

1983/5. The Kaoota (Sandfly) coalfield.

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Abstract

The Kaoota Coal Measures are of Triassic age and contain a number of seams up to two metres in thickness. The coal was worked from 1881 to 1971 with two mines, the Wallsend and the Sandfly, producing most of the coal. The average production from the Sandfly mine, which closed in 1971, was less than 2000 t per year. Four drill holes were drilled by the Department of Mines in 1895-96, a further four by the Department in 1970, and three in 1973. Five holes were drilled as a result of company exploration in 1981. The inferred reserves are very small, probably less than two million tonnes. The potential for the area is limited.

LOCATION AND ACCESS

The Kaoota coalfield is located close to the township of Kaoota, 5 km south of Sandfly, which may be reached via the Southern Outlet Road (23 km from Hobart), via Kingston (26 km from Hobart), or via the Huon Highway (25.5 km from Hobart).

GENERAL GEOLOGY

The Kaoota Coal Measures is a lithic sandstone sequence with subordinate mudstone and thin workable coal seams. The sequence contains a Triassic flora (Farmer, 1981). These coal measures belong to the upper division of the Upper Parmeener Super-Group. Below the Kaoota Coal Measures is the quartzose sandstone of the middle division of the Upper Parmeener Super-Group. This is a clean, white, sparkling, quartz sandstone which usually shows massive current-bedding.

The lowest division of the Upper Parmeener Super-Group comprises the Cygnet Coal Measures, but these rocks do not crop out in the immediate area around Kaoota.

Jurassic dolerite has intruded the sediments in the form of dykes and transgressive sheets. Dolerite caps the hill at EN125367, around which mining was first concentrated, and probably underlies the block of country which comprises the coalfield, as deep holes drilled in the area have encountered dolerite at depth. Dolerite talus thickly blankets some slopes.

The area of potential coal reserves is likely to be faulted, as both major mines (the Sandfly and the Wallsend) had their workings interrupted by faulting.

PREVIOUS MINING HISTORY

The Kaoota coalfield has been periodically mined by a number of syndicates since 1881. While there were two major mines in the coalfield, these were made up of a large number of adits, new adits being dug as older adits were abandoned, with the name of the mine remaining the same. The Sandfly mine has had no less than eleven adits; seven adits were named 'No. 3 workings', 'No. 7 workings' etc., while four were named 'No. 1 adit', 'No. 2 adit', etc. The positions of those workings which are known are shown in Figure 1.

Much of the history of the area has been documented by Hills *et al.* (1922) and Whitham (1973). Thureau (1881) noted a 30' (10 m) deep shaft and a number of adits being worked at Sandfly, but due to poor access little work was done until the construction of a tramway in 1906. Montgomery (1893) reported that the mine owners were looking for a tramway route in preference to working the mine.

In 1895-6 four holes were drilled by the Department of Mines, the logs of which are given by Hills *et al.* (1922).

Twelvetrees (1903) inspected minor works consisting of adits and trenches on eight outcrops of coal. The longest tunnel (1 chain or 20 m) exposed a split seam, the top ply 5'0 $\frac{1}{2}$ " (1.54 m) thick separated by a fireclay 4'0" (1.22 m) thick from the lower 4'0" (1.22 m) thick ply. The fireclay was "charged with the imprints of Mesozoic ferns" (Twelvetrees, 1903). Most of the workings were in the vicinity of the Sandfly coal mine No. 3 workings [EN126366].

In 1904 the Sandfly Colliery Company mined 100 tons of coal for steaming trials in a warship (Whitham, 1973). Work on the tramway to Margate started in 1905 and required the construction of ten quite substantial bridges. The tramway was completed in 1906, but in 1907 the company collapsed, after having produced only 8500 tons of coal. The Tasmanian Wallsend Colliery Company then acquired the tramway and produced 16 000 tons of coal, mostly from the Wallsend Mine [EN119364] before the mine closed in 1910 after striking two faults.

A local syndicate took up the Sandfly leases in 1917, but produced only 1600 tons of coal from the No. 3 workings before closing in 1919. In 1920 fire destroyed one of the major tramway bridges and in 1922 the tramway was dismantled. Some of the rails and one locomotive were acquired by the Catamaran Coal Company (Whitham, 1973).

