RANKINS, NORTHERN TERRITORY
EL 8164

FIRST RELINQUISHMENT REPORT
DECEMBER, 1995

Prepared for
Roebuck Resources NL
by
S. B. Warne

January, 1996

Technical Report No. 538
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DATA/9956/TR538, S. B. Warne, January 1996
SUMMARY

The Rankins Exploration Licence 8164 was granted to Roebuck Resources NL (80 percent) and Centralfield Minerals Pty Ltd (20 percent) on 15 December, 1993 for a period of six years.

This relinquishment report covers exploration completed on areas relinquished on the Second Anniversary of the licence on 14 December, 1995. The report records results of work at Rankins Prospect, a basemetal occurrence, located within Arunta basement strata toward the western end of the licence. No other work was done on the relinquished areas.
1. INTRODUCTION

The Rankin Exploration Licence 8164 was granted to Roebuck Resources NL (80 percent) and Centrefield Minerals Pty Ltd (20 percent) on 15 December 1993 for a period of six years. It is located 60 kilometres northeast of Alice Springs on the Laughlen 1:100,000 map sheet (Figure 1).

Access to the licence is by way of a graded road to the turn off to The Garden Station and thence south and west along a graded station track to the Winnecke Goldfield centred on the Golden Goose workings near Winnecke Well. This track continues west through the licence area to Sliding Rock Well and Gumtree Bore. Many old tracks to small prospects in the area have not been maintained.

The licence was secured to cover the Winnecke Goldfield and several volcanogenic base metal prospects within adjacent Arunta metamorphic basement rocks (Figure 2).

Work within the surrendered areas (Figure 3) was confined to sampling at the Rankins Prospect and the results are given in this report.

2. GEOLOGY

The licence lies in the southeast of the Strangways Range Region in the eastern portion of the Arunta Block. The regional geology of the Arunta Block is described in Shaw, 1990 and the geology of the Strangways Range Region in Shaw and Langworthy, 1990 (Op. cit.).

The area includes the western portion of the Arltunga Nappe Complex (Forman, 1971) a zone of basement nappes thrust southwards at low angles during the Carboniferous Alice Springs Orogeny. The thrusts are now marked by a zone of greenschist facies retrograde schists (Figure 4).

During thrusting basal Adelaidean Heavitree Quartzite and Bitter Springs Formation of the Amadeus Basin, formerly resting unconformably on Arunta metamorphic basement, were complexly infolded and infaulted within thrust planes.

All Winnecke gold occurrences lie within retrograde schist zones along the Nappe Complex between the southern projection of the Pinnacles Fault and the Woolanga Lineament, two deep seated fractures bounding the Yambah Block immediately northward. The gold occurs in auriferous pyrite bearing quartz veins considered to be hydrothermal concentrations from nearby sources deposited into fractures during late stages of the Alice Springs Orogeny (Shaw and Langworthy, 1984).

Base metal (Cu-Pb-Zn-Ag) prospects are all located in Arunta basement and are of two main types. The Rankin, Gecko and Gumtree prospects are stratabound, associated with magnesium rich rocks, and are of volcanogenic origin (Oonagalabi style-Warren, 1979). The Cu-Pb-Zn-Ag +Au prospects of the Winnecke area (Glankroil and Kenny's) are base metal sulphide bearing quartz lodes deposited in faults active during the Alice Springs Orogeny. Little is known of Turners Cu-Au prospect which is reported to occur in "amphibolitic coarse-grained ultramafic rock" (Shaw and Langworthy, 1984).
3. RANKINS PROSPECT

This prospect was pitted for secondary copper minerals prior to exploration carried out by Central Pacific Minerals NL from 1969-1973. It lies in rugged, low hill topography immediately south of the Sliding Rock Well-Gum Tree Bore track, an old, partly overgrown access track to the prospect turns off the Sliding Rock Well track a little over two kilometres west-southwest of Bald Hill Dam.

Copper stained gossan outcrops irregularly along ridge tops for more than 900 metres associated with quartz-magnetite, calc-silicates and chloritic schists which outline a partially disrupted S-shaped fold structure. Enclosing rocks are dominantly amphibolites and quartzo-felspathic gneisses.

A summary of geophysical surveys and results from three percussion drill holes completed by CPM are given in Figure 5. The CPM reports on this prospect were produced in summary form (Ivanac, 1971). Detailed drill logs and assay values were not presented and no geological map of the prospect is available.

Other irregularities of the CPM data appear to be:

(a) the geophysical interpretation appears to exclude the most intense magnetic response south of drill hole 17/5 and the interpreted trend of magnetic highs does not fit the contoured magnetometry. Drill hole 17/5 may not have tested the most significant magnetic response zone adequately.

