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(INCORPORATED IN DELAWARE, U.S.A.; LIMITED LIABILITY)

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FINAL REPORT ON EL 14/81,
ANSONS BAY, FOR THE SIX MONTHS
ENDING 20TH DECEMBER, 1981

25 FEB 1982

OPEN FILE

MICROFILMED

H. Seitlinger
January 14, 1982

AMG REFERENCE POINTS ADDED

SUMMARY

Exploration Licence 14/81 covers 414 square kilometres and was granted to Mobil Energy Minerals Australia Inc. on June 20, 1981, for a period of six months.

This is the final report for work carried out during the tenure of the E.L.

The licence is located in north eastern Tasmania, and is approximately 150 kilometres north east of Launceston. The topography is undulating near the coast and semi rugged inland. Land within the E.L. is used mainly for farming and foresting.

The major rock types within the E.L. are granitic intrusives and Palaeozoic turbidites. Non-marine Tertiary sediments, Tertiary basalts and Holocene sediments cover the remaining area.

E.L. 14/81 was acquired to test the thickness of Tertiary sediments, and to determine whether they contain oil shales.

From the mapping programme it was concluded that the Tertiary within the E.L. is of minor thickness, and that its depositional environment was not conducive to oil shale accumulation.

LIST OF CONTENTS

	<u>Page No.</u>
1. INTRODUCTION	1
2. GEOGRAPHICAL INFORMATION	3
3. REGIONAL GEOLOGY	4
4. PREVIOUS EXPLORATION	5
5. LOCAL GEOLOGY	
5.1 Mathinna Beds	7
5.2 Gardens Pluton	7
5.3 Blue Tiers Batholith	7
5.4 Tertiary Basalt	8
5.5 Tertiary Sediments	8
6. FIELD PROGRAMME	9
7. CONCLUSIONS AND RECOMMENDATIONS	10
8. REFERENCES	11

FIGURES

	<u>Page No.</u>	<u>Dwg. No.</u>
1. Location of E.L. 14/81, on scale of 1:2,000,000	2	1.6301.9
2. Drilling west of Ansons River on scale of 1:92,300	6	
3. Geology of E.L. 14/81, on scale of 1:100,000		1.6301.3.10
4. Lineaments and trends within E.L. 14/81, on scale of 1:48,000		1.6301.3.0008

1. INTRODUCTION

Exploration Licence (E.L.) 14/81 was granted to Mobil Energy Minerals Australia Inc. on June 20, 1981, for a period of six months, and applied to coal and oil shale exploration only. The E.L. covers 414 square kilometres and is located in north eastern Tasmania (Figure 1).

Work on the licence began in August 1981, with photogeological studies. A detailed literature search and a short reconnaissance field trip to the area were carried out in September 1981, with a detailed mapping programme completed in November 1981.

The area was investigated in order to determine the extent and nature of Tertiary sediments with respect to oil shale accumulations. Many Tertiary basins in Queensland contain substantial deposits of oil shale.

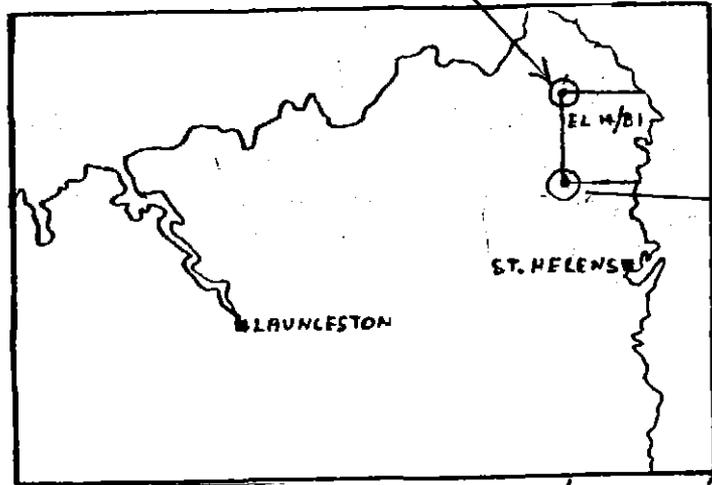
A statement of total expenditure for the period June 20, 1981, to December 20, 1981, is attached as Appendix 1.

