ZAPOPAN NL

ERL 119 - YINBERRIE
MOUNT TODD DISTRICT, NT

ANNUAL REPORT FOR EXPLORATION
YEAR ENDING 4 OCTOBER 1993
AND SUMMARY OF PREVIOUS
EXPLORATION ACTIVITIES

Distribution:
Zapopan Mt Todd x 1
Zapopan Perth x 1
NTDME x 1

Author: Rod Poxon
Date: February, 1994
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CR 94/180
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1. **INTRODUCTION**

ERL 119 (Yinberrie) was granted to Billiton Australia Gold Pty Ltd (50%) and Zapopan NL (50%) for ancillary purposes on 2 October, 1991 for a period of 3 years. Zapopan NL acquired 100% ownership on 7 April, 1992. The tenement comprises 4 only graticular blocks for a total area of 13.3 km$^2$.

ERL 119 is located within the Yinberrie Hills north of Katherine, which is an area of cultural significance to the Jawoyn Aboriginal Community. The area is also a major breeding site for the Gouldian Finch, and it has been recognised that this bird is in danger of becoming extinct in the wild.

Due to the potential disturbance of a small part of the Gouldian Finch breeding habitat, Zapopan has not undertaken exploration within ERL 119 during the 12 months ending 4 October, 1993. This decision was taken despite the tenement having potential for economic gold mineralisation, and despite previous approval by the AAPA for exploratory drilling in the Yinberrie Hills area.

This report then summarises previous exploration conducted within ERL 119 and proposes a forward program should the danger to the Gouldian Finch be found to be negligible based on current monitoring and research.

2. **LOCATION AND ACCESS**

ERL 119 - Yinberrie is located approximately 45km northwest of Katherine, and some 4 km west-northwest of the Mt Todd Gold Mine. Access can be gained via 4-wheel drive tracks from the Mt Todd Mine, or by the old disused gravel Edith Falls Road which runs eastward from the Stuart Highway (Figure 1). The historic Yinberrie Wolfram Field lies within and adjacent to the tenement.

The region is of moderate and often rugged relief, and the country is well incised by abundant small creeks and drainages. The area is moderately timbered, including significant quantities of Salmon Gums which are the preferred nesting tree of the Gouldian Finch.

3. **REGIONAL GEOLOGY**

The Yinberrie Hills area is located within the south-eastern portion of the Early Proterozoic Pine Creek Geosyncline. Metasediments, granitoids, basic intrusives, acid and intermediate volcanic rocks occur within this geological province (Figure 2).

Within the Mt Todd District, the oldest outcropping rocks are assigned to the Burrell Creek Formation. These rocks consist primarily of interbedded greywackes, siltstones, and shales of turbidite affinity, which are interdispersed with minor volcanics.

Locally, ERL 119 covers part of the old tungsten workings in the Yinberrie Wolfram Field. The area comprises Yinberrie Leucogranite which has intruded and hornfelsed sediments of the Burrell Creek Formation. The Yinberrie Leucogranite is a highly fractionated late stage
differentiate of the Early Proterozoic Cullen Batholith. The granite is an extensively
geisenised body consisting predominantly of quartz and muscovite. Quartz veins within the
Yinberrie Leucogranite have historically been exploited for tungsten, but also contain
molybdenum, copper, gold and arsenic.

4. WORK COMPLETED

As stated earlier in this report, Zapopan has not undertaken field based exploration within
ERL 119 during the year to 4 October, 1993. However, previous exploration was
carried out by the Mt Todd Joint Venture (Billiton Australia Gold Pty Ltd and Zapopan) and
this work included:

- Stream Sediment Sampling
- Gridding
- Soil Sampling
- Geologic Mapping
- Rock Chip Sampling
- Geophysical surveys; airborne and ground magnetics.

This work was successful in discovering the Alfred Prospect, which is situated at the western
boundary of ERL 119, and which continues into the adjacent tenement EL 7745 (also held
by Zapopan).

5. RESULTS

5.1 Stream Sediment Geochemistry

A total of 31 stream sediment samples have been collected from within ERL 119,
from generally small creeks and drainages. Approximately 5kg of material was
sieved to -2mm in the field and assayed for gold using the BLEG technique.