(b) Drill hole 17/2 assay results appear low compared to surface values.

(c) Drill hole 17/4 appears to have missed the main, thickened, Zone "A" target. A large copper stained siliceous gossan due south of 17/4 was ignored.

(d) Geophysical targets "B", "C" and "D" were not tested.

(e) Drill hole samples appear to be assayed selectively. Intervals with pyrite-magnetite contents (e.g. up to 30%) appear not to have been assayed.

(f) Gold was apparently not assayed for, while values for silver, bismuth and antimony were quoted as being all below 15, 75 and 25 ppm respectively.

In 1985, Aurotech assayed a suite of samples from Rankins and reported values of 0.25 and 0.40 ppm gold in quartz-haematite rock (Stoker, 1986). Stoker also reported on the petrology of four of these samples:

(1) chlorite, actinolitic-hornblende, epidote rock
   - interpreted to replace former plagioclase-clinopyroxene rock: either igneous or a metamorphic skarn-related rock.

(2) weakly layered, (serpentiniferous) - chlorite, carbonate rock with discontinuous layers of magnetite, patches of tremolite.
   - interpreted as altered, meta, impure carbonate facies rich in iron (retrograde skarn?).
(3) chlorite-tremolite rock with crystals of garnet, apatite, sphene and magnetite.
- could be interpreted as a completely metasomatically altered gabbro but in context of other samples likely to represent an original Al-Mg-calc-silicate metamorphic rock (such as a contact metamorphosed pelitic-carbonate facies) with a hydrous alteration overprint, i.e. a retrograde skarn.

(4) massive pyroxene aggregate with crystals Fe rich spinel, fine magnetite
- interpreted as a contact metamorphosed argillaceous dolomite.

Piggott (1985a) reported on Rankin samples which assayed 0.1-0.4 ppm gold and significant bismuth values (most samples in the range 195-2540 ppm). A value of 650 ppm tungsten (W) was obtained from a Cu-Zn-Pb-Ag-Au bearing marble from the southern prospect area. Piggott pointed out that high bismuth ± tungsten contents are a feature of hydrothermally (including skarn) altered iron rich sediments of volcanogenic origin.

Roebuck sampling confirmed the general observations and samplings of Stoker and Piggott.

Assays indicated consistent gold (max. 520 ppb) and silver (max. 80 ppm) values from surface gossanous zones 8-10 metres in width. Arsenic content was negligible, being general below detection level. Molybdenum values were anomalous in most samples with a maximum of 42 ppm.

Sample logs and assays are given in the Appendix.

4. REFERENCES

FORMAN, D.J., 1971

GEDDE, R.W., 1969

IVANAC, J.F., 1971

PIGGOTT, G.F., 1984

PIGGOTT, G.G., 1985a
PIGGOTT, G.F., 1985b

SHAW, R.D., 1990

SHAW, R.D. & LANGWORTHY, 1984
1:100,000 geological map commentary, Strangways Range Region, N.T. B.M.R. Aust.

WARNE, S.B., 1994
APPENDIX

Sample Logs and Assays
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<th>SAMPLE NO.</th>
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LABORATORY REPORT

COMMENTS: ATTENTION: P ALLCHURCH/ S WARNE.....
COMMENTS: ROCK....

JOB INFORMATION
JOB CODE: 269.0/943733
NO. SAMPLES: 48
ELEMENTS: 15
CLIENT O/N: 0719
DATE RECEIVED: 01/07/94
DATE COMPLETED: 11/07/94

LEGEND
'X' = LESS THAN DETECTION LIMIT
'N/L' = SAMPLE NOT RECEIVED
'*' = RESULTS CHECKED
'(' )' = RESULTS STILL TO COME
'I/S' = INSUFFICIENT SAMPLE FOR ANALYSIS
'E6' = RESULT x 1,000,000
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ROEBUCK RESOURCES NL
EXPLORATION LICENCE 8164
"RANKINS"
NORTHERN TERRITORY
AREAS TO BE RELINQUISHED

December, 1995
Figure 3
Magnetic high trend and peak magnetic high not included in interpretation. (magnetite-actinolite rock reported in text)

Zone 'A': Narrow source <16m, corresponds with Cu gossans

ROEBUCK RESOURCES N.L.

RANKINS PROSPECT

(Adapted from Seigel Assoc. Interpretation of Geophysical Surveys for Central Pacific Minerals N.L., 1969)

Geologist: SBW Date: Aug. 1994 FIGURE 9