From 1937 to 1957 ground to the east of the old Sandfly mine was worked by the Fogarty's, then by the Roberts family until 1971 (Whitham, 1973). Mining activity was stopped by the existence of faults which severely disrupted the workings (Threader, 1973). Total production of the area was less than 80 000 tonnes.

COAL QUALITY

The following is a typical analysis of Sandfly coal from the 1948 (Fogarty's) workings [EN132368].

Moisture at 105°C (%)	2.2
Volatiles (%)	11.5
Fixed carbon (%)	64.2
Ash (%)	22.1
Sulphur (%)	0.45
Specific energy (MJ/kg)	25.9
Specific gravity	1.52

Further analyses are listed in Appendix 2.

RECENT EXPLORATION

In 1970 the Department of Mines drilled holes near the No. 3 adit of the Sandfly mine to ascertain the throw of a fault encountered by the mine owners. The first hole, DOM 1, showed that the throw of the fault

intersected 15.8 m from the entrance of Adit 3 was 18.3 metres.

A second hole, DOM 2, was drilled between Adits 2 and 3 to determine the depth and quality of coal remaining in this area. Drilling results and some analyses are given in Threader (1973). The owners could have either continued to mine the coal on the upthrown (western) side of the fault or established a new access into the downthrown side of the fault block. The owners opted to pursue the latter course, maintaining that the coal remaining on the upthrown side of the fault was of inferior quality. A new adit (No. 4) was established, but hit a fault zone some 20 m west of the original main fault.

Two holes (DOM 3 and 4) were drilled ahead of Adit 4, but mining ceased in June 1971.

Further holes were drilled by the Department of Mines near Barkers old adit. Threader (1974) noted that Barkers adit, the old No. 7 workings, and the Sandfly mine all worked the Sandfly seam, while the Wallsend mine worked the Wallsend seam, some 120 m above the Sandfly seam. Hills et al. (1922) recorded eight seams in the area, stating four to be of workable thickness, but only two seams were ever worked and these were both about one metre thick. Details of the drilling near Barkers adit are given by Threader (1974), who concluded that a small measured reserve of 12 200 t existed in the area bounded by holes DOM 5, 6, and 7, and Barkers adit.

In 1981 General Geological Services investigated the Kaoota coal-field on behalf of Capricorn Mining Limited. Five holes were drilled (General Geological Services, 1981a; 1981b). Details of coal seam inter-sections sampled are given in Appendix 2.

POTENTIAL FOR FUTURE EXPLORATION

As the main seam worked (the Sandfly seam) was only 0.75 m thick on average and the small areal extent of the coalfield is badly faulted, the prospects for future mining in the Kaoota field are not great. Limited quantities of useful coal are likely to be found in the area around Barkers adit and west of the Sandfly mine adit 4. The *in situ* reserves are classed as very small inferred reserves, probably less than two million tonnes.

REFERENCES

FARMER, N. 1981. Geological atlas 1:50 000 series. Sheet 88 (8311N). Kingborough. *Department of Mines, Tasmania.*

GENERAL GEOLOGICAL SERVICES. 1981a. Tasmanian coal prospects. Six monthly progress report, 17 April to 16 October 1981 for Capricorn Mining Ltd. *Unpubl.Rep.General Geological Services. CAP 704/20. [open file 81-1682].*

GENERAL GEOLOGICAL SERVICES. 1981b. Final report of south-eastern Tasmanian coal prospects for Capricorn Mining Ltd. *Unpubl.Rep. General Geological Services. [open file 81-1513].*

HILLS, L.; REID, A.M.; NYE, P.B.; KEID, H.G.W.; REID, W.D. 1922. The coal resources of Tasmania. *Miner.Resour.geol.Surv.Tasm. 7.*

HUGHES, T.D. 1948. Low volatile coal in Sandfly district. *Unpubl.Rep. Dep.Mines Tasm. 1948:1-3.*

- MONTGOMERY, A. 1893. Report on the Sandfly coal mine. *Rep.Secr.Mines Tasm.* 1892-3.
- THREADER, V.M. 1973. Diamond drilling at the Sandfly coal mine, Kaoota. *Tech.Rep.Dep.Mines Tasm.* 15:40-43.
- THREADER, V.M. 1974. Further investigations at the Sandfly coal mine, Kaoota. *Tech.Rep.Dep.Mines Tasm.* 17:27-33.
- THUREAU, G. 1881. Report on the southern coal measures at Sandfly, Parish of Longley, County of Buckingham. *House of Assembly Paper Tasmania.* 1881 (109):12-14.
- TWELVETREES, W.H. 1903. Report on the Sandfly coal mines. *Department of Mines, Tasmania.*
- WHITHAM, L.S. 1973. The Sandfly coal mine and tramway. *Pap.Proc.Tasm. Hist.Res.Ass.* 20:201-209.

