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WOODBURY COAL DEPOSIT

EL 31/80 - TASMANIA

DEFINITION OF THE RESOURCE

VICTOR PETROLEUM - RESOURCES.

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October, 1981.

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<u>REFERENCES</u>	
(i)	Australian Standard 1038, Part 16, 1975
-	Methods for the analysis and testing of Coal and Coke.
	Part 16: Reporting of Results (metric units)
(ii)	Standards Association of Australia
-	Committee MN/1 - Coal and Coke
	Draft Australian Standard for Evaluation of Hard Coal Deposits using Borehole Techniques

SUMMARY

Victor Petroleum and Resources Ltd. commenced a scout drilling programme within Exploration Licence 31/80, in January, 1981. As a consequence of this drilling, coal seams were intersected at Woodbury adjacent to the Midland Highway and railway line connecting Hobart, 80 kms. to the south and Launceston, 85 kms. to the north.

Based on the programme of open hole drilling and wire line logging, the Woodbury area was estimated to contain an in situ inferred resource of 65 million tonnes of coal.

The principal objectives of the follow-up core drilling programme at Woodbury, with holes spaced at approx. 1 km. apart, was to more accurately determine the reserves, quality of the coal and to define rapidly exploitable coal.

Detailed assessment of the geology, drilling data, and proximate analyses of the coal seams has resulted in the definition of 18.7 million tonnes of measured and first class indicated reserves with a maximum overburden ratio of 10:1. Underground and additional open cut reserves are indicated at Woodbury or in the immediate vicinity, but definition of these reserves has not been possible due to inclement weather over recent months.

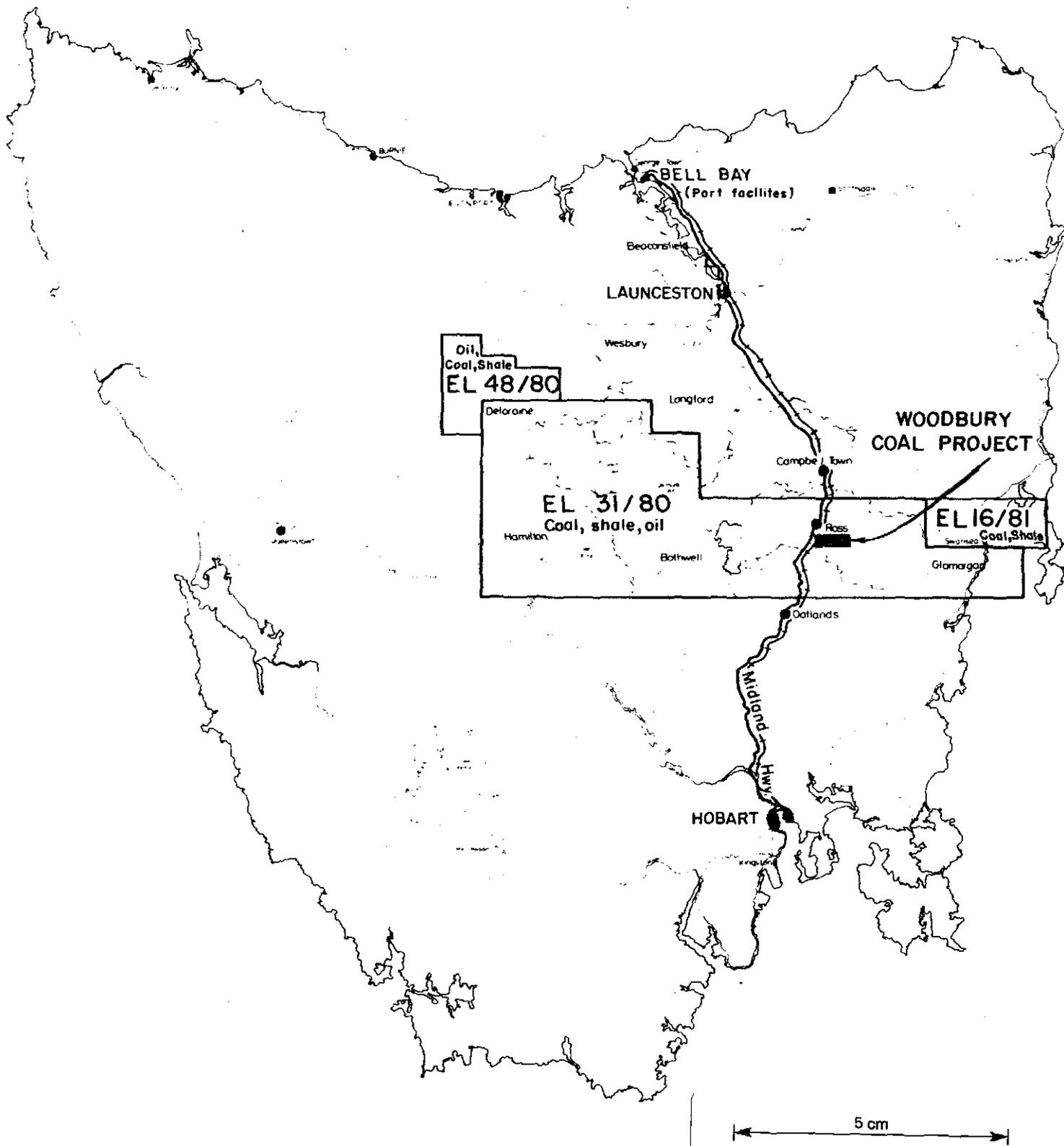
The in situ measured and first class indicated coal reserves have an average ash content of 40.2%, moisture approximately 5%, volatile matter, generally ranging between 10-20%, fixed carbon 40-52%, sulphur less than 0.5%, chlorine less than 0.05% and a specific energy of 16-23 MJ/kg.

Preliminary sink float testing of slim cores indicates that the Woodbury coal is amenable to washing to a 20% Ash product with a specific energy of 25-28 MJ/kg, and volatile carbon matter greater than 24%. Coal from portions of the deposit will have a washed product volatile matter content of <15%.

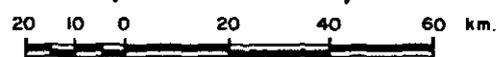
A prefeasibility study conducted by Dames & Moore, based on the open hole drilling results established the parameters required for an economic mining operation at Woodbury. The existence of open cut reserves and the location of the deposit adjacent to existing infrastructure, represents a distinct advantage in terms of possible mine development.

The decision to establish a mining operation, based on the insitu measured and first class indicated reserves, as discussed in this report, will need to be preceded by additional infill drilling, large diameter core drilling and washability tests and a full feasibility study to determine the scope of the mining operation, capital and operating costs, the granting of a mining lease and closer definition of potential markets.

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VICTOR PETROLEUM & RESOURCES LTD.
 LOCALITY PLAN OF
 E.L. 28/81 , E.L. 48/80 , E.L. 6/81 , E.L. 31/80 & E.L. 16/81



