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MARATHON PETROLEUM AUSTRALIA, LTD.

SUMMARY OF TASMANIA BASIN COAL TENEMENTS  
AVAILABLE FOR JOINT VENTURE

EL 40/83.  
EL 6/79

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**OPEN FILE**

SUMMARY

E.L. 6/79, Catamaran (136 km<sup>2</sup>) was granted to MPAL on May 16, 1980. Since granting, a photogeological study, ground magnetic, gravity and aeromagnetic surveys, landsat study, and two drilling programmes have been carried out. Twenty holes totalling 2289 m of chip and 873 m of coring have been completed. Within E.L. 40/83 Strathblane (195 km<sup>2</sup>), granted on September 23, 1983, a landsat study, aeromagnetic survey and field mapping have been completed.

The tenements cover Triassic sediments intruded by Jurassic dolerite occurring in fault bounded blocks on the south western edge of the Tasmanian Basin. The coal target is the uppermost prospective part of the Triassic sequence (the Triassic Coal Measures). A prospective coal interval has been intersected within these Coal Measures in E.L. 6/79 Catamaran and intersections range in thickness from 1.8 m to 4.0 m.

A small inferred open cut and shallow underground in situ coal resource has been outlined in the northern part of E.L. 6/79. An area of approximately 80 km<sup>2</sup> of previously unmapped Triassic Coal Measures has been outlined in the north of the Strathblane area. MPAL considers the Strathblane area to be prospective for the discovery of an insitu reserve base sufficient to support a power station.

The coal intersected within E.L. 6/79 is a low sulphur, orthohydrous, high volatile bituminous steaming coal. Generally the coal type is dull and high in mineral matter which is typical of coals from the Tasmanian basin. Raw coal quality is air dried moisture 6.4%, ash 49%, specific energy 12.00 MJ/kg and total sulphur 0.38%. Washed coal quality from boreholes is average yield 69.5%, ash 24.8%, specific energy 23.00 MJ/kg and total sulphur 0.32%.

The Tasmanian Government is seeking alternative energy sources to hydropower in view of the High Court decision to stop all further work on the Gordon below Franklin Dam in southwest Tasmania. The Government recognizes that coal could be the alternative energy source if suitable reserves can be outlined. Presently only limited reserves have been outlined in the Fingal Valley in northeastern Tasmania.

It has been estimated that an insitu reserve base of either 64 million tonnes of open cut or 112 million tonnes of shallow underground coal would be adequate for a 1.1 million tonnes per annum supply to a captive 2x200 MW power station over a 30 year life. In August 1983 the Tasmanian Hydro Electric Commission issued invitations to a number of consultants to submit proposals concerning a preliminary study into the feasibility and siting of a 2 x 200 MW coal fired power station.

Future proposed exploration would involve the follow up drilling of inferred reserve areas within E.L. 6/79 Catamaran and within E.L. 40/83 Strathblane drilling and geological mapping would be required to define the lateral extent of the newly recognised coal measures.

## INTRODUCTION

Marathon Petroleum Australia, Ltd. (MPAL) holds tenure over two Exploration Licences for coal in south-east Tasmania; E.L. 6/79 Catamaran granted on May 16, 1980 and E.L. 40/83 granted on September 22, 1983. Currently E.L. 6/79 and E.L. 40/83 cover areas of 136 km<sup>2</sup> and 195 km<sup>2</sup> respectively. Government expenditure requirements for E.L.'s 6/79 and 40/83 for the current and next tenement year are set at \$27,000 and \$19,500 respectively.

The selection of E.L.'s 6/79 and 40/83 is a consequence of MPAL's grass roots search for coal in the Tasmania Basin which started in 1978.

## Location and Access

E.L.'s 6/79 and 40/83 are situated approximately 110 and 60 kilometres respectively south-southwest of Hobart near the southeast coast of Tasmania (Figures 1 and 2). Access to the areas from Hobart is by sealed road which passes through Huonville, Geeveston and Dover. Many main forestry roads branch off this road providing good access.

## History to 1980

In late 1978 MPAL carried out a regional coal prospecting reconnaissance in Tasmania. The results of coal laboratory studies indicated the presence of good quality steaming coal in the Catamaran area.

The Catamaran areas was further investigated in 1979 with the result that an application for an Exploration Licence over an area of 250 km<sup>2</sup> was lodged.

