

### Abstract

The Mt Paul coalfield is contained within a north-south striking graben on the northern end of Freycinet Peninsula. Access is poor and only a small quantity of coal has been mined from the area.

The coalfield is dominated by Mt Paul which is capped by Jurassic dolerite. The coal seams, of Triassic age, form a minor component of an interbedded sequence of lithic sandstone, mudstone and siltstone. The sequence crops out on the lower slopes of Mt Paul and is faulted against a quartzose sandstone sequence which underlies the lithic sequence elsewhere on the east coast.

### LOCATION AND ACCESS

Mt Paul is 8 km north of Coles Bay township on Freycinet Peninsula, on the east coast of Tasmania. Access is obtained from an unsealed road which traverses the western margin of Freycinet Peninsula, connecting Coles Bay and the Freycinet National Park with the Tasman Highway.

Rough bulldozed tracks partly extend around the lower slopes of Mt Paul, and the area is covered with dry sclerophyll forest except in the gullies and marshes at the base of the mountain, which support dense stands of tea-tree and cutting grass. Most of the streams which drain the area are ephemeral.

### GEOLOGY

The geology of the Mt Paul coalfield is shown in Figure 1. The oldest rocks in the area are folded and metamorphosed shale and siltstone belonging to the Silurian Mathinna Beds, which have been intruded by granite of Devonian age.

Groves (1966) described the granite around Coles Bay, to the south of Mt Paul, noting the most common type to be a coarse sub-porphyritic red adamellite, which encloses smaller areas of strongly porphyritic red adamellite.

Unconformably overlying the basement of folded Mathinna Beds and granite is a sequence of flat-lying sedimentary rocks which constitute the Parmeener Super-Group. The Parmeener Super-Group has been divided into a lower, dominantly glaciomarine division and an upper, dominantly fresh-water division (Forsyth *et al.*, 1974).

The Lower Parmeener Super-Group in this area was divided by D.J. Jennings in 1977 into four lithologic units:

- (a) siltstone, mudstone and glauconitic sandstone;
- (b) limestone;
- (c) conglomerate;
- (d) pebbly arkosic grit and sandstone.

These divisions are not meant to represent strict formations in the classical sense.