MARCH 1981

FIG. 1

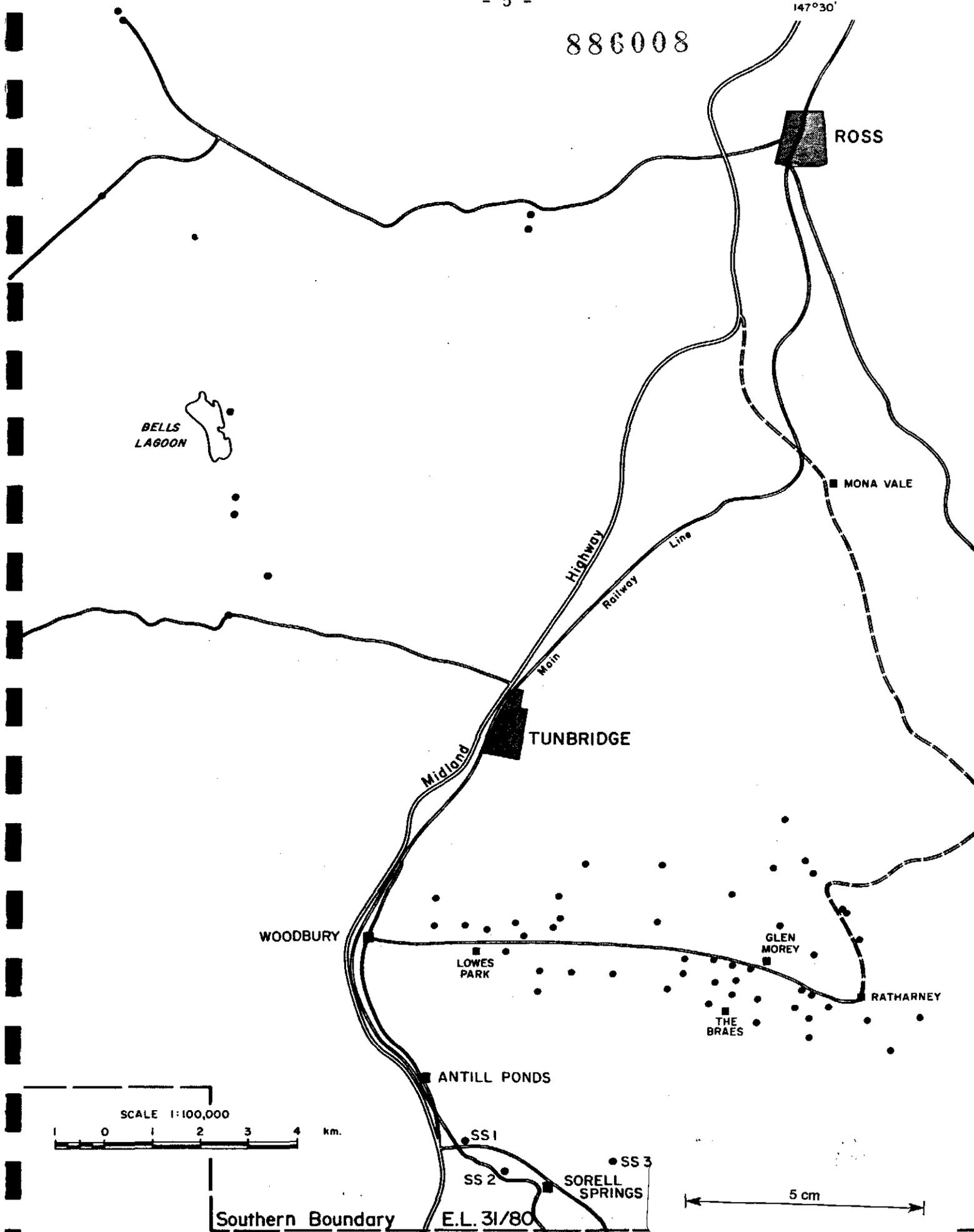
COAL RESERVES - WOODBURY AREA

1.0 INTRODUCTION

The Woodbury Coal Deposit is located 80 km. north of Hobart and 85 km. S.S.E. of Launceston and extends from 1 km. to 10 km. east of the connecting Midland Highway. The area consists of undulating pastoral lands, interspersed with low ranges which are capped by dolerite.

Investigations by Victor Petroleum and Resources Ltd. commenced in January, 1981, and to date, consist of both open drill holes (903m) and cored drill holes (1880.49m), totalling 2783.49m of drilling. Total exploration expenditure on the area is \$550,777, to July 30, 1981.

886008



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TASMANIA E.L. 31/80

WOODBURY COAL PROJECT & DRILL HOLE LOCATION PLAN

2.0 GEOLOGY

2.1 LITHOLOGY & STRATIGRAPHY

The middle to late Triassic stratigraphy of the Woodbury area consists of a coal measures sequence overlying a tuff and siltstone sequence. The coal measures sequence consists of lithic sandstone, mudstone (grey, brown and carbonaceous), coal, minor siltstone and rare tuffs. The tuff-siltstone sequence consists of lithic and sub-lithic sandstone, siltstone and mudstone (cream, grey, green) with numerous tuff (and volcanic) bands, and is apparently devoid of coal.

Consideration of coal seam and general stratigraphic correlations indicates two components to the Woodbury Coal Deposit, namely the Western Area and the Eastern Area. The boundary between the areas is located approx. 5 km. east of the Midland Highway. The Western Area contains five coal seams, named, L, M, N, O and P, while the Eastern Area contains at least four coal seams, defined as A, B, C, and D

2.2 STRUCTURE

The geological cross sections show the coal seams to be predominantly planar with minor monoclinical warping; the coal measures sequence appears to dip to the S.S.W. at 3-5°, with local variations, possibly caused by proximity to faults.

2.2 STRUCTURE (Contd.)

Faulting is inferred where coal seams are offset, while orientation and location of the faults were defined by photo lineaments, as shown on the accompanying plan (Figure 4). The next effect of the faulting has been to produce polygonal shaped blocks, containing different coal seams placed in juxtaposition. The relationship of the faulting to dolerite intrusions will be more clearly understood after interpretation of the gravity survey.

As a consequence, coal amenable to open cut mining consist of any of the coal seams, as shown in Tables 2 and 3, and cross sections.

2.3 COAL SEAM CHARACTERISTICS

Detailed coal seam characteristics are shown in Table (1). The coal seams of the Woodbury Deposit have been correlated using lithological, analytical, general stratigraphic and geophysical parameters.

- | | |
|--------------------------|---|
| Seam A:
(Lowest Seam) | Consists of two sub-seams, and has an average thickness of 0.48m, and an average of 4.6% moisture, 32.5% ash, 7.7% volatile matter and 17 MJ/kg specific energy. |
| Seam B: | Consists of a maximum of four sub-seams and has an average thickness of 0.83m, and an average of 3.4% moisture, 38.5% ash, 10.7% volatile matter and 18.8 MJ/kg specific energy. |
| Seam C: | Consists of a maximum of four sub-seams (usually three), and has an average thickness of 1.87m, and an average of 4.3% moisture, 31.3% ash, 15.5% volatile matter and 21.1 MJ/kg specific energy. |

TABLE 1:

COAL SEAM CHARACTERISTICS

Hole	Seam	Sub Seam	Thickness (m)	No. of Stone Bands	Type of Stone Bands	Roof	Floor	m (%)	a (%)	VM (%)	Fixed C (%)	SE MJ/kg	S (%)	Cl (%)
W38	D ✓	-	1.05	-	-	ms/gry	ms/brn	5.6	26.0	20.0	48.3	22.8	.45	.01
W39	D ✓	-	2.86	2	ms, c	ss	ms/c/brn	4.1	27.8	19.8	48.3	22.1	.46	.04
W46	D ✓	-	2.40	3	ms, c(2) ms/brn(1)	{ ss	ms, gry	-	44.4	-	-	-	-	-
Ave.			2.10	2				4.8	32.7	19.9	48.3	22.4	0.45	0.03
W25	C ✓	C4	0.20 ^{0.30}	-	-	ss	ms/gry	-	-	-	-	-	-	-
		C3	0.33	2	ms/c/gry	ms/gry	ms/gry	-	NO	-	-	-	-	-
		C2	0.57	1	ms/brn	ms/gry	ms/gry	5.1	(39.5)	18.1	37.3	17.6	.43	.03
		C1	0.51	-	-	ms/c	ms/gry	4.3	27.9	21.2	46.6	22.4	.47	.04
W32	C ✓	C3	0.97	2	ms/brn	ms/gry	ms/gry	6.1	29.1(46)	18.9	45.9	21.5	.43	<.01
		C2	1.00	1	silt/gry	ms/gry	ms/c	5.8	31.5	16.6	46.1	21.1	.47	.01
W38	C ✓	C3	1.06	2	ms/c	ss	ms/c	3.7	29.7	16.1	50.5	22.1	.37	.02
		C2	1.10	2	ms/brn	ms/gry	ms/gry	4.5	28.4	16.7	50.4	22.5	.43	.01
W39	C	C3 ✓	0.49 ✓	1	ms/brn	"	"	4.3	36.0	15.2	44.5	20.4	.43	<0.01
		C2 ✓	0.91 ✓	2	ms/brn	"	"	5.4	29.3	16.5	48.8	22.1	.45	.01
		C1 ✓	0.67 ✓	-	-	"	"	4.3	28.6	15.3	51.8	22.7	.47	.02
W46	C	C3	0.50	1	ms/brn	"	"	-	31.8	-	-	-	-	-
		C1,2	1.58	2	ms/c/brn	"	ms/c	-	-	-	-	-	-	-
W47 ✓	C	C1,2	1.28	1	ms/brn	ms/c	ms/c	2.3	34.6	7.9	55.2	20.3	.38	.03
W48	C	C3	0.89	?	-	ss	ms/brn	-	-	-	-	-	-	-
		C1,2	1.02	1	ms/gry	ms/gry	silt/gry	-	28.6	-	-	-	-	-
Ave.			1.87	2				4.3	31.3	15.5	48.4	21.1	0.43	0.02
W32	B ✓	B4	1.00	-	-	ms/gry	ms/c	3.8	33.7	13.1	49.4	21.1	.36	0.01
W39	B ✓	B4	0.51	-	-	"	"	4.2	45.9	4.8	45.1	16.6	.49	.03
W40	B ✓	B4	0.65	-	-	ss	ms/gry	2.6	29.9	15.6	51.9	23.0	.44	.04
W41	B ✓	B4	0.75 ✓	-	-	ms/gry	ms/c	2.7	32.1	8.0	57.2	21.6	.36	.03
		B2,3	1.49	-	-	ss	"	2.2	40.7	6.1	51.0	18.2	.25	.04
		B1	0.55	-	-	ms/c	"	2.2	34.5	8.3	55.0	19.9	.66	.05

TABLE 1:

COAL SEAM CHARACTERISTICS

Page 2.

