



NORMANDY
WOODCUTTERS LIMITED

103 - 105 King William Street, Kent Town 5067, South Australia, Australia
PO Box 751, Kent Town 5071, South Australia, Australia

ACN 000 828 535

Telephone +61 8 8464 2200
Facsimile +61 8 8464 2299

FINAL REPORT FOR
MINERAL CLAIMS N4498 – N4503
ACACIA AREA

NORTHERN TERRITORY

21/03/1994 TO 31/05/1999

VOLUME 1 OF 1

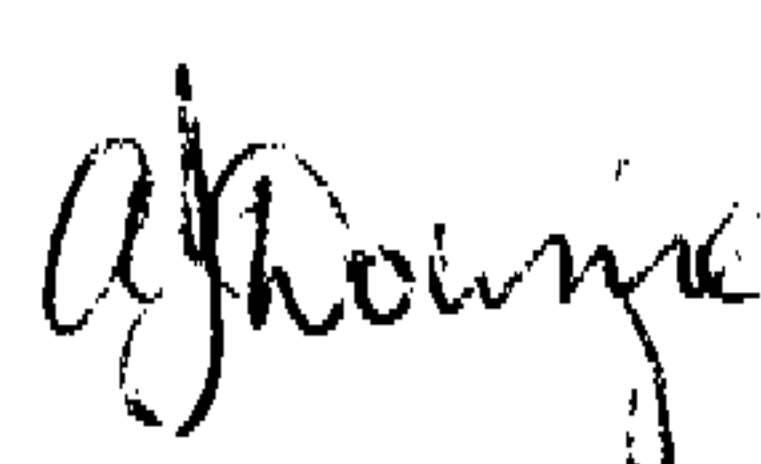
Project Name: Acacia South

Map Sheet: Darwin SD 52-04 1:250,000

Commodities: Copper, Lead, Zinc

Author: Kent Williams, L.A. Price

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Report No. 23978

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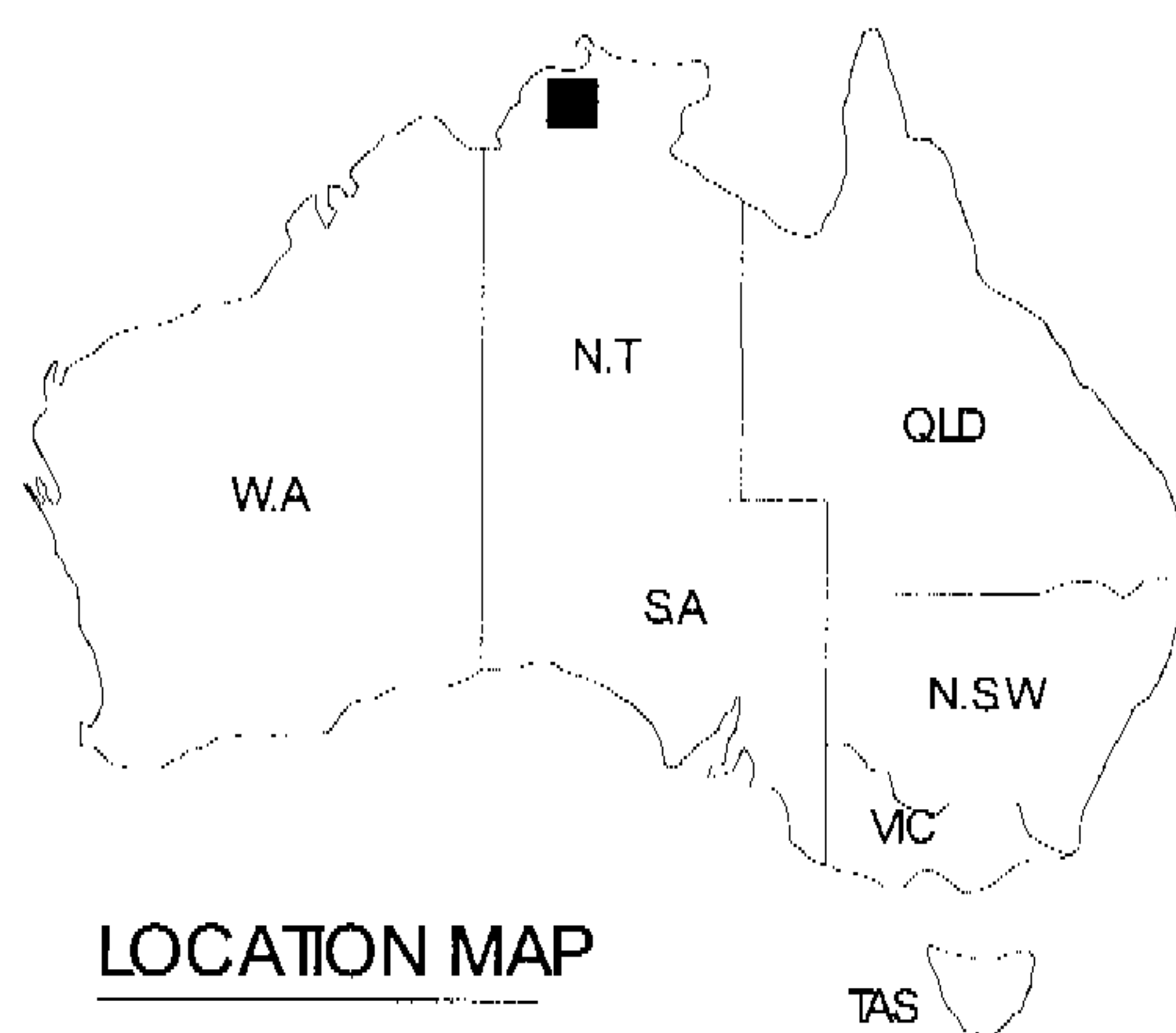
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Report Number: 23978