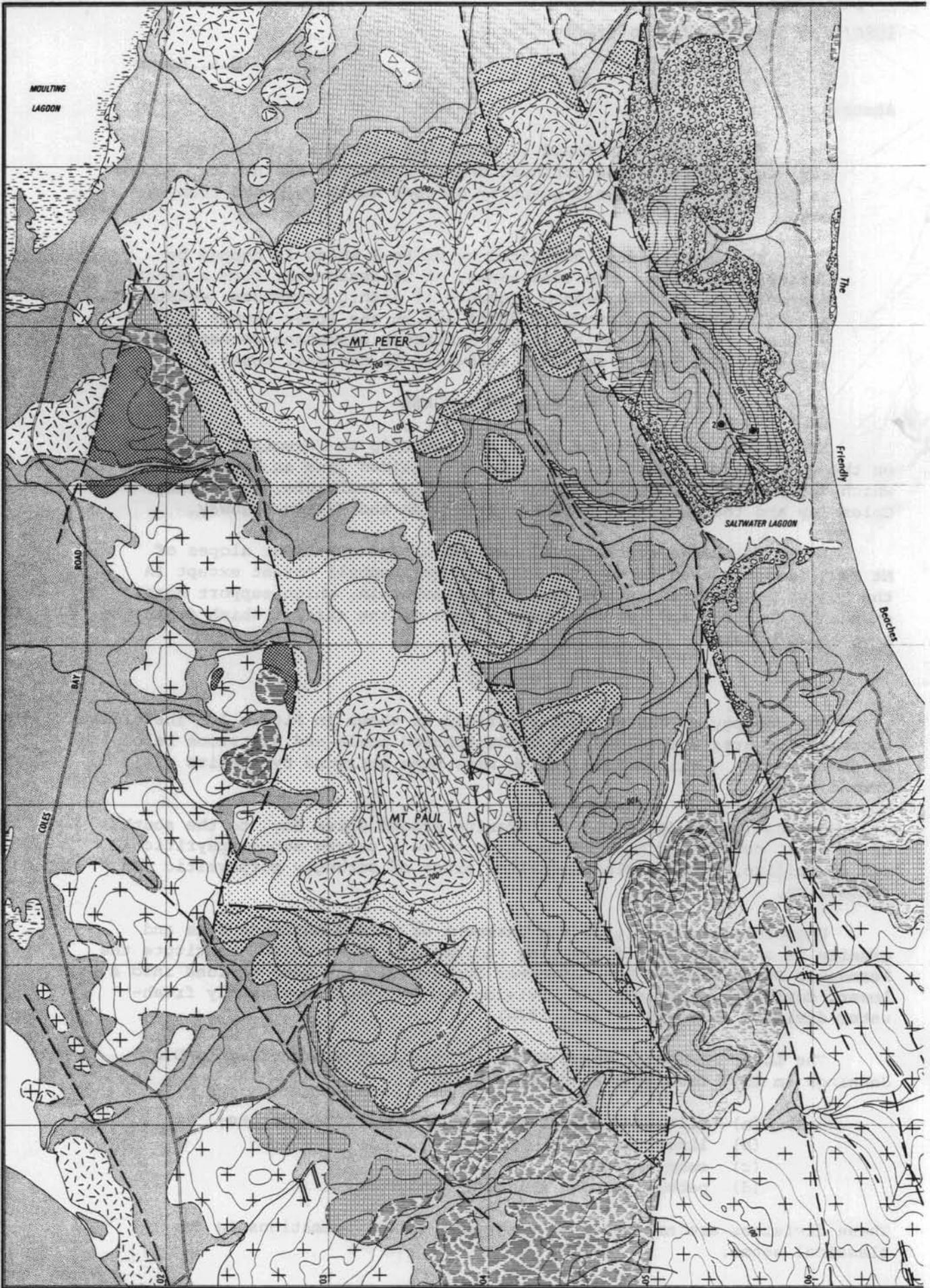
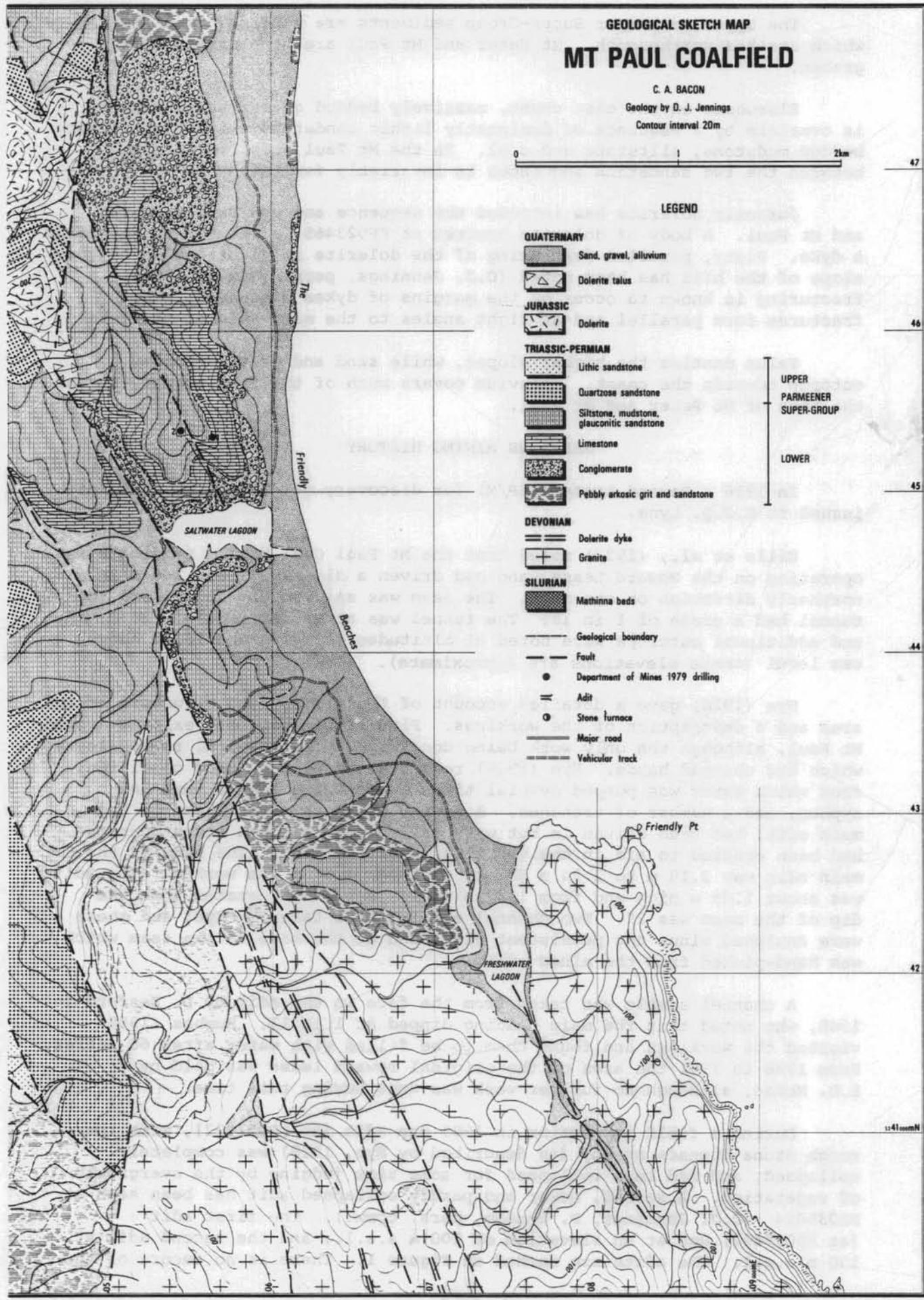