Hole	Seam	Sub Seam	Thickness (m)	No. of Stone Bands	Type of Stone Bands	Roof	Floor	m(%)	a(%)	VM(%)	Fixed C (%)	SE MJ/kg	S (%)	Cl (%)
W46	B	B4	0.60	-	-	ss	ms/c	1.8	46.0	7.6	44.6	17.4	.24	.04
W47	B	B4	0.59	-	-	ms/gry	"	2.7	43.1	6.6	47.6	16.2	.55	.03
W48	B	B4	0.75	1	ms/c	"	ms/gry	-	35.8	-	-	-	-	-
W61	B	B4	0.83	-	-	"	"	3.2	28.0	15.7	53.1	23.2	.51	.01
		B2,3	1.66	2	ms/carb	"	"	3.8	34.8	10.8	50.6	20.1	.25	.03
W63	B	B	1.20	3	"	"	silt/gry	6.0	44.7	16.9	32.4	14.4	.25	.05
		Ave.	0.83	-	-	-	-	3.4	38.5	10.7	47.1	18.8	0.39	0.03
W40	A	A2	0.26	-	-	ms/carb	ms/carb	3.8	39.2	4.7	52.3	17.0	0.46	0.03
		A1	0.41	-	-	"	"		5.1	52.5	-	-	-	-
W41	A	A2	0.45	-	-	"	"	4.2	56.4	-	-	-	-	-
W61	A	A2	0.45	-	-	"	"	8.1	41.4	5.3	45.2	15.3	0.79	0.04
		A1	0.32	-	-	"	"		1.9	39.2	13.0	45.9	18.7	0.25
W36A	A	A1,2	0.78	-	-	ss	"							
		Ave.	0.48	-	-	-	-	4.6	43.5	7.7	47.8	17.0	0.50	0.03

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2.3 COAL SEAM CHARACTERISTICS (Contd.)

Seam D:
(Highest Seam) Consists of a single seam, with an average thickness of 2.10m, and an average of 4.8% moisture, 32.7% ash, 19.9% volatile matter and 22.4 MJ/kg specific energy.

The analytical data quoted above is on an air dried basis.

The four seams show three trends from Seam A to Seam D, namely:-

- (i) decreasing ash
- (ii) increasing volatile matter
- (iii) increasing specific energy

The characteristics of coal seams, L, M, N, O, and P within the Western Area of the Woodbury Deposit are not as clearly defined, and will require further drilling to do so.

3.0 PARAMETERS & METHOD USED IN CALCULATION OF OPEN CUT COAL RESERVES

3.1 INTRODUCTION

The terminology employed in the determination of the coal reserves at Woodbury is based on the procedures defined by the Geological Survey of Queensland and the Standing Committee on Coal Field Geology of New South Wales (Code for Calculating and Reporting Coal Reserves - Third Edition ratified since 1977- as shown in SAA DR 81033, January, 1981).

The calculation of the open cut reserves at Woodbury was based on all relevant factors as discussed below. All drill holes were logged according to lithology, geophysical properties (with some exceptions) and observable coal seam characteristics. Proximate analysis, ash analysis, ash fusion temperatures and sink float testing were conducted by S.G.S. Australia Pty. Ltd. in Sydney, on the total coal seam obtained from HQ drilling.

3.2 PHYSICAL FACTORS

- 3.2.1 A minimum coal sub seam thickness of 0.2m was used when part of a seam which met overburden to coal criteria.
- 3.2.2 Stone bands greater than 0.3m thick and clearly distinguishable by colour from coal were excluded from calculations of cumulative coal thickness.
- 3.2.3 Carbonaceous mudstone bands constituting coal seam floors when less than 0.3m thick were included in the cumulative coal thickness.

3.3 ANALYTICAL FACTORS

3.3.1 Individual coal seams with an ash content greater than 50% were excluded from consideration for coal reserves.

3.3.2 Coal seams with an ash content greater than 50% where accompanied by other lower ash coal seams such that the weighted average ash content was less than 50%, were included.

3.4 COAL SEAM QUALITY

3.4.1 Ash

Figure (3) depicts specific energy and relative density versus ash and the line of best fit for the relative density - ash data was used to determine the ash contents of those blocks for which no direct ash data existed.

3.4.2 Volatile Matter

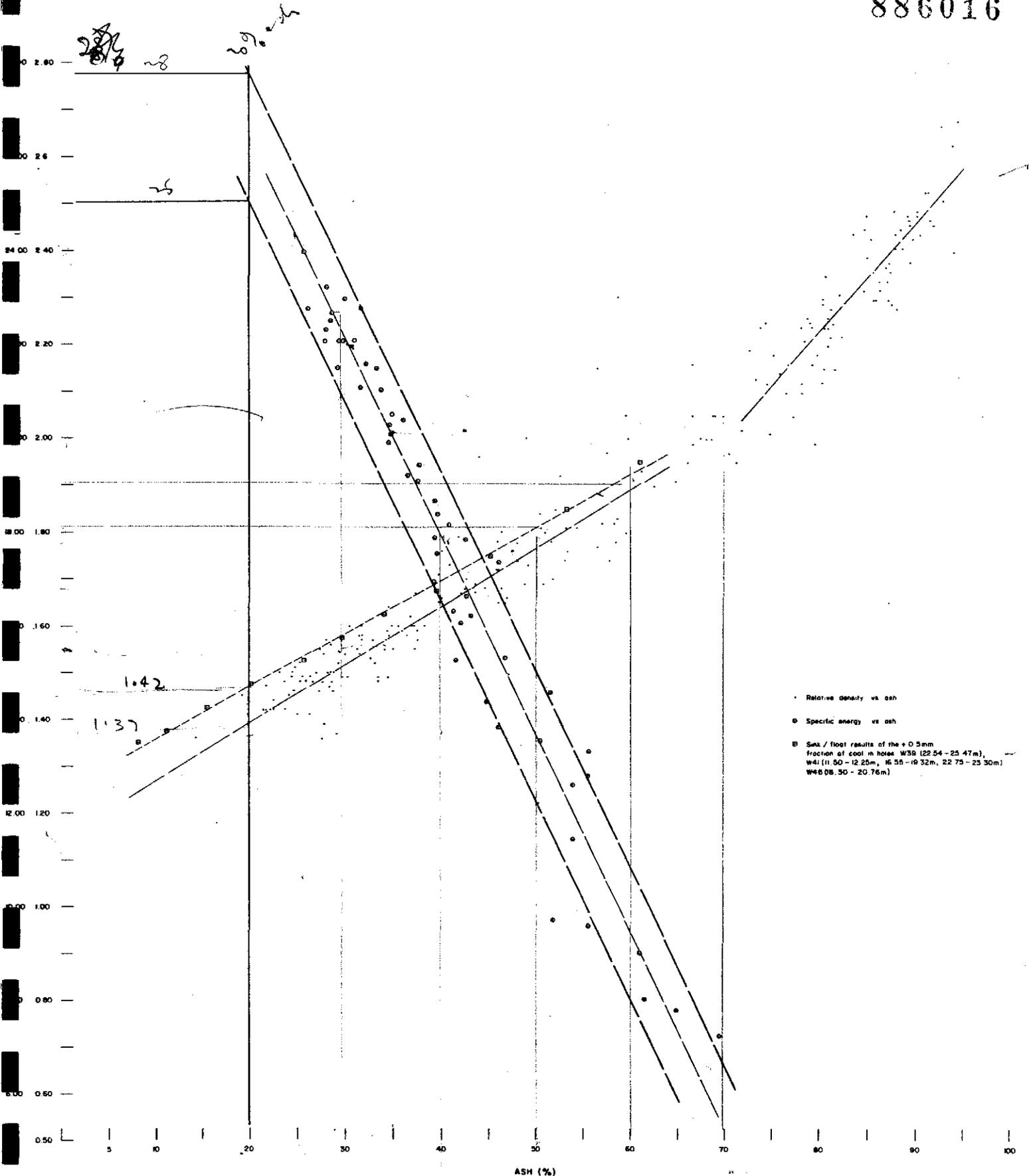
The volatile matter (VM) as shown in Tables 2 and 3 was estimated using a slight modification to the formula quoted in AS 1038, Part 16, 1975,

$$\text{ie. VM (d.a.f.)} = \text{VM} \left(\frac{100}{100 - m - a} \right)$$

where the volatile matter (VM), the moisture (m) and ash (a) are air dried values. The formula quoted in AS 1038, Part 16, 1975, used VM (a.m.m.f.) i.e., dry mineral matter free as distinct from dry ash free.

This VM (d.a.f.) value was then used in the following expression to obtain the estimated volatile matter in the coal after washing to 20% ash.

$$\begin{aligned} \text{VM (20\% ash)} &= \text{VM(d.a.f.)} \left(\frac{100 - m - a}{100} \right) \\ &= 0.76 \times \text{VM (d.a.f.) for 4\% moisture} \end{aligned}$$



VICTOR PETROLEUM & RESOURCES LTD.