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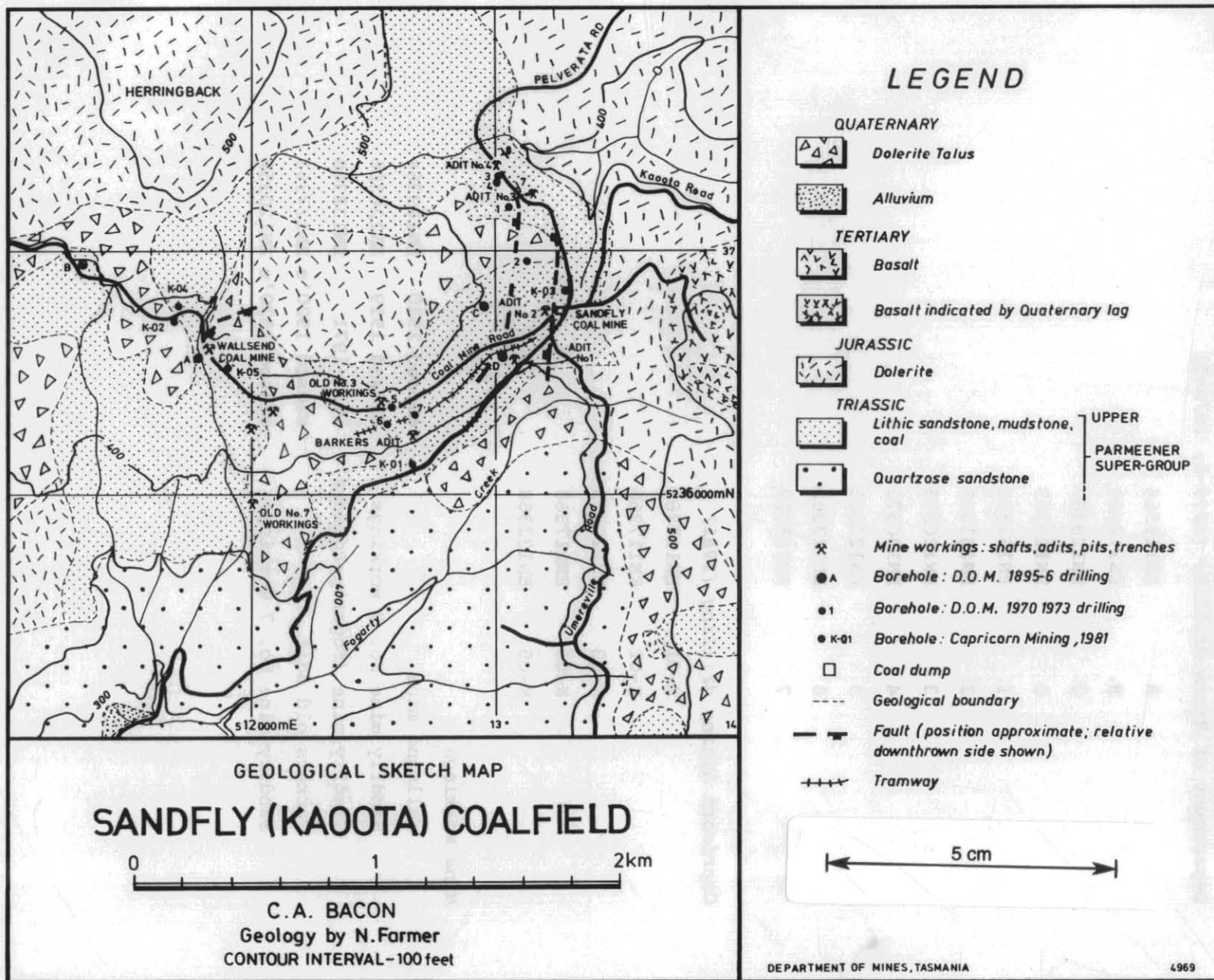


Figure 1.

