ANNUAL REPORT FOR YEAR ONE
EXPLORATION LICENCE 7064
LLOYDS CREEK/ACACIA GAP PROJECT

28 FEBRUARY 1991 TO 27 FEBRUARY 1992

BY

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MINING GEOLOGY

OF

EUPENE EXPLORATION ENTERPRISES PTY LTD

FOR

AZTEC MINING COMPANY LIMITED

CR92/189

Darwin SD52-04
Noonamah 5172

DARWIN, NT
March, 1992
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SUMMARY

Exploration Licence 7034 covers an area of Mt Partridge Group sediments with small outcrops of South Alligator Group sediments displaced to the east by movement of the Giants Reef Fault. Most of the Licence area is covered by Tertiary sandy and clayey soils and recent alluvium.

No known mining activity or mineralisation has been recorded in this region.

Previous exploration efforts in the area by BMR, Geopeko, Urangesellschaft, Pan D'Or Mining, Mineral Resource Group and Newmont have all covered portions of EL 6919. Exploration has targeted gold, uranium and base metal mineralisation.

Newmont conducted a detailed BLEG stream sediment survey aimed at assessing the potential of the licence. One anomalous area was identified but follow up work failed to identify the source.

Work was carried out during the first year of tenure by Aztec Mining Co. Work consisted of an extensive literature search, BLEG and -40# stream sediment sampling, rockchipping and an airborne magnetic and radiometric survey over part of the licence.

The -40# stream sediment sampling identified one low level Zn-Cu anomaly in the northwest corner of the licence.

Results for the airborne magnetic and radiometric survey are currently being processed.
1. INTRODUCTION

Exploration Licence 7064 is located on the Noonamah (5172) 1:100 000 sheet and is centred approximately 45 km south east of Darwin (Figure 1). Access is gained via the Stuart Highway and numerous rural roads and tracks.

The licence is considered prospective for base metal mineralisation and to a lesser extent gold mineralisation.

The aim of this report is to discuss the work conducted in the first year of tenure, present results and propose a work programme with estimated expenditure for Year Two.
2. CONCLUSIONS

1) Previous exploration efforts failed to evaluate the base metal potential of the licence area.

2) A BLEG stream sediment anomaly generated by Newmont Australia was not fully investigated

3) One low level Zn (53ppm max.) - Cu (29ppm max.) stream sediment anomaly has been identified in the north west corner of the licence.

4) Further -40# stream sediment sampling is needed to fully assess the base metal potential of the licence area.
3. TENURE

Exploration Licence 7064 comprises 21 graticular blocks (approximately 63 square kilometres) and was granted to Nicron Resources Limited (100%) on the 28th February 1991 for a period of six years. Exploration is managed by Aztec Mining Company Limited, the operators of the Woodcutters Ag-Pb-Zn mine 80 km south of Darwin, N.T. and owners of 80% of Nicron Resources Limited.
4. PREVIOUS EXPLORATION

1988 - 1990  
Newmont Australia (EL 6074)  
CR89/738  
CR90/248  

Sixty four, 5 kg BLEG samples taken from drainages covering EL 7064 identified one anomalous result (2.43 ppb Au) which was repeated at a lower level (2.28 ppb Au). The stream originated from a limited catchment adjacent to abundant large regional quartz veins. 12 outcrop samples were taken from the area but no significant results were recorded.

1981 - 1983  
Mineral Resources Group (EL 2267)  
CR82/210  
CR83/264 A-B  

EL 2267 covers the western side of the current EL 7064. With a view to evaluating the mineral potential of the exploration licences brief field visits followed by an airborne INPUT and electromagnetic survey were conducted to provide additional geological and structural information. Due to a failure to find a joint venture partner all EL's held by the Mineral Resources Group were relinquished.

1981 - 1982  
Pan D'or Mining (EL 2099)  
CR82/353  

Exploration Licence 2099 covered the eastern most three blocks of the present EL 7064. Ground reconnaissance for uranium mineralisation resulted in the discovery of no significant occurrences. Radioactivity levels and occasional rock chip samples also returned no anomalous results.

1980 - 1982  
Urangesellschaft Australia (EL 2007)  
CR82/161  
CR83/006 A-B  

EL 2007 covered most of the present EL 7064 and extended south. In the first year of investigation 1:250 000 scale mapping and a regional gravity survey were conducted over the licence area. Rock chipping and soil sampling returned two anomalous cobalt assays (225 and 519 ppm) and one anomalous zinc assay (100 ppm plus). One 73.06 metre diamond drill hole was drilled nearby
Donald's Lagoon to test for Coomalie Dolomite.

The second year of investigation involved determining the accurate location of the Giants Reef Fault and determining favourable Rum Jungle type lithologies. A further 17 rock chip samples confirmed the existence of elevated cobalt and zinc values in the dolomite and elevated uranium in ferruginous dolomite. Small radiometric and gravity surveys were conducted and a further 8 RC holes were drilled. Drilling failed to intersect prospective lithologies and the licence was relinquished in November, 1982.

1974 - 1978
Geopeko Limited (EL 384)  
CR77/126  
CR78/090

Geopeko's exploration was based on BMR geochemical anomalies L1, L2, L3, L4 and Co1. A portion of the L4 anomaly lies within the present boundaries of EL 7064. Geological mapping and C-horizon geochemical auger drilling was carried out over the anomaly. Samples were analysed for Cu, Pb and Zn resulting in geochemical trends which follow the trends expressed by outcrop. Some of the Cu and Pb anomalies appear to be associated with quartz reefs following local strike. Investigations by Geopeko were reported as being essentially negative and the EL was surrendered in February, 1978.