WOODBURY COAL PROJECT

SPECIFIC ENERGY / RELATIVE DENSITY

KEMP DRAFTING & CARTOGRAPHY P/L

FIG. 3

TABLE 2

MEASURED OPEN CUT COAL RESERVE BLOCK DETAILS

Block	Hole(s)	Intersection (m)	Seam	W(m)	B.O.(m)	To+W(m)	A(km ²)	T.F.(T/m ³)	Tonnes (x10 ⁶)	Ash (%)	VM(%)	SE (MJ/kg)	S(%)
1.	W30	10.55 - 10.90	0	{	<10.0	40.3	0.07	1.60	0.265	36.5	12.3	25.6	0.29
		20.20 - 21.00	N										
		34.88 - 36.10	M										
2.	W30	20.20 - 21.00 34.88 - 36.10	N M	{	<10.0	33.5	0.12	1.56	0.378	33.2	11.9	25.8	0.30
3.	W30	34.88 - 36.10	M	{	<10.0	20.0	0.10	1.54	0.188	31.6	10.3	26.6	0.36
4.	W37	11.23 - 11.95	L	{	8.8	11.9	0.63	1.56	0.708	34.9	14.2	25.0	0.34
5.	W38	61.30 - 62.35	D	{	11.9	16.8	0.13	1.50	0.205	26.0	22.2	25.3	0.45
6.	W32	16.65 - 17.62	C3	{	7.3	37.2	0.65	1.79	2.292	44.0	24.0	27.2	0.40
		18.80 - 19.80	C2										
7.	W25	19.00 - 19.20	C4	{	11.2	28.7	0.47	1.68	1.271	43.0	25.0	22.1	0.37
		21.38 - 21.71	C3										
		25.37 - 25.94	C2										
		27.68 - 28.19	C1										
8.	W1 (W39)	58.02 - 58.55	C3	{	<10.0	37.1	0.18	1.66	0.630	41.2	18.7	23.6	0.37
		59.14 - 60.05	C2										
		61.60 - 62.27	C1										
9.	W46	56.96 - 57.46	C3	{	<10.0	33.5	0.25	1.76	0.792	49.2	-	-	-
		59.90 - 61.48	C1,2										
10.	W61	29.65 - 30.17 30.71 - 31.85	B3 B2	{	8.0	28.8	0.05	1.63	0.135	38.7	13.4	24.9	0.25

WESTERN DEPOSIT

EASTERN DEPOSIT

50-2%
36-4
31-6

since some areas

200mm
79

58% ash

no analysis - poor core recovery

54.5% (top hand analysis)

2530 - 2613

33m / 38% ash

3.52 mds

886017

marked product

EASTERN DEPOSIT

Block	Hole(s)	Intersection (m)	Seam	W(m)	B.O.(m)	To+W(m)	A(km ²)	T.F. (T/m ³)	Tonnes (x10 ⁶)	Ash (%)	VM(%)	SE (MJ/kg)	S(%)										
11.	✓ W61	25.30 - 26.13 29.65 - 30.17 30.71 - 31.85	B4 B3 B2	{ 2.49	8.0	42.6 ^{39.6}	0.16	1.61	0.641	33.9 37.2	14.7	25.2	0.34										
12.	✓ W41	16.55 - 17.15 18.43 - 19.32 22.75 - 23.30	B3 B2 B1											{ 2.04	9.8	34.5 ^{32.8}	0.10	1.59	0.324	39.2 35.7	8.6	24.1	0.36
13.	✓ W41	11.50 - 12.25 16.55 - 17.15 18.43 - 19.32 22.75 - 23.30	B4 B3 B2 B1																				
14.	✓ W39	22.54 - 25.47	D	2.93	≈10.0	53.3 ^{43.6}	0.31	1.72	1.562	42.1 42.1	26.6	22.9	0.37										
15.	✓ W46	18.36 - 20.76	D	1.97 2.40	≈10.0	44.4 ^{23.8}	0.33	1.75	1.386	44.4	-	-	-										
16.	W47	43.62 - 44.90	C1,2	1.28	10.2	22.3(20)	0.05	1.64	0.105	37.6 37.6 45.5	11.4	24.6	0.39										
									11.675	41.0													

Legend:

- W - Cumulative thickness of coal seams
- B.O. - Base of oxidation
- To - Overburden thickness for a 10:1 stripping ratio
- A - Area of block
- T.F. - Tonnage factor
- VM - Volatile matter - Estimated for 20% ash
- SE - Specific energy - Estimated for 20% ash
- S - Sulphur

1.539 (41.9 using these figures) eastern deposit only

10,135

figures in red: my calculation

40% ash = 18 mg/kgm

TABLE-3.

Block	Hole(s)	Intersection (m)	Seam	W(m)	B.O.(m)	To+W(m)	A(km ²)	T.F. (T/m ³)	Tonnes (x10 ⁶)	Ash (%)	VM (%)	SE MJ/kg	S(%)
1.	W9	21.00 - 22.00	P	1.0	7.0	17.0	0.18	1.60	0.288	36.5	-	-	-
2.	W67	23.57 - 23.86 39.05 - 40.15	N M	{ 1.39	6.6	22.7	0.20	1.53	0.425	31.0	13.4	25.3	0.39
3.	W67	39.05 - 40.15	M	1.10	6.6	17.2	0.13	1.46	0.209	25.6	13.1	25.5	0.42
4.	W7 (W32)	(16.65 - 17.62) (18.80 - 19.80) 79	C3 C2	{ 1.97	7.3	37.2	0.42	1.79	1.481	44.0	24.0	27.2 ^X	0.40
5.	W14 (W47)	(43.62 - 44.90)	C1,2	{ 1.28	10.2	22.3	0.18	1.64	0.378	37.6	11.4	24.6	0.39
6.	W46	18.36 - 20.76	D	2.40	10.0	44.4	0.10	1.75	0.420	44.4	-	-	-
7.	W49	29.55 - 33.25	B	3.70	12.4	62.2	0.41	1.58	2.397	34.7	-	-	-
8.	W4 (W48)	(44.03 - 44.05)	C1,2	1.02	8.2	18.5	0.10	1.71	0.174	45.2	-	-	-
9.	W63	15.00 - 16.20	C1,2	1.20	13.2	23.9	0.08	1.89	0.181	46.0	28.1	21.9	0.25
10.	W4 (W48)	(37.58 - 38.47) (44.03 - 45.05)	C3 C1,2	{ 1.91	8.2	33.6	0.10	1.66	0.317	41.2	-	-	-
11.	W3,15 (W46)	(18.36 - 20.76)	D	2.40	10.0	44.4	0.19	1.75	0.798	44.4	-	-	-

WESTERN DEPOSIT

EASTERN DEPOSIT

7.068 38.9

Legend: W - Cumulative thickness of coal seams
 BO - Base of oxidation
 To - Overburden thickness for a 10:1 stripping ratio
 A - Area of block

TF - Tonnage factor
 VM - Volatile matter estimated for 20% ash
 SE - Specific energy estimated for 20% ash
 S - Sulphur

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3.4 3.4.3 Specific Energy

The specific energy (SE) as shown in Tables 2 and 3 was calculated for a 20% ash washed product by using the formula quoted in AS 1038, Part 16, 1975. Alternatively, extrapolation of the line of best fit as shown in Figure (3) indicates that specific energy for a 20% ash washed product is in the range of 25.2 - 28.0 MJ/kg.

Both volatile matter and specific energy values for individual coal seams were weighted by their respective thicknesses to obtain the values for the blocks shown in Tables 2 and 3.

3.4.4 Sulphur values were also calculated by weighting individual coal seam values by their respective widths and are all less than 0.5%.

3.5 TONNAGE FACTORS (m)

3.5.1 With a coal seam, individual ply relative density values were weighted by their respective widths to obtain a weighted average relative density (i.e. tonnage factor) for the seam.

3.5.2 Where more than one coal seam occurred in a given block, the procedure outlined above was adopted and then the weighted average relative density value for each seam was further weighted by the respective seam thicknesses to obtain a composite weighted relative density (i.e. composite tonnage factor) for the block.

3.6 STRIPPING RATIO

3.6.1 A maximum stripping ratio (cubic metres of overburden to tonnes of in situ coal), of 10:1 was then applied to the tonnage factors as follows:-

For the unit area, overburden thickness
 $T_o = 10 \times TF \times W$, where TF is the tonnage factor for all seams in a block, and W is the composite width of all seams in a block.

3.6.2 The convention used was to add the cumulative coal seam thickness to the overburden thickness (i.e. T_o+W), to calculate the maximum depth of open cut mining in a given block. The locus of this vertical line of length T_o+W was taken at the base of the lowest coal seam in a given block. The limits of open cut mining were depicted on the geological cross section as T_o+W (down dip), and the base of oxidation (up dip). Where direct information on the base of oxidation was missing, it was assumed to be 10m.