Title: Final Report for Mineral Claims N4498 – N4503 Acacia Area,
Northern Territory 21/03/1994 to 31/05/1999

Author: Kent Williams, L.A. Price

Date: November 1999



SUMMARY

Mineral Claims N4498 – N4503 were taken out over a strong north south trending Pb geochemical anomaly identified by BMR soil sampling and Geopeko auger “C” horizon sampling. This anomaly was originally located within EL 6431 and is referred to as the Acacia South Prospect.

Normandy Woodcutters carried out an extensive RAB drilling programme in the Acacia area which included the Mineral Claims. A self potential survey was conducted over Acacia South to define lithostratigraphic conductors within the Whites Formation.

Three BMR diamond holes were drilled and another 5 diamond holes were drilled by Normandy Woodcutters (formerly Nicron Resources).

The best intersection was 5m @ 0.64% Zn (including 1m @ 2% Zn). Structurally the area remains interesting as a major dyke filled N-S fault similar to Woodcutters Mine has been interpreted. Associated with the dyke are sub parallel carbonate filled fault breccias.

1. CONCLUSIONS

The relative position of mineralisation intersected by the reconnaissance diamond drill holes and the near surface mineralised zone suggests that the target zone may be west dipping.

Bedding above and below the apparently west dipping mineralised zone suggests that the zone is a thrust fault.

A west dipping thrust fault interpretation would indicate that the diamond drilling has not tested the favourable fault/dolomite unit intersection zone.

2. INTRODUCTION

Mineral Claims N4498 to N4503 were pegged in order to retain ground prospective for lead and zinc following a 50% reduction of Exploration Licence 6431. The area of interest is the northern extension of the Woodcutters structure, offset by the Giants Reef Fault.

With the closure of the Normandy Woodcutters Mine all exploration has ceased and MCN's 4498 to 4503 have been dropped. The aim of this Final Report is to summarise the work conducted during the life of the tenements.

3. LOCATION AND ACCESS

Mineral Claims N4498 – N4503 are located on the Manton Dam (5172-3) 1:50,000 sheet and centred approximately 55km south-south east of Darwin. The claims are adjacent to the Stuart Highway and Byers Road (See Figure 1).

4. TENURE

Exploration Licence 6431 was granted to Normandy Woodcutters (formerly Nicron Resources) on 4 September 1989. A 50% reduction took place in September 1992. The area retained after this reduction was originally pegged under Mineral Claim Applications Numbers 4441 – 4446. Objections from landowners were addressed and the area was later re-applied for under Mineral Claim Numbers 4498 – 4503.

The claims were granted on 21 March 1994 for a period of five years. They were renewed in 1998 for a further 2 years until 31/12/2000.