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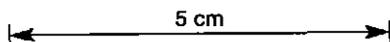
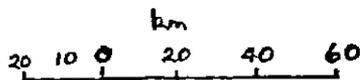


FIG. 1

MOBIL ENERGY MINERALS AUSTRALIA					
PROJECT ANSON BAY					
LOCATION OF EL 14/81					
COMPILED	DATE	BY	ADDS	DATE	BY
DRAWN	JAN '82	H.S.			
SCALE	JAN '82	L.U.			
	1:2,000,000		DWG No	6301.3.9	

2. GEOGRAPHICAL INFORMATION

E.L. 14/81 is covered by the Launceston 1:250,000 map sheet (SK 55-4).

The licence boundaries are defined as commencing at the north west angle of the area whose grid co-ordinates are 588 600 metres E. 5 470 000 metres N. thence grid east to the low-water-mark on the north east coast of Tasmania, thence by that low-water-mark in a general southerly direction to 5 445 000 metres N. grid west to 588 000 metres E. aforesaid, thence grid north to the point of commencement.

This area excludes the Mt. William National Park and Ansons River Scenic Reserve.

The E.L. is approximately 150 kilometres north east by road from Launceston, and half an hour's drive north of St. Helens (Figure 1). The township of St. Helens has a landing strip for light aircraft, a shallow water port and associated wharves for the town's fishing fleet. Regular services and facilities expected of a medium sized town are also available. Access to the E.L. from St. Helens is by sealed road and by graded sand road.

The topography is undulating near the coast and semi rugged inland with hills up to 180 metres A.S.L. The flatter, lower areas are generally covered by Tertiary and Holocene sediments, with the hills mostly being the resistant highs of large granitic bodies.

The climate is temperate, usually with abundant cloud cover. The mean annual rainfall is about 800 millimetres, while the average temperature is 13.2°C.

The vegetation of the area comprises large swampy tracts of land, grassed paddocks, and eucalypt forests. The swampy areas are generally associated with Holocene sediments.

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3. REGIONAL GEOLOGY

The regional geology of the area is dominated by the folding of Lower Devonian Mathinna Beds during the Tabberabberan Orogeny. The axial planes of the folds trend northwest-northnorthwest. Folding has also resulted in elongate domes and basins with steep axial surfaces, long fairly planar limbs, and abrupt zones of closure (McClenaghan & Baillie, 1975). Upper Devonian adamellite-granites and granodiorites have intruded much of the Mathinna Beds, mostly in the eastern half of the Launceston map sheet. Non-marine Tertiary sediments have been deposited in the shallow basins formed during the folding of the Mathinna Beds, and also in fault controlled troughs; with Holocene sediments accumulating in low-lying coastal areas.

4. PREVIOUS EXPLORATION

E.L. 14/81 occurs in the Blue Tiers region (Quadrangle 33). A thorough search of company reports shows that no previous coal or oil shale exploration has been carried out in Quadrangle 33. There have been no water bores drilled in Quadrangle 33.

Mines Department drilling has been carried out along the Great Musselroe River in the north west of the E.L. 163 open holes were drilled through Holocene and Tertiary (?) sediments and terminated in granite. The average depth to granite was 13.6 metres. The lithology of the holes consisted of gravel, clay, sand, decomposed wood and silty clay.

The Mines Department (Jack, 1964) also drilled between Ansons River and Great Fraser River (Big Boggy Creek) (Figure 2) in response to earlier (1963) seismic and gravity traverses run by the Bureau of Mineral Resources. Twenty-two shallow holes were drilled, with the sediments intersected being clay, clayey gravel, sand and basalt. The depth to granite was generally between 6 and 9 metres - the exception being an old river channel where the depth to granite was 30 metres.