3.7 OPEN CUT RESERVE BLOCK DEFINITION

The limits to open cut mining as discussed above were transposed onto the plan of the Woodbury Coal Deposit; open cut block areas were then defined by assuming the coal seams were continuous to:-

- (i) The mid point between drill holes, or:
- (ii) Photo lineaments interpreted as being actual faults, or:
- (iii) In the absence of other drill holes in close proximity, the coal seams were assumed to be continuous for either 0.5 km. (for measured reserves) or 1.0 km. (for first class indicated reserves).

3.7 OPEN CUT RESERVE BLOCK DEFINITION (Contd.)

The mass of coal in a given block was then calculated by multiplying the block area by the cumulative coal seam thickness, and this product by the tonnage factor.

Assumptions made in the calculations are recorded in Appendix 1.

4.0 IN SITU COAL RESERVES

INTRODUCTION

Previously, Victor Petroleum and Resources announced that the Woodbury area contained an in situ inferred resource of 65 million tonnes, based on an openhole drilling and wire line logging programme.

Inclement weather prevented the completion of a follow-up core drilling programme of the area, containing the inferred resource, particularly in the dolerite covered area to the south of the now defined open cut reserves. A gravity survey is currently in progress to establish optimum drill hole sites for drilling through the dolerite.

4.1 OPEN CUT RESERVES

Assessment of all geological and drilling data, generated by the core drilling programme indicates that the Woodbury Coal Deposit contains 11.7 million tonnes of in situ measured reserves with an average ash content of 41% and in situ first class indicated reserves of 7.0 million tonnes of 38.9% ash.

The total of in situ measured and first class indicated reserves is 18.7 million tonnes of 40.2 Ash.

4.2 UNDERGROUND RESERVES

Until the gravity survey and follow-up drilling is completed, underground reserves cannot be upgraded from inferred resource status. However, the drilling indicates that Seam D would, and possibly Seams C and B, may be suitable for underground extraction, should they continue beneath the dolerite to the south.

4.3 ADDITIONAL RESERVES

Limited drilling and geological mapping to the north east of Woodbury suggests that additional reserves may exist. Further drilling will be required to determine the existence of reserves in this area.

APPENDIX 1

COMMENTS ON THE CALCULATIONS OF OPEN CUT COAL RESERVES

1. MEASURED

Block 1: Seam O was assumed to have the same properties as Seam N.

Block 7: Seam C 4 had no analytical data; Seam C3 was assumed to be the same as C3 in W32. The weighted average volatile matter and specific energy values for this block refer only to seams C1, C2 and C3.

Block 8: Seams C1, 2 and 3 in drill hole W1 were assumed to be the same as those in drill hole W39.

Block 9: Seam C3 in drill hole W46 was not sampled and its relative density was taken as being the same as C3 in W39. No proximate analysis was undertaken of the C seams in W46.

Block 10: Selective mining was assumed to allow removal of the grey mudstone from 30.17m. to 30.71m. in W61 (between seams B2 and B3; the analytical data presented is approximate as the original S.G.S. data was based on a sample which excluded two narrow (total 0.08m thick) stone bands.

Block 11: Selective mining was also assumed to allow the removal of the interseam mudstone between Seams B2 and B3, as in Block 10.

Block 15: Seam D in drill hole W46 - no proximate analysis was done on this seam.

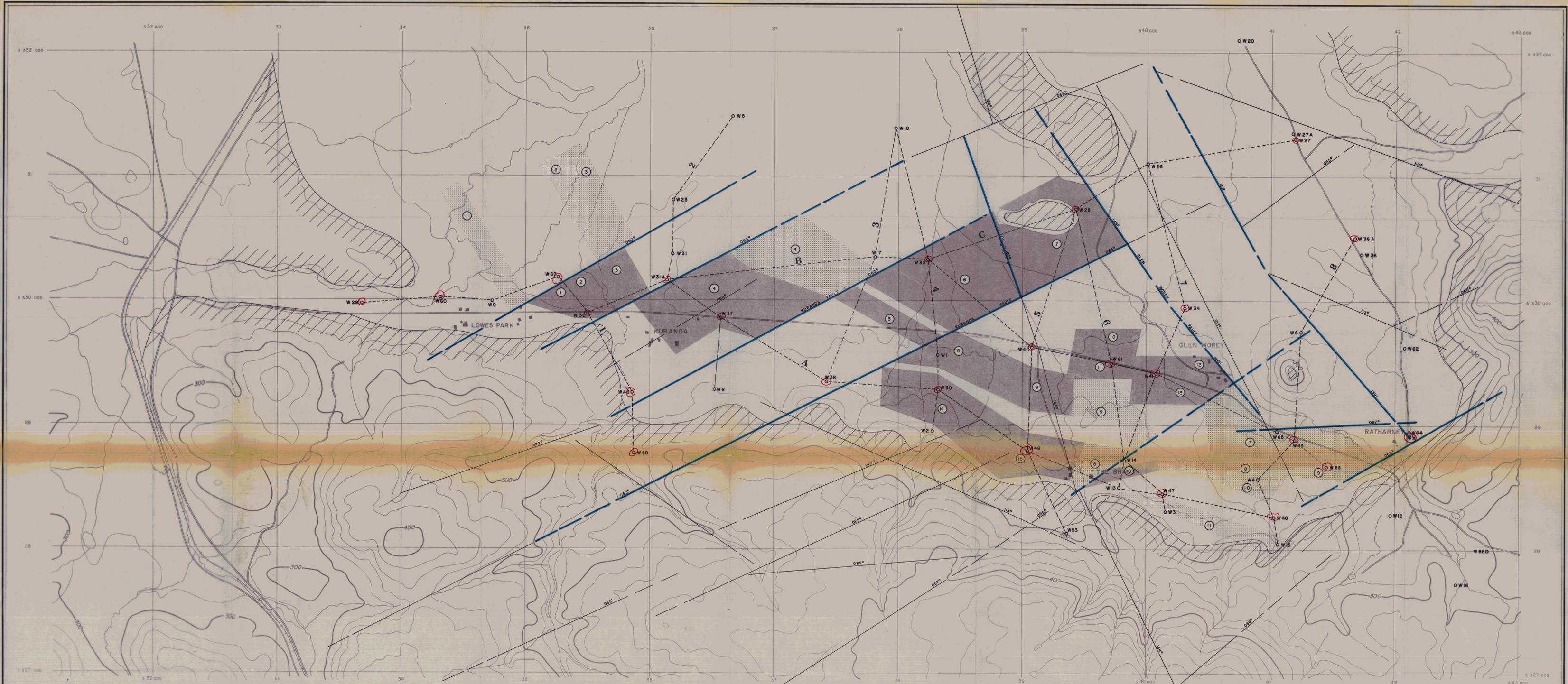
APPENDIX 1 (Contd.)

2. FIRST CLASS INDICATED

- Block 1: Seam P in drill hole W9 was assumed to be similar to Seam N in drill hole W67 (with respect to ash content). The thickness of Seam P was obtained from the gamma-gamma density log.
- Block 2: Seam O in W67 was excluded from the reserve calculations because it contains 50% ash. Seam N in W67 was assumed to be the same as Seam N in W30.
- Block 4: Seams C2 and C3 in drill hole W7 were assumed to be the same as Seams C2, C3 in W32.
- Block 5: Seam C1, 2 (undifferentiated) in drill hole W14, was assumed to be identical to Seam C1,2 (undifferentiated) in drill hole W47.
- Block 7: Selective mining was assumed to allow removal of 0.50m of brown shale and minor coal from 29.05 - 29.55m in W49.
- Block 8: Seam C1, 2 (undifferentiated) in drill hole W4 was assumed to be identical to Seam C1, 2 (undifferentiated) in W48.
- Block 10: Seams C1, 2 (undifferentiated) and C3 in drill W4 were assumed to be the same as Seams C1, 2 (undifferentiated) and C3 in W48. The C3 seam in W48 (37.58 - 38.47) was not fully recovered during core drilling, and this seam was assigned a relative density of 1.60.
- Block 11: Seam D in open holes W3 and W15 was detected from the geophysical logs; the nearest cored section of Seam D occurs in drill hole W46 and accordingly, Block 11 was assigned thickness, relative density and ash values identical to Seam D in W46.

