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EXPLORATION LICENCE 37/79

STYX RIVER, TASMANIA

FINAL REPORT

**OPEN FILE**

**MICROFILMED**

SEPTEMBER, 1982

602

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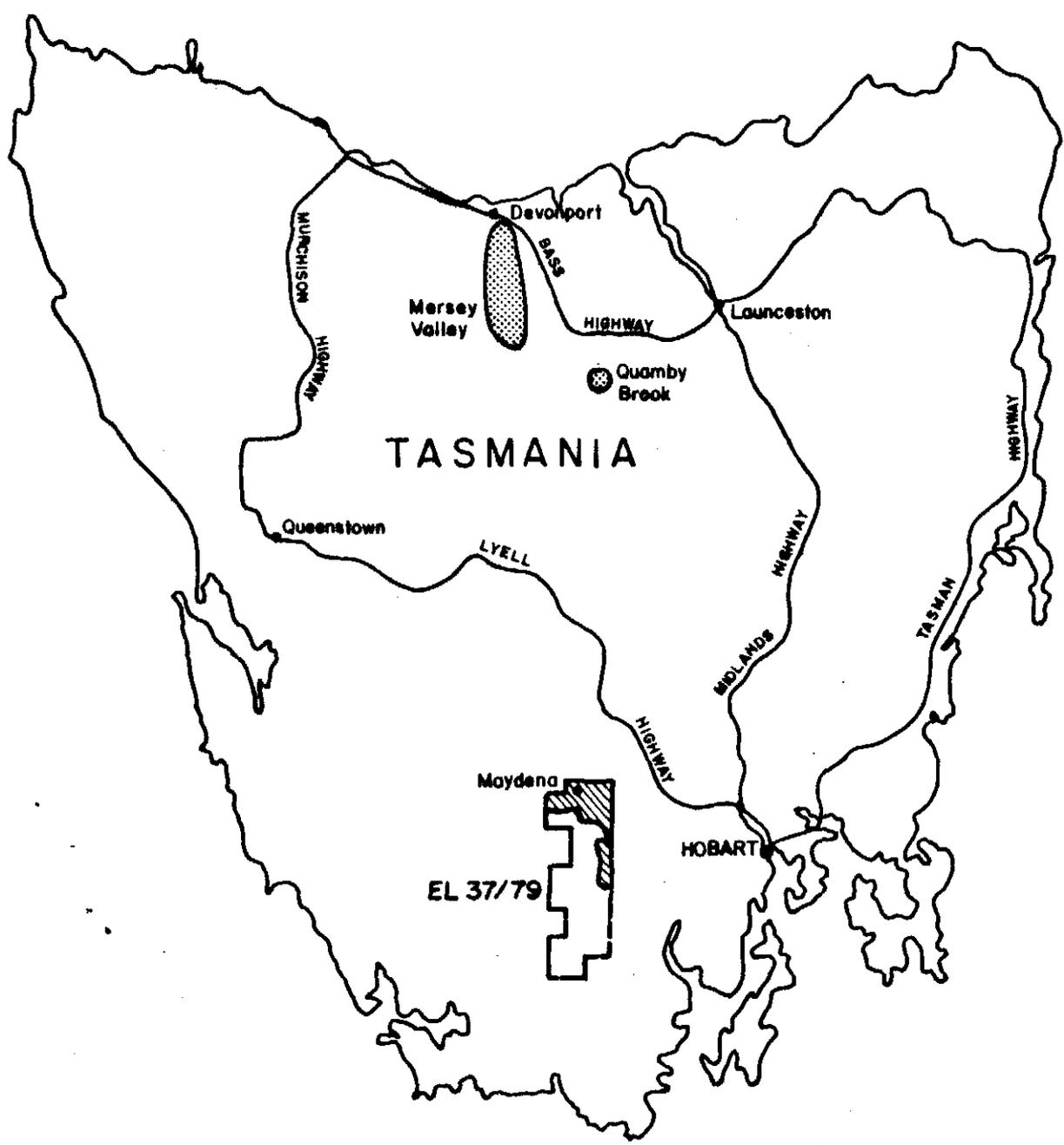
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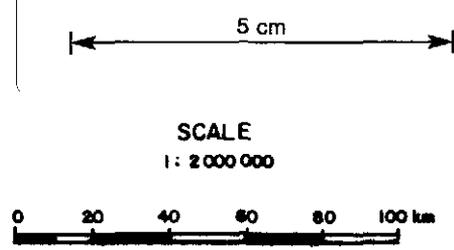
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-  Major Tasmanite oil shale occurrences (Woody Island Siltstone correlate)
-  E.L. area granted
-  E.L. Application