## 1980

An area of 136 km<sup>2</sup> was subsequently granted to MPAL as Exploration Licence 6/79 Catamaran on June 16, 1980. This licence excluded 114 km<sup>2</sup> of application area which fell within proposed extensions to the South West National Park.

A detailed photogeological study and field reconnaissance was completed and outlined a fault bounded area of prospective Triassic Coal Measures with the E.L.

A programme of gravity and ground magnetic surveys was commenced.

## 1981

Ground magnetic and gravity surveys were completed in May 1981. A total of 87 line km of ground magnetic traversing and 636 gravity stations were completed. An integrated geological-geophysical model of the area was synthesised.

A stratigraphic drilling programme was commenced in November 1981 and five bore holes CA 101-105 completed for total meterage 358.4m. The drilling programme confirmed the existence of Triassic Coal Measures within the fault bound block. A three metre coal seam was intersected at 61m depth in bore hole CA 105.

1982

The initial stratigraphic drilling programme was completed in May 1982. An additional seven bore holes CA 106-112 were drilled for a total meterage of 1322m. An area with small inferred insitu measures was outlined in the north of the E.L. The coal is low sulphur, high ash bituminous steaming coal suitable for a domestic power station fuel.

An additional drilling programme of 8 bore holes of total meterage 1588m were drilled in November, 1982 to upgrade the confidence level of the reserves estimate in the reserve area and test other prospective areas.

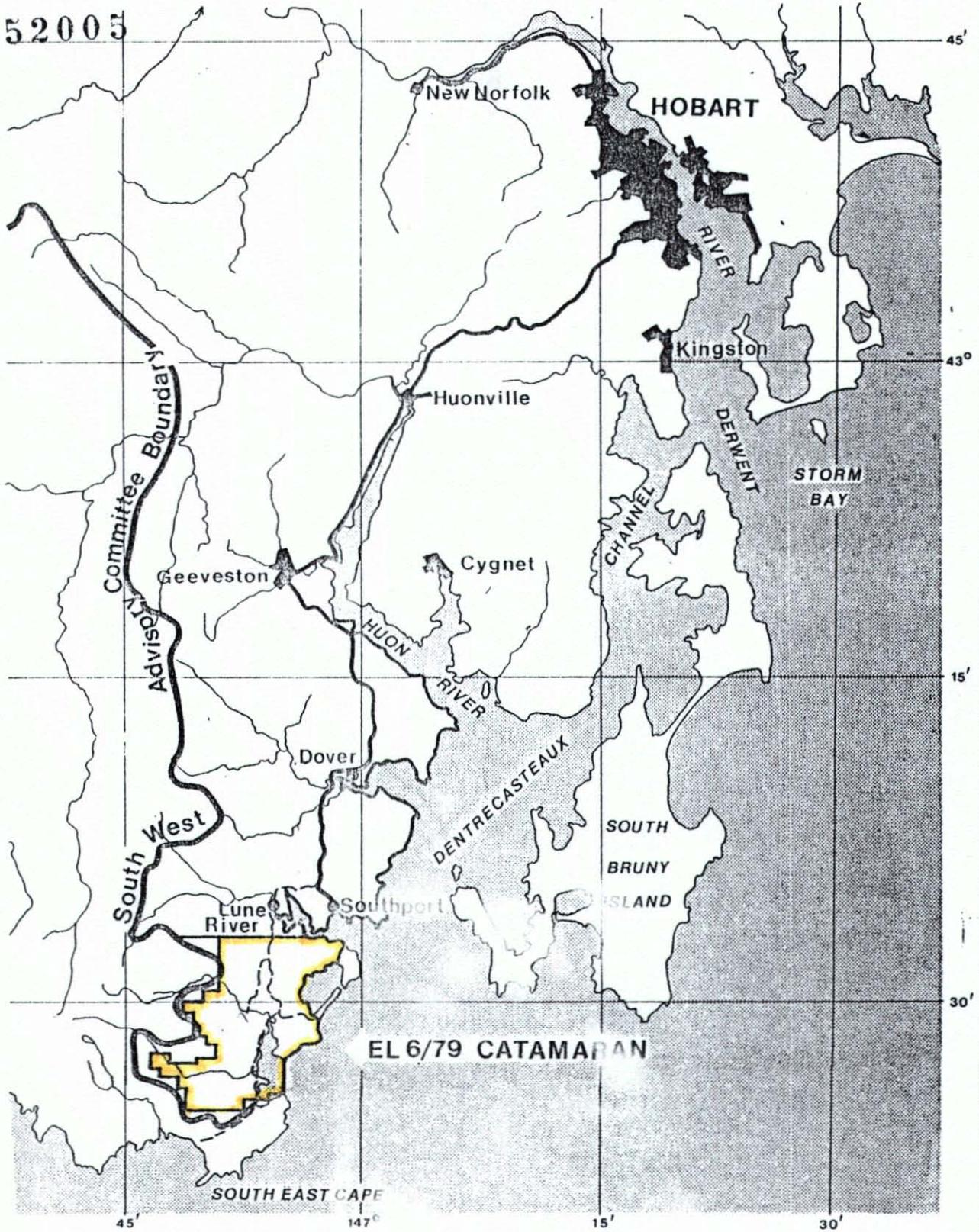
During December 1982, an aeromagnetic survey and landsat study were carried out over Exploration Licence Application areas 27/82 Geeveston, 28/82 Strathblane and 29/82 Mt. Lloyd and Exploration Licence 6/79 Catamaran.