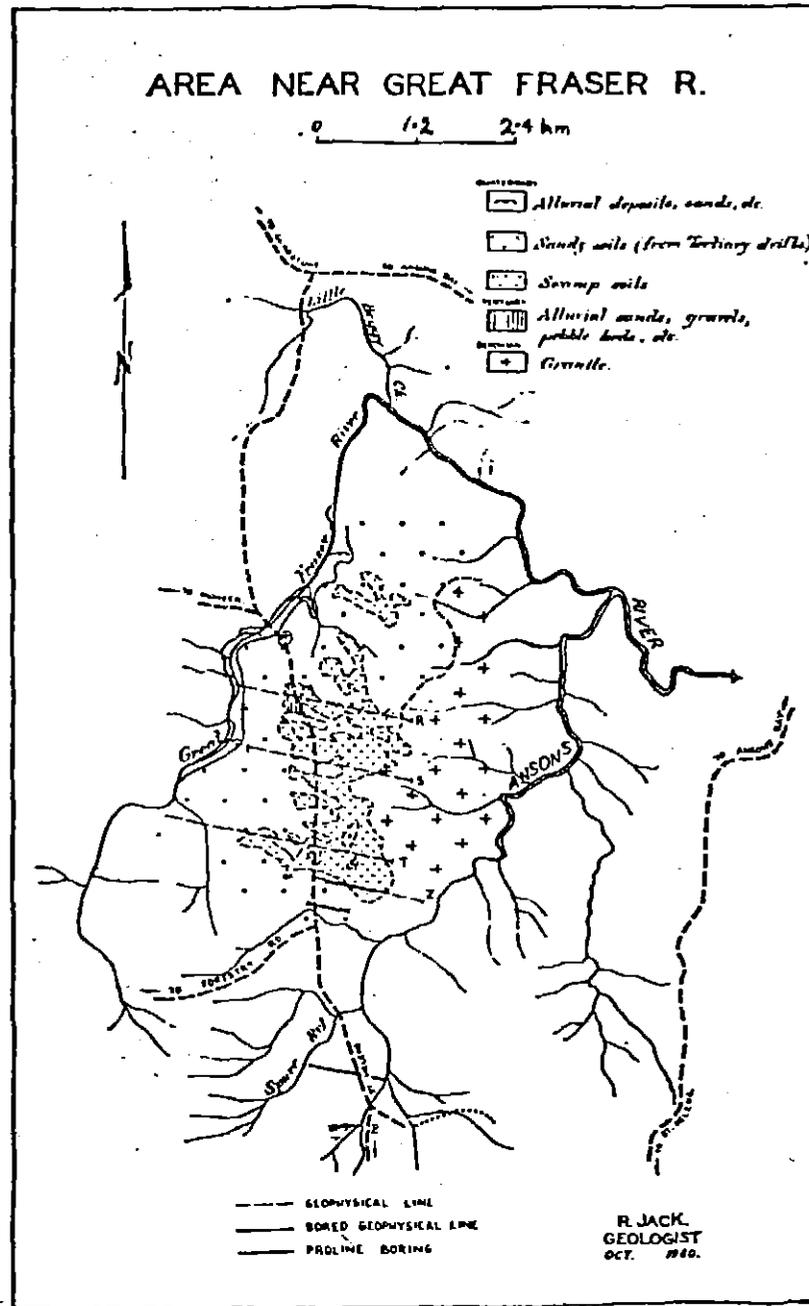
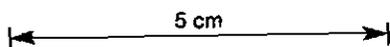


FIG. 2

DRILLING WEST OF ANSONS RIVER
SCALE 1:92,300



5. LOCAL GEOLOGY

The principal stratigraphic units are as follows:

5.1 MATHINNA BEDS:

The Mathinna Beds in E.L. 14/81 are Lower Devonian in age, and outcrop in the north and north west of the licence, immediately west of Ansons Bay, and in a narrow north west trending strip in the south west (Figure 3). The Mathinna Beds have a dominantly arenite association, with the sequence being largely siltstone, poorly-sorted sandstone, and minor intercalations of slate. Sedimentary structures include grading and cross-laminae.

Folding during the Tabberabberan Orogeny has resulted in northnorthwest trending open, asymmetrical folds (McClenaghan & Baillie, 1975).

5.2 GARDENS PLUTON:

This unit is of Upper Devonian age and outcrops mainly in the south of the E.L. (Figure 3). The Pluton is dominantly a medium to coarse grained biotite-hornblende granodiorite. The Gardens Pluton intrudes the Mathinna Beds.

