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REPORT: CAP 704/21

CAPRICORN MINING LIMITED

RELINQUISHMENT REPORT

COAL EXPLORATION LICENCE No. 26/79

SANDFLY, TASMANIA

AMG REFERENCE POINTS ADDED

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1. INTRODUCTION

This report accompanies a submission (letter attached) by Capricorn Mining Limited to the Tasmanian Director of Mines requesting approval for relinquishment of Exploration Licence No. 26/79 (Sandfly).

Previous notice of the company's intention to relinquish part of the licence area was given by the renewal application (16 October, 1981), in which it was proposed that the western portion (Mt. Lloyd) covering 405 km^2 would be dropped. It has subsequently been decided by the company to also relinquish the eastern portion (Kaoota) covering an additional 420 km^2, so that the intention now is for no part of the licence area totalling 825 km^2 to be retained.

The report outlines the exploration philosophy, the results of the regional geological appraisal including a combined scout-drilling and borehole-logging programme, field completion details, the evaluation of the coal resources, and the reasons for relinquishing the licence area. In order to avoid unnecessary duplication, detailed data already adequately treated in previous reports will not be presented again. In particular, reference should be made to the last six-monthly progress report (Report CAP/20: December, 1981).

2. EXPLORATION PHILOSOPHY AND PROGRAMME

An exploration programme for E.L. 26/79 was planned in conjunction with three other coal licences granted to Capricorn Mining Limited in southern Tasmania. The scope and direction of the exploration proposed in the initial programme were to be progressively updated as results were obtained during work carried out simultaneously in all the licence areas. From the outset, an integrated work schedule was obviously desirable from technical and financial viewpoints, and the proposed joint exploration programme for the four areas met with the approval of the Department of Mines.

The work programme originally proposed (Reports CAP 704/1: September, 1979; CAP 704/2: October, 1979; and CAP 704/3: December, 1979) contained four stages; the first stage being a regional geological appraisal which was planned in three parts to include (A) preliminary reconnaissance, (B) detailed geological mapping and sampling, and (C) geophysical and scout-drilling programme.

The main objective of the regional appraisal was to provide reliable assessments of a set of parameters governing the existence of economic coal deposits in the licence area. Another objective was to establish simple models for the depositional environments of the coal units in order to assist in understanding the existing distribution pattern of the deposits and to support new predictions of coal occurrences.

Estimated expenditure for the regional appraisal and the planned follow-on evaluation programmes and related studies is shown in Table 1 below.

Table 1: Estimated Expenditure - E.L. 26/79

Stage 1	Regional Geological Appraisal		$25,000
Part A	Preliminary reconnaissance	$11,000	
Part B	Detailed geological mapping & sampling		
Part C	Geophysical survey & scout-drilling	$14,000	
Stage 2	Engineering & Reverse Economic Studies		$ 5,000
Stage 3	Detailed Evaluation of Coal Deposits		$50,000
Stage 4	Feasibility Studies		
	Total Proposed Expenditure		$80,000

A suggested time schedule for completion of the above listed work and study programmes was Stages 1 and 2 in Year One and Stages 3 and 4 in Year Two.

Initial geological reconnaissance and drillhole site selection in the licence area were made according to three orders of investigation.

(1) Areas around abandoned coal workings - with a view to delineation of "indicated" and "inferred" reserves
(2) Areas of outcrop and shallow subcrop of Permian and Triassic coal measures - with an aim of finding "prognostic" reserves
(3) Regional survey to assist interpretation of overall depositional environment - in order to establish basinal sedimentation patterns when correlated with the results from the other licence areas

The drilling programme thus aimed primarily at verifying early records of coal seams in adits and drillhole intersections at Kaoota, where several mines operated intermittently on a small scale from 1904 to 1971. The secondary aim was to discover significant new coal occurrences by means of exploratory drilling in favourable Permian and Triassic rock units, that is the Cygnet Coal Measures and the Kaoota Coal Measures respectively. The former unit is only known from small exposures along the Cloverside Road at Mt. Rudd to the west of Crabtree and along the Mountain River Road to the north of Mountain River settlement. The latter unit outcrops in the vicinity of Coal Mine Road to the west of Kaoota and also in several large tracts of relatively inaccessible country between Mt. Lloyd and Mt. Jackson and near Kemp's Hill and Blue Gum Knob in the north-western part of the licence area.

