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PROGRESS REPORT 8 MAY 1998 TO 8 MAY 1999 -  
EL 32/97, LEVEN RIVER  
Haslam, C.O.\*; Mineral Strategies  
Anon

EL32/97

TASMANIA

**EXPLORATION LICENCE 32/97**

**"LEVEN RIVER"**

**TASMANIA**

EL32/97

See Folio 27

**Progress Report for the Period  
8 May 1998 to 8 May 1999**

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**ABSTRACT**

EL 32/97 is considered to be very prospective for base and precious metal deposits within the Mount Read Volcanics, but the prospective host rocks are largely concealed beneath a substantial thickness of Tertiary basalt. In the past, this basalt cover has proven a severe problem for conventional exploration methods, and the area remains little explored.

During the first year, a program of literature review was followed by regional soil geochemistry, using two leading-edge mobile metal ion methods; a total of 432 samples were collected, at a sampling density of two sites per square kilometre. As the samples must be analysed overseas, a substantial delay is likely before the results are received.

Positive anomalies will be evaluated by more-detailed sampling with the same methods. Proximity to interpreted regional lineament intersections will be a favourable factor in ranking the geochemical anomalies.

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- Figure 1** Location Map, showing extent of the regional geochemical program  
**Figure 2** Regional Structural Map

## **1. INTRODUCTION**

### **1.1 General**

The Leven River Exploration Licence (EL32/97), granted on 8 May 1998 for a period of five years, comprises 200 sq. kms. The Licence holder is Mr. C. O. Haslam.

This Report summarises exploration completed on EL 32/97 for the period 8 May 1998 to 8 May 1999.

### **1.2 Licence Location**

The Licence surrounds the former EL 106/87 on the west and north, and then extends a further twelve kilometres northeasterly to Two Hummocks and beyond.

The location of EL32/97 is shown on Figure 1.

### **1.3 Exploration Objective**

The exploration program is designed to locate economic metalliferous deposits within the Mount Read Volcanics sequence, with a particular focus on volcanic hosted massive sulfide base metal deposits.

To a very large extent, the area of the Licence is covered by Tertiary basalt; this constituted a double handicap to mineral exploration in the past:

- a) Only a minor proportion of the total geological sequence of the region is prospective for economic metalliferous deposits. The younger cover conceals the location of the prospective horizons.

This aspect has been assisted, to a small extent, by past exploration drillholes which have penetrated through the basalt, and to a somewhat larger extent by a proactive program of stratigraphic drilling and regional geological interpretation undertaken by Mineral Resources Tasmania some years ago.

- b) The Tertiary basalt, up to 200m or more in thickness, has proven a severe technological barrier to conventional geophysical and geochemical methods.

Overcoming this constraint has had to await the development of new exploration technology. Mineral Strategies was engaged to apply leading-edge soil geochemistry, in an endeavour to surmount the problem.

#### 1.4 Exploration Strategy

Mineral Strategies staff have applied mobile metal ion soil geochemistry in precious metal exploration over Tertiary basalt covered areas of the Central Victorian Goldfields, and are confident of the effectiveness of the method on EL 32/97. In the first year of the Licence a regional geochemical sampling program was completed.

Aberfoyle Resources Ltd concluded that the network of synvolcanic faults within the Que Hellyer Volcanics basin played an important role in the localisation of the Que River and Hellyer orebodies, particularly where those faults intersected the 'Que Hellyer Trend'.

"Leven River", Tasmania

As a logical extension of this, Mineral Strategies proposes to use regional lineament intersections - favouring those azimuths considered most important by Aberfoyle staff - as a complementary method for ranking mobile metal ion geochemical anomalies defined in the regional program.

Careful consideration is also being given to the published work of Dr. D. E. Leaman (for example : Leaman, 1986) in this regard.

The Que Hellyer Trend, and a number of the major regional lineaments, are shown on Figure 2.

## **2. EXPLORATION COMPLETED IN THE REVIEW PERIOD**

### **2.1 Literature Review**

A considerable amount of time was spent in the first part of the year carefully reading selected parts of the vast amount of published literature on the Mount Read Volcanics, and the archived Progress and Final Reports of previous Exploration Licence holders within the general region. Discussions were also held with geoscientists experienced in the Mount Read Volcanics.

