

An estimate of the coal resource of the Fingal area.

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Abstract

An estimate of 9 million tonnes of indicated reserves and 242.5 million tonnes of inferred coal has been calculated for the Fingal area. These calculations are based on bore hole information for a very limited area, available as at 15 April 1978, with extrapolation over the remainder of the area.

INTRODUCTION

This appraisal is based on the results of drilling carried out up to 15 April 1978. These estimates must only be taken as a guide; the drilling programme is insufficiently advanced for more reliable estimates to be given.

The boundaries of the area covered by these estimates are shown on Figure 1.

INDICATED RESERVES

Area drilled: 7.1 km² (see fig. 2)
 No. of measured sections: 16 (i.e. one per 44.4 ha)
 Bore hole interval: one kilometre (approx.)
 Ash content (dry basis): 25%
 Density of coal: 1.5 t/m³
 In situ coal reserves (see table 1): 18 million tonnes
 Recovery factor: 0.5
 Reserves of recoverable coal: 9 million tonnes.

The lack of uniformity in the seam thickness, the variable coal quality and the degree of faulting (in the Duncan-Fingal mine) indicate that the bore hole interval is too great for first order estimates of reserves.

The recovery factor is unknown but experience indicates that it could be as low as 50% depending on the nature of the roof rock and the prevalence of faulting.

Correction factors for moisture and ash content are applied in Table 1. A coal with an ash content of 25% has a specific energy of about 10 000 BTU/lb or 23.26 MJ/kg. The ash content of coal from Bore holes 1 and 30 and from outcrop (o/c) is estimated as data are not available.

INFERRED COAL

The measured reserves of 9 million tonnes of recoverable coal in an area of 7.1 km² gives a factor for the calculation of inferred coal of 1.27 million tonnes/km² (say 1.25). The southern boundary of the Fingal area is drawn at the 538000mN grid line (fig. 1).

<i>Location</i>	<i>Approximate area (km²)</i>
<i>Nicholas Range</i>	
Cornwall Coal Co. mineral lease area	2.5