Centre  
Melbourne

Date  
OCT 1981

THE BROKEN HILL PROPRIETARY CO. LTD.  
EL 37/79, STYX RIVER AREA  
S.W. TASMANIA  
LOCALITY MAP

Drawing No  
A4-2264

Project Plan No  
C 360-2

SUMMARY

In July, 1981 two holes of 57 metres and 210 metres respectively were drilled in the Permian Woody Island Siltstone of the Styx River valley within E.L. 37/79, to test the possibility of oil shales occurring within that unit.

Although thin bands of high-yielding oil shale occur in correlated sediments in northern Tasmania, the maximum oil yield obtained from any part of the Woody Island Siltstone drilled in the present programme was only seven litres/tonne. Thin bands of low oil-yielding siltstone near the bottom of the Woody Island Siltstone appear to contain minor Tasmanites algae, correlating those bands with the tasmanite oil shales of Northern Tasmania.

No further exploration for oil shale, oil or coal is recommended. The licence was surrendered on 12th July, 1982.

EXPLORATION LICENCE 37/79STYX RIVER, TASMANIAFINAL REPORT1. TITLE

Exploration Licence 37/79, of 280 square kilometres, was granted to The Broken Hill Proprietary Company Limited on 1st May, 1981 for six months and was renewed for twelve months to 1st November, 1982. The licence area consists of two parts - one an area of 205 square kilometres including part of the Styx River valley, and the other of 75 square kilometres covering an area east of the Snowy Range.

On 12th July, 1982, the Company advised the Department of its wish to surrender the licence. This report covers all exploration work carried out in the licence area. The bulk of the area originally applied for (Figure 1) lies within the South-West Conservation Area and title has not yet been granted.

2. EXPLORATION PHILOSOPHY

Following the discovery of shales with a strong petroliferous odour in the Styx River valley near Maydena, an exploration licence covering most of the known Lower Permian exposure in south-eastern Tasmania was applied for in respect of oil shale, oil and coal. The region between Mt. Picton and South Cape Bay was not applied for because of lack of access and its proximity to the south-west wilderness area.

The two main possibilities considered were:

- i) Lower Permian strata may contain oil shales (kerogen-rich sediments) of economic grades, and
- ii) the same strata may constitute an oil source rock and that oil accumulations may be present in the fracture zones.

3. SUMMARY OF WORK COMPLETED

- i) Discovery of possible oil shales in the Woody Island Siltstone in the Styx River valley. Fischer analyses of outcrop samples returned oil yields ranging from 0.5 to 4.1 litres/tonne (Sample Nos 051 to 057, Appendix 2, Report for the six months ended 1st November, 1981).
- ii) Literature survey and review of available data on the Lower Permian strata in south-eastern Tasmania.

cont./..

- iii) Reconnaissance mapping at 1:50,000 scale.
- iv) Two diamond drill holes (S1 and S2, of 57.2 and 209.7 metres respectively), to test for oil shales in the Woody Island Siltstone. All core was split and analysed. The maximum Fischer analysis oil yield was only 7 litres/tonne. Down-hole gamma, self potential, resistance and density logs were run.

The siltstone was dark grey to black and pyritic throughout. Holes were terminated in Wynyard Tillite. Possible tasmanite shale was intersected in both holes near the base of the Woody Island Siltstone. Oil yields were no higher in these sections.

- v) Selected core samples were analysed for a range of trace elements including base and precious metals.

One sample of water discharged from drill hole S1 was analysed for hydrocarbons and certain elemental species. No significant results were obtained from these analyses.