One outcome is the realisation that, given the style of folding in the Hellyer Mine area, the Que Hellyer Volcanics suite intersected in Pancontinental/Outokumpu drillholes MXRD1 and MCDD6, northwest of Mount Cattley, is likely to be more strongly folded than is shown in Figure 2 (Figure 19 of MRV Project Report 1, 1991).

This conclusion is shown diagrammatically by green hatching on Figure 2. If the conclusion is valid, there is likely to be substantially more of the Que Hellyer Volcanics sequence beneath basalt cover in the Beecroft Road/Wattle Park Road/Middlesex Road region of EL 32/97.

"Leven River", Tasmania

With regard to economic and exploration geology, the Aberfoyle Resources Ltd annual Progress Reports on EL106/87 since 1993 were the most relevant of the available publications.

## 2.2 Regional Exploration Method

Regional soil geochemistry using the new mobile metal ion technique has been completed.

Mineral Strategies uses the original technology developed in Russia; of the alternative methods available, those termed MPF and TMGM were chosen for the EL 32/97 program.

### MPF

In this method approximately 100g of soil is collected at the grassroots level, or immediately below leaf litter. At that position in the soil profile mobile ions can be incorporated into organic humates and fulvates.

For analysis, these compounds are extracted into solution, and the solution becomes the sample. In that manner a **natural concentrate within the soil profile is analysed**, in effect lowering the limit of detection of the analytical procedure.

"Leven River", Tasmania

### TMGM

For the second method, approximately 100g of soil is collected by hand auger at the level of natural iron enrichment - this level is usually readily identifiable, certainly when sampling over basalt. During this program, sampling depths were within the range 20 cm to 45 cm below surface.

The TMGM method is based on the tendency of iron and manganese oxides to scavenge metal ions. For analysis, the sample is roasted, enhancing the magnetic susceptibility of the iron oxides present; they are removed magnetically and become the sample. Once again a **natural concentrate within the soil profile is analysed.**

Both overseas and in Australia the mobile metal ion method has located anomalies over "blind" metalliferous deposits up to 1000m below surface, including examples beneath younger volcanic sequences.

### 2.3 Field Exploration Completed

The regional geochemical program was completed, using a sampling density of two sites per square kilometre; both MPF and TMGM samples were collected at each site. Using hand-held GPS, site locations were selected as close as practicable to the one kilometre grid corners, and also the grid centres, on 1:25,000 scale topographic maps.

Two field crews were engaged on the program, and took 432 samples (216 MPF and 216 TMGM). Grid coordinates, sample colour and texture, depth below surface of the TMGM sample, and rock type of float (where present) were recorded.

In addition, a significant number of duplicate samples were taken, for quality assurance purposes.

Sample preparation following the field campaign included pulverising, removal of stones and gravel (noting the rock type), and quality control of the field recording of sample number, grid coordinates, sample colour and other parameters.

## **2.4 Soil Sample Analysis**

At present, all samples must be returned for analysis at the Government laboratories of Rudgeofizika, in St. Petersburg, C.I.S.

Based on past experience a turnaround time of six months or more is likely.

## **2.5 Discussion**

Results of the regional geochemical survey are not yet available.

The next phase of the field program will involve detailed follow-up soil sampling using the MPF and/or TMGM method(s) over anomalies defined by the regional program. This cannot commence until the results of the regional program are available.

In the interim, further investigations of the regional lineament pattern, and discussions with appropriate consultants, are in progress.

### 3. ENVIRONMENTAL ASPECTS

The geochemical survey involved taking 100g to 150g of soil at the surface, and also at a depth of about 35 cm using a hand auger. Sample sites were rehabilitated to their previous condition. It was not necessary to cut lines.

Sampling crews operated on foot from vehicles which remained on public roads or North Forests Ltd gravel roads.

### 4. EXPENDITURE

Expenditure for the twelve months to 8 May 1999 is being finalised and will be notified separately.

### REFERENCES

- Aberfoyle Resources Ltd. Annual Progress Reports on EL 106/87.
- Dronseika E. V., 1996. Hellyer TMI Geochemistry (Internal Report TAS 0028-8/96).
- Leaman D. E. 1986. Interpretation and Evaluation Report on the 1981 West Tasmania Aeromagnetic Survey (MRT Geophysical Report No. 1).

