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090001

EXPLORATION LICENCE 33/79

WARATAH, TASMANIA

SUMMARY AND FINAL REPORT TO JUNE 1985

CONTENTS

FIGURES

002

85-2485

5 cm

375 000 m E

5 405 000 m.N

T. N.

EL boundary

Area relinquished

379 720 E
384000 E
5 421640 N
5414355 N
5412270 N
375 285 E
5 409 705 N
379855 E
370500 E
373000 E
5 406 700 N
372000 E
5405800 N
5 405 000 N
373500 E
378 000 E
5403200 N
5 402 720 N
5 402695 N
5403000 N
5402000 N
375500 E
375800 E
5405720 N
374000 E
380 000 E
5 399 800 N
5 396 000 N

DATUM

SCALE 1:100000

0 1 2 3 4 5 10 Km

This map is a photo copy from
Arthur River, Hellyer, Pieman, and Sophia
1:100000 topographic maps

Revisions:

THE BROKEN HILL PROPRIETARY CO. LTD.
EXPLORATION DEPARTMENT

ORIGINAL LICENCE BOUNDARY
& AREA RELINQUISHED
E.L 33/79-WARATAH, TAS

Prepared by: A. Clark		Centre: Melbourne	
Date: Oct. 1984		Project No: T650	Drawing No: A3-1666
Drawn: C. Osborne			

Fig No
To accompany
Dated

0900003

Fig. 1

EXPLORATION LICENCE 33/79
WARATAH, TASMANIA
SUMMARY/FINAL REPORT TO JUNE 1985

1. GENERAL

Exploration Licence 33/79 of 150 square kilometres was granted to The Broken Hill Proprietary Company Limited on 11th January, 1980. In October, 1984 notification was given of a reduction to approximately 125 square kilometres. This report covers all exploration data relevant to the area.

The area under licence lies within a mineralized belt which includes the Mt Bischoff, Cleveland and Magnet mines, as well as covering the northern extension of a sequence of sediments which include the host rocks for mineralization at Renison Bell and Mt Lindsay.

2. EXPLORATION PHILOSOPHY AND METHOD

The principal target in the area is a massive sulphide or skarn hosted tin-tungsten deposit. Suitable host rocks for these styles of mineralization are known to extend beneath the blanket of Tertiary basalt which covers most of the licence area.

In the past, the basalt cover has prevented a concerted exploration effort and it was only in the period 1977 to 1979 that the area was first explored by modern techniques.

The basis for exploring the area lies principally with the generation of drill targets by geophysical methods. Consideration has also been given to the use of:

a) geological methods - structure and lithology in surrounding terrain;

b) remote sensing and photogeological methods;

c) geochemical methods - including spring water sampling humus and seepage sampling.

3. REGIONAL GEOLOGY

The Mt. Bischoff series, consisting of siltstones, laminated mudstones, occasional spillites and dolomite (at Mt. Bischoff only) is characteristic of the unmetamorphosed rocks that surround the edges of the Rocky Cape, Forth and Tyennan Blocks. From the time of deposition of these rocks (late Proterozoic), the environment was a marginal trough. This depositional environment persisted until the Mid-Devonian Tabberabberan orogeny. During the Cambrian, the trough underwent syntectonic deformation producing a north-west trend of folds. At this time, there was extensive alkali volcanism. Unconformably following the Cambrian lavas and volcaniclastics is the basal Roland conglomerate of the Ordovician sequence (Junee Group Correlate). These are conformably overlain by the Eldon Group (Silurian-Devonian).

The Tabberabberan orogeny exaggerated the earlier Cambrian fold patterns in the first period of deformation and produced north-trending folds. The second period of deformation resulted in northwest trending folds.

During the Late-Devonian to Early Carboniferous, the Meredith and Housetop Granites were emplaced. The tin and silver/lead deposits of the Mt. Bischoff, Cleveland, Magnet and Mt. Lindsay areas are associated with this emplacement.

After this, a period of erosion occurred, that terminated with the glacial, glacio-marine, and freshwater sequences of the Parmeener Super Group. The basal unit is the Wynyard Tillite.

The Tertiary system unconformably overlies all previous successions and consists of basalts and interflow sediments, with large fluvial quartz sandstones and gravels. The Waratah basalts are interrupted by a large lake during the early Oligocene (Brown & Forsyth 1984). Evidence from drilling is that the pre-Tertiary relief is very rugged, perhaps more so over areas of Precambrian sub-outcrop than over the Cambrian.

4. SUMMARY OF WORK CARRIED OUT AND RESULTS:

1. Literature Review and Compilation of Existing Data: (CR3285). Aberfoyle's aeromagnetics and Pennzoil's RRMIP surveys covered part of the area. No exploration drilling had been done in this area.

