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FINAL REPORT

MACQUARIE EL 31/83

TASMANIA

AMG REFERENCE POINTS ADDED

964002



Cyprus Minerals Australia Company

PART PROJECT A-84-111

FINAL REPORT

MACQUARIE EL 31/83

TASMANIA

P JONES
CONSULTANT TO CYPRUS MINERALS

NOVEMBER 1986

REPORT 505

CYPRUS

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SUMMARY AND CONCLUSIONS

It is recommended Cyprus relinquish title to Macquarie EL 31/83. No field work was undertaken during the period as EZ, Cyprus' joint venture partner, withdrew from the venture. A substitute partner was sought to commence further exploration, however none was forthcoming and management decided to cancel the licence tenure.

RECOMMENDATIONS

It is recommended Cyprus relinquish the title to EL 31/83 prior to its renewal date.

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EXPLORATION TARGET

The tenement was staked to cover prospective Gordon Limestone sequences west of those occurring on Cyprus' Governor River EL. The carbonate sequence was considered to have potential for hosting an Irish style or carbonate/shale hosted lead-zinc deposit.

There is subordinate potential for base metal and gold deposits being associated with the Cambrian Mount Read calc-alkaline volcanic suite in the Clark River area and for gold within veined Siluro-Ordovician sediments in the Rinadeena area.

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DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Cyprus Minerals Australia Company applied for a 157 square kilometer exploration licence (EL 31/83) embracing potential host rocks for Irish style lead-zinc mineralization. The licence was granted to Cyprus for a period of 12 months from October 1983.

A further 12 square kilometers covering the Mt Sorell area was granted to Cyprus and incorporated into the existing licence bringing the total area to 169 square kilometers. A description of the property is as follows:

Commencing at a south west angle whose grid co-ordinates are 376000mE, 5312900mN thence grid north to 5320000mN, grid west to 370000mE, grid north to 5328000mN, grid east to 375000mE, grid north to 5332050mN, thence grid east to 378000mE, thence grid south 5320000mN, grid east to 380000mE, grid south 5314000mN, grid east 386000mE, grid

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south to 5304000mN thence grid west to 379300mE, thence in a generally north westerly direction to the point of commencement.

The tenement was immediately incorporated into the existing Cyprus (formerly Amoco) EZ joint venture and was explored concurrently with both the Governor and Princess River licences.

EZ managed the exploration programs which were conducted during 1984 and 1985. EZ withdrew from the joint venture late in 1985 to concentrate their activities on EL 4/78 (Zeehan).

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LOCATION AND ACCESS

The Macquarie exploration licence lies approximately 10 kilometers southeast of the township of Strahan, southwest Tasmania. It extends as far south as Kelly Basin and is roughly centered on Mount Sorell.

Access within the tenement is extremely poor with only limited access being gained by the use of the defunct Abt railway line as well as the defunct North Lyell railway into Kelly Basin. The remaining area is only reached using helicopter support.

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5 cm
AMG REFERENCE POINTS ADDED

Hoamskirk Granite

ZEEHAN

E.L. 4/78 (Zeehan)

E.L. 32/83 (Princess)

QUEENSTOWN

AMG 362050 E,
5329380 N

OCEAN

STRAHAN

Riadeanu Aeromagnetic Anomaly

Tofft River

Princess River Basin

Bubs Hill

Nelson River

Governor River
E.L. 30/83 (1) (Governor)

King River

Swift Creek

E.L. 31/83
(Macquarie)

E.L.A. 52/83
(Owen)

E.L.A. 10/84
(Mt. Sorell)

South Darwin Peak Δ

MACQUARIE

HARBOUR

Clark River

Nora River

Hazell Creek

E.L. 30/83 (2) (Governor)

Bird River

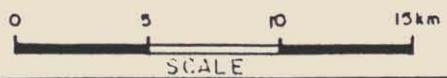
Spence River

AMG 385750 E,
5300900 N

SOUTHERN



- FAULT
- GORDON LIMESTONE
- MT. READ VOLCANICS



PROJECT GORDON LIMESTONE J.V.	
LOCATIONS	
Compiled S.T.	Date
Drawn R.J.R.	Scale
Fig. 1	

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HISTORY AND PREVIOUS EXPLORATION

No reports of any previous exploration of old workings or of any base metal mineralization have been sighted. It is certain the area has been closely examined by prospectors in the past.