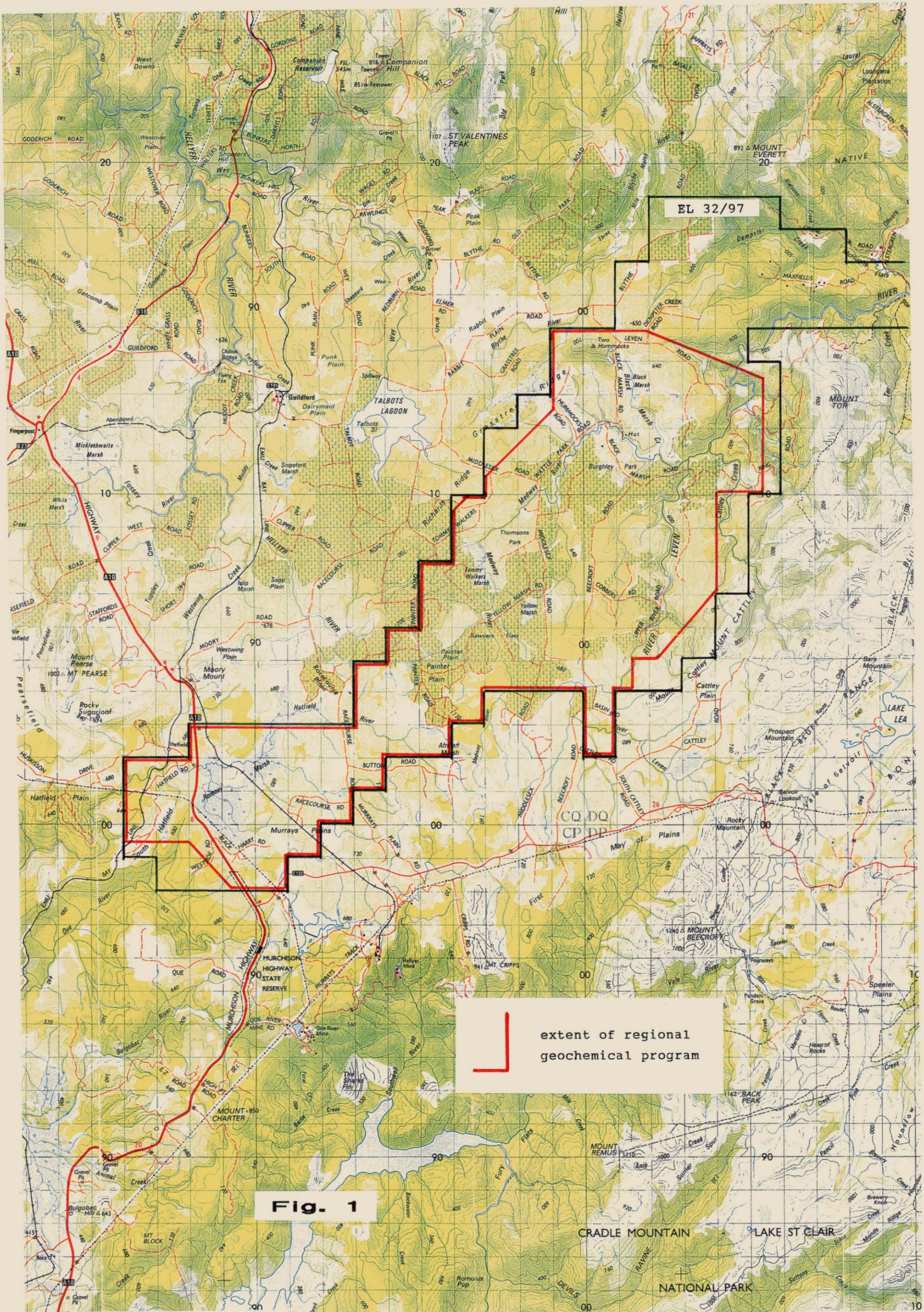
### KEYWORDS

Mount Read Volcanics, mineral exploration, volcanic hosted massive sulfides, geochemistry, mobile metal ion.