1983

Following assessment of the aeromagnetic and landsat data follow up field mapping was undertaken in April 1983. As a result of this work E.L. Application areas 27/82 Geeveston and 29/82 Mt. Lloyd were found to be unprospective for coal and were withdrawn and E.L. Application 28/82 was reduced in area from 490 km<sup>2</sup> to 195 km<sup>2</sup>.

Exploration Licence 40/83 Strathblane was subsequently granted on September 22, 1983.

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LOCATION MAP



5 cm

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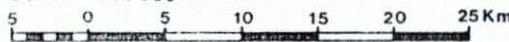


FIGURE 1

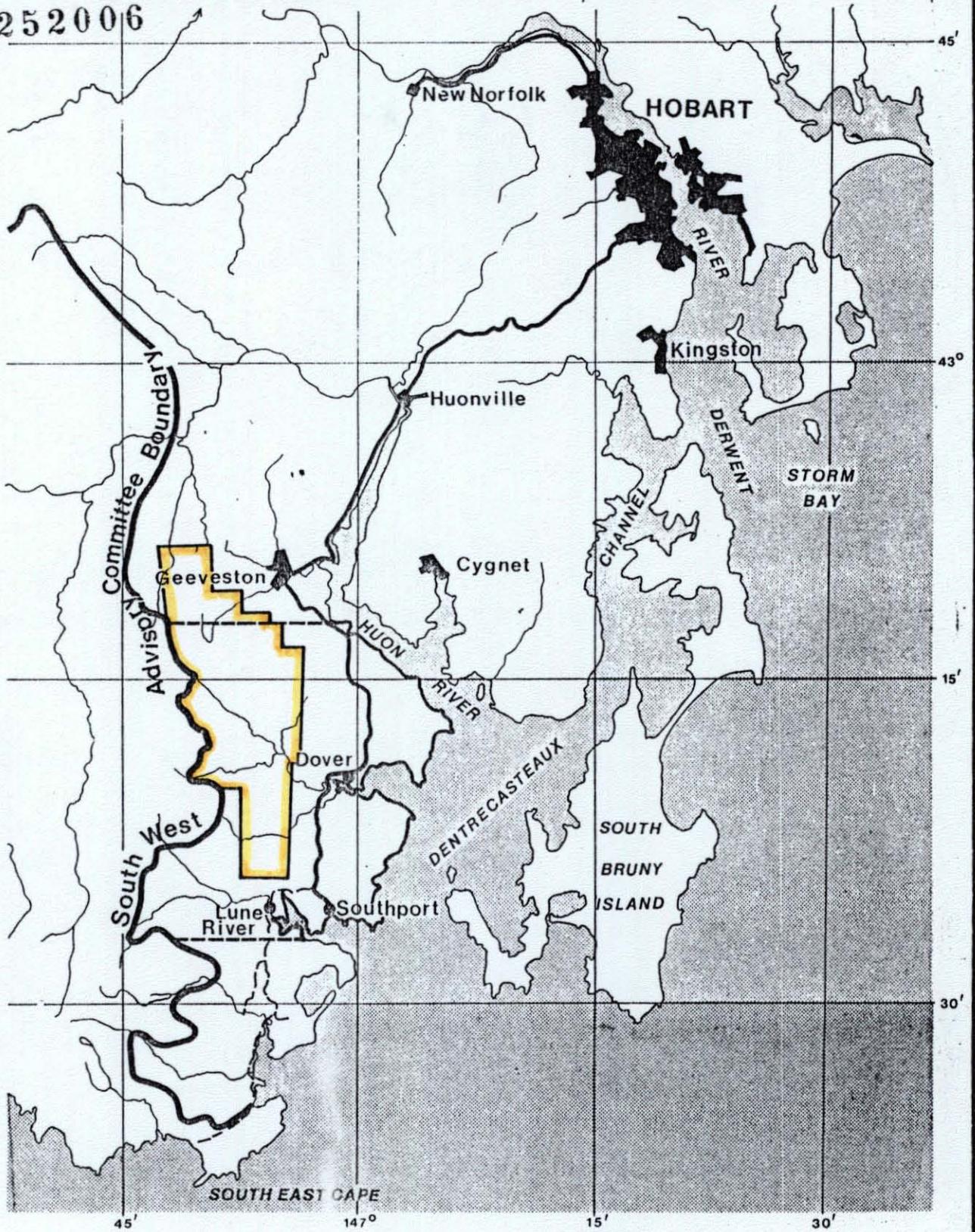
Marathon Petroleum Australia, Ltd.  
BRISBANE AUSTRALIA

