ARUNTA PROJECT, N.T.
ALLANS BORE, EL 8093
REPORT FOR PERIOD
7 JUNE, 1995 TO 6 JUNE, 1996

Prepared for
Roebuck Resources NL

by
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SUMMARY

Allans Bore E.L. 8093 covers a number of major aeromagnetic anomalies in extensively sand covered Lower Proterozoic Arunta Complex basement. Five anomalies have been examined.

The area is considered highly prospective for major deposits of Broken Hill, Ernest-Henry or Callie styles.

Four of the aeromagnetic anomalies occur beneath thin Tertiary to Recent cover with small outcrop exposures of magnetite bearing metamorphosed and variously tectonised calcareous, pelitic, volcaniclastic sediments associated with felsic volcanics and some granite. Surface and RAB drill geochemical sampling has shown anomalous gold and basemetal values are associated with these basement rocks.

Intensive exploration based on a detailed aeromagnetic survey over the licence is planned. Negotiations for this work to be carried out with a joint venture partner are in progress.
1. INTRODUCTION

E.L. 8093, covering 297 graticular blocks, was applied for to explore for Ernest-Henry, Callie and Broken Hill type deposits within magnetically anomalous Arunta Complex rocks in the southern portion of the Illogwa 1:250,000 Sheet area (SF/53-12). The licence was granted on 7 June, 1993, for six years to 6 June, 1999. On renewal of the licence in June, 1995, the original area will be reduced to 149 blocks.

The licence extends over portions of the Indiana Pastoral Lease (north of latitude 23° 30'), the Numery Pastoral Lease (south of latitude 23° 30') and vacant Crown Lands within the northern margin of the Simpson Desert.

The area is subject to Aboriginal land claims. No Aboriginal sacred sites are recorded within the area (as at November, 1993).

2. LOCATION AND ACCESS

The licence is located approximately 160 km east of Alice Springs. Access can be gained either via the Plenty River highway and Indiana Station or Ross River highway and Numery Station.

Graded station tracks provide access in the western portion of the licence as far east as Allans Bore. A good track along the Indiana-Numery boundary provides access further west to northern portions of the Exploration Licence and a graded track from Junction Bore continues as an old exploration track to southern areas.

From Acacia Bore in the north, sandy outwash plains merge into sandplains covered with spinifex, clumps of acacia and other shrubs, then similarly vegetated north-northwest trending sand dunes further southwards.

Off road 4WD travel is slow due to the soft nature of the sand and ubiquitous spinifex cover. Southern dunes can be crossed fairly readily travelling west to east, then along interdune corridors to desired locations.

3. GEOLOGY

The Illogwa area is the southeastern portion of the central Australia Arunta orogenic domain. Basement rocks are Lower Proterozoic medium to high grade metamorphics.

The regional geology is described in Shaw (1990) and the geology of Illogwa Creek 1:250,000 Sheet area is described in Shaw and Milligan (1969).

The Licence area is mainly covered by veneers of Tertiary to Recent sediments.
A Miocene laterite surface developed on basement rocks was progressively eroded during later Tertiary times as clays, sands and carbonates infilled shallow drainage depressions, including evaporite lakes. Quaternary sands now cover almost the entire area.

Basement outcrop occurs in the north of the Licence as a series of separated hills and low rises in the Acacia Bore area, one small hill, low rises and rock surfaces at Desert Storm and as low outcrop and subcrop in the bed of an interdune lake at Jurassic Park. These rocks are dominantly felsic and mafic granulites, carbonates and iron formations conforming to Arunta Division 1 strata with lesser pelitic schists possibly correlating with Division 2.

An interpretation based on published geologic mapping and geophysics for Illogwa (Figure 3) indicates E.L. 8093 covers a west-northwest trending zone of high magnetic susceptibility Division 1 strata flanked by much lower susceptibility Division 2 strata.

Magnetics and gravity values define an overall north-northwest structural trend through the sheet area consistent with other major basement fracture features in central Australia, e.g. Woolanga Lineament (Shaw, 1990).

4. SUMMARY OF EXPLORATION

EL 8093 was acquired to secure an extensive and previously unexplored zone of magnetically anomalous Lower Proterozoic rocks which are traversed by interpreted large scale fault structures.