5. REGIONAL GEOLOGY

Mineral Claims N4498-N4503 lie on the north-eastern margin of the Archaean Rum Jungle and Waterhouse basement complexes. These are overlain by Lower Proterozoic clastic and dolomitic units of the Namoon Group, Crater Formation and Coomalie Dolomite; shales and calcareous shales of the Whites Formation and shales with interbedded quartzite of the Wildman Siltstone.

Uranium and base metal mineralisation at Rum Jungle and Woodcutters is concentrated in structural zones in the lower Whites Formation just above the Coomalie Dolomite. Gold mineralisation at Sundance, Batchelor, is within palaeokarst collapse breccias above the contact of the Coomalie Dolomite and Whites Formation.

The structure of the area is dominated by an early phase of N-S trending open folds and strike slip faulting consistent with extensional basinal development. A major arcuate fault/thrust has been identified in the western portion of the licence from interpretation of aeromagnetic and radiometric data. The structures have been subsequently offset by a later phase of NE-SW trending structures, dominated by the Giants Reef Fault.

6. LOCAL GEOLOGY

Outcrop occurrence throughout the area is poor, being restricted to low ridges of quartz conglomerates of the Crater formation, isolated rises of ferruginised and/or silicified Coomalie Dolomite and occasional resistant ridges of grey dolomitic argillite of the Whites Formation. Haematitic sandstones and well bedded quartzites of the Wildman siltstone outcrop as resistant ridges to the west of the area.

Extensive Cainozoic sediments comprising alluvial sands, silts, clays and black soil plains cover the majority of the area. Patchy laterite duricrust development occurs on topographic highs, along with isolated outcrops of Depot Creek Sandstone, further obscuring "bedrock" geology.

Crater Formation

The Crater Formation comprises dark brown cross bedded quartz rich metal conglomerate and grits outcropping in the west representing the lowermost exposed lithologies in the core of the regional anticline that trends NNE through the area.

The lithologies exhibit a strong NNE (axial planar) foliation and are mapped as dipping both steeply east and west.

Coomalie Dolomite

Due to intensive karsification and deep weathering, the Coomalie Dolomite is very poorly exposed. The bulk of interpreted subcrop occupying areas of low relief are covered by alluvial (and residual ?) sands and clays, with areas of higher relief having sparse outcrops of pink massive sandstones interpreted as Depot Creek Sandstones of the Tolmer Group. Billabongs which occur in low lying areas are interpreted as sink holes due to dissolution of the bedrock.

Outcrop is invariably restricted to isolated low hills and short ridges of intensely ferruginised, gossanous coarse grained haematite-quartz-breccia closely associated with discontinuous lenses (boudins ?) of light grey silicified saccharoidal Dolomite. This horizon is interpreted to be close to the Coomalie/Whites Formation contact, and so is useful marker "bed". Quartz and dolomite fragments within the gossanous, cavitated matrix varies from 0.5cm – 50cm, are very angular and exhibit chaotic brecciation textures.

Whites Formation

The Whites Formation underlies the majority of the area held under Mineral Claim applications, but is very poorly outcropping. This formation is mostly understood from diamond drilling.

7. WORK CARRIED OUT DURING THE REPORT PERIOD

7.1 Exploration Licence 6431

Exploration completed on EL 6431 from 4 September 1989 to 31 May 1999 is summarised as follows:

7.1.1 Year One

- Literature research, including the compilation/collation of geological, geochemical and geophysical data.
- Twelve rock chip samples were collected and analysed for Au (all samples) Cu, Pb, Zn, and As (5 samples). Highly anomalous Au (1.58 ppm max) and As (1100 ppm max) values were recorded but base metals were background only.

Details can be found in Butler, 1990 (CR 24321)

7.1.2 Year Two

- Geological mapping
- A detailed BLEG sampling programme consisting of 27 x 5kg – 2mm samples with a maximum of 10.6 ppb Au.
- Fourteen rock chip samples gave a maximum value of 1.59 g/t Au from a suite of 1-5 metre wide variably gossanous quartz veins

Details can be found in Pevely, 1991 (CR 24322).