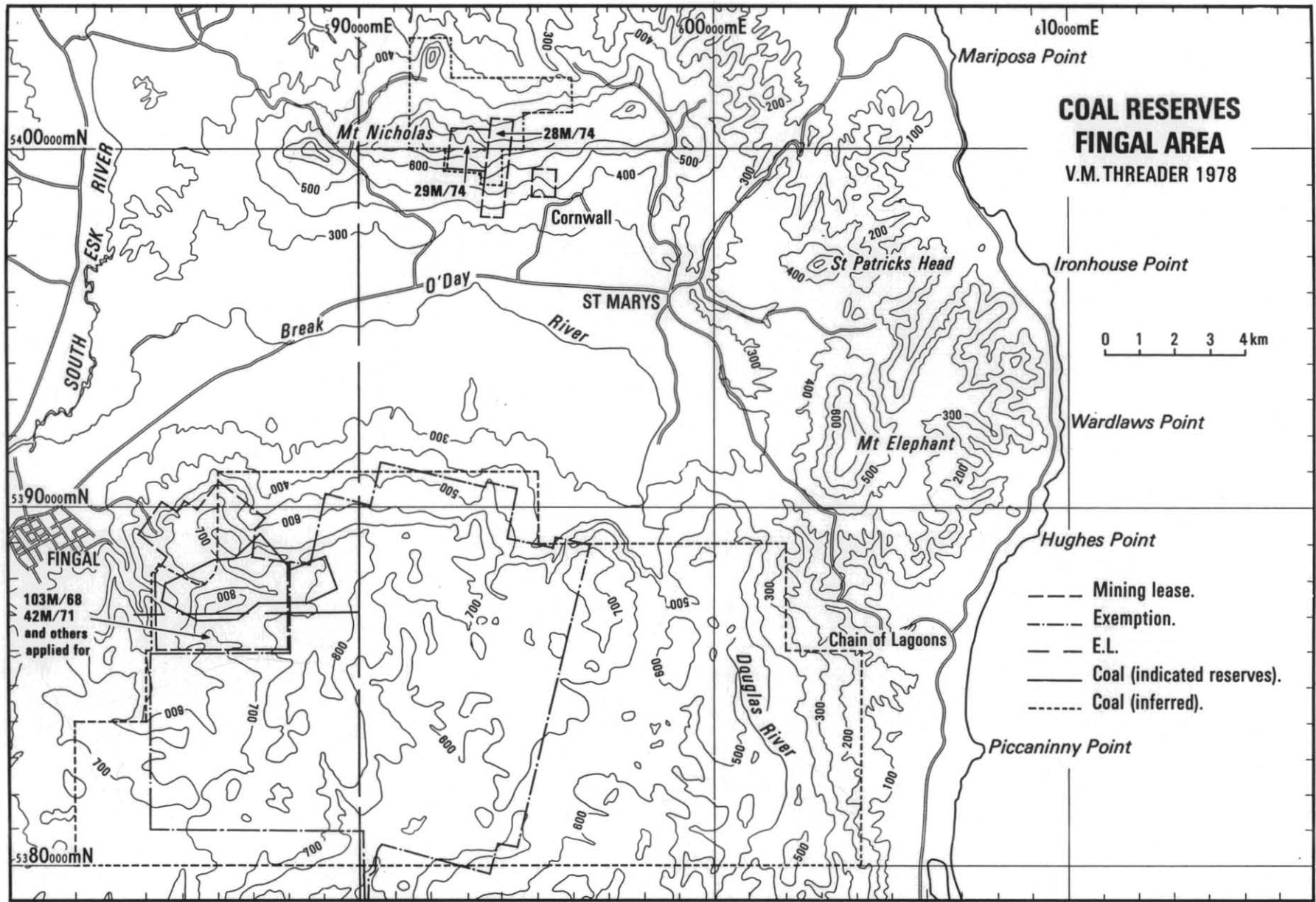


Figure 1.

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b/c

<i>Location</i>	<i>Approximate area (km²)</i>
E.L. 5/61	7.5
<i>Fingal Tier</i>	
Cornwall Coal Co. mineral lease area	6
Department of Mines (exempt from Mining Act, 1929)	94
E.L. 5/61	70
E.L. 16/77	14
Total area :	<hr style="width: 100%; border: 0.5px solid black;"/> 194 km ² x 1.25 = 242.5 million tonnes

DISCUSSION

The calculation of reserves only takes account of the Duncan seam which was mined in the Duncan-Fingal mine. A lower seam, known as the East Fingal seam, is known to occur over part of the Fingal-St Marys area. Neither of the two seams is likely to be workable over the entire area and the inferred coal has therefore been calculated on the basis of one workable seam.

A smaller area of the Nicholas Range is also included in the calculations. Here there are two and sometimes three workable seams but again the above calculations are based on one workable seam.

[3 May 1978]

