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CRA EXPLORATION PTY.LIMITED.

FRANKFORD EL 39/82

EXPLORATION REPORT FOR THE YEAR ENDING 19TH AUGUST 1984

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CRAE HOBART
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INTRODUCTION

EL 39/82 covers an area of 479 sqr km in northern Tasmania and is contiguous with EL 45/82 to the west, and EL 38/82 to the east. Major towns in the EL are Beaconsfield and Exeter, and access is provided by numerous public roads, the principal of which are the Frankford Road, and the West Tamar Highway.

Drainage is effected by the Supply River running eastward to the north flowing Tamar River.

Physiography varies from areas of elevated basement rocks flanked by a dissected dolerite plateau, to the Tamar Valley in the east. Basement highs are represented by the southern end of the Dazzler Range, and the Parmeener Super Group rocks may be viewed as a large inlier in the Jurassic age dolerite.

These basement blocks are bounded by NW trending faults, which are also the most common faults cutting the Parmeener rocks, and are probably related in part to the development of the Tertiary age Tamar Graben.

EL 39/82 covers four 1:63 360 scale geological sheets, Beaconsfield, Frankford, Pipers River and Launceston, all published by the Geological Survey of Tasmania.

Field activities consisted of reconnaissance traverses along numerous public roads into the EL.

EXPLORATION OBJECTIVES

CRAE Pty. Ltd. require a black coal deposit with the following characteristics:

1. An in situ resource of 50 million tonnes
2. Individual coal seam widths of $\geqslant$ 1.0m
3. A depth of overburden sufficiently thin to allow extraction by open pit mining. In practise this effectively means a maximum thickness of overburden of $\ll$ 50m.

COAL POTENTIAL

A. LOWER FRESHWATER SEQUENCE OF THE PARMEENER SUPER GROUP

1. Distribution and Lithologies

The Lower Freshwater Sequence (LFW) is represented in El 39/82 by litho-correlates of the Liffey Sandstone/Group, the distribution of which occurs in several composite fault blocks (Figure 1) as follows;

(a) West Frankford Block

This is flanked to the west by a dolerite covered block (graben) along strike of the Port Sorell estuary, and by the Dazzler Range basement high to the east.

Exposures of LFW rocks are poor, and where seen, consist of pebbly feldspathic gritty quartz sandstone.

Total area of the block is ≃30 sqr km, of which ≃10 sqr km is covered by outliers of dolerite sills.

(b) Holwell Block

This adjoins the eastern side of the Dazzler Range high, and has an eastern margin formed by the erosional retreat of the LFW rocks from several NW trending faults. Lithologies observed include feldspathic quartz arenite with pebble and grit horizons, brown pebbly shale, and cream to brown coloured mudstone. The exposure of LFW rocks 4 km SSW of Winkleigh consists of both massive and thin bedded feldspathic quartz arenite which is variably gritty, and similar to part of the Mersey Coal Measures near Devonport. Total area of the block is ≃ 20 sqr km.

(c) Beaconsfield Block

This is located to the west of the Tamar River, and east of the West Tamar Highway; Gee and Legge (1974) mapped a total thickness of ≃ 40m of mainly brown quartz arenite, but with ≪ 5m of flaser bedded shale (variably carbonaceous) in the upper 10m, which is also characterised by carbonaceous and micaceous quartz sandstone.

Total area of the block is ≃ 10 sqr km, but it is apparently continuous with the East Winkleigh block to the south.

(d) East Winkleigh Block

This block includes several smaller fault bounded blocks extending from 2km north of Rookery Creek, west to a line of faults immediately east of Winkleigh and Glengarry, south to Notley Hills, and east to an inferred NNW trending fault ≃ 5km east of Winkleigh.

LFW rocks are poorly exposed, and where seen, consisted of quartz sandstone, variably feldspathic and micaceous.

The best exposure was seen at 489 500E, 5425 500N where fissile quartz feldspar arenite (variably carbonaceous) appears to infill a graben - like depression in marine Parmeener rocks. Total area of this block is ≃ 40 sqr km.

2. Coal Potential

The relevant features of the LFW Sequence as pertaining to its coal potential are described in the Appendix, but which may be summarised as:

(a). The thickness of the LFW Sequence

(b). The thickness of the contained lutites

(c). The nature and size of the faunizone hiatus

(d). The inferred palaeogeography.

The LFW Sequence in EL 39/82 is estimated to range from 20 to 40m in thickness, with 2 to 5m of shale/mudstone.

It lies within the faunizone 2 - 5 and 2 - 6 hiati, in which no coal has been recorded in the state, and none was seen during the field work.

The inferred environment of deposition appear to have been either an alluvial or coastal plain, which may have been subjected to a marine incursion during LFW time, (see Appendix).

