E.L. 5578 - HOWLEY CREEK

ANNUAL REPORT 1989

PREPARED BY:

MINING MANAGEMENT SERVICES PTY LTD
DECEMBER 1989

FOR:

G. SCRIMGEOUR
AND
DRIFFIELD MINING PTY LTD
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1.0 INTRODUCTION

E.L. 5578 is located in the Pine Creek Geosyncline approximately 110 kms south-east of Darwin and 25 kms south east of Adelaide River (Fig. 1). Access to the area is via the Stuart Highway a distance of approximately 20 kms south of the Adelaide River and then via dirt tracks, which initially follow the old Darwin railway line east for 15 kms. The area is currently accessible by 4 x 4 wheel drive vehicles only during the dry season (March - November).

The vast majority of the licence area covers the west bank and the alluvial flats, which surround Howley Creek. This area is flat black soil country with sparse vegetation.

Within 250m of the western margin of the licence the country rises and peaks in a series of ridges along the western margin of the tenement corresponding with the Shoobridge Fault. These ridges rise approximately 20m above the flats to the east.

This report was prepared by Mining Management Services Pty Ltd on behalf of the current tenement holder Mr. G. Scrimgeour and Drifffield Mining Pty Ltd. The report summarized work carried out by Mr. Scrimgeour and the previous major shareholder in the tenement Mr. E. Hore for the year ending the 11th December, 1989.

2.0 TENEMENT DETAILS

Application for Exploration Licence 5578 was made on the 15th June, 1987 and granted to E. Hore (33 1/3%), K. Hore (33 1/3%) and Drifffield Mining Pty Ltd (33 1/3%) on the 11th December, 1987 for a period of three years. During 1989 the interests of E & K. Hore were transferred to Mr. G. Scrimgeour (Fig 2).

In November, 1989 the tenement was reduced from 3 graticular blocks to one graticular block. the expenditure commitment for Year 2 of the licence was $8,000.
Figure 1
LOCALITY MAP
Scale Approx. 1 : 8,000,000
3.0 REGIONAL GEOLOGY

Approximately 90% of E.L. 5578 covers alluvial flats associated with Howley Creek, which drains gold bearing sediments to the south and south-east. This is a broad drainage system, slightly more than 2 kms wide with a mature meandering braided stream system developed within it.

The western margin of the tenement co-incides with the north-south striking Shoobridge Fault a major regional structure. Both east and west of the Shoobridge Fault are outcrops of Burrell Creek Formation Sediments, which are quartz veined near the Shoobridge Fault. Locally the Burrell Creek Formation consists of grey and yellow brown fissile shales and siltstones.

4.0 EXPLORATION OBJECTIVES

4.1 Alluvial Gold

The original objective of the exploration programme on EL 5578 was to prove alluvial gold reserves associated with Howley Creek. The licence covers almost 6 kms of the river’s broad flood plain. The Howley Creek drains a region to the south including some major gold producing areas like the Zapopan Mine, Brocks Creek Mines, Cosmo Howley and East of Bridge Creek. Locally there are gold occurrences to the east at Mt. Paqualin and Mt. Paqualin North. It was concluded the drainage had potential for a large low grade alluvial gold resource, which would be suitable for dredging.
4.2 **Hardrock Gold**

The potential for hardrock gold was considered to be low and initially no work had been planned. However, the discovery of W.R. Grace (Aust) Ltd's exploration of a quartz reef and quartz stockworked anticline on the west boundary of the exploration licence indicated the hardrock gold potential of the western margin of the licence would have to be investigated.

5.0 **PREVIOUS MINING AND EXPLORATIONS**

5.1 **History**

A search of Northern Territory Department of Mines and Energy records failed to show any previous exploration history or mine production from the area.

Ground traverses of the area failed to locate any alluvial workings associated with Howley Creek or hardrock workings in the outcrop of the Lower Proterozoic, Burrell Creek Formation. This survey did locate an area immediately west of the west boundary of EL 5578 where W.R. Grace (Aust) Ltd on Exploration Licence 5322 had carried out a trenching and ten hole drilling programme probably for gold.

5.2 **Exploration Programme - 1988**

5.2.1 **Preliminary**

A search was made of Mines Department Library to find any records of past exploration of the area. This failed to produce any results. A geological 1:100,000 base map was prepared and the 1:500,000 airborne magnetic survey inspected for possible anomalies.
5.2.2 **Ground Traverse and Preliminary Sampling**

The licence was inspected. Several alluvial samples were collected, concentrated by panning and assayed. The work by W.R. Grace was followed up with sampling of scree within EL 5578. This produced a number of anomalous Au/As results with a high of 4.87 g/t Au and 6,400 ppm As.

The results of this sampling gave priority to the hardrock gold exploration over alluvial exploration.

5.2.3 **Surveying**

After contact with W.R. Grace (Aust) Ltd representative, the common boundary of the two exploration licences was established by contract surveyor. A 50 x 50 m exploration grid was established adjacent to the boundary to form the basis for further exploration.

5.2.4 **Trenching and Channel Sampling**

A total of 5 excavator trenches for 277.7m of trenching were cut to expose bedrock and allow channel sampling and geological mapping. This work failed to delineate any significant mineralized zone.

6.0 **1989 PROGRAMME**

The 1989 programme involved the extension of the lease boundary survey undertaken jointly by W.R. Grace (Aust) Ltd and the holders of EL 5578.

Rock chip sampling and geological mapping were undertaken in the vicinity of trenches T1 - T5 (Fig. 2) and along the surveyed boundary south of the trenched area. The report by W.R. Grace on EL 5322 was obtained by Mr. E. Hore.
6.1 **Boundary Survey**

Messrs. E. Hore and E. Scrimgeour extended the surveyed boundary between W.R. Grace (Aust) Ltd’s 5322 and EL 5578 south 2.5 kms to the southern boundary of exploration licence.

