	39.5	14.8	45.0	.24	.15	9,050	1.64	1	10,536	Air Dried
1608		22.0	31.0	11.6	35.4	.18	.12	7,115				As Rec'd
			39.8	14.9	45.3	.24	.15	9,115				Dry Basis
SKR 479	25.8	.5	16.2	19.0	64.3	.35	.08	12,930	1.41	1 1/2	8,058	Air Dried
1609		26.2	12.0	14.1	47.7	.26	.06	9,595				As Rec'd
			16.3	19.1	64.6	.35	.08	12.995				Dry Basis

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITION MINING

February 21, 1975

Sample: Composite SKR 478 and 479 (E)

LAB NO. 1642

RAW ANALYSES

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	S.G.	Calc. Factors
0.8	28.8	17.0	53.4	.49	10,910	1	1.50	Air Dry Basis
	29.0	17.1	53.9	.49	11,000			Dry Basis

SIZE ANALYSES (Wet)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	70.2	29.7	70.2	29.7	1
28 M x 200 M	12.4	18.6	82.6	28.0	3 1/2
200 M x 0	17.4	(32.4) Calc.	100.0	28.8	

COALITION MINING

February 21, 1975

Sample: Composite SKR 478 and 479 (E)

LAB NO. 1642

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	34.8	1.8	34.8	1.8	4
1.30-1.40	23.9	4.4	58.7	2.9	1 1/2
1.40-1.60	7.9	18.5	66.6	4.7	1 1/2
+1.60	33.4	77.9	100.0	29.2	N.A.

Birtley Engineering
Subsidiary of Great West Steel Industries

COALITION MINING

Composite SKR 478 and 479 (E)

February 21, 1975

LAB NO. 1642

FROTH FLOTATION ANALYSES 28 M x 200 M

F.F. Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	46.2	5.3	46.2	5.3	6
Stage II	8.3	11.1	54.5	6.2	4 1/2
Tails	45.5	32.0	100.0	17.9	1 1/2

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

COALITION MINING

February 21, 1975

Composite SKR 478 and 479 (E)

LAB NO. 1779

Composite Floats @ 1.60 S.G. of 1642

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
.6	5.2	19.7	74.8	.57	14,720	2 1/2	As analyzed
	5.2	19.8	75.0	.57	14,810		Dry basis

Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
LAB NO. 1964 - Composite of I and II Stages 1642								
	0.7	6.1	19.4	73.8	.53	14,650	4 1/2	As analyzed
		6.1	19.5	74.4	.53	14,750		Dry Basis
LAB NO. 1965 - Composite of 1964 and 1779								
	0.7	5.3	19.2	74.8	.53	14,730	2 1/2	As analyzed
		5.3	19.3	75.4	.53	14,830		Dry Basis

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

(DENSILOG)

FILE NO.

COMPANY COALITION MINING LIMITED

WELL RDH-V

FIELD SUKUNKA

LOCATION

PROVINCE BRITISH COLUMBIA

Other Services: NIL

LSD SEC TWP RGE W M

Permanent Datum: GROUND LEVEL Elev. K.B.

Log Measured from: GROUND LEVEL Ft. Above Perm. Datum D.F.

Well Depths Measured from: GROUND LEVEL G.L.

Run No.	ONE
Date	4 NOVEMBER 1974
First Reading	160
Last Reading	000
Footage Logged	160
Depth Reached	160
Depth Driller	
Casing Type	
Casing Driller	
Casing Logger	
Bottom Hole Temp.	
Fluid Type	WATER
Fluid Level	0
Max. Rec. Temp.	
Rm @ °F	
Rmf @ °F	
Rmc @ °F	
Source of Rm, Rmf, Rmc	
Rm @ BHT	
Time Since Circ.	
Max. Rec. Temp.	
Equip. Location	
Recorded By	PETERSON
Witnessed By	SHIELDS
Operating Time	3 HOURS
Truck No.	35

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EQUIPMENT DATA

GAMMA RAY	
RUN NO.	ONE
TOOL MODEL NO.	
DIAMETER	1 11/16
DETECTOR MODEL NO.	
TYPE	GEIGER
LENGTH	18 INCH
DISTANCE TO N. SOURCE	8.55 FT.

