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VICTOR PETROLEUM & RESOURCES LTD.

RENEWAL & PROGRESS REPORT

for

EXPLORATION LICENCE 16/81

for

PERIOD NOVEMBER 22, 1981 - MAY 22, 1982

OPEN FILE

MICROFILMED

T. G. SUMMONS

19 May, 1982.

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SUMMARY

Investigations by Victor in EL 16/81 for the period to 22nd May, 1982 consisted of a reappraisal of all relevant geological and geophysical data generated or examined in the preceding six month period.

Coal target areas have been redefined, and are now located in the Apsley Marshes - Nine Mile Beach, and Swansea - Cranbrook areas, both of which are inferred as graben structures of Jurassic - Tertiary age.

Hypothetical black coal resources total 111×10^6 tonnes, and hypothetical brown coal resources total 250×10^6 tonnes.

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PROPOSED EXPLORATION PROGRAMME FOR PERIOD MAY 22, 1982 - NOVEMBER 22, 1982

The proposed programme of exploration for Exploration Licence 16/81, is considered in conjunction with the proposed activities for EL 31/80.

Exploration for coal within 16/81 on private land is subject to the same constraints as a result of the objections by private landholders effect by the Woodbury coal lease application.

As a consequence Victor is proposing a reduced nominal exploration expenditure of \$50,000 in total for EL 31/80 and 16/81 combined. The expenditure commitment is made to allow the continuation of the assessment of the potential for Triassic and Permian coal within the licence area.

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1.0 INTRODUCTION

Exploration activity within EL 16/81 for the six month period ended May 22nd 1982 consisted of a reappraisal of all data produced during the previous period (mapping, logging), in conjunction with regional geological and geophysical data appropriate to the Exploration Licence.

The reinterpretation was initiated in part by the results of the gravity survey of the Woodbury Coal Deposit, and the mapping and drilling programmes in the Bells Lagoon - Woodbury area. This work has indicated a broad fault - bounded structural zone, in which Triassic age black coal and Tertiary age brown coal deposits occur in down faulted sections.

Consequently the regional gravity data for the East Coast Coal fields as recorded by Leaman and Richardson (1981) was examined with the object of predicting likely fault bounded structures away from areas of thickened dolerite within EL 16/81.

Coal exploration targets were indicated in those regions of significant negative gravity anomalies, which have resulted from either thick Cainozoic age or thick Triassic age sedimentary rocks (or both).

Although the qualitative treatment of the gravity data in the Swansea - Freycinet area by Leaman & Richardson (1981) was adequate to define thick dolerite (feeders or sheets), and thick sequences of sedimentary rocks, no faults were identified.

2.0 GEOLOGY

2.1 LITHOLOGIES AND STRATIGRAPHY

The eastern half of the EL forms the southern portion of the well known coal rich area containing the old Dalmayne, Seymour, Douglas River, Llandaff Coal Mines. The coal in these areas, together with the Fingal and Nicholas Range deposits, is of Triassic age, belonging to the Parmeener Super Group (P.S.Gp.) Upper Freshwater Sequence (UFW).

Mapping in EL 61/81 has revealed the presence of Upper Marine Sequence rocks of the P.S.Gp., occurring in a gentle arc encircling Swansea and Cranbrook, and overlain to the east by variably metamorphosed (due to dolerite) freshwater sedimentary rocks of the P.S.Gp. UFW sequence.

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The base of this freshwater sequence is formed by a quartz arenite (Ross Sandstone), which is overlain to the east by a lithic arenite (Coal Measures) sequence. The lithic arenite outcrops in the Wye River, Swan River and at Sherbourne Road, as shown on the plan.

2.2 STRUCTURE

The pre-faulted (Jurassic - Tertiary) structure of the area was apparently one of the P.S.Gp. rocks dipping to the SE at 5° - 10°.

The potential for graben structures in the Upper Freshwater Sequence of the Parmeener Super Group has been confirmed in several areas of the state; Victor has located a series of grabens in the Bells Lagoon - Woodbury area, and the Shell Company are understood to have defined N-S trending grabens in the Douglas River - Bicheno area and in the Nicholas Range (W. M. Koppe, Public Lecture on 18th February, 1982).