A moderate coal potential is suggested by the physical parameters ((a) and (b) above), and by the similarity of part of the Holwell Block to the Mersey Coal Measures in the vicinity of the Alfred and Mersey Collieries near Devonport.

However, this potential may be balanced by the relatively reduced time of non marine deposition, although the inference that these marine hiati are devoid of coal has not been thoroughly tested.

Accordingly, based on available data, the EL has an indeterminate, but possibly low, coal potential; optimum area for any further exploration would appear to be the Beaconsfield and East Winkleigh Blocks, totalling $\simeq$ 50 sqr km in area and as such meeting the minimum objective area of 38 sqr km.

B. UPPER FRESHWATER SEQUENCE OF THE PARMEENER SUPER GROUP

1. PERMIAN

(a) Distribution and Lithologies

UFW Sequence rocks occur in the EL both as outliers over marine Parmeener rocks, and in down faulted blocks between Notley Hills and Exeter (Figure 2).

The UFW unit in the area is the Clog Tom Sandstone, described by Gulline (1973) on the Frankford sheet as carbonaceous sandstone and shale, and by Gee and Legge (1974) on the Beaconsfield sheet as micaceous and carbonaceous quartz sandstone, with plant fossiliferous carbonaceous siltstone. Field exposures are poor, and typically consist of feldspathic quartz arenites.

(b) Coal Potential

Although correlates of the Clog Tom Sandstone are coal bearing in the west and south of the state, the inferred (dolerite free) extent of this unit in EL 39/82 is ≒13 sqr km, and accordingly is of insufficient size to warrant further attention.

2. TRIASSIC

Overlying the Clog Tom Sandstone, is a variously feldspathic quartz arenite with minor clay pellet conglomerates, and silty sandstone horizons; this succession is interpreted as a lithocorrelate of the Ross Sandstone from the Midlands.

Accordingly, this part of the UFW Sequence has a zero coal potential.

4. CONCLUSIONS AND RECOMMENDATIONS

1. The Lower Freshwater Sequence rocks in EL 39/82 have an indeterminate, but possibly low coal potential.

2. The Upper Freshwater Sequence rocks in the EL have an effective zero coal potential within the defined constraints of the objective resource.

3. It is recommended that some further exploration be done in respect of the LFW rocks, but such work to be planned in conjunction with the work program for EL's 38/82 and 40/82.

5. References

Gee, R.D. and Legge, P.J., 1974 : Beaconsfield Explan. Re. Geol. Surv. Tas.

Gulline, A.B., 1973: Frankford Geological Sheet, 1 mile series, Geol. Surv. Tas.

Summons, T.G. 1984 The Lower Freshwater Sequence of the Parmeener Super Group - Tasmania CRAE Report 12767