NEUTRON	
RUN NO.	ONE
LOG TYPE	NEUTRON/NEUTRON
TOOL MODEL NO.	
DIAMETER	1 11/16
DETECTOR MODEL NO.	
TYPE	PROPORTIONAL
LENGTH	6 INCH
SOURCE MODEL NO.	MRC-N-SS-W
SERIAL NO.	
SPACING	17 INCH
TYPE	AmBe
STRENGTH	3 CURIES

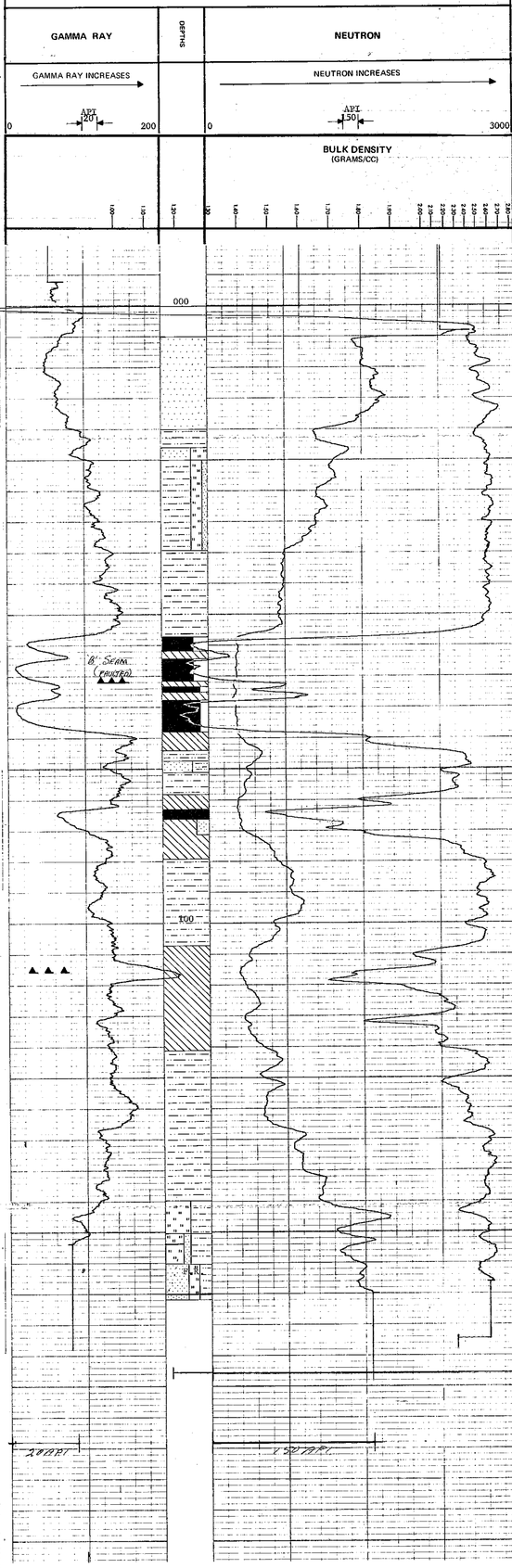
GENERAL	
HOIST TRUCK NO.	
INSTRUMENT TRUCK NO.	35
TOOL SERIAL NO.	177

LOGGING DATA

RUN NO.	GENERAL DEPTHS FROM	GENERAL DEPTHS TO	SPEED FT/MIN	GAMMA RAY T.C. SEC.	GAMMA RAY SENS SETTINGS	GAMMA RAY ZERO DIV. L OR R	GAMMA RAY API G. R. UNITS PER LOG DIV.	NEUTRON T. C. SEC.	NEUTRON SENS SETTINGS	NEUTRON ZERO DIV. L OR R	NEUTRON API N. UNITS PER LOG DIV
1	000	160	12	3	500	OL	20	3	1000	2.6	44.23
	NEUTRON		-	3	1000	OL	150				