Rubble from old diggings, grid reference EQ988511 on the Georges Bay topographic map, of scale 1:100,000, contains small isolated crystals of galena and pyrite. These crystals seem to occur along planes of magmatic separation, and from their association with surrounding rock grains, it can be interpreted that they are primary minerals.

5.3 BLUE TIER BATHOLITH:

This is a Lower Carboniferous adamellite-granite and outcrops in the west and south west of the E.L. Isolated similar bodies outcrop in the north east and centre of the E.L. (Figure 3). The unit is mainly a medium to coarse-grained biotite, minor muscovite adamellite with potassium feldspar phenocrysts of approximately 25 millimetre mean size (McClenaghan & Williams, 1981).

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5.4 TERTIARY BASALT

This basalt is of the alkali-olivine type. It is fine grained, and contains pyrite and small carbonate filled cavities.

The occurrence of the Tertiary basalt is minor and outcrop is restricted to small areas south of Ansons Bay and one larger outcrop in the east of the E.L. (Figure 3).

5.5. TERTIARY SEDIMENTS

Consolidated Tertiary sediments rarely outcrop in the E.L. Where they do outcrop, they are weathered and are sandy and ferruginous in nature. No outcrops of shales or weathered shales were observed. Loose blocks of silicified quartzite occur south of Ansons Bay. It is believed that they are associated with basalt occurrences (Marshall, 1969).

Small outcrops of the earlier mentioned granitic bodies occur throughout the Tertiary sediments which suggests that the Tertiary beds only provide a thin cover. This is consistent with data from previous drilling by the Mines Department.

6. FIELD PROGRAMME

A study of aerial photographs was carried out during August and October. The aerial photographs which cover the E.L. are the North East series, Runs 5, 6, 7 and 8. Lineaments and trends are shown in Figure 4.

A field mapping programme was carried out in November to check photo interpretations, and to determine the thickness and extent of Tertiary sediments.

Using the Launceston 1:250,000 geology mapsheet as a guide, the southwestern section of the E.L. was not mapped because of the outcropping granites and Mathinna Beds. The large amount of alluvial cover made it difficult to plan traverses, and it was decided to do most mapping by 4x4 drive along logging tracks and local roads.

A traverse along the north-south trending logging track between Eddystone road and Fraser road, showed no outcropping Tertiary rocks, only soil rich in subrounded quartz grains and small outcrops of granodiorite at locations EQ976549 and EQ983589. The provenance of the quartz grains was probably the granitic bodies to the west and the mode of transport was probably either wind or flood waters. This in turn suggests a relatively young age for the soil - possibly Holocene? The outcropping granodiorite suggests that the Holocene cover is relatively thin.

A traverse south from Browns bridge along the Great Musselroe River showed occasional small outcrops of weathered Tertiary rocks at coordinates EQ917674. These rocks were fairly ferruginous and indicated an arid depositional environment.

A traverse along the Eddystone road from Browns bridge to the St. Helens turnoff showed granodiorite frequently outcropping through Holocene sediments. This again indicates thin Holocene cover.

Two west-east traverses were walked south of Ansons Bay over the land covered by Holocene sediments. A few loose blocks of possible Tertiary silicified quartzite were noted at location FQ052512. Mathinna Bed rocks were found at location FQ066507. Tertiary basalt scree was noted in the vicinity of grid reference FQ066536.

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7. CONCLUSIONS AND RECOMMENDATIONS

It is concluded from field inspections that the correct conditions did not exist during the Tertiary to enable oil bearing shales to form, nor for any substantial thicknesses of Tertiary sediments to accumulate within the area of E.L. 14/81.