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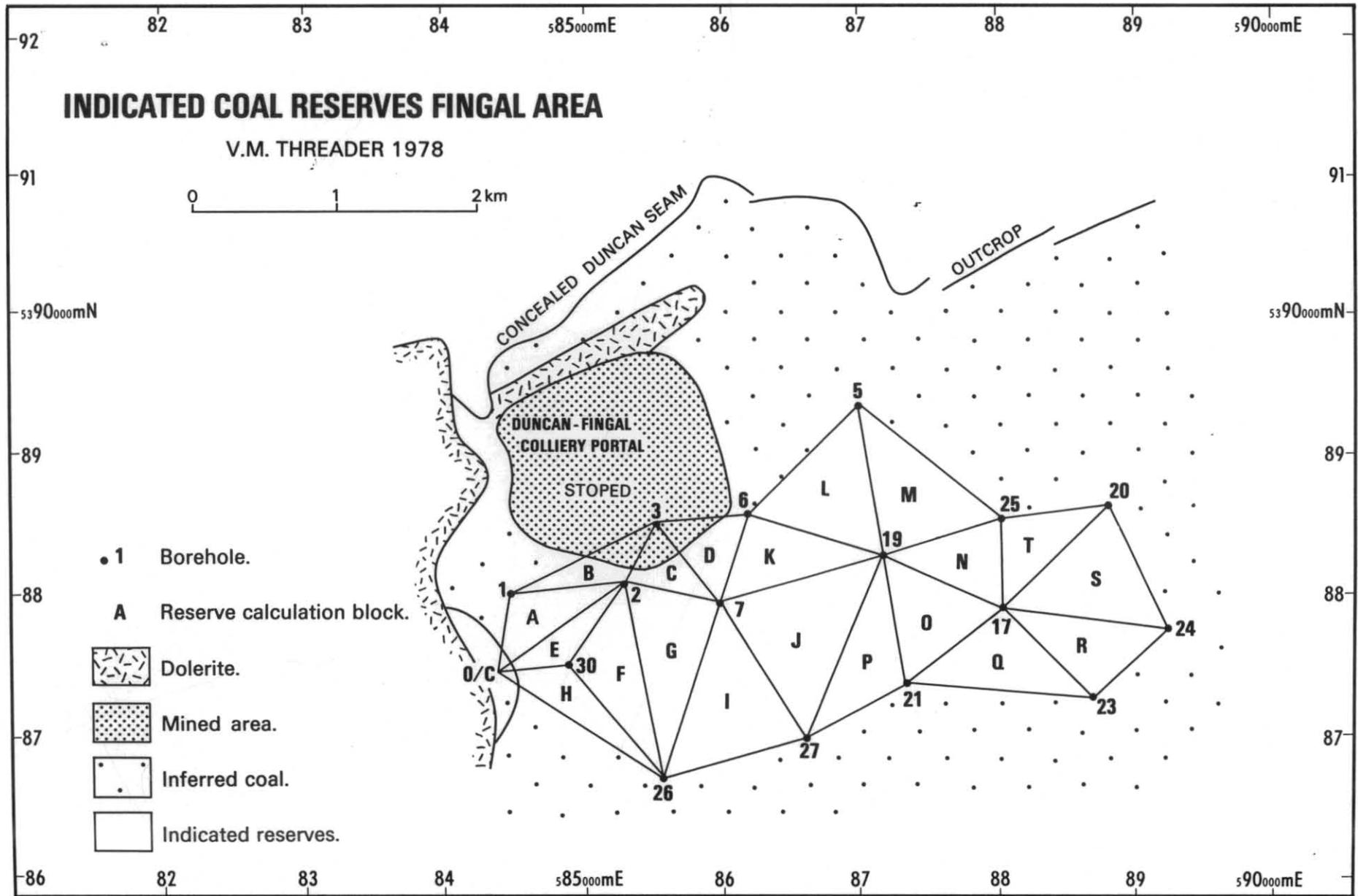


Figure 2.

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Table 1. INDICATED COAL RESERVES FINGAL AREA AS AT 15 APRIL 1978