Figure 1

[17-1a]

5 cm



**GEOLOGICAL SKETCH MAP**  
**MT PAUL COALFIELD**

C. A. BACON  
 Geology by D. J. Jennings  
 Contour interval 20m

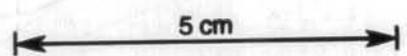


**LEGEND**

- QUATERNARY**
  - Sand, gravel, alluvium
  - Dolerite talus
- JURASSIC**
  - Dolerite
- TRIASSIC-PERMIAN**
  - Lithic sandstone
  - Quartzose sandstone
  - Siltstone, mudstone, glauconitic sandstone
  - Limestone
  - Conglomerata
  - Pebbly arkosic grit and sandstone
- DEVONIAN**
  - Dolerite dyke
  - Granite
- SILURIAN**
  - Mathinna beds
- Geological boundary
- Fault
- Department of Mines 1979 drilling
- Adit
- Stone furnace
- Major road
- Vehicular track

UPPER  
 PARMEENER  
 SUPER-GROUP

LOWER



A/B

The Upper Parmeener Super-Group sediments are confined to a graben which strikes north-south. Mt Peter and Mt Paul are both within this graben.

Elsewhere on the east coast, massively bedded quartzose sandstone is overlain by a sequence of dominantly lithic sandstone, with minor interbedded mudstone, siltstone and coal. In the Mt Paul area, the contact between the two sandstone sequences is invariably faulted.

Jurassic dolerite has intruded the sequence and now caps Mt Peter and Mt Paul. A body of dolerite centred at FP023465 is thought to represent a dyke. Platy, parallel fracturing of the dolerite at right angles to the slope of the hill has been noted (D.J. Jennings, pers. comm.). Such fracturing is known to occur on the margins of dykes elsewhere, where fractures form parallel and at right angles to the main axis of the dyke.

Talus mantles the higher slopes, while sand and gravel obscure outcrop towards the coast. Alluvium covers much of the flat country around the base of Mt Peter and Mt Paul.

#### PREVIOUS MINING HISTORY

In 1916 a Reward Lease (15P/M) for discovery of coal at Mt Paul was issued to C.J.Q. Lyne.

Hills et al., (1922) noted that the Mt Paul Coal Mining Syndicate was operating on the Reward Lease, and had driven a dip tunnel for 140 m in a northerly direction on one seam. The seam was said to dip at 40° and the tunnel had a grade of 1 in 15. The tunnel was at an altitude of 128 m and additional outcrops were noted at altitudes of 143 m and 180 m above sea level (these elevations are approximate).