# LOCATION MAP FOR EL6/79 CATAMARAN

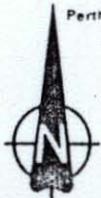
Mapped by Tas. Lands  
Drawn by L.P. Date Aug 82

Plan No. CIC45A

252006



LOCATION MAP



LEGEND

- Boundary of original E.L.A.
- Boundary of E.L. 40/83 Strathblane

SCALE 1 500 000

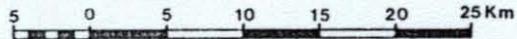


FIGURE 2

Marathon Petroleum Australia, Ltd.  
 BRISBANE AUSTRALIA  
 Hobart SK55-8 Tasmania

TASMANIA PROJECT  
 Plan Showing

LOCATION OF  
 E.L. 40/83 STRATHBLANE

Mapped by Tas. Lands Plan No CIC 89  
 Drawn by L.P. Date Nov. '84

252007

Coal Prospects in Tasmania:

Potential extra demand for coal in Tasmania is likely to come from three sources:

- (a) Oil-to-coal conversion in industries where oil is currently used as an energy source.
- (b) The conversion of the Bell Bay power station to coal.
- (c) A new 2x200MW power station.

Total maximum demand as outlined above would be about 2 million tonnes per annum.

With regard to (c) above the Tasmanian Hydro Electric Commission has sought consultants for a preliminary study into the feasibility and siting of a 2x200MW coal fired power station (August 1983). In order to meet its electric power forecasts for the 1990's, following the abandonment of the Gordon-below-Franklin hydro-electric scheme Tasmania will require a coal fired power station and two smaller hydro-electric schemes.

Existing coal production in Tasmania is approximately 350,000 tonnes per annum, and all of this is supplied from two mines operated by the Cornwall Coal Company. This coal is used primarily in the pulp and paper industry and in the manufacture of cement.

Only three companies in Tasmania have outlined significant black coal resources.

- . Cornwall Coal Company's two coal mines and undeveloped reserves in the Fingal Valley. The size of reserves associated with the company's operating mines is not known. However Mines Department drilling in a part of the area has outlined measured in situ reserves of 68 million tonnes in one seam alone.
- . The Shell Company of Australia: In a joint venture with Industrial Mining and Investigations Pty. Ltd., Shell Australia has been evaluating a number of deposits. Published reserves are:
  - Mt. Nicholas - 45 million tonnes; measured and indicated
  - Douglas River - 30 million tonnes; indicated
  - Dalmyne - 190 million tonnes; indicated.
- . Victor Petroleum - The Woodbury deposit has quoted coal reserves of 25 million tonnes. Unlike the other deposits Woodbury is amenable to extraction by open-cut mining.

Other companies including Marathon have coal exploration areas in the state but have not reported reserves at this stage.