APPENDIX 1

AMG references of boreholes and adits in the Kaoota (Sandfly) coalfield

Department of Mines drilling (1895-6; 1970-3)

A	EN119364
B	EN114369
C	EN129367
D	EN129365
1	EN131372
2	EN131369
3	EN130373
4	EN130372
5	EN124363
6	EN123362
7	EN125362

Capricorn Mining drilling (1981)

K-01	EN127361
K-02	EN117366
K-03	EN120365
K-04	EN117368
K-05	EN132368

Mine workings

Wallsend mine	closed 1910	EN119364
Sandfly mine No. 3 workings	closed 1919	EN126366
Sandfly mine (Fogarty-Roberts)	1937-1971	EN132368
Barkers old adit	closed 1920's	EN127363
Sandfly mine No. 7 workings	closed 1920's	EN120359

APPENDIX 2

Coal quality data, Sandfly area

ANALYSES FROM MINE WORKINGS

	Moisture at 105°C	Volatiles (%)	Fixed carbon (%)	Ash (%)	Sulphur (%)	Specific energy (MJ/kg)	Specific gravity
<i>1948 Sandfly workings (Hughes, 1948)</i>							
Floor - 0.38 m	2.7	11.0	64.2	22.1	0.47	25.9	1.50
0.38 - 0.76 m	2.2	12.3	65.1	20.4	0.45	26.4	1.51
0.76 - 1.14 m	1.7	11.2	63.3	23.8	0.44	25.3	1.56
Average	2.2	11.5	64.2	22.1	0.45	25.9	1.52
<i>Barkers adit (Hughes, 1948)</i>							
Floor - 0.45 m	1.9	17.2	60.7	20.2	0.4	26.8	1.49
0.45 - 0.90 m	1.8	17.6	56.2	24.4	0.32	24.9	1.57
Average	1.85	17.4	58.5	22.3	0.36	25.8	1.53
<i>No. 7 workings (Hughes, 1948)</i>							
0 - 0.9 m	2.9	17.46	60.88	18.76	0.41	25.5	1.50
<i>Stand's Adit (Mouth) (General Geological Services 1981a)</i>							
	15.09	24.62	44.53	15.76			
<i>Stand's Adit (End) (General Geological Services, 1981a)</i>							
	3.40	7.03	57.44	32.13			

ANALYSES FROM DRILL HOLES

Hole No.	From (m)	To (m)	Thickness (m)	Moisture (%)	Volatiles (%)	Fixed carbon (%)	Ash (%)	Specific energy (MJ/kg)
<i>Department of Mines (Threader, 1974)</i>								
5	82.48	83.43	0.95	5.6	27.7	49.7	17.5	-
6	45.04	45.86	0.82	-	18.0	-	29.5	24.8
7	33.84	34.98	1.14	-	14.6	-	42.8	-
<i>General Geological Services (1981a)</i>								
K-02	64.57	65.30	0.73	1.4	11.5	26.6	60.7	-
	81.56	83.85	2.29	3.9	15.6	34.4	46.1	-
	102.56	103.04	0.48	2.6	11.4	61.6	24.4	-
	106.34	107.11	0.77	3.3	13.6	53.6	29.5	-
K-03	9.75	10.51	0.76	2.8	6.8	58.2	32.2	-

Additional minor coaly intervals were recorded in holes K-02, K-03, K-04, and K-05 (General Geological Services, 1981a). No coal was found in K-01 as the hole was collared towards the base of the Kaoota Coal Measures sequence.

Additional ply analyses and some washability data are given by General Geological Services (1981a).

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Appendix 2 (continued)

A summary of the washability data is given below:

Hole No.	From (m)	To (m)	Thickness (m)	Yield (%)	Ash (%)	Float SG
K-02	64.57	65.17	0.60	17.5	34.2	1.6
				48.9	40.9	1.7
K-02	81.56	81.66	0.10	31.2	21.3	1.6
				41.9	25.0	1.7
K-02	82.48	83.32	0.84	60.6	18.3	1.6
				72.2	19.6	1.7
K-02	83.37	83.77	0.40	69.8	14.6	1.6
				100.0	28.0	1.7
K-02	85.55	88.57	2.02	76.3	18.6	1.6
				84.0	20.0	1.7
K-02	106.39	106.92	0.53	57.2	19.2	1.6
				81.1	23.2	1.7
K-02	106.93	107.11	0.18	90.0	14.6	1.55
				100.0	14.6	1.6
K-02	110.21	110.51	0.30	76.6	15.1	1.6
				88.2	17.4	1.7