Nye (1928) gave a detailed account of the geology and structure of the area and a description of the workings. Five leases for coal existed around Mt Paul, although the only work being done was on the original reward lease, which had changed hands. Nye (1928) recorded one adit in good condition, from which water was pumped several times a week with a hand pump and syphon, and a number of trenches. A number of short adits, west of the main adit, had been driven in but were collapsed. A rough stone furnace had been erected to aid in the ventilation of the mine. The seam in the main adit was 2.18 m to 2.34 m thick, of which 1.58 m was worked. The adit was about 1.65 m high and from 1.47 m wide. Nye (1928) stated that the dip of the seam was 2°. Two channel samples were taken by Nye, and these were analysed minus the persistent dirt band at the base of the seam which was hand-picked from the mined coal.

A channel sample was taken from the face in the adit by D. Besford in 1948, who noted that the main heading dipped at 1 in 13. Hughes (1955) visited the workings and found them to be filled with water after 60 metres. From 1948 to 1961 the area of the original reward lease was held by L.D. McRae, although no further work was done during this time.

During a field inspection in 1983 one adit [at FP037422], with the rough stone furnace nearby (as described by Nye, 1928) was completely collapsed, and had been collapsed for some time judging by the overgrowth of vegetation. A second, newer and partly collapsed adit has been seen at FP035424 (D.J. Jennings, P. Sansom, pers. comm.). The first adit [at FP037422] was at an elevation of 100 m a.s.l., and the second adit at 130 m a.s.l. The adits are marked on Figure 1. There is no record of the

second adit being dug, as all reports refer to only one adit, with the stone chimney. The newer adit was probably dug after 1961. Seam sections measured from the first adit (with the stone chimney) are given in Appendix 2.

#### COAL QUALITY

Although the total quantity of coal extracted from Mt Paul was small, the following analyses have been made:

	1	2	3	4	5	6	7
Moisture (%)	1.58	1.00	1.2	1.00	0.6	2.3	1.2
VCM (%)	15.32	20.80	18.24	18.58	25.5	22.1	25.8
FC (%)	49.32	51.74	55.64	54.82	51.6	46.5	53.4
Ash (%)	33.78	26.46	14.92	25.60	22.3	29.1	19.6
S (%)	0.37	0.44	0.68	0.74	0.46	0.41	0.43
H (%)		4.06					
C (%)		56.51					
O (%)		11.60					
N (%)		0.93					
SE (MJ/kg)		23.1	22.3	22.2	26.2	23.6	27.8
SG		1.36					

- 1, 2. Samples from the Mt Paul adit (Hills *et al.*, 1922).
3. Channel sample of 1.27 m of seam above basal band; from west side of adit, 15 m south of face (Nye, 1928).
4. Channel sample of whole seam (1.5 m) excluding basal band; from east side of adit, 13.7 m south of face (Nye, 1928).
5. Channel sample of whole seam from near the face, collected by D. Besford in 1948.
6. Channel sample of top 1.37 m coal, above mudstone band; collected by T.D. Hughes in 1955.
7. Sample of basal 230 mm coal, below mudstone band; collected by T.D. Hughes in 1955.

#### RECENT EXPLORATION

In the late 1960s mapping of the Freycinet Peninsula area was done by D.J. Jennings (fig. 1). Two diamond drill holes were put down by the Department of Mines in 1969 on the eastern slopes of Mt Peter (north of Mt Paul) to investigate the known occurrence of limestone in the area (Jennings, 1969).

Leclercq (1975) subdivided the Lower Parmeener Super-Group sediments into seventeen units whilst conducting a detailed biostratigraphic sedimentological study. The area was covered in the extensive gravity survey of the central eastern highlands by Leaman and Richardson (1981).

The area is currently held under Exploration Licence 5/61 by the Shell Company of Australia.

FUTURE POTENTIAL

The coal-bearing area around Mt Paul is confined to a small graben. Whilst one seam of reasonable quality and thickness is known, the area is badly faulted. The inferred reserves of the Mt Paul coalfield are small.

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[28 March 1984]

APPENDIX 1

AMG references of boreholes and adits in the Mt Paul coalfield

DEPARTMENT OF MINES DRILLING 1969

<i>Drill hole</i>	<i>AMG reference</i>
1	FP057453
2	FP055454

ADITS

*AMG reference*

FP037422 (with stone chimney)

FP035424

8/8

APPENDIX 2

Measured seam sections, Mt Paul adit

