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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

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COORABIE - OAKLANDS COALFIELD

A point has been reached in the prospecting of this field where it is necessary to review results and consider future actions. The bore on site A has been completed and Mr. Knight has concluded his preliminary geological survey of the area.

The information now available modifies some of our earlier views. The following statement summarizes the position:-

(1) COAL

The bore on site A was recommended as an essential preliminary before planning coal-mining operations on an extended scale. It was not anticipated that the coal seam would be found to have deteriorated so quickly east from Lane's Shaft as this bore indicated. We now know that the distribution of coal of commercial quality and thickness is limited N.E. and W. from Lane's Shaft, and this very materially limits the chances of proving a large tonnage of coal above water level in this locality.

The general geological reconnaissance also does not hold out great hope of coal of commercial importance occurring at a shallow depth over a wide area, but it is impossible to be definite on this point at present.

(2) WATER

It is clear from Mr. Knight's investigations that the water does not occur under water table conditions, but in contained aquifers. These aquifers are gently tilted and the level to which the water will rise when intersected by bores and wells is controlled by the surface level of the beds at their intake. For the same reason, if folding brings the aquifers approximately to, or above, the level of the intake, little or no water is met with. The latter condition pertains in the vicinity of Lane's Shaft.

It is clear, therefore, that the idea which was tentatively held, that in the deeper parts of the coal basin, it might be possible to work coal below the water table, must be abandoned. Considering only the water above the coal the revised view is, however, not less favourable from the safe-working point of view.

The aquifer which occurs immediately above the coal measures, which consists of a pebbly wash, may be regarded as the basal bed of the younger sediments overlying the coal. It will be noted that the basal bed occurs at varying distances from the coal seam. Mr. Knight thinks this is due to the coal-bearing beds having been gently folded and eroded before the deposition of the younger sediments, and this seems the most reasonable view on the evidence available. It seems probable that in the area proved by Nos. 4 and 5 bores, at least, there would be a sufficient thickness of sediments between this aquifer and the coal seam to provide adequate cover for working the seam.

The boring has also revealed several water-bearing strata below the coal seam. As these are separate aquifers

only the highest i.e. the one nearest the seam need be considered at this stage. The volume of the flow was beyond the capacity of the pump available on the job (up to 500 gallons per hour was measured). It is, however, under low head, as it rose only 40 feet in the bore.

(3) BORING RECOMMENDED NEAR LANE'S SHAFT

The rapid deterioration in the quality of the coal east from Lane's Shaft makes it more than ever necessary to prove a sufficient area of workable coal to justify development and as it is still desirable to prove such area near Lane's Shaft, if possible, because water difficulties here are at a minimum, three closely spaced bores are called for in addition to the one now being sunk midway between Lane's Shaft and the bore just completed on site A.

These additional bores would be sunk:-

- i. On a line between Lane's and the Gunabil Shaft.
- ii. Near the Garbory Shaft.
- iii. Between the Clear Hill and the Garbory Shaft.

The bore near the Garbory Shaft would have the double object of testing the seam and the water, since we are now inclined to the view that the difficulties encountered in this shaft were exaggerated by lack of engineering experience and that the great volumes of water reported there due to the caving which took place, thus opening a large area of the aquifer. It is true of course, that the greater the depth at which coal is met the greater the water pressure to be dealt with.

(4) PROSPECTING BORE

The boring programme recommended in (3) is designed to prove sufficient coal for immediate development - 1,000,000 tons on the basis of a six foot working thickness. The reserves would be proportionately increased if a greater thickness were considered. While the drilling plant is on the area I would like to see a purely prospecting bore put down near Oaklands, designed to prove:-

1. Whether the coal seam extends that far south.
2. What the water conditions are, in relation to the coal in the deeper part of the basin.
3. Whether the depth to the coal measures is greater or less than at No.5 bore.

(5) GENERAL

At least one bore in this area should be carried to bedrock in order to prove the complete geological section and to give a starting point for the gravimetric survey. Probably bedrock would be shallower north of Lane's Shaft than at any other point selected for drilling, hence this would be the least costly to continue to bedrock.

(6) RECOMMENDATIONS

It is recommended that the bores detailed under heading (3) be put down namely:-

- i. On a line between Lane's and the Gunabil Shaft.
- ii. Near the Garbory Shaft.
- iii. Between the Clear Hill and the Garbory Shaft.

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Bores ii and iii to prove the coal seam, i. to prove the coal seam and be continued to bedrock. Estimated cost, £500.

iv. That a bore be put down as described under heading (4), probable cost, £500.

The cost of i,ii,iii, is small in relation to the immediate objective and the total cost is also regarded as small in relation to the wider consideration of large scale power generation.

(H.G. Raggatt)
DIRECTOR.

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