A tectonic interpretation (Figure 3) of the area indicates the locations of five, large, high amplitude, magnetic anomalies. Preliminary testing has been done on four of these anomalies which are in areas of thin Tertiary to Recent cover with scattered small outcrops of magnetite bearing metamorphosed calcareous and pelitic volcanoclastic sediments associated with felsic volcanics and some granite. These rocks have been folded and faulted to various degrees. Surface and RAB hole geochemistry have indicated that anomalous levels of gold and base metals are associated with the underlying rocks.

**Acacia Anomaly**

RAB drilling in this area showed the anomaly to be related to magnetite bearing gneisses. Anomalous gold-copper geochemistry was detected in three of the RAB holes and is associated with marble. Nearby an outcrop of quartz-felspar-biotite rock is intruded by vein quartz along a shear. A sample was analysed and contained 42 ppb gold and 1.9 percent copper. Copper mineralisation is associated with a massive garnet bearing skarn which outcrops north of the Acacia anomaly. The target in this area is clearly skarn related gold and base metal mineralisation.
Shrub Anomaly

This anomaly is similar in character to Acacia. The area is covered by loose gravels which prevented effective RAB drilling. One hole penetrated basement rocks of quartz-magnetite bearing amphibolite composition.

Desert Storm Anomaly

Banded iron formations, together with gneisses believed to be derived from pelitic sediments and porphyries crop out as a series of hills near the western end of the anomaly.

Ferruginous deflation lag sampling in this area indicated anomalous copper, lead and tin geochemistry with some moderately anomalous gold values. A line of RAB holes across Desert Storm indicated a copper anomaly in quartz-felspar gneiss and elevated zinc geochemistry in quartz-chlorite-biotite-felspar-magnetite rocks.

Jurassic Park Anomaly

The magnetic feature is overlain by thin to moderately thick soil cover near an area of outcropping granite and hornfelsed, possibly tuffaceous sediments. Ferruginous deflation lag sample analyses yielded anomalous and potentially significant arsenic geochemistry.

5. AEROMAGNETIC AND GRAVITY SURVEYS

5.1 PREVIOUS SURVEYS

Aeromagnetic surveys were completed over the Illogwa 1:250,000 sheet area by the Bureau of Mineral Resources in 1962 (southern half as part of the Simpson Desert survey) and 1963-64 (northern half as part of the Georgina Basin Survey). Lines were flown east-west and spaced 5-10 km apart. Contours for this coverage are shown on Figure 6 of Warne, 1994 (see References).

Wide spaced gravity surveys were done in 1961-1962 as part of a regional reconnaissance of the Georgina Basin.

A summary of interpretations for these surveys is given in Shaw and Milligan (1969). The licence area is interpreted as a west-northwest-north-northwest trending zone of high magnetic disturbance with steep gradient anomalies suggesting near-surface basement. This zone coincides with a minor gravity high (ridge).

In 1981 the N.T. Department of Mines and Energy completed an aeromagnetic survey over the Brahima 1:100,000 sheet at 500m. east-west line spacing and 100m terrain clearance. This covered the most northerly portion of E.L. 8093 in the Acacia Bore area (see Figure 2).
5.2 ROEBUCK EXPLORATION

5.2.1 Period to 6 June, 1995

Roebuck assessed four large magnetically anomalous areas by surface sampling and RAB drilling across sections covering them. This work was almost entirely based on the wide line spaced 1962 BMR survey. The exploration confirmed anomalous gold, base metals values and the general prospectivity of basement strata beneath cover.

A detailed aeromagnetic coverage was therefore warranted to define basement magnetic strata and structure to interpret specific exploration targets. A minimum survey along lines 500 metres apart at 100 metre ground clearance was recommended in 1994 and 1995.

5.2.2 Twelve Months to 6 June, 1996

Persistent attempts during the year to find a joint venture partner to assist in funding the aeromagnetic survey proposed for the 1995/96 year were unsuccessful and the survey was not carried out. Roebuck now proposes to fund the acquisition of the aeromagnetic data itself, having successfully completed, in May, 1996, a Rights Issue to raise in excess of $3 million.

6. REFERENCES


LEGEND

- Early-middle Proteozoic (Potentially mineralised)
- Cover rocks
- Roebuck tenements
- Mine

Metal occurrence: Au-Gold, Cu-Copper, Pb-Lead, Zn-Zinc

ROEBUCK RESOURCES N.L.

ARUNTA-TANAMI MINERAL TENEMENTS

LOCATION PLAN

Author: S.B.W. Date: October 1994