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BILLITON AUSTRALIA  
THE METALS DIVISION OF THE SHELL COMPANY OF AUSTRALIA LTD.

E.L. 50/87 - PORT SORELL  
RELINQUISHMENT REPORT

**MICROFILMED**

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SUMMARY

E.L. 50/87 of 71 sq kms is situated at Port Sorell on the north coast of Tasmania and tenure is held by The Shell Company of Australia Limited.

Previous exploration and work by the Mines Department has identified a *folded EoCambrian* sequence of calcareous sediments and shales in faulted contact with a moderately deformed PreCambrian block of quartzites and shales, termed the Badger Head Block.

Potential is recognized for the development of a stratiform base metal sulphide deposit in the keel of the EoCambrian synclinal structure situated west of the Badger Head Block. Syngenetic sulphide has been drilled on the eastern limb of this proposed syncline but earlier reports indicated that this sulphide species is predominantly pyrite.

Exploration to date has included geological mapping, rock chip sampling and stream sediment sampling. Two weak stream sediment anomalies have been identified but rock chip sampling has not produced anomalous base metal responses.

It is concluded that the potential for SEDEX style stratiform base metal massive sulphide mineralization is low given the chrono-stratigraphic correlation, lack of geochemical anomalism and absence of stratiform character of the known mineralization.

1.0 INTRODUCTION

This report is the second and final exploration report summarizing activities conducted within E.L. 50/87. An earlier report (08.4171) details exploration results attained during the first year of licence tenure.

The tenement is situated at Port Sorell, 20 kms east of Devonport on the north coast of Tasmania (see Figure 1).

2.0 TENEMENT STATUS

Exploration licence 50/87, of 71 sq kms, was granted to The Shell Company of Australia Limited on 20th June 1988 for a period of ten years, renewable every 12 months.

Within the tenement, two mining leases are current viz 37M/76, 47M/85. Both are held by Industrial Sands Pty. Ltd. as quarrying leases and are excluded from E.L. 50/87.

3.0 PREVIOUS WORK

Limited exploration has been carried out over the licence area and this work can be summarized as follows:

1954-55: The Mines Department (T. Hughes) carried out geological mapping within the Asbestos Range area. This was accompanied by some detailed exploration at the Branchs Creek Pyrite deposit. Here, two costeans and five drill holes were completed on behalf of the Ben Lomond Mining Company. A resource of 0.75Mt @ 10% Sulphur was calculated by Hughes from the results of this drilling.

1965-67: E.L. 15/65 was pegged by BHP who carried out an airborne magnetic and stream sediment survey over the area north of the Frankford Road.

009

460000 E

BASS STRAIT

470000 E

579006



PORT

5440000 N

SORELL

ROAD

STATE

E.L. 50/87

FRANKFORD

FOREST

BAKERS BEACH

ROAD

5430000 N

E.L. 50/87

STATE FOREST



**Billiton Australia**  
The Metals Division of the Shell Company of Australia Limited

Project **PORT SORELL**

Title  
**E.L. 50/87  
LOCATION PLAN**

Author JPR Date 4/89 Scale 1:100,000

Drawn OH Office TAS Revised Date

Drawing No. Fig No. 1

5 cm

- 1968 : EZ Co. of Australia (E.L. 12/67) examined the Branchs Creek pyrite prospect as a potential source of sulphur. Geological mapping, rock chip sampling and metallurgical testing was completed but it was concluded that satisfactory recoveries could not be achieved.
- 1981-82: Peko Wallsend (E.L. 24/80) identified the source of the BHP aeromagnetic anomalies as Cambrian dolerite. A large (561 sample) stream sediment survey was completed and several weak base metal anomalies were delineated. No anomalous tin or tungsten geochemistry was identified. Soil and rock chip sampling was completed over several anomalous areas.
- 1988-89: Billiton Australia conducted initial geological mapping, a regional bulk cyanide leach survey and selective rock chip sampling. Minor gold anomalism was recorded from several stream sediment samples.

#### 4.0 REGIONAL SETTING & MINERALIZATION

The licence covers the faulted contact of the PreCambrian Badger Head Block in the east with the folded EoCambrian sequence of siltstones, greywackes and cherts to the west. The local setting of the area as interpreted by the Geological Survey of Tasmania is shown in Figure 2. Here the PreCambrian is interpreted to be in faulted contact with an open folded Cambrian sequence that forms a shallow south plunging synclinal sequence. This structure is offset in a NBE (i.e. dextral) sense by a later displacement of 2 kms.