REMARKS

DENSITY TOOL SERIAL NO 128 SOURCE #50



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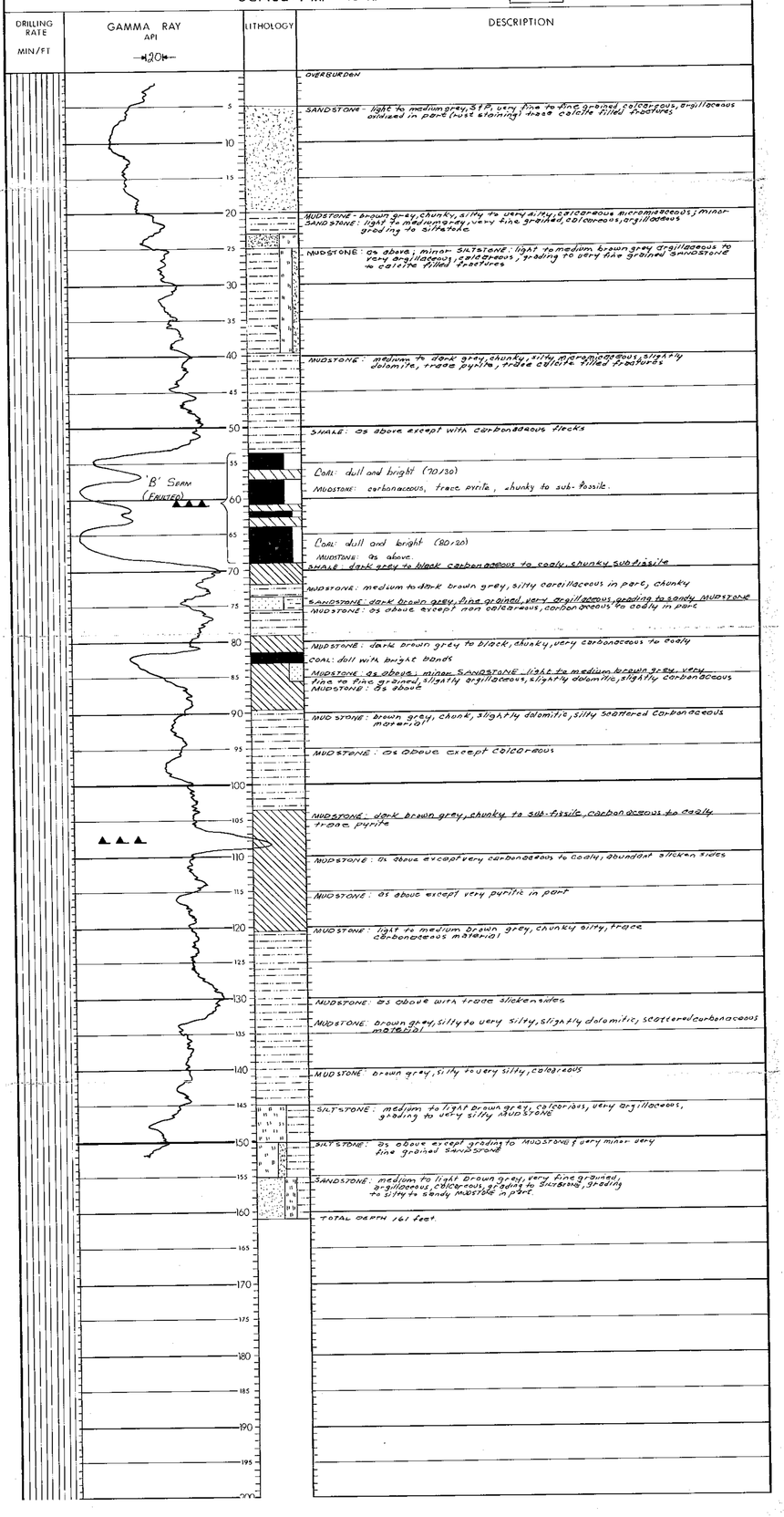
ROTARY DRILL HOLE STRIP LOG

COMPANY: COALITION MINING LTD.
PROPERTY: SUKUNKA COAL PROJECT
HOLE NUMBER: RDH - V
LOCATION: 51,935.95 N 72,633.39 E
DATE COMMENCED: NOV. 4, 1974
DATE COMPLETED: NOV. 4, 1974
DEPTH: 160 feet
GROUND ELEVATION: 2800 feet
LOGGED BY: R.S. VOGAN, G.R. WALLIS
REMARKS: Strata: Lower Gething Sequence. Seam 'B' 53.5 ft. to 69.0 ft.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) – PERCENT INDICATED; DULL – PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC. (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED, PROBABLE, POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft.