ASH CHARACTERISTICS OF WOODBURY COAL

Hole No.	W39	W41	W46
Coal Seam Interval	22.54-25.47	11.50-12.25 16.55-19.32 22.75-23.30	18.30-20.76
C.F.	1.70	1.65	1.65
Ash Content	19.9	23.3	21.4
<u>Ash Fusion (Reducing conditions)</u>			
Initial Deformation	1260	1300	1220
Initial Spherical	1310	1350	1350
Initial Hemisphere	1320	1380	1360
Initial Flow	1370	1410	1380
<u>Ash Mineral Analysis</u>			
SiO ₂	55.7	53.6	48.1
Al ₂ O ₃	24.1	23.8	26.5
Fe ₂ O ₃	3.65	2.42	3.45
CaO	10.03	13.95	14.83
MgO	2.83	1.61	2.58
Na ₂ O	0.21	0.65	0.37
K ₂ O	0.67	0.53	1.18
TiO ₂	0.93	0.96	1.04
Mn ₃ O ₄	0.21	0.18	0.35
So ₃	1.44	2.79	1.52
P ₂ O ₅	0.045	0.028	0.046
BaO	0.02	0.05	0.03
	99.835	100.568	99.996
<hr/>			
Hardgrove Grindability Index	70	53	Not Determined



LEGEND

-  090° Photolineament and bearing
-  Photolineament, defining approximate position of fault
-  Open cut coal reserve - indicated
-  Open cut coal reserve - measured
-  Dolerite boundary

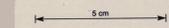
VICTOR PETROLEUM & RESOURCES LTD.

WOODBURY COAL PROJECT

PLAN OF DRILL HOLES & OPEN CUT COAL BLOCKS

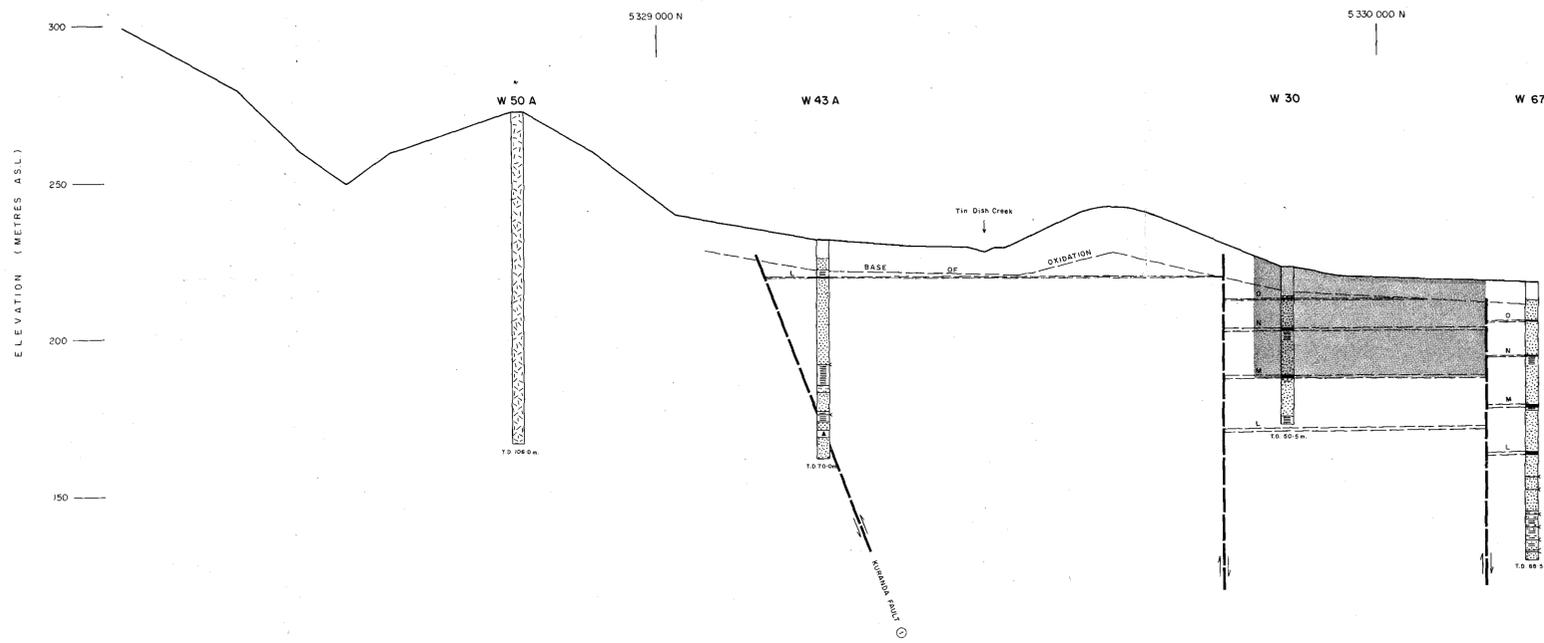


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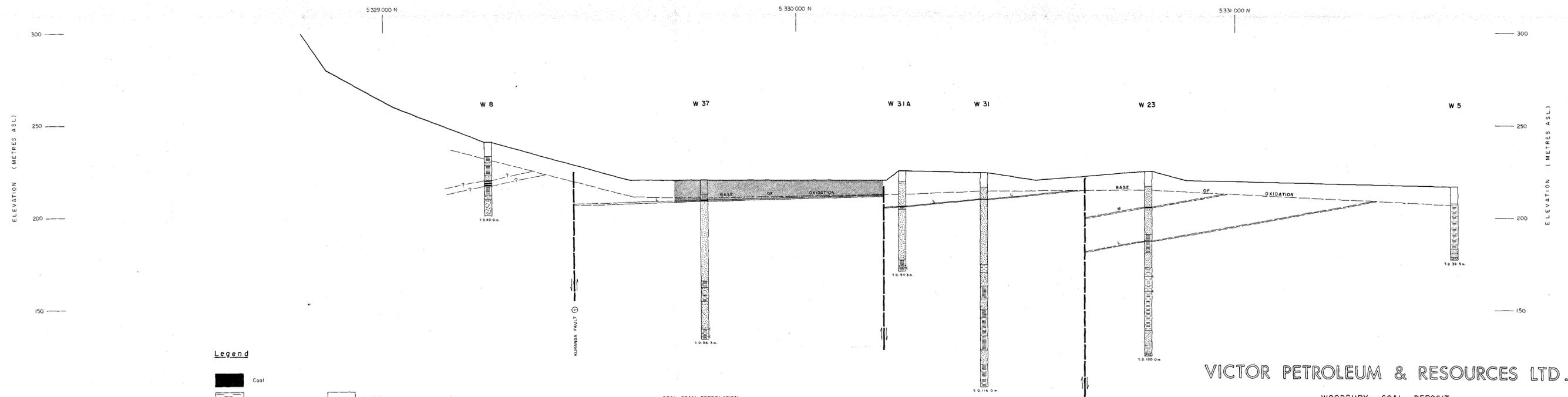


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SECTION 1



SECTION 2



Legend

- | | | |
|---------------------------|------------------------------|-----------------------------------|
| Coal | Mudstone | Tuff (narrow bands shown ->) |
| Carbonaceous mudstone | Basalt | Dolerite |
| Siltstone | Fault breccia | Open cut coal reserve - measured |
| Sandstone | Fault - position approximate | Open cut coal reserve - indicated |
| Fault - position inferred | | |

COAL SEAM CORRELATION

- | | |
|----------------------|----------------|
| Location accurate | M Coal seam |
| Location approximate | W 8 Drill hole |
| Location inferred | |

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WOODBURY COAL DEPOSIT

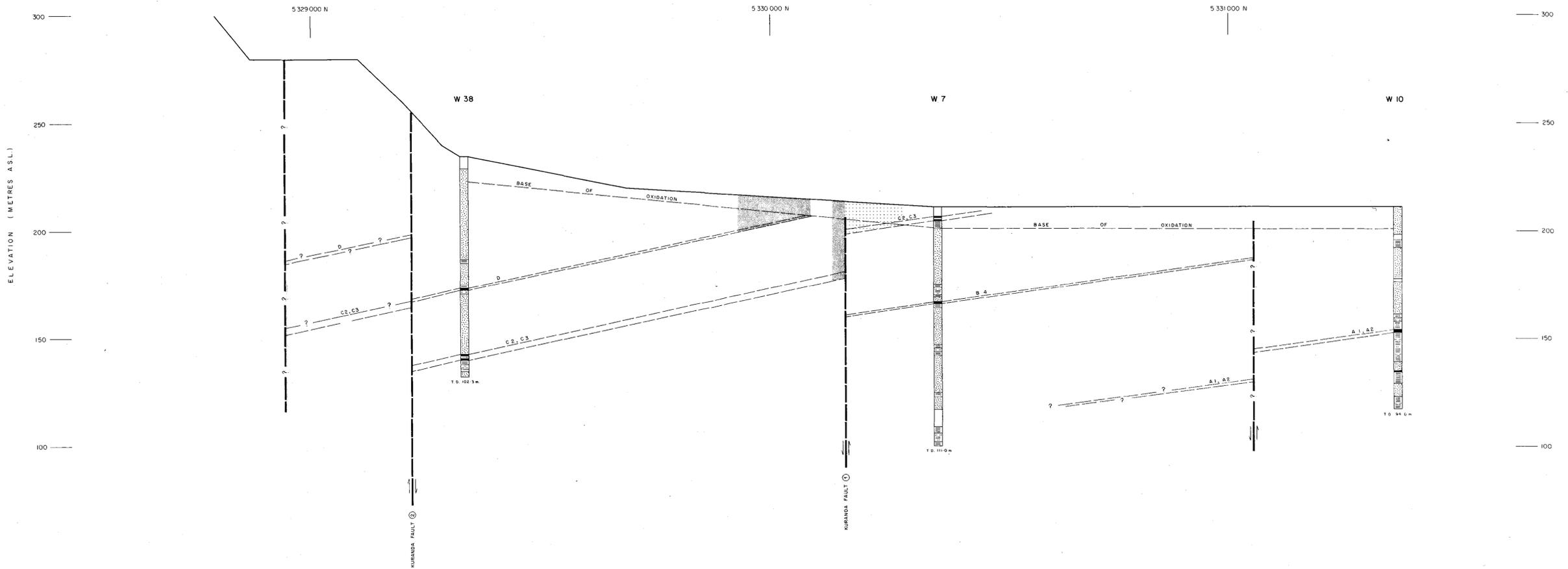
APPROXIMATE SOUTH - NORTH CROSS SECTIONS 1 & 2