6. KEYWORDS

Coal Sub Bituminous, Permain, Reconnaissance

7. LOCATION

Launceston SK55-4

8. LIST OF PLANS

1. Frankford EL 39/82 Distribution of Lower Freshwater Sequence Parmeener Super Group TASh 1797

2. Frankford EL 39/82 Distribution of Upper Freshwater Sequence Parmeener Super Group TASh 1798

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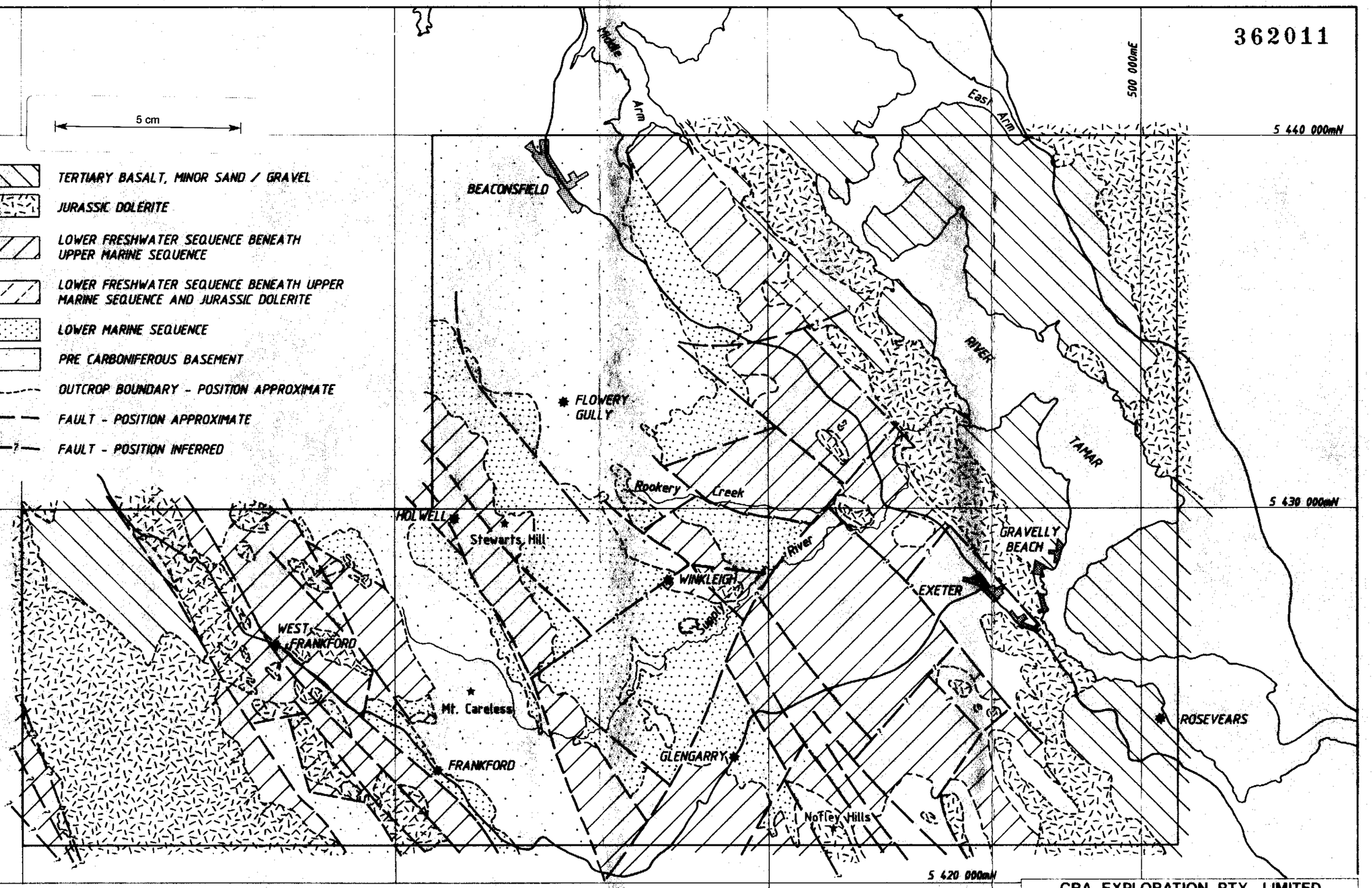
5 cm

PARMEENER SUPER GROUP

- TERTIARY BASALT, MINOR SAND / GRAVEL
- JURASSIC DOLERITE
- LOWER FRESHWATER SEQUENCE BENEATH UPPER MARINE SEQUENCE
- LOWER FRESHWATER SEQUENCE BENEATH UPPER MARINE SEQUENCE AND JURASSIC DOLERITE
- LOWER MARINE SEQUENCE
- PRE CARBONIFEROUS BASEMENT
- OUTCROP BOUNDARY - POSITION APPROXIMATE
- FAULT - POSITION APPROXIMATE
- FAULT - POSITION INFERRED



COMPILATION BY T.G. SUMMONS, JULY 1984

Modified from:
B. Marshall et,al, 1969 (PIPERS RIVER SHEET)
M.J. Langman et.al. 1966 (LAUNCESTON SHEET)
R.D. Gee et.al. 1974 (BEACONSFIELD SHEET)
A.B. Gulline et.al. 1973 (FRANKFORD SHEET)

(Figure 1)

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FRANKFORD E.L. 39/82
DISTRIBUTION OF LOWER FRESHWATER SEQUENCE PARMEENER SUPER GROUP

REF.	SK55 - 4		
SCALE	1 : 100 000	DRAWN	R.T.
AUTHOR	T.G.S.	REPORT No.	12773
DATE	23 - 7 - 1984	PLAN No. TASh	1797

011

362012

5 cm

TERTIARY BASALT, MINOR SAND / GRAVEL

JURASSIC DOLERITE

UPPER FRESHWATER SEQUENCE - OUTCROP

UPPER FRESHWATER SEQUENCE BENEATH JURASSIC DOLERITE

OUTCROP BOUNDARY - POSITION APPROXIMATE

FAULT - POSITION APPROXIMATE

FAULT - POSITION INFERRED

500 000mE

5 440 000mN

5 430 000mN

5 420 000mN

470 000mE

480 000mE

490 000mE

Arm

East Arm

BEACONSFIELD

FLOWERY GULL

Rookery Creek

HOLWELL

Stewarts Hill

River

WINKLEIGH

Supply

EXETER

GRAVELLY BEACH

TAMAR

WEST FRANKFORD

Mt. Careless

FRANKFORD

GLENGARRY

ROSEVEARS

Notley Hills

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(Figure 2)

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FRANKFORD E.L. 39/82
DISTRIBUTION OF
UPPER FRESHWATER SEQUENCE
PARMEENER SUPER GROUP

REF.	SK55 - 4		
SCALE	1 : 100 000	DRAWN	R.T.
AUTHOR	T.G.S.	REPORT No.	12773
DATE	23 - 7 - 1984	PLAN No. TASh	1798