Block	Area b h/2	m ²	BH No	Seam h(m)	Ash content	Moist- ure content	Ash x seam h	Moisture x seam h	Area x av.h	Moisture factor ¹	Ash factor ²	Coal (m ³)	Reserves ('000 t)
A	1150 x 194 =	223100	1	1.20	40.0	5.0	48.0	6.0					
			2	2.10	22.0	5.0	46.2	10.5					
			o/c	2.00	30.0	5.0	60.0	10.0					
				<u>5.30</u>			<u>154.2</u>	<u>26.5</u>					
				1.77*	29.1†	5.0†			394143	0.86	0.95	321743	483
B	1200 x 146 =	175200	1	1.20	40.0	5.0	48.0	6.0					
			2	2.10	22.0	5.0	46.2	10.5					
			3	1.71	27.6	4.1	47.2	7.0					
				<u>5.01</u>			<u>141.4</u>	<u>23.5</u>					
				1.67	28.2	4.7			292584	0.89	0.95	247011	185#
C	820 x 210 =	172200	2	2.10	22.0	5.0	46.2	10.5					
			3	1.71	27.6	4.1	47.2	7.0					
			7	2.13	28.6	4.4	60.9	9.4					
				<u>5.94</u>			<u>154.3</u>	<u>26.9</u>					
				1.98	26.0	4.5			340956	0.96	0.95	313261	235#
D	820 x 265 =	217300	3	1.71	27.6	4.1	47.2	7.0					
			6	2.75	26.7	3.5	73.4	9.6					
			7	2.13	28.6	4.4	60.9	9.4					
				<u>6.59</u>			<u>181.5</u>	<u>26.0</u>					
				2.20	27.5	3.9			477336	0.91	0.96	416095	436#
E	1150 x 140 =	161000	o/c	2.00	30.0	5.0	60.0	10.0					
			2	2.10	22.0	5.0	46.2	10.5					
			30	2.00	30.00	5.0	60.0	10.0					
				<u>6.10</u>			<u>166.2</u>	<u>30.5</u>					
				2.03	27.2	5.0			327367	0.92	0.95	285362	428

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Block	a b	Area h/2	m ²	BH No	Seam h(m)	Ash content	Moist- ure content	Ash x seam h	Moisture x seam h	Area x av.h	Moisture factor ¹	Ash factor ²	Coal (m ³)	Reserves ('000 t)
F	1452 x 274 =	397848		2	2.10	22.0	5.0	46.2	10.5					
				26	2.46	30.7	4.5	75.5	11.1					
				30	2.00	30.0	5.0	60.0	10.0					
					<u>6.56</u>			<u>181.7</u>	<u>31.6</u>					
				2.19*	27.7†	4.8†			869961	0.90	0.95	747336	1121	
G	1452 x 352 =	511104		2	2.10	22.0	5.0	46.2	10.5					
				7	2.13	28.6	4.4	60.9	9.4					
				26	2.46	30.7	4.5	75.5	11.1					
					<u>6.69</u>			<u>182.6</u>	<u>30.9</u>					
				2.23	27.3	4.6			1139762	0.92	0.95	005448	1493	
H	1480 x 140 =	207200	o/c	26	2.46	30.7	4.5	75.5	11.1					
				30	2.00	30.0	5.0	60.0	10.0					
					<u>6.46</u>			<u>195.5</u>	<u>31.1</u>					
					2.15	30.3	4.8							
									446171	0.83	0.95	350809	526	
I	1340 x 450 =	603000		7	2.13	28.6	4.4	60.9	9.4					
				26	2.46	30.7	4.5	75.5	11.1					
				27	2.11	27.0	3.0	57.0	6.3					
					<u>6.70</u>			<u>193.4</u>	<u>26.8</u>					
				2.23	28.9	4.0			1346700	0.87	0.96	1119688	1680	
J	1450 x 450 =	652500		7	2.13	28.6	4.4	60.9	9.4					
				19	1.55	25.5	5.2	39.5	8.1					
				27	2.11	27.0	3.0	57.0	6.3					
					<u>5.79</u>			<u>157.4</u>	<u>23.8</u>					
				1.93	27.2	4.1			1259325	0.92	0.96	1110495	1666	