A high proportion of the samples returned anomalous results, with a peak gold value
produced of 13.9 ppb (see Figure 3). 11 out of 31 samples returned elevated gold
assays above a background of approximately 1.0 ppb.

Sampling immediately to the west within EL 7745 also produced elevated results, and
defined an anomalous zone of dimensions 2.5 km x 1.0 km.

5.2 Soil Geochemistry

A portion of the area containing the anomalous stream sediment geochemistry (named
Alfred) was soil sampled in order to locate the source of the gold mineralisation.
Sampling was conducted on 200 m spaced lines, with samples collected every 10m
and composited over 50m intervals. Approximately 2kg of material was collected,
sieved to -2mm in the field, and assayed for gold using the BLEG technique. A total
of 47 samples were collected from within ERL 119.
This work delineated several narrow, subparallel gold soil anomalies which strike north-northwesterly and which straddle the ERL 119 - EL 7745 tenement boundary. These anomalies are up to 600 m long (Au > 8 ppb) with values as high as 130 ppb Au returned (Figure 4). Maximum gold value returned from within ERL 119 was 88 ppb Au.

The soil anomalies are generally coincident with quartz veins which have historically been prospected and mined for tungsten mineralisation.

5.3 Geologic Mapping

Geologic mapping of the central portion of ERL 119 has been completed (Figure 5). In particular, detailed geologic mapping of the area containing anomalous surface geochemistry (Alfred) has been undertaken. The gridded area is comprised of Yinberrie Leucogranite which has intruded and hornfelsed sediments of the Burrell Creek Formation. This granite is a highly fractionated late stage differentiate of the Early Proterozoic Cullen Batholith, and is extensively greisenised.

Mapping outlined a number of polymetallic quartz-greisen veins striking approximately 325° - 330°, with steep dips. These veins range in width from millimetre scale up to 2m across, and can be traced for up to 500m along strike. The larger veins have been mined via shallow workings for tungsten, but also contain significant quantities of gold, molybdenum, and copper (Figure 6). These veins are generally coincident with the gold soil anomalies discussed above.

5.4 Rock Chip Sampling

Some initial rock chip sampling of exposed quartz-greisen veins has been undertaken, generally in proximity to old tungsten workings. A total of 10 rock chip samples were collected from within ERL 119.

Only 2 weakly anomalous gold values were returned from this work, with a maximum result obtained of 0.94 g/t (Figure 7).

Rock chip samples were also strongly anomalous in Cu, Mo, W, and As. Maximum values returned for these elements were 810 ppm Cu, 184 ppm Mo, 2650 ppm W, and 1920 ppm As.

5.5 Geophysics

The Alfred Prospect and ERL 119 in general was flown as part of a larger regional airborne magnetic survey by the Mt Todd Joint Venture. No significant magnetic anomalies or features were outlined by this study at Alfred.

In addition, a ground magnetic survey was also completed using a G856 Proton Precession Magnetometer, with data captured at 10m spaced stations on 200m spaced grid lines. An analysis of the data delineated a flat magnetic response with no anomalous features being related to the auriferous quartz-greisen veins, nor the granite hornfels contact.
ZAPOPAN NL
ERL 119
Rock Chip Results
Au in ppm

FIGURE 7
6. **Gouldian Finch Issues**

The current area of Exploration Retention Licence 119 encroaches into the Yinberrie Hills Breeding Habitat of the Gouldian Finch (see Figure 8).

The potential impact of the Mt Todd Project on the Gouldian Finch was the major issue raised during assessment of the Company’s Environmental Impact Statement for Mt Todd and specific recommendations were made within approvals given by the Commonwealth Environment Protection Authority and the Conservation Commission of the Northern Territory. Included in such recommendations was the implementation of a monitoring program for the Gouldian Finch and participation by Zapopan in a National Recovery Plan.

In view of the sensitivity of the area and the need for results of the monitoring program to determine any effects of the mining operation on the Gouldian Finch, Zapopan has submitted applications for suspension of work and expenditure covenants on Exploration Retention Licence 119 (and others). Copies of the applications are attached as Appendix 1.

At a meeting held on 6th August, 1993 with Mr Carl Berglin, Director of Mines and Mr Chris Smith, Principal Registrar, Zapopan was advised that its application for a suspension had been agreed to on the basis that individual variation of expenditure requirements would be made at the appropriate times. This was confirmed in writing on 13 August, 1993 (see Appendix 1).