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**Fig. 1**

extent of regional  
geochemical program

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5 cm

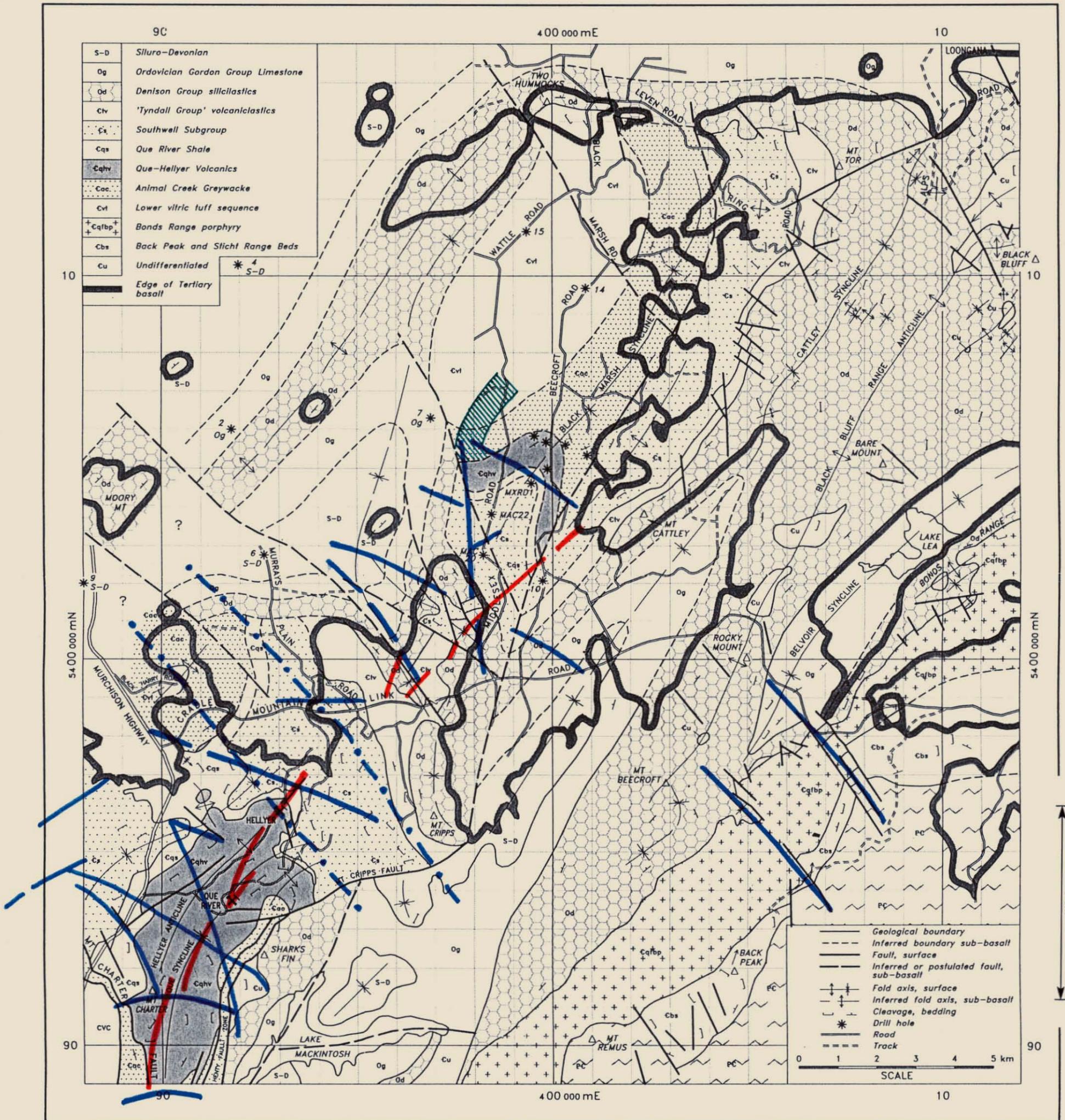


FIGURE 19. SUB-BASALT MAP AND STRUCTURAL MAP OF THE HELLYER - TWO HUMMOCKS - BLACK BLUFF RANGE AREA  
 Pemberton et al. MRVP Geol. Rep.4 1991.

Fig. 2

- Que Hellyer Trend
- Major Linears
- - - Gravity Break