The likely orientations of fault bounded structures in the Eastern Highlands of the state, using the data of Williams (1967, 1969), may be taken to be N-S, NE - SW, and W-E. Leaman and Richardson (in Threader et al, 1981), using gravity and magnetic data for the Fingal Tier, confirmed the above orientations, and indicated an additional NW - SE trend for potential faults.

3.0 COAL TARGETS

Leaman and Richardson (1981) defined five prime coal target areas as a result of the gravity survey of the East Coast Coalfields; of these, two appear relevant to EL 16/81. However, one (West Swan River - Cygnet River area) has been invalidated within EL 16/81 as a result of mapping by Victor Exploration (see previous discussion in Section 2.1). The other target area (East Lynes Sugarloaf - Llandaff area) is still valid, as discussed below.

3.1 APSLEY MARSHES - NINE MILE BEACH AREA

The East Lynes Sugarloaf - Llandaff area appears to extend south in to EL 16/81 between Apslawn and the eastern margin of the Apsley Marshes, and possibly as far south as Nine Mile Beach, as indicated on the plan.

This interpretation is based on Coal Measures Sequence thickness data (Hills et al, 1922; Leaman and Richardson, 1981), regional geology (Geological Survey Tasmania, Oatlands 1:250 000 sheet) and gravity data (Leaman and Richardson, 1981).

Department of Mines drill holes 992/637 (Glen Albyn) and 963/546 (Apslawn) intersected Coal Measures Sequence with thicknesses of 3m. and 22m. respectively.

Recent palynological studies (S. M. Forsyth, pers. comm.) have indicated a Triassic age for the coal intersected at the base of drill hole 963/546.

Contrasting with this data are drill holes 986/620 (5km. NE of Lynes Sugarloaf) and Llandaff holes 1, 2 and 3, which intersected from 142 - 291m. of the same sequence. This inferred graben of ?Mesozoic age is believed to connect with the graben of Tertiary (and ? Mesozoic) age which traverses Apsley Marshes, Cherry Tree Lagoons, and the eastern end of Nine Mile Beach.

The strike of this inferred graben ranges from NW - SE to N-S, and these orientations appear plausible in relation to the regional data.

Consideration of the residual Bouguer anomalies in the Apsley Marshes area indicated an optimum black coal model of 150m. of P.S.Gp. marine rocks, 280m. of P.S.gp. freshwater rocks, and <10m. of Tertiary age rocks; the least attractive model (for black coal) has 100m, 75m. and >100m. for the same three groups of rocks, to produce an anomaly of $-50 \mu\text{m./S}^2$.

Similar treatment of the gravity data for the Cherry Tree Lagoons area indicates an optimum black coal model of 150m. of P.S.Gp. marine rocks, 400m. of P.S.Gp. freshwater rocks, and <10m. of Tertiary age rocks; the "worst case" involves 100m, <100m, and >100m. for the same three groups of rock, to produce an average anomaly of $-65 \mu\text{m./S}^2$.

The converse situation applies to models involving brown coal deposits; i.e. the least attractive black coal models are the optimum brown coal models (with the thickest Tertiary sequences), and vice versa.

3.2 SWANSEA - CRANBROOK AREA

A second broad coal target area occurs between Swansea and Cranbrook, and consists of the Swansea - Grange and Cranbrook - Grange areas, as indicated on the plan.

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3.2.1. The average residual Bouguer anomaly over the Cranbrook - Grange area is $-10\mu\text{m}/\text{S}^2$, and drill hole 894/497 was collared by the Department of Mines approximately 1 km. north of Cranbrook. This drill hole appears to have intersected the transition between the lithic and quartz arenite sequences, over a vertical interval of 105m. However, a southerly dip of $5^\circ - 10^\circ$ in the area would allow the preservation of the overlying Coal Measures Sequence beneath a cover of Tertiary rocks.

Appraisal of the gravity data suggests a "best case" for black coal of 50m. of P.S.Gp. freshwater rocks, and $<10\text{m.}$ of Tertiary age rocks; the "worst case" involves $> 30\text{m.}$ cover of Tertiary age rocks, in the inferred graben.

3.2.2. The average residual Bouguer anomaly over the Swansea - Grange area is $-25\mu\text{m}/\text{S}^2$, such that optimum black coal model may have 50m. of P.S.Gp. marine rocks, 100m. of P.S.Gp. freshwater rocks, and 25m. of Tertiary rocks; the "worst case" may have $> 60\text{m.}$ of Tertiary cover rocks, (in the inferred graben).