7.1.3 Year Three

- A detailed aerial magnetic and radiometric survey covered the entire EL and in conjunction with geological mapping enabled the compilation of an interpreted geological map.
- A detailed SP survey was carried out over Acacia South lead geochemical anomaly in order to define lithostratigraphic conductors within the Whites Formation.
- 191 RAB holes were drilled to obtain "C" horizon samples from Acacia North, Acacia Central and Acacia South. Bottom hole samples were assayed for Au, Cu, Pb, Zn, Co and As except in Acacia South where samples were only assayed for Cu, Pb and Zn. Acacia North and South drilling confirmed the location of BMR/Geopeko anomalies and closed them off. Results from Acacia Central drilling (to evaluate base metal potential) were disappointing with maximum values of 148 ppm Pb, 465 ppm Zn and 128 ppm Cu.
- Diamond drilling at the most prospective lead anomaly (Acacia South) enabled the compilation of a reasonably consistent stratigraphy and helped determine the most likely source of the geochemical anomaly.

Details of the geophysical and geochemical surveys can be found in Ormsby, 1992 (CR 24323)

7.1.4 Year Four

- RAB drilling at Manton obtained some encouraging results eg 4680 ppm Pb and 2070 ppm Zn from sample 561037 and 210 ppm Cu from sample 561553.
- 42 RAB holes were drilled at Acacia North with bottom hole samples tested for Cu, Pb, Zn, As and Au. The Cu, Pb, and Zn results were all low but As values of up to 1000 ppm and some low level Au anomalies (up to 40 ppb) were obtained from the eastern ends of both RAB lines.
- 18 RAB holes were drilled in the Acacia Dome, returning low Cu, Pb, Zn and As values but anomalous Au (0.015 ppm) was obtained from sample 564494.
- 10 RAB holes were drilled as part of the regional magnesite exploration programme but no magnesite was intersected.

Details can be found in Ormsby, 1993 (CR 24324)

7.1.5 Year Five

- Work was directed at gold exploration in the Acacia North area with 159 RAB holes drilled for a total of 1811m and bottom hole and quartz vein bearing materials were collected and assayed for Au, Cu, Pb, Zn, As, Ni and Co. Some anomalous Au (645 ppb) was recorded from one sample with elevated Au and As surrounding this area.

Details can be found in Butler, 1994 (CR 13537)

7.1.6 Year Six

- Follow up RAB drilling (62 holes) was conducted at Acacia North with bottom hole samples assayed for Au, Cu, Pb, Zn, As, Ni and Co. Highly anomalous Au values were reported including 4 samples over 1.0 g/t.
- 64 -40 mesh samples were collected over the Acacia North prospect, which defined a low level Au anomaly.
- 23 rock chip samples returned values of up to 4.70 g/t Au and 1570 ppm As.
- 9 costeans spaced 100m apart were excavated to assess the Au and As anomalies defined by RAB drilling. Significant intersections include:

| | |
|----------------|------------------|
| Costean 10200N | 6m @ 1.17 g/t Au |
| Costean 10000N | 4m @ 1.68 g/t Au |
| Costean 9900N | 2m @ 7.89 g/t Au |
| Costean 9800N | 1m @ 1.86 g/t Au |

- 25 RC drill holes over the anomalous RAB and costean areas all intersected Au with the best intersections along section 10100N including:

ANRC 005 3m @ 1.1 g/t Au from 7m
ANRC 006 6m @ 6.4 g/t Au from 31m
ANRC 007 10m @ 4.3 g/t Au from 15m

Details can be found in Berthelsen, 1995 (CR 19949)

7.1.7 Year Seven

- 44 RAB holes were drilled over Acacia North to test the southern strike extent but Au values were generally low.
- An IP/resistivity survey was conducted over the most prospective area of Acacia North and a high chargeability target was identified within the dolerite.
- 2 RC and 1 diamond holes were drilled to test the high chargeability target identified by the IP/resistivity survey but results were disappointing and found to be associated with pyritic, graphitic and carbonaceous mudstones.
- Pulps from previously drilled RC holes were analysed for whole rock geochemistry to help determine the mineral alteration assemblages in the dolerite.

Details of geophysical and geochemical surveys can be found in Williams, 1996 (CR 20898).

7.1.8 Year Eight and Nine

- No work conducted

Butler, I.K., 1990. Annual Report for EL 6431 – Year One, Acacia Gap Area. Unpublished Company Report for Woodcutters Joint Venture **CR 24321**.

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Taylor, K., 1998. Annual Report for EL 6431 – Year Nine, Acacia Gap Area NT. 04/09/97 – 03/09/98.