2. Geological Mapping: (CR3285). A 1:50,000 geological base plan was produced with interpreted cross sections.

3. Interpretation of Landsat Imagery at 1:250,000: (CR3285).

4. Orientation Stream and Pan Concentrate Sampling: (CR3285). 13 Stream sediment and 15 pan concentrate samples were collected with only one noteworthy 1.15% Sn value in pan concentrates for follow-up.

5. I.P. Profiling and Depth Sounding: (CR3285) Gridding and IP were carried out on an aeromagnetic low from Aberfoyle's survey, called the Reservoir Grid.

6. Dighem II Helicopter E.M.: (CR3285) 50 line km over 5 east-west and two north south lines were flown as a test survey. Results did not warrant further work.

7. Rock Chip Sampling: (CR3285). Fifty rockchip samples mainly of basalts, but including two of granitic intrusions, were taken for geochemistry and magnetic susceptibility measurements. No significant anomalies were detected.

8. Aeromagnetic Survey: (CR3541). A low level survey of the complete area was flown from which a total field contour map was produced. A number of anomalies were chosen for ground follow-up.

9. Ground Magnetics: (CR3285 & CR3541). Grid cutting and ground magnetics were carried out over anomalies for in excess of 20 line kilometres.

10. Auger soil sampling of Grid Lines and Roads: (CR3541). No values for follow up were produced from 259 samples collected at 100 metre intervals.

11. Water, Humus and Seepage Sampling: (CR3541). An Orientation Survey was carried out.

12. Oriented Drill Core Drilling for Magnetic Field Measurement: (CR3541). Ten small core samples were taken for magnetic field direction, remanance and susceptibility measurements.

13. Access Construction and Drilling: (CR3541 & 3949). Six holes totalling 505 metres were drilled to test the thickness of basalt and examine the underlying lithologies in magnetically anomalous zones and zones of low magnetic noise. Only two penetrated the basalt, intersecting unconsolidated Tertiary sediments of 64.6 and 84 metres. No basement rocks were intersected.

14. Ground Magnetic Surveys: (CR3949). Two drill sites were surveyed over "E" Grid and the Reservoir Grid.

15. Ground E.M.: (CR3949). An orientation survey over "E" Grid was carried out which separated the basalt into two resistivity layers each of approximately 120m thickness.

16. Drilling: (CR3949). Drilling of an additional six drillholes totalling 1568.2m was carried out in 1983. The holes were sited to determine the source of four aeromagnetic anomalies, test the thickness of Tertiary basalt and the nature of the underlying stratigraphy and to test the relationship between present and past topographies.
All holes were thought to have bottomed the basalt with three terminating in Cambrian sediments and volcanics and three in Pre Cambrian sediments correlated with the Oonah Formation.

17. Analysis and Petrology and Magnetic Susceptibility: (CR3949). Samples from drill holes were analysed and described, and measured for magnetic susceptibility.

18. Downhole Logging: (CR3949). Four holes were measured using resistivity and gamma tools, but all holes were blocked at the lower Tertiary contact.

19. Pan Concentrate, Rock Chip and Soil Sampling: (CR3949). An aeromagnetic anomaly paralleling the margin of the Meredith Granite, thought to indicate a skarn, was followed up with sampling and auger soil sampling on four east west and one north south grid line.

20. Ground Magnetics: (CR3949). Additional ground magnetics were read over the above, Meredith anomaly.

21. EM37 Surveys: (CR4388). Three EM37 Transient EM surveys were carried out in an attempt to screen aeromagnetic anomalies. No indication of sub-basalt conductors was obtained.

22. Drilling: (CR4388). One drill hole totalling 220m was drilled in 1984 on an aeromagnetic anomaly, terminating in Cambrian andesite. Samples were analysed without significant anomalism.

5. LISTING OF REPORTS PREVIOUSLY SUBMITTED

CR3285 82-1702	Progress Report to 14th January, 1982 including Report for the Six Months Ended 14th January, 1982.
CR3541 82-1830	Report for the Six Months Ended 14th July, 1982.
CR3949 83-2026	Report for the Year Ended 14th July, 1983.
CR4101 In Records	Report for the Quarter Ended 14th January, 1984.
CR4388 84-2295	Report for the Year Ended 14th July, 1984.
CR4704 84-2309	Report for the Area Relinquished 14th January 1985.

6. EXPENDITURE

Total expenditure to end June 1985

Wages and Salaries	97,099
Field Support	9,979
Drilling	143,060
Vehicles	10,649
Equipment	14,678
Geochemistry	10,323
Geophysics	67,441
Tenement Fees	8,525
Overheads	3,073
Capital items	8,411
Services	16,997
	390,235
Administrative charge of 10%	39,024
	429,259