6.2 **Geological Mapping and Rock Chip Sampling**

Following the relinquishment of EL 5322 by W.R. Grace (Aust) Ltd a sketch mapping programme was carried out over areas of outcrop along the old tenement boundary. Mapping of the outcrop of quartz veining indicated a number of fold structures adjacent to the lease boundaries. The anticline axes appeared to strike between 10 - 30° m and plunge to the north taking the main fold closures into EL 5322 (Fig. 2).

The quartz veining was either 1 - 1.5 m wide ferruginous lenticular veining exposed over strike lengths up to 200m or stockworks of quartz veining up to 1 cm wide within sheared and strongly jointed siltstones and shales.

A number of rock chip samples were collected along the tenement boundaries (Fig. 2).
<table>
<thead>
<tr>
<th>Sample No</th>
<th>Description</th>
<th>Au g/t</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 801</td>
<td>Grey siltstone, with 1 cm quartz veining asymetrically folded, limonitic gossanous.</td>
<td>0.77</td>
</tr>
<tr>
<td>P 802</td>
<td>Pl. gn-gy mottled limonitic siltstone. Pseudomorphs of sulphides quartz veining brecciated ferruginous.</td>
<td>0.023</td>
</tr>
<tr>
<td>P 803</td>
<td>Pl. gy - gn siltstone, weakly limonitic y and Rb staining, milky quartz veining.</td>
<td>0.022</td>
</tr>
<tr>
<td>P 804</td>
<td>Pl. ppl fine grained greywacke with milky quartz, brecciated and limonitic.</td>
<td>0.158</td>
</tr>
<tr>
<td>P 805</td>
<td>Pl. gy, gn fine grained greywacke with sheared limonitic brecciated quartz. Boxwork.</td>
<td>0.013</td>
</tr>
<tr>
<td>P 806</td>
<td>Gy siltstone, milky quartz boxwork interstitial voids.</td>
<td>0.014</td>
</tr>
<tr>
<td>P 807</td>
<td>Milky quartz vein minor limonitic.</td>
<td>0.008</td>
</tr>
<tr>
<td>P 808</td>
<td>Brecciated milky quartz veining. Rb staining minor boxwork.</td>
<td>0.23</td>
</tr>
<tr>
<td>P 920</td>
<td>Limonitic quartz veining in gy siltstone.</td>
<td>0.135</td>
</tr>
<tr>
<td>P 921</td>
<td>Stockwork of limonitic quartz veins in gy - gn siltstone.</td>
<td>0.075</td>
</tr>
<tr>
<td>P 933</td>
<td>1 - 1.5 m wide limonitic quartz vein.</td>
<td>1.15</td>
</tr>
<tr>
<td>P 934</td>
<td>1 m wide limonitic quartz vein.</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Abbreviations:  
gy - grey  
pl - pale  
gn - green  
ppl - purple  
Rb - red-brown  
y - yellow
6.3 **Regional Survey**

Messrs E. Hore and G. Scrimgeour traversed the boundary of E.L. 5578 in search of quartz veining similar to that in the area investigated by drilling by W.R. Grace. They reported no major quartz veining along the Shoobridge Fault. Three samples were collected 930 - 932. These were from minor milky quartz veins with little strike or lateral extent. The location of the samples are shown in Fig. 3. The samples were assayed for gold and were reportedly all less than 0.05 g/t.

6.4 **W.R. Grace Relinquishment Report**

Mr. E. Hore was able to get a copy of drill hole results from W.R. Grace, but a final copy of the report had not become available through the Department of Mines & Energy Library. Mr. Hore reports the drill holes intersected several weakly mineralized gold bearing horizons.

7.0 **Estimated Expenditure**

The following is an estimate of the exploration expenditure by Messrs Hore and Scrimgeour and Driffield Mining Pty Ltd on E.L. 5578 during 1989.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Assistants</td>
<td></td>
</tr>
<tr>
<td>Sampling, survey, library search etc</td>
<td>$2,000</td>
</tr>
<tr>
<td>Travel and Accommodation</td>
<td>$600</td>
</tr>
<tr>
<td>Assaying</td>
<td>$180</td>
</tr>
<tr>
<td>Vehicles including fuel and services</td>
<td>$1,000</td>
</tr>
<tr>
<td>Consumables Flagging, pegs, sample bags etc</td>
<td>$50</td>
</tr>
<tr>
<td>Office Darwin and Perth</td>
<td>$900</td>
</tr>
<tr>
<td>Communications - phone, fax, road</td>
<td>$50</td>
</tr>
<tr>
<td>Administration - legal</td>
<td>$1,500</td>
</tr>
<tr>
<td>Drafting</td>
<td>$100</td>
</tr>
<tr>
<td>Report</td>
<td>$50</td>
</tr>
<tr>
<td>Geological</td>
<td>$2,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,430</strong></td>
</tr>
<tr>
<td>Overheads (15% Total Costs)</td>
<td>$1,265</td>
</tr>
</tbody>
</table>

**ESTIMATED TOTAL**

$9,695
8.0 CONCLUSION

The results of exploration of E.L. 5578 during 1989 were generally discouraging. Geological mapping in the vicinity of the tenement boundary with W.R. Grace's EL 5322 indicated NNE plunging quartz veined antclinal structures near the boundary between the tenements. However, rock chip sampling of limonitic quartz veins produced generally poor results, with only one sample exceeding 1 g/t Au.

Traverses along the Shoobridge Fault failed to find other areas substantial of limonitic quartz veining. Several samples collected from minor quartz veins showed no significant mineralization.