SCALES VERTICAL 1:500
HORIZONTAL 1:1000
GEOLOGY BY T.G. SUMMONS
SEPTEMBER, 1981

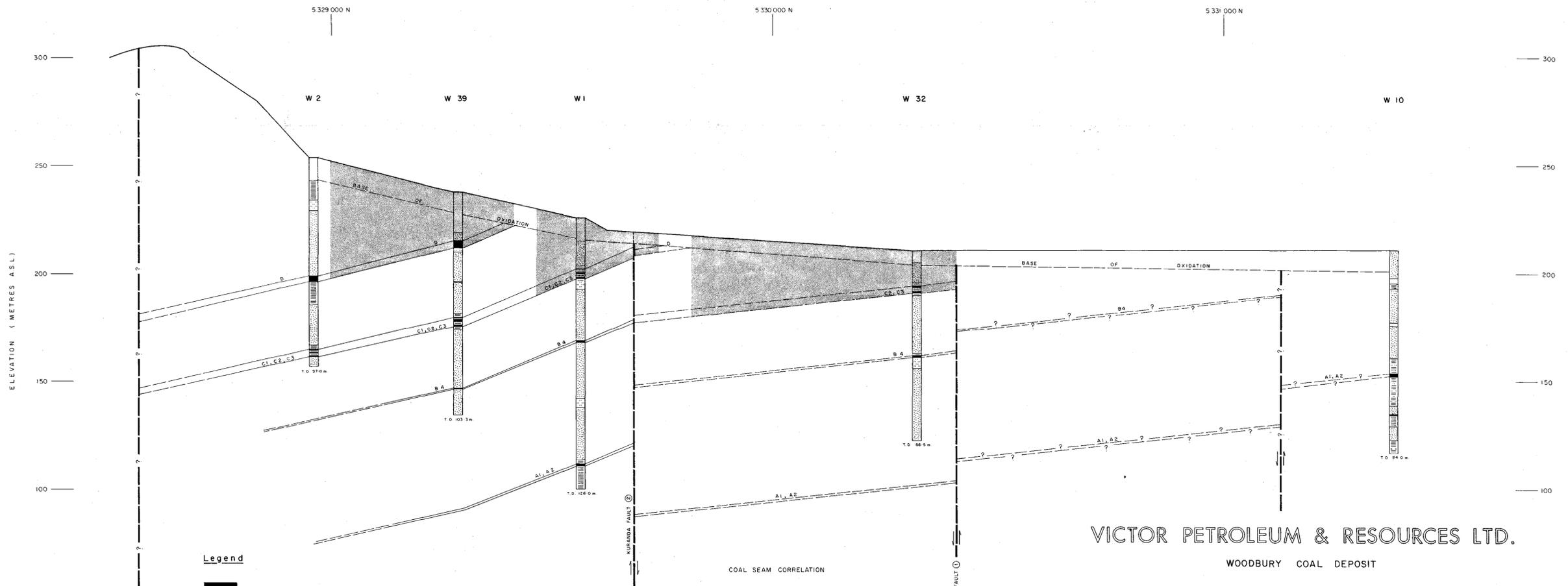


FIG. 5

SECTION 3



SECTION 4



Legend

- | | | | | | |
|--|-----------------------|--|------------------------------|--|-----------------------------------|
| | Coal | | Tuff (narrow bands shown ->) | | Open cut coal reserve - measured |
| | Mudstone | | Basalt | | Open cut coal reserve - indicated |
| | Carbonaceous mudstone | | Dolerite | | Fault - position approximate |
| | Siltstone | | Fault breccia | | Fault - position inferred |
| | Sandstone | | | | |

COAL SEAM CORRELATION

- | | | | |
|--|----------------------|--|-----------------|
| | Location accurate | | A Coal seam |
| | Location approximate | | W 30 Drill hole |
| | Location inferred | | |

VICTOR PETROLEUM & RESOURCES LTD.

WOODBURY COAL DEPOSIT

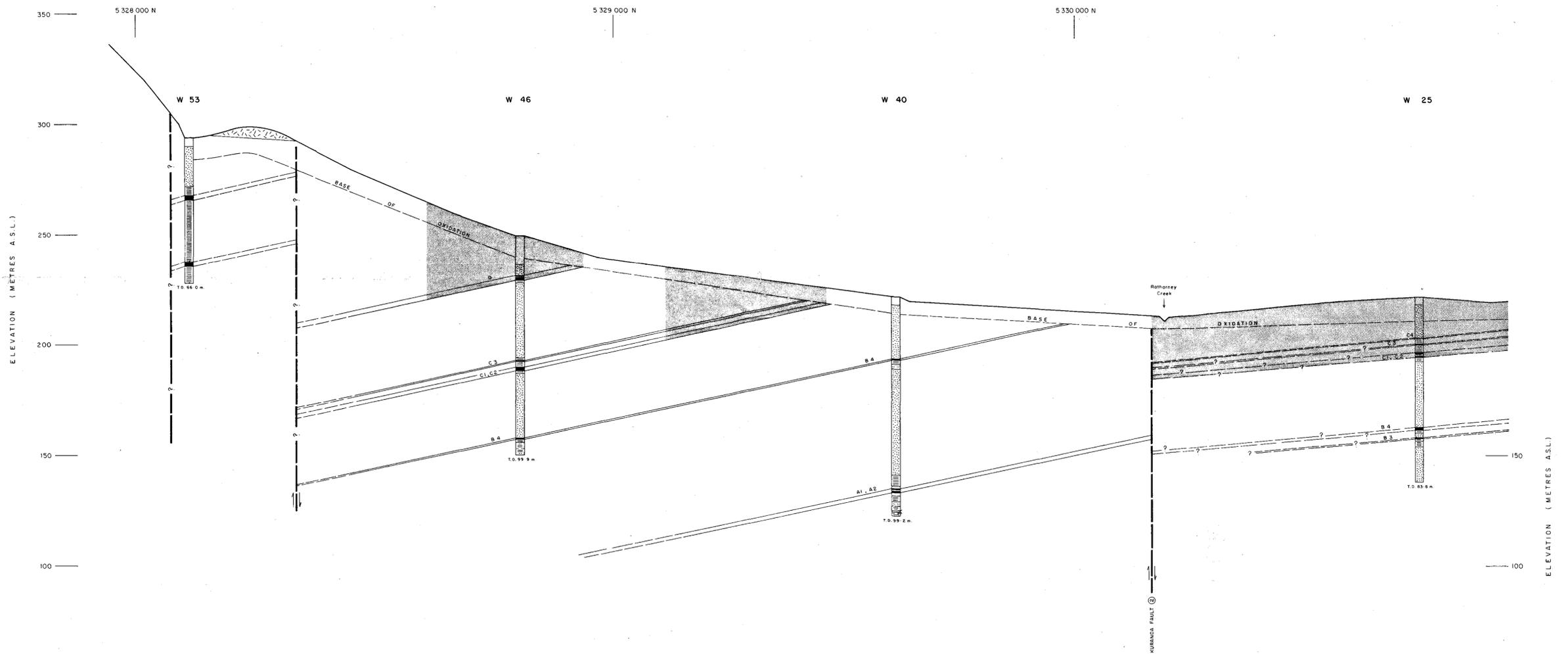
APPROXIMATE SOUTH - NORTH CROSS SECTIONS 3 & 4