All results of this work were submitted to the Department in detail in the reports for the six months ended 1st November, 1981 and 1st May, 1982.

#### 4. CONCLUSIONS

It is considered unlikely that economic oil shale deposits are to be found in the Lower Permian of south-eastern Tasmania. The environment of deposition is thought to have been a relatively deep marine trough whereas oil shales in the north of the state formed in shallow marine conditions adjacent to subaerial basement highs.

The potential of the Lower Permian as a petroleum host/source rock has not been tested apart from the two holes already drilled. The area is not regarded as being sufficiently prospective for either oil or coal to justify further exploration.

This report is submitted to the Mines Department as required by Schedule A of Exploration Licence 37/79.

APPENDIX

Drill Sites Rehabilitation and Core Storage

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DRILL SITE REHABILITATION AND CORE STORAGE

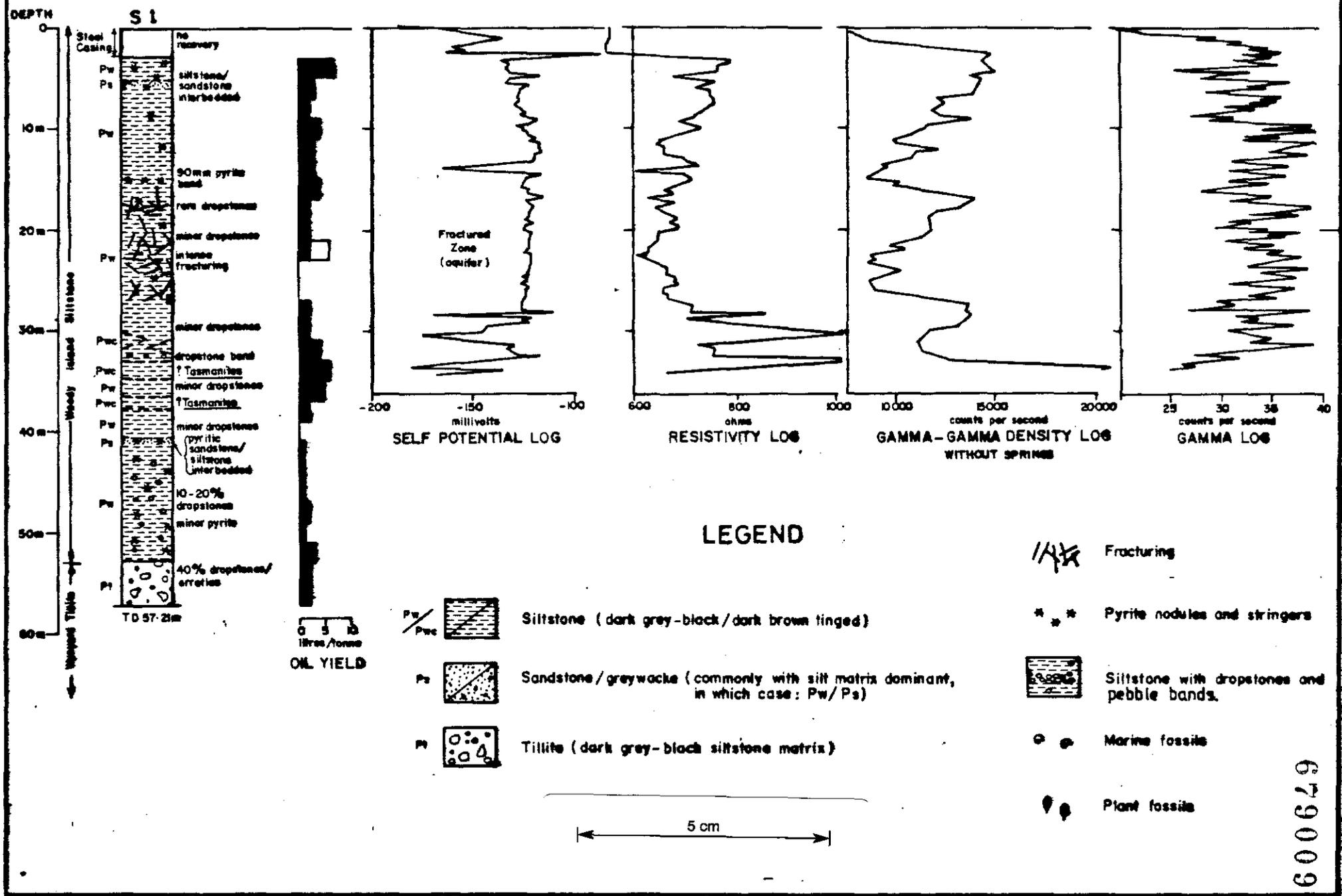
No earth-moving for construction of access tracks, or clearing of drill sites was required for the programme. Special rehabilitation work was not necessary.