Similarly to the Apsley Marshes - Nine Mile Beach area, the optimum models of sequence thicknesses for brown coal deposits are those that are least attractive for shallow depth, thick Parmeener Super Group freshwater rocks.

All the models discussed above are slightly conservative in that the presence of dolerite would require a greater thickness of sedimentary rocks to be present.

4.0 COAL POTENTIAL

4.1 BLACK COAL

4.1.1. APSLEY MARSHES - NINE MILE BEACH AREA

The Llandaff bores intersected up to 5 coal seams, of which only 2 to 3 are of significance; these coal seams range from 0.3 to 2.2m. in thickness, and an average analysis of the Steep Creek workings (Llandaff Coalfield Hills et al 1922) is as follows:

Moisture 5.8%, Volatile Matter 23.4%, Fixed Carbon 41.6%, Ash 29.2% and Sulphur 0.44%.

The Shell Company recognise up to 7 coal seams in the Douglas River - Bicheno area, of which at least the "Dalmaine D" seam is understood to be 2m. thick (W.M. Koppe, public lecture, 18th February, 1982). Average analysis of this seam is as follows:

Moisture 4%, Volatile Matter 25%, Fixed Carbon 46%, Ash 25% and Sulphur 0.3%.

Assuming two 1m. coal seams occur in the area, and a RD of 1.5, the hypothetical coal resource in the Apsley Marsh area (15 sq. km.) is 45×10^6 tonnes, and in the Cherry Tree Lagoons area (9 sq. km.), 27×10^6 tonnes.

4.1.2. SWANSEA - CRANBROOK AREA

This area is not as simple to evaluate as the previous area; Hills et al (1922) described a 0.15m. coal seam in the Swan River, but there is no record of any drilling or coal working in the area. Assuming a single 1m. coal seam, with a RD of 1.5, the hypothetical coal resource in the Cranbrook - Grange area (6 sq. km.) is 9×10^6 tonnes, and in the Swansea - Grange area (20 sq. km.), 30×10^6 tonnes.

4.2 BROWN COAL/LIGNITE

Although these graben structures have not been drilled within EL 16/81, the presence of brown coal/lignite may be inferred from Tertiary basins elsewhere in the state. Assuming a 5m. thickness, and a RD of 1.0, the hypothetical brown coal resources in the Apsley Marsh, Cherry Tree Lagoons, Cranbrook - Grange, and Swansea - Grange areas are 75, 45, 30 and 100 million tonnes respectively.

4.3 TOTAL HYPOTHETICAL COAL RESOURCES

Apsley Marshes - Nine Mile Beach Area:

- Black Coal : 72×10^6 tonnes (containing ? 25-30% Ash)
- Brown Coal : 120×10^6 tonnes

Swansea - Cranbrook Area:

- Black Coal : 39×10^6 tonnes
- Brown Coal : 130×10^6 tonnes

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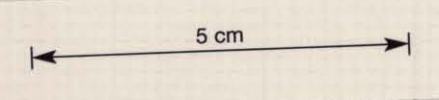
RECONNAISSANCE MAPPING - E.L. 16/81

- CAINOZOIC SEDIMENT
- TRIASSIC LITHIC SANDSTONE
- TRIASSIC? QUARTZ SANDSTONE
- PERMIAN GLACIO-MARINE SEDIMENTS
- SILICIFIED QUARTZ-RICH SANDSTONE
- JURASSIC DOLERITE

- INFERRED GEOLOGICAL BOUNDARY
- - - - - LOCATION OF INFERRED BOUNDARY NOT PREDICTED
- ⊕ POSITIVE GRAVITY ANOMALY (LEAMAN AND RICHARDSON, 1981)
- ⊖ NEGATIVE GRAVITY ANOMALY
- x HOLE 963/526 CO-ORDINATES OF MINES DEPARTMENT HOLES.
- X STRIKE AND DIP DIRECTION
- A — B SECTION A-B (Fig. 3)

G. N.

SCALE. 1:100,000
1 CM = 1 KM.



K. MORRISON 11/1981



E.L. 16/81

E.L. 31/80

- Boundary of consolidated dolerite bodies
- Boundary of Tertiary basin
- Boundary of interior basin of Tertiary + 2 mesozoic age