BORE NUMBER R.D.H. 'W'

Grid Reference: 51,882.52 N 73,248.59 E

Date Commenced: Nov. 5, 1974 Date Completed: Nov. 6, 1974

Collar R.L.: 2937 feet Standard Datum.
Total Depth: 244 feet

Drilled by: Sedco Drilling
For: Coalition Mining Limited
Using: Mayhew 1500 Rotary Rig

Radiation Logs: Gamma Ray - Neutron - Density
By: Roke Oil Enterprises Limited

Logged by: R.S. Vogan and G.R. Wallis

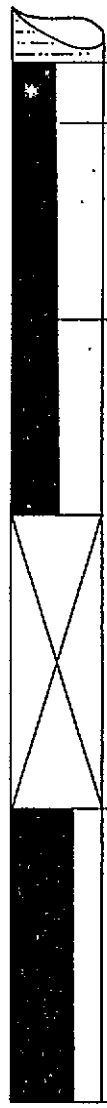
COAL SEAM INTERSECTIONS

Seam	Floor R.L.	Intervals (feet)	Thickness* (feet)	Total Seam (feet)	Remarks
'B'	2715.6	200.5 - 205.0	4.5		Total coal = 13.9 ft.
		208.0 - 212.5	4.5		
		215.0 - 217.0	2.0		
		218.5 - 221.4	2.9	20.9	
'A'	2801.0	130.5 - 136.0	5.5	-	Carb. mud-stone

*) Thickness uncorrected for dip.

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT (gms)	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
200.4							
	474	2.0	2960	14.3	1½		
			NOT	ANALYSED			
	475	3.0	5840	29.6	1		
211.0							



SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'W'

DRAWN BY DATE. APRIL 1975

MIDDLE COALS
SEAM 'B'

	SAMPLE Nº	THICKNESS (feet)	WT (gms)	ASH %	C. S. Nº	ASH % CUMULATIVE FROM FLOOR INCL. BANDS	ASH % CUMULATIVE FROM FLOOR EXCL. BANDS
211.0							
	476	5.0	4405	55.0	1	36.5	
	477	5.3	2471	15.9	1	15.9	
221.3							

SCALE 1" to 2' 0"

Prepared by
CLIFFORD Mc ELROY & ASSOCIATES PTY. LTD.
for
COALITION MINING LIMITED

SEAM SECTIONS
RDH 'W'

DRAWN BY DATE APRIL 1975

ANALYTICAL DATA

R.D.H. "W"

Sample No. (SKR-)	Interval (feet)
474	201 - 203
475	208 - 211
476	211 - 216
477	216 - 221

COALITION MINING

November 26th, 1974

Sample: Chip Samples

Lab No.	A.D.L.	Oven Moist.	Ash	Vol.	F.C.	S.	P.	B.T.U.	S.G.	F.S.I.	Sample wt (gms)	Calc. Factors
SKR 474	23.0	.4	14.7	17.6	67.3	.57	.17	13,195	1.38	1 1/2	2,960	Air Dried
1604		23.3	11.3	13.6	51.8	.44		10,160				As Rec'd
			14.8	17.7	67.5	.57		13,250				Dry Basis
SKR 475	26.1	.5	29.6	16.4	53.5	.46	.14	10,710	1.55	1	5,840	Air Dried
1605		26.5	21.9	12.1	39.5	.34		7,915				As Rec'd
			29.7	16.5	53.8	.46		10,765				Dry Basis
SKR 476	23.3	.6	55.0	12.6	31.8	.18	.10	6,460	1.81	1	4,405	Air Dried
1606		23.8	42.2	9.7	24.3	.14		4,955				As Rec'd
			55.3	12.7	32.0	.18		6,500				Dry Basis
SKR 477	38.4	.5	34.0	15.9	49.6	.24	.08	9,990	1.54	1	2.471	Air Dried
1607		38.7	20.9	9.8	30.6	.15		6,155				As Rec'd
			34.2	16.0	49.8	.24		10,040				Dry Basis

COALITION MINING

February 21, 1975

Sample: Composite SKR 474 to 477 (E)

LAB NO. 1643

RAW ANALYSES (HEAD)

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	S.G.	Calc. Factors
0.7	33.6	18.7	47.0	.53	10,080	1	1.54	Air Dry Basis
	33.8	18.8	47.4	.53	10,150			Dry Basis

SIZE ANALYSES (Wet)

Size Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
+ 28 M	66.5	33.5	66.5	33.5	1
28 M x 200 M	11.3	31.2	77.8	33.2	2
200 M x 0	22.2	(35.1) Calc.	100.0	33.6	

COALITION MINING

February 21, 1975

Sample: Composite SKR 474 to 477 (E)

LAB NO. 1643

SINK-FLOAT ANALYSES + 28 M

S.G. Fraction	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
-1.30	34.6	1.9	34.6	1.9	4
1.30-1.40	20.6	5.1	55.2	3.1	1 1/2
1.40-1.60	6.4	18.4	61.6	4.7	1 1/2
+1.60	38.4	79.7	100.0	33.5	N.A.