All drill core from the project is temporarily stored in a shed in Hobart belonging to a BHP subsidiary. The Department will be contacted when disposal of this material is contemplated.

Centre  
Melbourne  
Date  
OCT 1988

THE BROKEN HILL PROPRIETARY CO. LTD.  
EL 57/79, STYX RIVER AREA  
S.W. TASMANIA  
GRAPHIC AND GEOPHYSICAL LOG - S1

Drawing No  
AA-2298  
Project Plan No  
C 360-3



470000

480000

EL 37/79

146°30'E

146°50'E

42°45'S

5250000 N

5250000 N

5240000 N

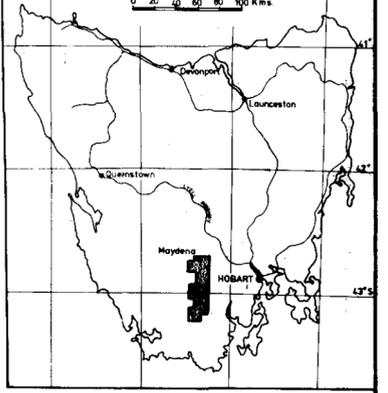
5230000 N

43°00'S

5220000 N

LOCALITY MAP  
EL 37/79  
STYX RIVER AREA

0 20 40 60 80 100 Kms



LEGEND

- pCq Pre-Cambrian Quartzite
- pCd Pre-Cambrian Dolomite
- ?pCf Pre-Cambrian ferruginous sandstone and siltstone
- Ogl Ordovician Gorge Limestone
- Pt Permo-Carboniferous Wynyard Tuffite
- Pw Permian Woody Island Siltstone
- Pw-Pt Permian "Fossiliferous Siltstone" and Darlington Limestone
- Pb Permian Bundella Mudstone
- Pm Permian Mersey Group
- Pc Permian Cascades Group
- Pml Permian Malbina Sandstone and Siltstone
- Pf Permian Fernree Mudstone
- Pu Permian undifferentiated
- Puu Upper Permian undifferentiated (Pc, Pml, Pf)
- Ru Triassic undifferentiated
- Jdl Jurassic dolerite
- Qd Quaternary dolerite talus

- Stratigraphic and Intrusive Contacts**
- located or inferred from closely spaced outcrops
  - based on air photo interpretation
  - inferred
  - guessed only
  - based on Jago (1972)
- Boundary or unconformity**
- 

- Attitude of beds**
- Dips measured during present work; horizontal, dipping and striking as indicated

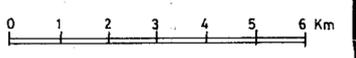
- Faulting**
- Fault inferred from outcrops
  - Fault based on air photo interpretation
  - Fault based on Jago (1972)
  - Normal fault, downthrown block indicated
  - Reverse or thrust fault, upper plate indicated
  - Transverse movement on fault, sense of movement

- S2. Diamond drill hole.
- 
- 

5 cm



Scale 1:100 000



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THE BROKEN HILL PROPRIETARY Co. Ltd  
EXPLORATION DEPARTMENT

EL 37/79, STYX RIVER AREA  
S.W. TASMANIA  
GEOLOGY AND DRILLING

Scale 1:50,000  
Date: Oct 1981  
A2-1393 C360-5

Checked: O.T.C.  
Drawn: G.M. Williams

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