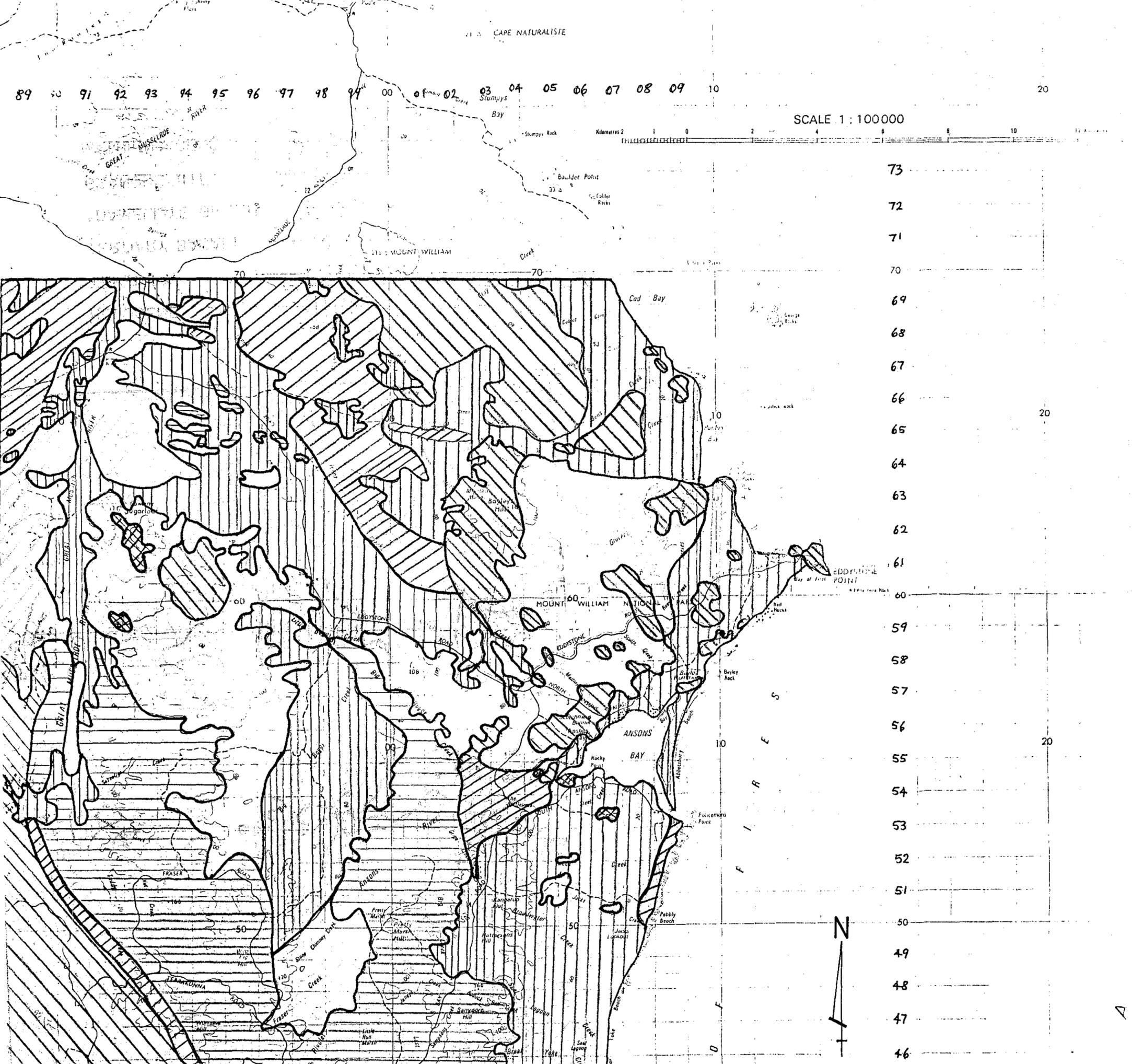
It is recommended that E.L. 14/81 should not be renewed after the expiry of the first six months term.

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2. McClenaghan, M.P. and Baillie, P.W., 1975. Launceston Explanatory Report, 1:250,000 Geological series.
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- HOLOCENE 
- TERTIARY 
- TERTIARY BASALT 
- ADAMELLITE-GRANITE 
- GRANODIORITE 
- MATHINNA BEDS 

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FIG. 3

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MOBIL ENERGY MINERALS AUSTRALIA					
PROJECT ANSON BAY					
GEOLOGY OF EL 14/81					
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SCALE 1:48,000

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MOBIL ENERGY MINERALS AUSTRALIA					
PROJECT ANSON BAY					
LINEAMENTS AND TRENDS					
WITHIN EL 14/81					
015					
COMPILED	DATE	BY	ADDNS	DATE	BY
DRAWN	JAN '82	H.S.			
SCALE	1:48,000	L.U.	DWG No	16301-3-0008	

FIG. 4