COALITION MINING

February 21, 1975

Sample: Composite SKR 474 to 477 (E)

LAB NO. 1643

FROTH FLOTATION ANALYSES 28 M x 200 M

F.F. Product	Wt %	Ash %	Cum Wt %	Cum Ash %	F.S.I.
Stage I	43.4	9.7	43.4	9.7	4 1/2
Stage II	12.5	22.7	55.9	12.6	3 1/2
Tails	44.1	53.3	100.0	30.6	1

F.F. Parameters

Pulp Density	-	10%
Reagent Dosage	-	0.24 lbs/Ton Kerosene:MIBC (4:1)
Conditioning Time	-	60 seconds
Stage I	-	first minute froth
Stage II	-	second minute froth

COALITION MINING

February 21, 1975

Sample: Composite SKR 474 to 477 (E)

LAB NO. 1780

Composite Floats @ 1.60 S.G. of 1643

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
0.6	4.8	19.7	74.9	.55	14,760	2 1/2	As analyzed
	4.8	19.8	75.4	.55	14,850		Dry Basis

LAB NO. 1966 - Composite I and II Stages of 1643

Total Yield %	R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
	0.7	12.4	18.1	68.8	.53	13,540	3 1/2	As analyzed
		12.5	18.2	69.3	.52	13,640		Dry Basis

LAB NO. 1967 - Composite 1966 and 1780

R.M.	Ash %	V.M.	F.C.	S.	B.T.U.	F.S.I.	Calc. Factors
0.7	5.9	18.7	74.7	.64	14,600	2 1/2	As analyzed
	5.9	18.8	75.3	.64	14,700		Dry Basis

ROKE

OIL ENTERPRISES LTD. CALGARY, ALBERTA

GAMMA RAY NEUTRON LOG

DENSILOG

FILE NO.	
LSD	
SEC	
TWP	
RGE	
W M	
COMPANY	COALITION MINING LIMITED
WELL	RDH-W
LOCATION	
FIELD	SUKUNKA
PROVINCE	BRITISH COLUMBIA
Other Services:	NIL
Permanent Datum	GROUND LEVEL
Elev.	
Log Measured from	GROUND LEVEL
Ft. Above Perm. Datum	
Well Depths Measured from	GROUND LEVEL
K.B.	
CSG	
G.L.	

Run. No.	ONE		
Date	6 NOVEMBER 1974		
First Reading	243		
Last Reading	000		
Footage Logged	243		
Depth Reached	244		
Depth Driller	244		
Casing Roke			
Casing Driller			
Fluid Type	AIR/WATER		
Liquid Level	14		
Min. Diam.	4-3/4		
Rm @ °F			
Operating Time	3 HOURS		
Truck No.	35		
Recorded By	PETERSON	Witnessed By	SHEILDS

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EQUIPMENT DATA

GAMMA RAY		NEUTRON	
RUN NO.	ONE	RUN NO.	ONE
TOOL MODEL NO.		LOG TYPE	NEUTRON/NEUTRON
DIAMETER	$1\frac{11}{16}$	TOOL MODEL NO.	
DETECTOR MODEL NO.		DIAMETER	$1\frac{11}{16}$
TYPE	GEIGER	DETECTOR MODEL NO.	
LENGTH	18 INCH	TYPE	PROPORTIONAL
DISTANCE TO N. SOURCE	8.55 FT.	LENGTH	6 INCH
		SOURCE MODEL NO.	MRC-N-SS-W
GENERAL		SERIAL NO.	
HOIST TRUCK NO.		SPACING	17 INCH
INSTRUMENT TRUCK NO.	35	TYPE	AmBe
TOOL SERIAL NO.	177	STRENGTH	3 CURIES

LOGGING DATA

GENERAL				GAMMA RAY				NEUTRON			
RUN NO.	DEPTHS FROM	DEPTHS 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	000	243	12	3	500	0L	20	3	1000	2.6R	44.23
	000	11	12	3	1000	10L	150 - NEUTRON				
	11	243	12	3	1000	0L	150				

REMARKS

DENSITY TOOL SERIAL NO 128 SOURCE #50

GAMMA RAY	DEPTHS	NEUTRON
GAMMA RAY INCREASES →		NEUTRON INCREASES →
0 API 20 200		1500 API 150 4500
		BULK DENSITY (GRAMS/CC)

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ROTARY DRILL HOLE STRIP LOG

COMPANY: COALITION MINING LTD.
PROPERTY: SUKUNKA COAL PROJECT
HOLE NUMBER: RDH - W
LOCATION: 51,882.52 N 73,248.59 E
DATE COMMENCED: NOVEMBER 5, 1974
DATE COMPLETED: NOVEMBER 6, 1974
DEPTH: 244 FEET
GROUND ELEVATION: 2937 FEET
LOGGED BY: R.S. VOGAN & G.R. WALLIS
REMARKS: Strata : Lower Gething Sequence. Seam 'B' 200.5 ft. to 221.5 ft. faulted.

