

APPENDIX 17

Coal Potential - Galilee Basin Internal GSQ Memorandum by A.F.Carr

COAL POTENTIAL

GALILEE BASIN

Although the existence of coal in the Galilee Basin has been known for well over 50 years none has yet been mined commercially. The continuous lateral extent of the coal seams, which stretch from the Central to some 50 kilometres north-west of the Northern Railway, was not demonstrated until the recent exploratory drilling which was undertaken by the Queensland Department of Mines. The strike distance of the seams is about 400 kilometres along the eastern margin of the Galilee Basin. The Department of Mines' drilling programme, which commenced in 1971, consists of lines of three or more holes drilled across the strike of the strata, the lines being spaced at approximately 50 kilometre intervals. Because of the widespread nature of this preliminary programme no accurate quantitative assessment of the reserves in the basin can be attempted. Certainly, very large reserves of coal in situ are inferred, but the economic potential of these deposits is of much less certainty.

The seams are variable in thickness and number along strike owing to their coalescing or splitting. However, six main seams have been identified, and these range up to 15.5 metres in thickness. The coal is mainly dull, particularly that in the lower seams in the northern areas, with some bright beds. It is sub-bituminous in rank and consequently not of coking quality, but is suitable for electricity generation. Sulphur content is low, and the coal is generally sub-hydrous. Average analyses of washed coal for all seams are:

	Wendouree	Moray Downs
Proximate analysis per cent air-dried basis		
Moisture	9.7	9.1
Volatile Matter	30.4	29.4
Fixed Carbon	46.3	46.2
Ash	<u>13.6</u>	<u>15.3</u>
	<u>100.0</u>	<u>100.0</u>

Specific Energy air-dried basis, MJ/kg	22.99	22.38
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Ultimate Analysis
per cent dry ash-free basis

Carbon	77.96	74.11
Hydrogen	5.03	3.91
Nitrogen	1.67	1.57
Sulphur	0.73	0.24
Oxygen	<u>14.61</u>	<u>20.17</u>
	<u>100.0</u>	<u>100.0</u>

Geological structure appears to be simple throughout the basin. Dip of strata is relatively low, and major faulting should not be a hindrance to either open-cut or under-ground mining. Superficial deposits of Tertiary and Quaternary age cover the area to depths ranging from 30 to 135 metres. In many parts of the area, given present day stripping technology, the removal of the thicker overburden is likely to prove an insuperable problem in producing coal at an acceptable cost.

At the present state of our knowledge of the Galilee Basin, the Moray Downs area would appear to be one of the more attractive, despite its

geographical isolation. But much more detailed knowledge is required in this area, as well as other parts of the basin. However, assuming that open-cuts could be established on each of the four main seams at Moray Downs, these would need to be approximately 20 kilometres long and 0.5 kilometres in width each, in order to supply the 200 + Mt of coal necessary for the life of a 2000 MW power station. Such excavations would require a highwall of nearly 100 metres.

North of the Mirtna area, results of drilling are so far rather discouraging. In the Pentland area, adjacent to the Northern Railway, a 10 metre seam was intersected in two holes approximately 400 metres apart. However, further drilling along a strike distance of 13 kilometres has failed to locate this seam, even within a distance of only 500 metres. It would appear that the coal measures in this area were subject to numerous washouts. More detailed work is required to fully explore this area, but with information presently available the opening of a large open-cut mine does not seem very likely.

Since the commencement of Mines Department drilling two Authorities to Prospect have been taken out, and one of these, in the Wendouree area in the south, is still current. The second, which covered approximately 600 square kilometres and was held jointly by Shell Development Australia Pty Ltd and Western Mining Corporation, has now been surrendered. It was not considered an economic proposition, and much of the reason for this was the excessive thickness of nearly 100 metres of overburden.

The difficulties of open-cut mining in the Galilee Basin are readily apparent, and it may be that consideration could be given to the establishing of under-ground mines in some areas.

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