Mineralization within the licence area is represented at three localities, details of which are summarized below:

- Branchs Creek Pyrite: - AMG 5437650N 467900E
- stratabound pyrite within brecciated black shales
  - low base metal geochemistry (from previous workers)
  - 5 drill holes have intersected the pyritiferous horizon.

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Copper (Lead-Zinc) Show: - AMG 543050N 468100E  
 - quartz veined pyritic black shale  
 - low base metal values  
 - adit 35m long

Barite Prospect: - AMG 5428400N 468000E  
 - now under pine plantation  
 - reportedly massive barite veins within  
 strongly leached carbonate  
 - 5 costeans were apparently dug.

5.0 EXPLORATION COMPLETED JUNE - OCTOBER 1989

The Branch's Creek pyrite deposit was examined briefly and several rock chip samples collected. Core from the previous drilling programme (1954-55 Ben Lomond Mining Company) was not located but sufficient outcrop is present to enable an interpretation of the form of the deposit to be made. Four rock chip samples were collected and results are tabulated below:

| <u>Sample No</u> | <u>Cu</u> | <u>Pb</u> | <u>Zn</u> | <u>Ag</u> | <u>Au</u> | <u>As</u> | <u>Ba</u> (ppm) |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|
| 15173            | 32        | 5         | 6         | 1         | 0.04      | 26        | 30              |
| 15174            | 190       | 8         | 60        | 1         | 0.04      | 88        | 35              |
| 15175            | 120       | 3         | 155       | 1         | 0.04      | 195       | 40              |
| 15176            | 26        | 3         | 1         | 1         | 0.02      | 58        | 25              |

The low base metal/precious metal values confirm previous reports of the lack of geochemistry. It was also evident from outcrop examination that the form of the deposit, while stratabound, is not stratiform. The main horizon consists of a brecciated silicified pyritic black shale which is often quartz veined. No stratiform character was evident although it is recognised that information from drill core may alter this interpretation.

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6.0 CONCLUSIONS & RECOMMENDATIONS

Although exploration within the licence has been at a very fundamental level it is concluded that there is only a low potential for the development of significant "SEDEX" style stratiform base metal massive sulphide mineralization. The main reasons for this conclusion are:

- 1) Syngenetic base metal mineralization within EoCambrian sediments is rare (or absent?) within the Dundas Trough and it is not until mid-Cambrian times that metalliferous activity is recognised.
- 2) The PreCambrian/EoCambrian contact is complexly faulted and it is likely that mineralization developed within this contact zone is epigenetic and structurally emplaced. The Branchs Creek pyrite deposit is located very close to this contact and the mineralization is probably of this style.
- 3) Although the presence of a large regional plunging syncline is noted it is a moot point as to whether this represents an original sub basinal structure. The poor outcrop precluded confirmation of this interpretation.
- 4) No evidence of stratiform mineralization has been found within the licence area.

For these reasons, it is recommended that the licence be relinquished immediately and that no further exploration be carried out.