SCALES VERTICAL 1:5000
HORIZONTAL 1:1000
GEOLOGY BY T.G. SUMMONS
SEPTEMBER, 1981

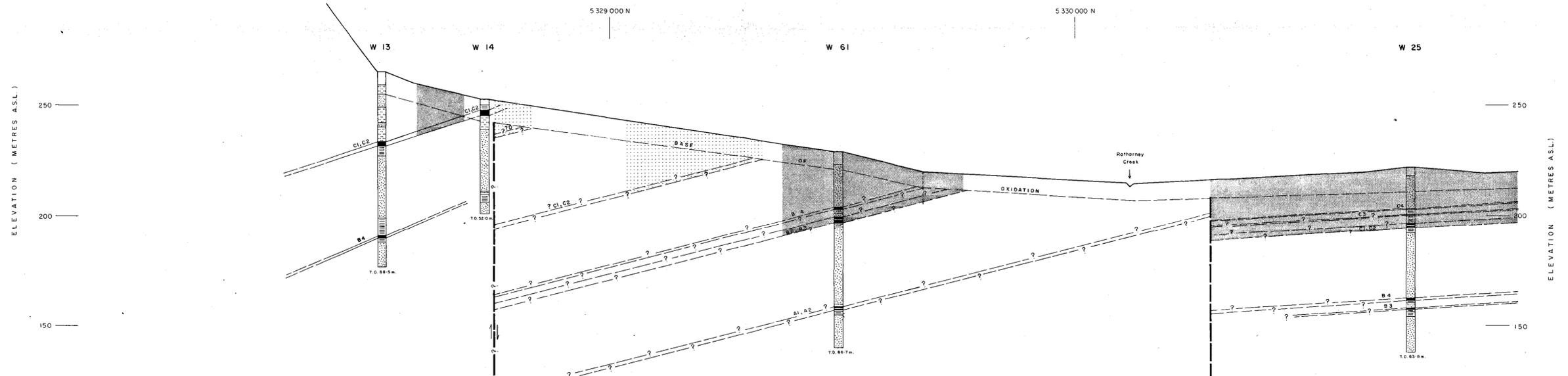


FIG. 6

SECTION 5



SECTION 6



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WOODBURY COAL DEPOSIT

APPROXIMATE SOUTH - NORTH CROSS SECTIONS 5 & 6

SCALES VERTICAL 1:5000
HORIZONTAL 1:1000

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SEPTEMBER, 1981

5 cm

Legend

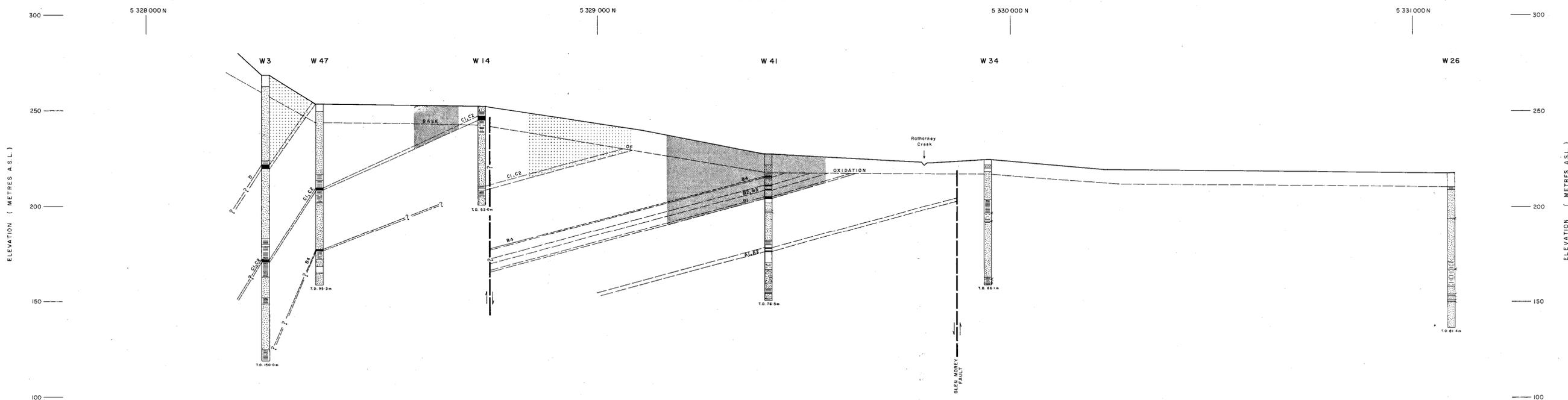
- | | | |
|-----------------------|-----------------------------|-----------------------------------|
| Coal | Tuff (narrow bands shown -) | Open cut coal reserve - measured |
| Mudstone | Basalt | Open cut coal reserve - indicated |
| Carbonaceous mudstone | Dolerite | Fault - position approximate |
| Siltstone | Fault breccia | Fault - position inferred |
| Sandstone | | |

COAL SEAM CORRELATION

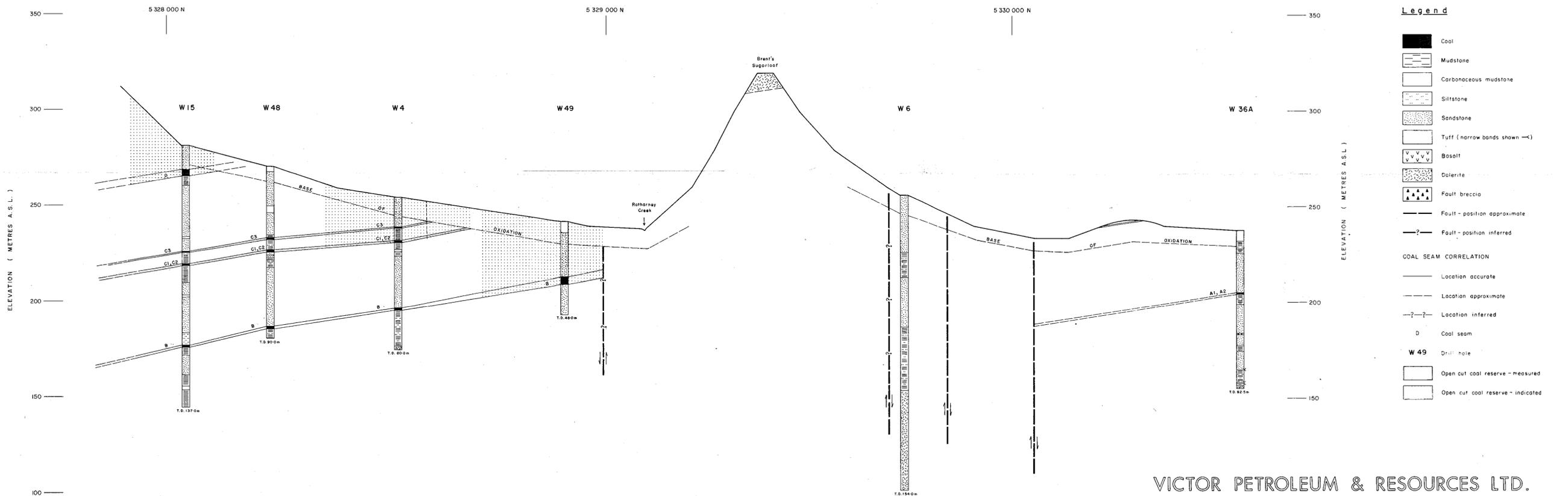
- | | |
|--|----------------------|
| | Location accurate |
| | Location approximate |
| | Location inferred |
| | C 3 Coal seam |
| | W 61 Drill hole |

FIG. 7

SECTION 7



SECTION 8



- Legend**
- Coal
 - Mudstone
 - Carbonaceous mudstone
 - Siltstone
 - Sandstone
 - Tuff (narrow bands shown -x)
 - Basalt
 - Dolerite
 - Fault breccia
 - Fault - position approximate
 - Fault - position inferred
- COAL SEAM CORRELATION**
- Location accurate
 - Location approximate
 - Location inferred
 - Coal seam
- W 49**
- Drill hole
 - Open cut coal reserve - measured
 - Open cut coal reserve - indicated

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 WOODBURY COAL DEPOSIT

APPROXIMATE SOUTH - NORTH CROSS SECTIONS 7 & 8

SCALES VERTICAL 1:5000
 HORIZONTAL 1:1000
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WOODBURY COAL DEPOSIT

APPROXIMATE WEST - EAST CROSS SECTIONS A, B & C

SCALES VERTICAL 1:5000
HORIZONTAL 1:10000
GEOLOGY BY T. G. SUMMONS
SEPTEMBER, 1981



MAP DRAWING & DEVELOPMENT CO. LTD.

Legend

- Coal
- Mudstone
- Carbonaceous mudstone
- Siltstone
- Sandstone
- Tuff (narrow bands shown)
- Basalt
- Dolerite
- Fault - position approximate
- Fault - position inferred
- Open cut coal reserves - measured
- Open cut coal reserves - indicated

- COAL SEAM CORRELATION**
- Location accurate
 - Location approximate
 - Location inferred
 - Coal seam
 - W 30 Drill hole