7.2 Mineral Claims N4498 – N4503

Mineral Claims N4498 – N4503 were taken out to cover the relinquished portion of EL 6431 following a statutory 50% reduction. For exploration purposes the area continued to be explored as a single entity and most of the work completed has been referred to in the summary of work carried out over EL 6431.

7.2.1 Data Capture

(Williams, 1998)

All data has been digitally captured, including original BMR and Geopeko data. Following on from this work an area of interest has been identified immediately to the south of the MCN's.

The prospect was examined in the field in August 1988 in order to determine its economic potential and rehabilitation requirements. The 700m long zone of anomalous PB defined largely by the soil sampling does apparently not outcrop. To the north it corresponds to a topographical depression within low hills; to the south it is concealed below extensive soil and alluvium.

7.2.2 Discussion of Results

Figure 2 shows the location of the diamond drill holes (previous BMR and Normandy holes) in relation to the zone of anomalous PB in the Mineral Claims (refer to drill section plans in Ormsby 1992). The Pb target zone has been drill tested over a strike length of approximately 500m by 5 diamond drill holes (ASD1A-5A). The holes were designed to test the intersection of a major fault (Woodcutters Fault equivalent) and a thick dolomite unit within the Whites Formation at approximately 300m below surface.

Section 9900N – Drill Hole ASD1A – BMR 69-3

The previously interpreted fault zone intersected by hole ASD1A at approximately 500 RL may represent a steeply west dipping reverse fault if it correlates with the Pb geochem zone at approximately 10125E. BMR hole 69-3 has not tested the target zone. This indicates that north ASD1A the 200m long north end of the target zone remains undrilled.

Section 9850N – Drill Hole ASD3A

If the zone of trace galena and sphalerite carbonate veinlets between 197-243m correlates with the surface Pb geochem zone then that target zone will dip to the west. Bedding trends suggest flattening of dip above and below the mineralised zone, reminiscent of a hanging wall anticline and footwall syncline. Such an interpretation suggests the mineralised zone is a steeply west dipping thrust.

Section 9700N – Drill Holes ASD2a and BMR 68-8

The narrow zone of sphalerite carbonate veinlets within hole ASD2A at approximately 260m may correlate with the Pb surface geochem zone, supporting a steep west dip interpretation for the target zone. Folding above the zone can be interpreted as a hanging wall anticline above a thrust.

Section 9600N – Drill Hole ASD4A

If the interpretation of the target zone dipping to the west is correct, then drill hole ASD4A will not have tested the target.

Section 9450N – Drill Holes ASD5A and BMR 68-9

The intersection of a relatively wide zone of galena and sphalerite carbonate veinlets in hole ASD5A from 168-210m, combined with the presence of similar veinlets in hole 68-9 supports a west dipping target zone interpretation. South of drill hole ASD5A the target zone remains open. Field reconnaissance in this area shows that there is no outcrop.

If the west dipping thrust fault interpretation is correct, then the target zone:

- remains open at depth on Section 6450N
- is untested on Section 9600N
- is open above and below hole ASD3A on Section 9850N
- is open above hole ASD1A

The most favourable position for an orebody would be within a hanging wall anticline hosted by thick dolomite unit. Such a position remains untested by previous drilling.

There would appear to be little potential for base metal orebody relatively near surface within the target zone.

8. ENVIRONMENTAL DISTURBANCE AND REHABILITATION

Drill hole collars were found to have been capped with PVC caps. These will have to be cut off below ground level and plugged in accordance with Department of Mines and Energy requirements. The 1000E base line is marked by steel star pickets from the original Geopeko grid and occasional steel drippers were found defining the cross lines. The private land holder, Mr Reg Wilson, has requested the removal of the steel droppers.

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BIBLIOGRAPHIC DATA SHEET

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|----------------------|---|
| REPORT NUMBER | 23978 |
| REPORT TITLE | Final Report on Mineral Claims N4498-N4503, Acacia Area, Northern Territory 21/03/94 to 31/05/99. |
| PROJECT NAME | Acacia South |
| TENEMENT NUMBERS | MCN's N4498 – N4508 |
| OWNER/JV PARTNERS | Normandy Woodcutters Ltd |
| COMMODITIES | Copper, Lead, Zinc |
| TECTONIC UNITS | Pine Creek Geosyncline |
| STRATIGRAPHIC UNITS | Whites Formation Coomalie Dolomite Crater Formation |
| 1:250,000 MAP SHEET | Darwin SD 52-04 |
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