The two-fold thrust of the drilling programme as outlined above was based on combining short-term economic priorities with an exploration policy of long duration. It embraced the well-tried exploration concept of extending investigation from the area of proven resource occurrence to areas of unknown potential. An essential part of this concept was to drill a deep stratigraphic hole in order to obtain a basic reference column for all rock units of interest in the region. A difficulty in E.L. 26/79

was realized to be the apparent lack of continuity of the target rock units throughout the licence area because of structural complexity and extensive dolerite cover. It was nonetheless hoped that an early success in locating and indicating an economically viable deposit would result from the proposed work programme, and that this would strengthen the company's desire to continue its existing licence renewals.

3. EXPLORATION ACTIVITIES AND RESULTS

The last six-monthly progress report (Report CAP 704/20: December, 1981) provides a final compilation of all data gained by Capricorn Mining during the three successive licence periods. In particular, the exploration activities and results are detailed and the data depositories are given. The report also covers the three other coal licence areas held by Capricorn Mining Limited. Details of all other work planned and carried out in E.L. 26/79 have already been presented in the previous twenty-four reports. A summary of the most relevant information on E.L. 26/79 is set out below.

A scout-drilling programme was supervised by the consulting group, General Geological Services, commencing 24th February 1981 and being completed on 11th March 1981. All holes were sited in the Kaoota area, the best known and most accessible prospect in E.L. 26/79. Five holes were drilled for a total of 380 metres, of which 284 metres were cored for a 98% recovery. One hole (K-05) was not cored and one hole (K-01) only cored in part. Drillhole K-02 was cored to 147.95 metres in an attempt to obtain a fairly full section through the Kaoota Coal Measures. This hole was sited a few metres away from the suspected site of the old Bore A (Hills et al, 1922), but despite similarities between the log from K-02 with that from the earlier drilling, this identification has not been definitely established.

The results of the drilling were in general disappointing. Significant seams (i.e. greater than 1 metre thick) were intersected only in a few places, and one drillhole (K-01) failed to intersect any coal. The thickest seam encountered was 2.3 metres in drillhole K-02 at 81.5 - 83.8 metres depth, but several thin interbeds were present as shown by the poorer quality of the full seam analysis over individual ply analyses.

Density responses from geophysical logs from drillhole K-05 indicated seams of 1.8 metres and 1.0 metre thickness at depths of 13.02 - 15.00 metres and 17.80 - 18.80 metres respectively, but these could not be verified by chemical analyses because the hole was not cored.

A suite of geophysical logs was obtained from four drillholes (i.e. K-01, K-02, K-03, and K-05). The remaining drillhole (i.e. K-04) collapsed prior to logging.

Weighted averages of the coal analyses of seams cored at Kaoota (i.e. K-02, K-03, K-04) indicate higher ash and lower volatile matter and fixed carbon than from averages derived from earlier records; to what extent this is the result of sampling differences is not known. Some samples from adits at Kaoota were also analysed.

All data are presented in metric units and maps drawn at metric scales.

4. PROGRAMME COMPLETION AND EVALUATION

The initial scout-drilling programme envisaged the siting of several exploratory holes in the Mt. Lloyd area. However, field reconnaissance and inspection with the drilling contractor indicated that access into the main locations of interest would be impossible without substantial improvement to existing tracks and the construction of new tracks. Thick dolerite cappings and widely spread talus deposits further restricted potential drilling sites. It was thus decided that effective prospecting in this area could not be achieved within the framework of the budget available for exploration in E.L. 26/79. A site originally selected on river flats at Ranelagh; without reference to exposure of target stratigraphic units, was also not drilled.

Following completion of the five drillholes at Kaoota, reassessment of the coal seams in terms of depth, thickness, continuity, attitude, and quality strongly suggested that additional drilling and reserve studies were not justified. The results confirm the conclusions of previous investigations in the vicinity of the Sandfly and Wallsend Coal Mines in which further mining was considered to be a doubtful proposition owing to limited thickness, inferior or variable quality, unstable roof and floor, and complex faulting of seams (Hughes, 1948; Threader, 1973, 1974). Previous estimates of coal reserves (Hills et al, 1922; General Geological Services, 1980) were based on aggregate seam thicknesses and cannot be regarded as reliable figures of mineable reserves.