1967
Bureau of Mineral Resources  
Semple D.G., 1967  
BMR Record 1968/8

A reconnaissance geological, geochemical and radiometric investigation of the Acacia Area, Northern Territory, was carried out in 1967 by the BMR. Geochemical sampling outlined four areas of anomalous lead values (L1 to L4), one zinc anomaly (Z1), one cobalt anomaly (Co1) and two low valued copper anomalies (C1 and C2). No significant radiometric anomalies were outlined. Anomalies L4 and Z1 lie within the southern portion of the present EL 7064.
5. EXPLORATION PROGRAMME

Work conducted during the first year of tenure included literature research, BLEG and -40# stream sediment sampling, reconnaissance rock chip sampling and a detailed low level airborne magnetic and radiometric survey.

Rock chip sampling:
Three rock chip samples were collected and sent to Classic Laboratories in Darwin for analysis for Au (Fine Assay), Cu, Pb, Zn (AAS) and As (hydride generation), but no anomalous results were recorded (see Enclosure 1 of sample locations and Appendix 1 for assay results).

BLEG (Bulk Leach Extractable Gold) Stream Sediment Sampling:
Four, 5 kilogram BLEG samples were collected from drainages with catchment areas of three square kilometres or less and sieved to a -2mm size fraction. The samples were sent to Classic Laboratories in Darwin for analysis for gold by a 24 hour bottle roll method. (See Enclosure 1 for sample locations and Appendix 2 for sample results).

-40# Stream Sediment Sampling:
The -40# stream sediment sampling programme was planned to cover all drainages within the licence area.

Thirty six -40# stream sediment samples were collected from drainages within the exploration licence. Samples weighing an average of 200 - 300 grams were collected every 300 m along stream beds where possible. Samples were sent to Classic Laboratories in Darwin for analysis for Au (1ppb detection limit, Fine Assay collection, graphite furnace AAS), Cu, Pb, Zn, (AAS) and As (XRF) (see Enclosure 1 for sample locations and Table 3 for assay results).

One low level Zn (53 ppm max) - Cu (29 ppm max) anomaly was identified from the limited sampling programme. This anomaly is situated in the north-west corner of the licence area. It is the southern extension of an anomaly identified in an adjoining exploration licence.
A detailed low level airborne magnetic and radiometric survey was flown over the south-west portion of this licence and over other licences held by Aztec Mining Company Limited, in the area. The survey was flown with 50 metre line spacing at a height of 60 metres.

Results from this survey are currently being processed and will be reported in the Annual Report for Year Two.
6. GEOLOGY

Exploration Licence 7064 covers an area of Mt Partridge Group sediments, overlain for most of the licence area by Tertiary sandy and clayey soil and recent alluvium.

Calcareous and carbonaceous argillites of Whites Formation crop out as low hills to the south-west of the licence.

Wildman Siltstone forms low rubbly rises in the centre and east of the licence. Rocks include well cleaved laminated siltstones and shales, and fine grained quartz sandstones.

Acacia Gap Quartzite forms prominent north-south trending ridges of medium to coarse grained pyritic grey quartzite.

Post-orogenic faulting occurred in the Middle Proterozoic. Two major faults intersect immediately south of the licence. The Giants Reef Fault is a dextral strike slip fault trending northeasterly. It does not crop out in the licence area but has been detected by a ground magnetic survey (Pearson, 1982).

In the eastern portion of the licence outcrops of siltstones and shales the Koolpin and Mount Bonnie Formations have been mapped (Crick, 1983). These have been faulted against the Mount Partridge Group sediments by the Giants Reef Fault.
7. EXPENDITURE DURING YEAR ONE

Overall expenditure on Licence 7064, for Year One is as follows:-

- Geological Consultants: $6,936
- Field Assistant: $820
- Vehicle hire: $907
- Drafting: $945
- Consumables, maps, photocopying: $665
- Sample Analysis: $2,608
- Airborne magnetic and radiometric survey: $3,000
- Administration (15%): $2,382

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$18,263
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The Expenditure Covenant for Year One of tenure was $20,000.
8. PROPOSED WORK PROGRAMME AND BUDGET - YEAR TWO

The proposed work programme for Year Two is as follows:-

1. Completion of detailed -40# stream sediment sampling programme.

2. Image processing and interpretation of acromagnetic and radiometric data.

3. Follow up Zn-Cu anomaly and other anomalies generated from -40# stream sediment sampling with mapping and rock chipping.

4. Follow up Au anomaly generated by Newmont Australia with further BLEG stream sediment sampling, rock chipping and soil sampling.

5. Soil sampling with the possible use of auger drilling if follow up work is encouraging.

6. Costeasing if soil sampling is encouraging.

The estimated expenditure for this programme is $10,000.
9. REFERENCES

Newmont Australia, 1989, First Annual Report, Mt Daly, Northern Territory Department of Mines and Energy Library CR89/738

Wall, R., 1990, Final Report EL 6074. Mt Daly, N.T. Darwin, 1:250,000 sheet, Newmont Australia Limited, Northern Territory Department of Mines and Energy Library CR90/248


Pearson, J.S., 1982, Annual and Final Report to 21/10/82 (surrender date) EL2007 Mt Daly Prospect 831, Urangesellschaft Australia Pty Ltd., Northern Territory Department of Mines and Energy Library 83/006A-B.

Twist, R.F., 1977, Report on areas retained within EL6384 as of 8/7/77, Geopeko Limited, Northern Territory Department of Mines and Energy Library, CR77/126A-C


APPENDIX I

ANALYTICAL RESULTS

ROCK CHIP SAMPLES
# Rock Chip Samples

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APPENDIX II

ANALYTICAL RESULTS

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APPENDIX III

ANALYTICAL RESULTS

-40# STREAM SEDIMENT SAMPLES
## 40# STREAM SEDIMENT SAMPLE RESULTS

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