### Target and Model

MPAL's target within E.L.'s 6/79 Catamaran and 40/83 Strathblane is the Triassic Coal Measures. This is a fluvitile sequence of sediments of approximately middle Triassic age. The coal seams are believed to have been deposited in backswamps in an upper delta plain environment. Typical washed coal quality characteristics are set out below. Coal of this quality would be suitable for a domestic power station.

#### Washed Coal Quality Characteristics (d)

Moisture	5 - 8%
Ash	20 - 30%
Volatile Matter	20 - 25%
Specific Energy	21 - 25 MJ/kg
Total Sulphur	< 0.5%

The Tasmanian Hydro-Electric Commission has indicated that a thermal fired power station is likely to be of 2 x 200 MW size. Based on typical Tasmanian coal quality characteristics, approximately 34 million tonnes (1.1 Mtpa) of saleable coal would be required over the usual 30 year power station life span.

- underground mineable target 112 Mt in situ (assumption of 50% mining recovery and 60% preparation plant yield) ie. assuming a single workable 2m thick seam, a total areal requirement of 35 sq. km.
- opencut mineable target 64 Mt in situ (assumption of 90% mining recovery and 60% preparation plant yield) ie. assuming a single workable 2m thick seam, a total areal requirement of 20 sq. km.

MPAL's model within E.L.'s 6/79 Catamaran and 40/83 Strathblane for underground coal reserves is flat or shallow dipping coal measures protected beneath a dolerite sill, similar to the Mt. Nicholas deposit in north-east Tasmania. Open cut coal reserves would be contained in down-faulted Permo-Triassic blocks.

### Geological Synopsis:

#### Regional Geology

The southeastern half of Tasmania is covered by Permo-Triassic sediments of the Parmeener Super Group contained within the Tasmania Basin. Coal is known in both the Permian and Triassic sediments. Over the past 100 years, small scale coal mining has been carried out in various localities spread throughout eastern Tasmania. The Triassic coal measures show greater potential to yield coal deposits, Permian coals are uniformly thin in Tasmania. Permo-Triassic sediments are extensively intruded by Jurassic dolerite and are affected significantly by basement block faulting.

## Tenement Geology

### E.L. 6/79 Catamaran

The area west of the north-south orientated Lune River Fault has been shown to be unprospective. Barren Undifferentiated Permo-Triassic and other sediments, and the lowermost barren Triassic sandstone unit occur in this area. A down faulted block some 50 km square containing the uppermost prospective unit of the Triassic sequence and several coal seams to 3m in thickness occurs to the east of the Lune River Fault. Jurassic dolerite sills have extensively intruded the Triassic sequence reducing the prospective area. Several other faults transect the down faulted block. Within these sub-blocks the prospective Triassic sequence dips at 5° or less.

Coal quality data is available from three boreholes drilled in the 1982 stratigraphic drilling programme. In summary, the washed coal product is typical for Tasmania Basin coals. Floats RD 1.80 yields range from 61.9 to 69.2%, Air dried moisture ranges from 5.7 to 7.7%, ash (adb) from 24.3 to 26.3%, specific energy (adb) from 21.87 to 24.58 MJ/kg and total sulphur (adb) from 0.22 to 0.43%.

The stratigraphic drilling programme has outlined a small inferred insitu resource of coal in the north of the E.L.

### E.L. 40/83 Strathblane

The Strathblane E.L. is located to the immediate north of E.L. 6/79 Catamaran. The stratigraphy and structure of the Strathblane area is similar to Catamaran. Several coal workings are recorded to the west of Strathblane township.

## Results of Work Carried Out

### E.L. 6/79 Catamaran

The stratigraphic drilling programmes have outlined two inferred resource areas with a total potential of 17 million tonnes of insitu coal:-

- a northern inferred resource area near the old Ida Bay coal mine - total potential insitu resource is 6 million tonnes of opencuttable coal.
- a southern inferred resource area near the old Catamaran coal mine - total potential insitu resource is 11 million tonnes of shallow underground coal.

Potential also exists for small reserves in other untested parts of the E.L.

### E.L. 40/83 Strathblane

No drilling has been undertaken however field mapping has located previously unknown Triassic Coal Measure coal seams over an area of approximately 80 km<sup>2</sup> in the north of the Strathblane area.