The regional geological appraisal (Stage 1) as carried out by Capricorn Mining Limited was originally intended to be accompanied by engineering and reverse economic studies (Stage 2). This latter stage was meant to include a preliminary assessment of the economic potential and mining viability of the coal deposits as regards capital operating and infra-structure costs, extraction technology and environment impact, and it was anticipated to be carried out over a six-month period during the first year. However, the early drilling results did not provide sufficient reasons for undertaking such studies, or indeed to continue with the follow-on third and fourth stages.

Actual expenditure on exploration in the licence area is shown in Table 2.

Table 2: Actual Expenditure - E.L. 26/79

Stage 1 Regional Geological Appraisal	
First Six-monthly Licence Period (17.4.80 to 16.10.80)	$17,361
Second Six-monthly Licence Period (17.10.80 to 16.4.81)	$56,946
Third Six-monthly Licence Period (17.4.81 to 16.10.81)	$ 7,050
Total Programme Expenditure	$81,357

Expenditure on the regional geological appraisal to date already exceeds the amount initially proposed for the entire exploration programme in E.L. 26/79. This situation cannot in anyway be attributed to uneven distribution of exploration resources, but is the direct result of the difficulties encountered in investigating this area.

All drillholes were abandoned after backfilling and/or following side-wall collapse, then sealed by casing cap or by cement plug. No groundwater problems were encountered. Sites were cleared of debris and restored. One landowner requested rehabilitation of a private service road following completion of drillhole K-02 at Kaoota where a short access track and site levelling had been carried out in a steep hillside. Some creep or slide occurred at a later date and apparently was a factor in causing a portion of the road to fracture and slip. Capricorn Mining arranged total reconstruction of the road including the addition of a concrete culvert. This work was finalized in late December 1981 and the Mines Department has been fully informed of the action taken. No other complaints have been received by the company.

5. LICENCE RELINQUISHMENT SUMMARY

Capricorn Mining Limited originally applied for an exploration licence for coal (including peat and shale) covering approximately 825 km^2 in the Sandfly area on 14th September, 1979. The requested area, designated by a datum point at grid co-ordinates 499,000 mE and 5,261,000 mN, was granted without modification by the Minister for Mines as Exploration Licence No. 26/79 in February 1980. Details of the licence schedule and location are presented in Appendices 1 and 2.

The company now requests approval to relinquish the exploration licence for this area on the basis of the information submitted in this report. The reasons for this action are essentially as follows.

+ Exploration difficulties proved to be numerous and of higher degree than expected due to rugged terrain, dolerite cover, fault zones, limited access, wet weather, and private landownership.

+ Mining potential assessed to be poor following field work and office studies because of relatively small mineable reserves, thinness and discontinuity of coal seams, existence of underground mining prospects only, and variable coal quality.

Over the eighteen month period in which Capricorn Mining Limited has held the licence, more than $81,000 has been spent on exploration in the area and this amount exceeds the total estimated expenditure for the entire project.

6. REFERENCES

Hills, C.L. et al, 1922: The coal resources of Tasmania. Mineral Resources, Department of Tasmania, No. 7.

Hughes, T.D., 1948: Low volatile coal in the Sandfly district. Unpublished Report, Department of Mines, Tasmania. 1948/1

Threader, V.M., 1973: Diamond drilling at the Sandfly coal mines, Kaoota. Technical Report, Department of Mines, Tasmania, No. 15 (1970)

Threader, V.M., 1974: Further investigations at the Sandfly coal mine. Technical Report, Department of Mines, Tasmania, No. 17 (1972).