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REGIONAL GEOLOGY AND MINERALIZATION

The regional geological setting is related to Paleozoic volcanic and sedimentary processes in a linear trough (the Dundas Trough) along the western margin of the Precambrian Tyennan nucleus composed of metamorphosed siltstones and quartzites. Early Cambrian sedimentation includes sandstone, shale and carbonates (Success Creek Group) followed by mudstones, greywacke and basic volcanics (Crimson Creek Formation) and in the middle to late Cambrian mudstones, conglomerate and minor volcanics of the Dundas Group. The associated calc-alkaline Mount Read Volcanics developed on the shallow water eastern margin of the trough sediments adjacent to the Precambrian nucleus. The volcanics interfinger with or are faulted against the Cambrian sediments (Upper Dundas Group) to the west and are composed of rhyolite, dacite, intermediate rocks and basalt in the form of lava flows, breccias, tuffs and plugs.

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Sedimentation continued in the late Cambrian to Ordovician with deposition of siliceous sands and gravels (Owen Conglomerate) then shallow water limestones and shales (Gordon Limestone) with associated lead-zinc mineralization. In the Silurian and Devonian sandstones and siltstones of the Eldon Group were deposited.

Folding and faulting of the above sequences and post tectonic granitoid intrusives occurred during the mid Devonian Tabberabberan Orogeny.

All known metal mines and prospects in the region occur in late Precambrian to late Devonian rocks. Base metal and gold production is dominated by the Mount Lyell, Rosebery and Que River mines (Table 1).

TABLE 1 BASE METAL AND GOLD PRODUCTION - TASMANIA WEST COAST

Mine	Gross Reserves (million tonnes)	Grade
Rosebery	18.4	5.6% Pb, 18.2% Zn, 0.7% Cu, 187 g/t Ag, 3.4 g/t Au
Mt Lyell	147	1.5% Cu, 8 g/t Ag, 0.4 g/t Au
Que River	6	7% Pb, 12.5% Zn, 0.4% Cu, 171 g/t Ag, 3.5 g/t Au
Hellyer	W? 25+	7% Pb, 14.0% Zn, 0.3% Cu, 180 g/t Ag, 2.5 g/t Au

These are volcanogenic massive sulfide deposits hosted by the central parts of the Cambrian Mount Read Volcanics, a sequence of felsic breccias, tuffs and lavas with minor siltstone. The deposits are characterized by large tonnage and area and are finely layered with generally high zinc-copper ratios. Typical mineral assemblage is pyrite, sphalerite, galena and chalcopyrite with silica and barite gangue minerals.

WORK CONDUCTED BY CYPRUS

As managers of the joint venture EZ conducted regional surveys over six main areas during the 1983-84 and 1984-85 summer periods.

The exploration philosophy was to establish the lead-zinc potential of the Ordovician limestones and clastic rocks in the areas of Swift Creek and the Bird and Nora Rivers (Figure 1). Unmapped altered Cambrian acid volcanics were located during these surveys in the Clark River and Hazel Creek areas necessitating additional surveys to assess the volcanic massive sulfide (VMS) and gold potential (Figure 1). Two aeromagnetic responses delineated near Rinadeena (Mines Department aeromagnetic data 1981) were also field checked for possible gold mineralization within the Silro-Devonian sediment sequence (Figure 1).

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The following is a brief summary of work conducted on these prospects. A detailed account can be found in EZ reports T184 Progress Report on Exploration Activity October 1, 1983 to March 30, 1984, Swift Creek EL 31/83; T185 Progress Report on Exploration Activity October 1, 1983 to March 30, 1984, Hazel Creek EL 31/83; T186 Progress Report on Activities October 1, 1983 to March 30, 1984, Nora River EL 31/83; T206 Report on Exploration Activity October 1984 to June 1985, Bird River EL 31/83; T207 Report on Exploration Activity October 1984 to June 1985, Rinadeena Area EL 31/83; and T208 Report on Exploration Activity October 1984 to June 1985, Clark River EL 31/83.

Limestone Areas (Swift Creek, Nora River, Bird River)

Reconnaissance rockchip, stream sediment (including panned concentrates) and geological mapping surveys were undertaken. Field work was slow and tedious with helicopter support being necessary in all areas. Foot tracks and helipads were cut prior to exploration activities.

Rock and stream sediment samples were analyzed for copper, lead, zinc, silver, iron, manganese and barium by Analabs of Burnie using AAS techniques.

The majority of panned concentrates were submitted for heavy mineral identification and rock samples were described in thin section.

Swift Creek Results (1983-84)

Base metal and barium results from the stream sediments were generally low with minor possible low order lead and zinc values occurring in the northeast. These values were not followed-up.