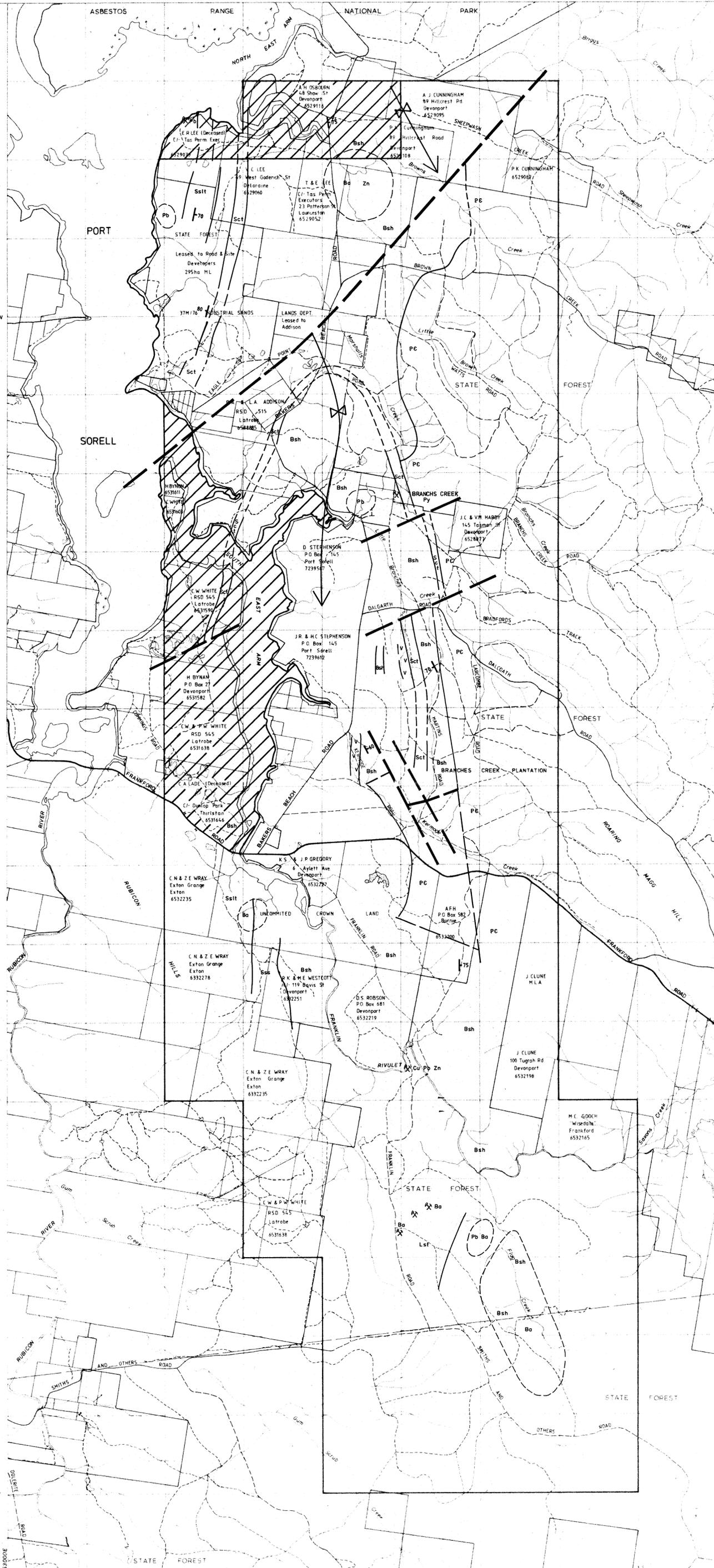
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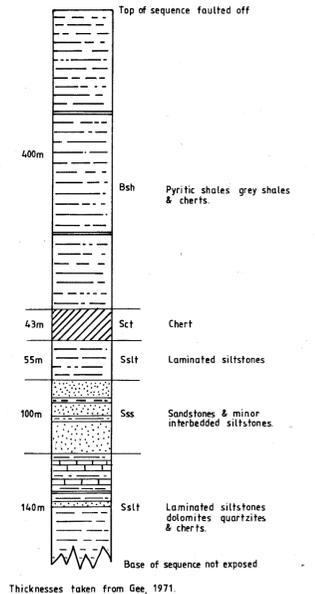
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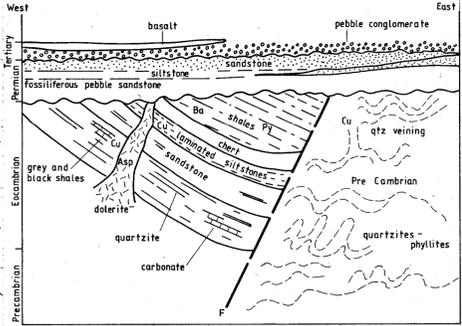


EO CAMBRIAN SEQUENCE - PORT SORELL AREA



Thicknesses taken from Gee, 1971.

SCHEMATIC EAST-WEST GEOLOGICAL SECTION ACROSS E.L. 24/80 BADGER HEAD



LEGEND

- E.L. Boundary
- Reserve Boundary
- 2016 Property Boundary
- Public Road
- Gravel road with bridge
- Vehicular track with gate
- Walking track
- Power transmission line
- Wet area
- Creek, river
- Area voluntarily excised

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5 cm

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**Billiton Australia**  
The Metals Division of the Shell Company of Australia Limited

Project: PORT SORELL

Title: GEOLOGICAL SETTING

|                 |                         |                 |
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| Author: J.P.P.  | Dept: TAS               | Scale: 1:25,000 |
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