7. **Conclusions and Recommendations**

Surface geochemical sampling within ERL 119 has returned encouraging gold values at the Alfred prospect. Stream sediment results to 13.9 ppb Au, soil results to 88 ppb Au, and rock chip results to 0.94 g/t have been achieved during exploration previously carried out by the Mt Todd Joint Venture (Billiton and Zapopan).

Geologic mapping has demonstrated that gold mineralisation is associated with polymetallic quartz-greisen veins, related to the Yinberrie Leucogranite. A zone of quartz veining some 700m long by 200m wide has been identified which strikes approximately 325°-330°. It is likely that gold mineralisation within this broad zone will be in the form of small, narrow and discrete moderate grade lodes, containing significant quantities of Cu, W, and As.

The Alfred prospect is an encouraging discovery and has ongoing potential for the delineation of significant volumes of economic gold mineralisation. Any resources outlined are likely to be relatively small tonnage, moderate grade deposits. However, the proximity of the area to the Mt Todd Mine is a favourable aspect of the Alfred prospect.

However, ERL 119 is situated within the Yinberrie Hills which is of cultural significance to Aboriginal groups, and is the largest known natural breeding habitat of the Gouldian Finch.

The Aboriginal Community has been supportive of exploration proposals for the area. The threat to the Gouldian Finch by exploration activities is considered minimal but this assumption is yet to be verified. Monitoring of the bird and research into reasons for its declining numbers in the wild is continuing, funded in part by Zapopan.
Should all Aboriginal and Finch concerns be favourably resolved, it is recommended Zapopan proceed with exploration at the Alfred prospect. The chances of success are considered good.

8. **FORWARD PROGRAM**

On the assumption that exploration will be possible within ERL 119, the following exploration activities are proposed:

- Systematic costeaming of the soil anomalies at the Alfred prospect (400m)
- Infill soil sampling
- Initial RAB drilling of better costean anomalies (300m)

The total cost of this program is estimated at $13,000.

9. **EXPENDITURE STATEMENT**

ERL 119 - Yinbarrie
Total Expenditure for Period 05/10/92 - 04/10/93

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<th>COST DESCRIPTION</th>
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TOTAL EXPENDITURE $1,375.00
APPENDIX 1

APPLICATION FOR
SUSPENSION OF WORK
14 June 1993

Mr J W Mitchell
Secretary
Department of Mines & Energy
GPO Box 2901
DARWIN NT 0801

Dear John

Zapopan NL is the holder of four Exploration Licences and one Exploration Retention Licence situated on the western side of the Mt Todd Project Site. All the Licences encroach into the Yinberrie Hills Breeding Habitat of the Gouldian Finch.

The attached plan shows the respective licences held by Zapopan as well as the breeding habitat area of the Gouldian Finch.

The potential impact of the Mt Todd Project on the Gouldian Finch was the major issue raised during assessment of the Company's Environmental Impact Statement and specific recommendations were made within approvals given by the Commonwealth Environment Protection Authority and the Conservation Commission of the Northern Territory. Included in such recommendations was the implementation of a monitoring program for the Gouldian Finch and participation by Zapopan in a National Recovery Plan.

Under conditions of its Exploration Licences and Exploration Retention Licence, Zapopan is required to undertake work programs and meet expenditure covenants to ensure that titles remain in good standing. Failure to meet these commitments places the licences under threat of cancellation.

Zapopan is prepared to meet its obligations on the licences however it believes that carrying out any exploration work in the Yinberrie Hills or its environs at this time may be considered provocative and cause an unnecessary reaction from the public against the Company and possibly against the Northern Territory Government. It is felt that the effects of the actual mining operation on the Gouldian Finch population needs to be analysed before any further encroachment into the Yinberrie Hills or its environs is undertaken. Zapopan believes this to be the most responsible position to take at this stage of project development.

The Company therefore wishes to make application under Section 172 of the Mining Act for a suspension of work and expenditure covenants and where applicable, reduction requirements on Exploration Retention Licence 119 and Exploration Licences 6037, 7227, 7519 and 7745. The suspension is sought for an initial period of twelve (12) months whilst an assessment can be made of the impact mining operations is having on the Gouldian Finch.
Due to the sensitivity of this issue, Zapopan will not undertake any work on its exploration titles in the Yinberrie Hills or its environs until advice is received on this application.