None of the rockchips returned distinctly anomalous values.

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The panned concentrate descriptions suggest sources of the heavy minerals to be:

- . Owen conglomerate
- . Tertiary sediments
- . possible basic igneous rocks
- . recent surficial deposits

Sulfide mineralization was noted in two areas:

- 1 along the faulted southwest portion of the limestone
- 2 pyrite in black pyritic siltstone along the eastern limestone boundary

No base metal mineralization was observed. No indications of synsedimentary tectonism were noted and no further investigations were recommended.

Nora River (1983-84, 1984-85)

Slightly anomalous lead values were obtained draining a major fault zone. Three anomalous values were also returned from rockchip sampling surveys - from a calcareous breccia, a siltstone and a dolomitic limestone none of which shows visible mineralization. A number of elevated base metal values were also returned from puggy clays and limonitic spring deposits (ground water effects) and common pyrite and marcasite were also found in the puggy clays. No mineralization has been detected in the narrow (150-200 meters) belt of calcareous rocks on the Nora River side of the major north/south sinistral fault - Bird River Fault. However on the Kelly Basin side of the fault minor galena-sphalerite mineralization occurred in an intensely veined limestone. Because of the favorable geologic environment and anomalous geochemistry further exploration was recommended for 1984-85.

Initially air photo interpretation studies were conducted to locate limestone close to the Bird River Fault. Additional stream

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sediment and rockchip surveys were also undertaken in conjunction with geological mapping surveys. The mapping showed the limestone to contain a high clastic component. Some dolomitization, tectonic brecciation and very minor veinlet hosted lead-zinc mineralization were observed adjacent to the Bird River Fault.

Very weakly elevated lead and/or zinc values reported from the stream and rockchip sampling surveys did not appear to warrant further follow-up. No further work was recommended for the area.

Volcanic Areas (Hazel Creek, Clark River)

Initial reconnaissance surveys during 1983-84 delineated a sequence of altered intermediate to acid volcanics and volcanoclastic sediments in an area previously mapped as Gordon Limestone.

Two discrete 50 nT circular magnetic responses also lie in close proximity to the volcanic suite although previously thought by Corbett to lie with carbonates.

Surveys during 1984-85 included reconnaissance stream sediment, rockchip and geological mapping surveys. An air photo interpretation study was undertaken to assist in delineating the volcanic sequence. Track and helipad cutting was conducted prior to ground surveys. Results from both the stream sediment and rockchip sampling surveys proved disappointing with only minor weak gold values being recorded indicating a source in the headwater of the Clark River.

The mixed Cambrian volcano sedimentary sequence is in faulted contact with Ordovician limestones and siltstones. The volcanic suite has been classified by CMS on lithological grounds as 'western sequence'. Possible Tyndal group volcanics occur north of the Clark River. No obvious base metal mineralization or intense hydrothermal activity was observed. Minor pyrite was observed in black shales and breccias with minor pyrrhotite being found in intermediate volcanics.

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The absence of any favorable indications suggest the chances of discovering mineralization of economic significance in this area are very small. No further work was warranted or recommended.

Siluro-Devonian Area (Rinadeena)

Exploration was aimed at attempting to explain the presence of the airborne magnetic anomaly and to determine if it is related to some form of mineralization especially gold. Two small groups of workings the Woody Hill Mine and the Macquarie lie four kilometers to the north and are gold mines associated with quartz veining and stockworking.

Work completed included gridding, mapping, rockchip, soil sampling and stream sediment sampling surveys. Grid lines and base line were covered by a ground magnetic survey.

Initial bulk sampling of quartz veined material yielded three anomalous values ranging up to 1.10 g/t gold. Follow-up surveys were conducted with composite samples of quartz veined quartzites, siltstones and volcanoclastic sediments returning maximum values of 0.14 g/t gold. The majority of streams and all soil samples proved negative for gold. The magnetic survey was also of little value as there was an erratic fault in the Lamontagne GSM 18 magnetometer.

As no significant rock alteration or other indication of a subcropping hydrothermal system was delineated and gold values from the siliceous sediment were of low order no further work was recommended for the area.

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EXPLORATION POTENTIAL

The tenement is considered to have little potential in hosting a significant carbonate or VMS hosted lead-zinc deposit. Furthermore the quartz (minor gold) veined siliceous Siluro-Devonian sediments appear to be similar to the subeconomic quartz vein mineralization of the Woody Hill and Macquarie Mines, hence of limited potential.

Signed



Phil Jones - Consultant to Cyprus Minerals