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Block	a b	Area h/2	m ²	BH No	Seam h(m)	Ash content	Moist- ure content	Ash x seam h	Moisture x seam h	Area x av.h	Moisture factor ¹	Ash factor ²	Coal (m ³)	Reserves ('000 t)
K	1208 x 300 =	362400		6	2.75	26.7	3.5	73.4	9.6					
				7	2.13	28.6	4.4	60.9	9.4					
				19	1.55	25.5	5.2	39.5	8.1					
					<u>6.43</u>			<u>173.9</u>	<u>27.1</u>					
					2.14*	27.0†	4.2†							
L	1090 x 490 =	534100		5	1.80	30.7	4.3	55.3	7.7					
				6	2.75	26.7	3.5	73.4	9.6					
				19	1.55	25.5	5.2	39.5	8.1					
					<u>6.10</u>			<u>168.2</u>	<u>25.4</u>					
					2.03	27.6	4.2							
M	1096 x 408 =	447168		5	1.80	30.7	4.3	55.3	7.7					
				19	1.55	25.5	5.2	39.5	8.1					
				25	1.50	35.4	3.8	53.1	5.7					
					<u>4.85</u>			<u>147.9</u>	<u>21.5</u>					
					1.62	30.5	4.4							
N	956 x 277 =	264812		17	2.00	25.6	3.6	51.2	7.2					
				19	1.55	25.5	5.2	39.5	8.1					
				25	1.50	35.4	3.8	53.1	5.7					
					<u>5.05</u>			<u>143.8</u>	<u>21.0</u>					
					1.68	28.5	4.2							
O	956 x 388 =	370928		17	2.00	25.6	3.6	51.2	7.2					
				19	1.55	25.5	5.2	39.5	8.1					
				21	2.07	28.0	4.8	58.0	9.9					
					<u>5.62</u>			<u>148.7</u>	<u>25.2</u>					
					1.87	26.5	4.5							

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Block	b	Area h/2	m ²	BH No	Seam h(m)	Ash content	Moist ure content	Ash x seam h	Moisture x seam h	Area x av.h	Moisture factor ¹	Ash factor ²	Coal (m ³)	Reserves ('000 t)
P	1450 x 250 =	362500		19	1.55	25.5	5.2	39.5	8.2					
				21	2.07	28.0	4.8	58.0	9.9					
				27	2.11	27.0	3.0	57.0	6.3					
					<u>5.73*</u>	27.0†	4.2†			692375	0.93	0.96	614885	922
Q	1200 x 268 =	321600		17	2.00	25.6	3.6	51.2	7.2					
				21	2.07	28.0	4.8	58.0	9.9					
				23	3.83	27.2	2.3	104.2	8.8					
					<u>7.90</u>			<u>213.3</u>	<u>25.9</u>	846880	0.93	0.97	758267	1137
					2.63	27.0	3.3							
R	1234 x 247 =	304798		17	2.00	25.6	3.6	51.2	7.2					
				23	2.83	27.2	2.3	77.0	6.5					
				24	2.23	28.4	2.2	63.3	4.9					
					<u>7.06</u>			<u>191.5</u>	<u>18.6</u>	717291	0.92	0.97	643648	965
					2.35	27.1	2.6							
S	1128 x 478 =	539184		17	2.00	25.6	3.6	51.2	7.2					
				20	2.32	33.6	5.4	78.0	12.5					
				24	2.23	28.4	2.2	63.3	4.9					
					<u>6.55</u>			<u>192.5</u>	<u>24.6</u>	1177218	0.85	0.96	963818	1446
					2.18	29.4	3.8							
T	1128 x 254 =	286512		17	2.00	25.6	3.6	51.2	7.2					
				20	2.32	33.6	5.4	78.0	12.5					
				25	1.46	38.0	2.8	55.5	4.1					
					<u>5.78</u>			<u>184.6</u>	<u>23.8</u>	552013	0.78	0.96	414225	621
					1.93	31.9	4.1							
A-T		7114454											<u>12502231</u>	<u>17994</u>

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Notes.

For each block: * = mean seam thickness (m); † = weighted mean; # = 50% of area mined; / = 30% of area mined.
Blocks are shown on Figure 2. Calculated values have been rounded.

1. Moisture factor = $100 - \text{moisture content \%}/100$.
2. Ash factor = $\text{ash content \%}/25$.