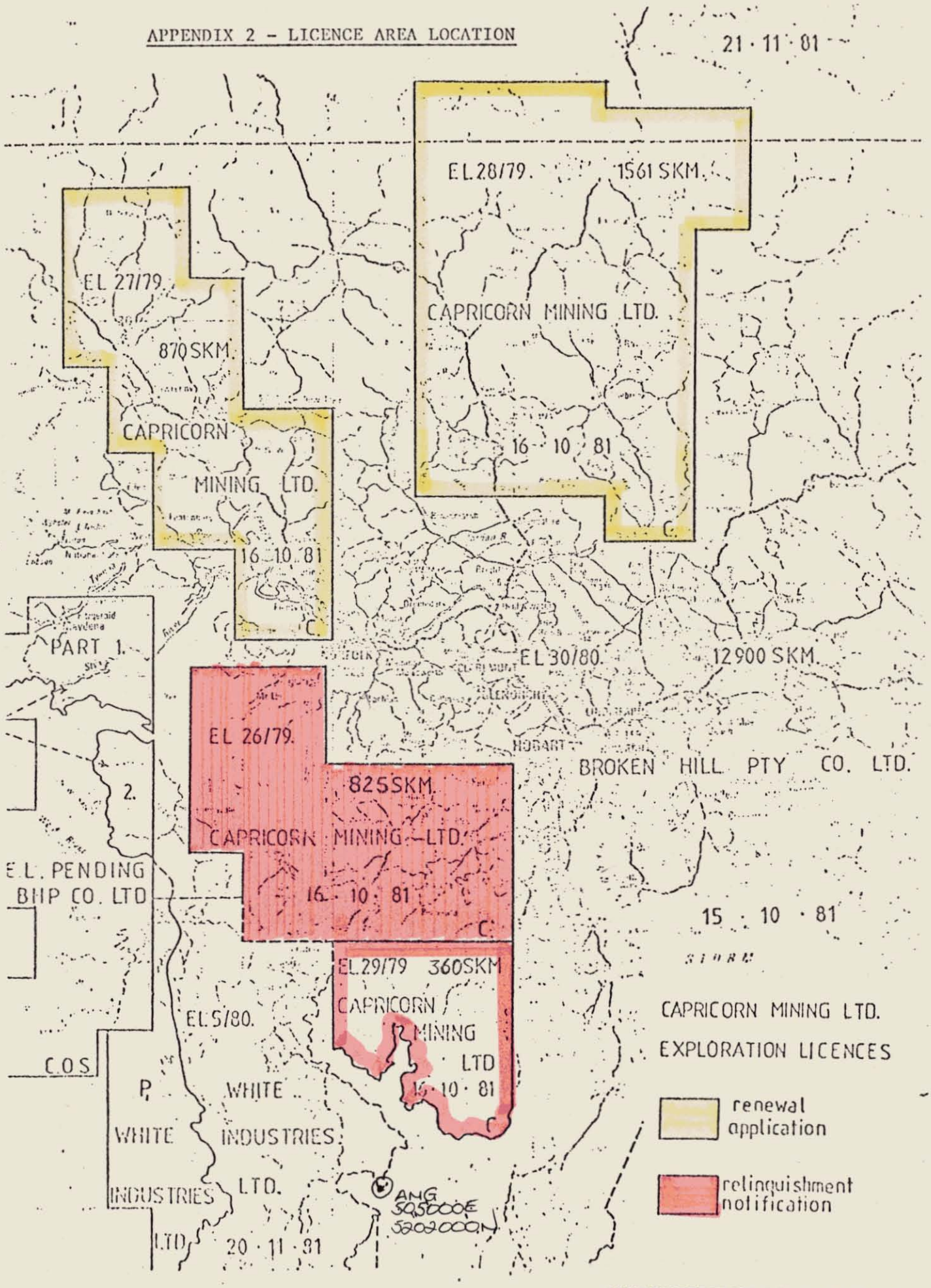
APPENDIX 1 - LICENCE AREA SCHEDULE

Exploration Licence No. 26/79 (Sandfly - Area 1)

The total area is submitted for relinquishment. Grid co-ordinates defining this area are detailed below.

Area relinquished: commencing at the Posted Notice situated at a north east angle of the Exploration Licence (No. 26/79) area whose grid co-ordinates are 499 000 metres E 5 261 000 metres N thence grid south to 5 250 000 metres N thence grid east to 520 000 E thence grid south to 5 230 000 metres N thence grid west to 490 000 metres E thence grid north to 5 240 000 metres N thence grid west to 484 000 metres N thence grid north to the point of commencement. Area is 825 square kilometres.

APPENDIX 2 - LICENCE AREA LOCATION



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