LEGEND

CONGLOMERATE
SANDSTONE
SILTSTONE
MUDSTONE
COAL — BRIGHT (SOLID) - PERCENT INDICATED; DULL PERCENT INDICATED
STONE COALY OR CLAYSTONE CARBONACEOUS
INTERBEDDED SILTSTONE, MUDSTONE ETC (PERCENTAGE OF EACH ROCK COMPONENT INDICATED)
G — GLAUCONITIC
FAULT — ESTABLISHED; PROBABLE; POSSIBLE
V.P.S. — VERY POOR SAMPLES (ABUNDANT CAVINGS)

SCALE: 1 in. = 10 ft.

DRILLING RATE MIN/FT	GAMMA RAY API ←20→	LITHOLOGY	DESCRIPTION
			MUDSTONE: grey, calcareous, very silty to very fine sandy, micromicaceous, pyritic in part, grading to argillaceous very fine grained SANDSTONE, grading to SILTSTONE.
			MUDSTONE: grey, calcareous, very silty, ??? argillaceous SILTSTONE.
			MUDSTONE: grey, calcareous, very silty to very fine sandy, grading to argillaceous SANDSTONE, grading to SILTSTONE (oxidized in part) scattered loose dolomite, calcite and quartz.
			MUDSTONE: grey to brown, calcareous, very silty, grading to argillaceous SILTSTONE (oxidized in part)
			MUDSTONE: as above except very fine sandy to very silty, grading to argillaceous SANDSTONE, grading to argillaceous SILTSTONE (oxidized in part), scattered calcite.
			SANDSTONE: medium to light grey, S+P very fine grained, argillaceous, calcareous, grading to SILTSTONE (oxidized in part), minor MUDSTONE: brown grey, silty to very silty.
			MUDSTONE: grey, silty to very silty, calcareous, grading to SILTSTONE.
			MUDSTONE: as above, grading to SILTSTONE, grading to very fine grained SANDSTONE.
			MUDSTONE: grey, silty to very silty, calcareous.
			MUDSTONE: grey, silty to very silty, to very fine sandy, calcareous, grading to SILTSTONE, grading to very fine grained SANDSTONE.
			MUDSTONE: grey, silty, calcareous.
			MUDSTONE: as above: scattered calcite.
			MUDSTONE: as above.
'A' HORIZON			MUDSTONE: dark grey, very carbonaceous to coaly, silty in part, calcareous in part; scattered fractures filled with calcite, minor slickensides.
			SANDSTONE: light to medium grey, S+P, fine grained, calcareous, argillaceous, trace carbonaceous material.
			SANDSTONE: as above except very fine to fine grained.
			SANDSTONE: as above except oxidized in part.
			SANDSTONE: as above except slightly oxidized
			SANDSTONE: as above except oxidized in part.
			MUDSTONE: grey, silty to very silty, calcareous, grading to SILTSTONE.
			MUDSTONE: grey, silty, calcareous to slightly calcareous.
			MUDSTONE: medium to dark brown grey, slightly dolomitic, slightly pyritic.
			COAL: Bt / Dul. (Vit/40) macerated in part
			NO SAMPLE TAKEN
'B' SEAM (FAULTED)			COAL: Brt / dull (15/25) macerated
			COAL: Brt / dull ratio indeterminate due to shearing STONE COALY with coaly blebs MUDSTONE: dark brown grey, argillac, carbonaceous
			COAL: as above MUDSTONE: as above
			MUDSTONE: dark brown grey, very carbonaceous to coaly.
			MUDSTONE: grey, silty to very silty to very fine sandy, minor SANDSTONE: brown grey, fine to medium grained, argillaceous, very slightly dolomitic in part, slightly friable, trace fractures filled with dolomite.
			MUDSTONE: dark grey, carbonaceous to coaly.
			MUDSTONE: brown grey, silty to very silty, calcareous in part, grading to SILTSTONE.
			MUDSTONE: as above except calcareous, grading to SILTSTONE; scattered to abundant calcite.
			T.D. 244 feet

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PR-Sukunka 74(3)E.1

Sukunka Middle

Coals Area

Volume 3