The application requires lodgement of a prescribed fee of $250.00 (being $50.00 per title) and this amount has been paid direct to your Department.

Yours sincerely

W G LOXTON
General Manager - Operations
Mr W G Loxton  
General Manager - Operations  
Zapopan NL  
PO Box 718  
WEST PERTH WA 6872

Dear Wayne,

I refer to your letter of 14 June 1993 and my subsequent discussion with you, Ross McColl and Chris Smith.

As discussed at that meeting, the Department has considerable sympathy for the position in which your company finds itself with regard to the research project on the Gouldian Finch and the conflict it has with ongoing exploration.

I appreciated the frank discussions and understand why the various requests were brought forward at this time.

I can confirm that John Mitchell, the delegate of the Minister, with regard to section 172, has agreed that suspension of work and expenditure covenants on Exploration Retention Licence 119 and Exploration Licences 6037, 7227, 7519 and 7745 will be approved. In relation to the deferral of reductions, I can give an undertaking that a favourable recommendation will be given to the Minister.

However, as all these licences have different anniversary dates and are considered separate entities under the Mining Act, it would be more appropriate to make formal application at the same time as the statutory anniversary requirements.

Chris Smith and Ross McColl have already discussed this as suggested at our meeting. Suspension of work and expenditure covenants and requests for deferrals of reduction have been lodged for ELs 6037 and 7519. These will be processed as soon as possible.
In addition, I can confirm that the granting of Exploration Licence 8183, applied for by Dominion Mining Ltd, will be held up for a period of six months so that no work should be undertaken on this area that would interfere with your Gouldian Finch research project.

Yours sincerely

[Signature]

CARL I K BERGLIN
Director of Mines

\textit{8/8/93}
February 10, 1994

The Hon Shane Stone MLA
Minister for Mines & Energy
NT House Mitchell Street
DARWIN NT 0800

Dear Shane,

Zapopan NL is the holder of five Exploration Licences and one Exploration Retention Licence situated on the Northern, Western and Southern sides of the Mt. Todd Mine site. All the licences encroach into the Yinberrie Hills breeding habitat of the Gouldian Finch.

The attached plan shows the respective licences held by Zapopan as well as the breeding habitat area of the Gouldian Finch.

The potential impact of the Mt. Todd Mine on the Gouldian Finch was the major issue raised during assessment of the Company’s Environmental Impact Statement and specific recommendations were made within approvals given by the Commonwealth Environment Protection Authority and the Conservation Commission of the Northern Territory. Included in such recommendations was the implementation of a monitoring programme for the Gouldian Finch and participation by Zapopan in a National Recovery Plan.

Under the conditions of its Exploration Licences and Exploration Retention Licence, Zapopan is required to undertake work programmes and meet expenditure covenants to ensure that titles remain in good standing. Failure to meet these commitments places the licences under threat of cancellation.

Zapopan initially raised this issue with your Department in June 1993 and it has received sympathetic consideration in so far as suspension of work and expenditure covenants and deferral of statutory reductions on the titles are concerned.

It had been hoped that activities on the licences could be resumed this forthcoming field season and forward work programmes have been submitted to the Department on the assumption that exploration would be possible. However, there is still insufficient data on the effects of the actual mining operation on the Gouldian Finch population to give the Company comfort that a resumption of exploration activities would not be viewed as provocative.
I discussed the Company's situation on these titles with Bob Adams of your Department and Roger Smith of the Conservation Commission on Friday 28 January 1994 and they agreed that exploration activities should not be resumed at this time. However, this would once again place the Company in the position of being unable to meet its work and expenditure covenants and also to make reductions of the licence areas where required. There is also the situation where two of the licences are due to expire in the second half of 1994 and the Company will be seeking renewal of those licences.

In the circumstances, the Company is seeking comfort that it can retain its existing titles in the Yinberrie Hills over their existing areas, including those that will be subject to renewal applications on the basis that work, expenditure and reduction covenants will be suspended until further exploration activity is possible.

In view of the involvement of the Conservation Commission in this area, I would appreciate if you could also advise them of our position if appropriate.

Yours sincerely,

TERRY STRAPP
EXECUTIVE CHAIRMAN

Encl: