REDFIRE RESOURCES NL
ACN 009 423 858

EXPLORATION LICENCE 8456

DUNGANMINNIE
NORTHERN TERRITORY

THIRD and FINAL REPORT
EL8456
To 12 February 1997

Prepared by N.H. Martin
May 1997
SUMMARY

Exploration Licence 8456 forms part of the Slab Top Hill Diamond Project conducted by Redfire Resources NL and located within the Batten graben in the Northern Territory of Australia.

The Batten Graben is a known diamondiferous province and has been intensively explored for diamonds since the early 1980's by CRA Exploration and the Australian Diamond Exploration Joint Venture, leading to the discovery of the Emu, Coanjula, Ahner Range, Merlin, Ivanhoe, Dog Leg Creek and Lancelot Prospects. Diamondiferous Kimberlites have been found by follow-up of anomalous number of diamonds (including micro diamonds) and chromites from stream, loam and drill samples and by loaming and drill testing geophysical and geomorphological anomalies.

Exploration was carried out by Ashton Mining Ltd. under the terms of the Australian Diamond Joint Venture with Redfire Resources. Work completed in the current reporting period has been a review of the previous diamond exploration data and the collection of eight regional gravel stream samples. All of which tested negative for diamonds and indicator minerals.

Due to the lack of encouraging results it is recommended that EL.8456 be relinquished.

In summary, exploration carried out during the life of the tenements has been:

1994 (MIM Exploration Pty. Ltd.)
Collection of 45 soil samples, 9 lag samples and one rock chip sample aimed at investigating the Barney Creek Formation for base metal mineralisation. All sampling produced low order analytical values for Cu, Pb and Zn.

1995 (Perilya Mines NL)
Data review looking at the diamond potential for the tenement.

1996 (Redfire Resources/Ashton Mining)
Helicopter assisted gravel sampling. A total of eight samples were collected with none returning positive for diamond or indicator minerals.
1. LOCATION AND ACCESS

EL8456 is located on the Bauhinia Downs (SE 53-03) 1:250,000 sheet in the McArthur River Basin (Figure 1).

The tenement is accessed from Darwin by sealed and gravel roads, although during the wet season there are times when the roads are impassable due to rain. Access is via the Stuart Highway to Daly Waters, via the Carpentaria Highway to Cape Crawford and then along the Tablelands Highway to the Mallapunyah Station turnoff. Access is then along various dirt tracks and graded fence lines and station roads.

2. TENURE

The exploration licence was granted to Mount Isa Mines Limited on 25 February 1994 for a period of six years. It comprises of six sub-blocks with an area of approximately 19 square kilometres.

In April 1995, MIM decided to withdraw from this exploration licence and it was subsequently transferred to Perilya Mines NL. This tenement formed part of Perilya’s Batten Trough Project. Redfire subsequently negotiated an agreement with Perilya to explore EL8456 in conjunction with other tenements for their diamond potential in exchange for a net royalty return.

Subsequently this tenements was joint ventured on 20.2.95 by Redfire to Ashton Mining Ltd. under the terms of the Diamond Joint Venture. This gave Ashton the right to earn a 60% interest in diamond deposits within the licences area. Ashton withdrew from the joint venture on 23.12.96.

Due to a lack of positive results for both diamonds and base metals it has been recommended that EL8456 be relinquished.

3. REGIONAL GEOLOGY AND STRUCTURE

The licence occurs within the Batten Trough of the Palaeo/Meso Proterozoic McArthur Basin on the Bauhinia Downs (SE 53-3) 1:250,000 sheet and on the Mallapunyah (6065) 1:100,000 scale topographic map.


The licence area is largely underlain by the dolomitic sedimentary sequence of the McArthur Group. Locally, inliers of the older volcanic and siliciclastic Tawallah Group and outliers of the younger, dolomitic Nathan Group and siliciclastic Roper Group are present.

Platform cover of the Cambrian Bukalara Sandstone masks the Proterozoic rocks to the east and the south-east and thin (<20m) Cretaceous terrestrial to shallow marine, sediments are locally present. Soil cover is generally thin and skeletal although laterally extensive alluvial cover is present around major drainages. Coastal sands are present on the Mount Young sheet.
Folding of the Tawallah and McArthur Group sequences is gentle to moderate, with steep dips locally developed in proximity to major faults. The Nathan and Roper Group strata are gently folded with shallow dips.

The dominant structural feature within the licence area is the north west trending Abner Fault which is believed to be a splay of the Tawallah Fault. It is one of a series of faults delineating the Western margin of the Batten Trough.

4. PREVIOUS EXPLORATION

Most of the licence area has been at least partly covered by reconnaissance level stream and or soil geochemical sampling since the mid 1970’s.

Perilya Mines NL conducted reconnaissance sampling and geophysics over this area as EL5877 for the McArthur River Joint Venture from 1988 (Thorrett, 1989; 1990; 1991; Thorrett and Kwiecien, 1992). Most of their work consisted of aerial photography, reconnaissance geology, stream sediment sampling, soil and rock chip geochemistry and airborne magnetic and radio-metric geophysical survey.

MIM targeted the Barney Creek Formation for base metal mineralisation in the first year of EL8456. This was done by reconnaissance soil, lag and rock chip samples. Based on this work MIM considered that the area had little potential for hosting significant base metal mineralisation and withdrew from the Joint Venture. Exploration focus then turned to the diamond potential for the tenement.

5. CURRENT EXPLORATION

Exploration undertaken on the tenements from March 1996 to February 1997 by Ashton Mining Ltd. under the terms of the Diamond Joint Venture consisted of the following:

5.1 Data Review

Prior to commencing field work, a comprehensive data review of diamond results and previous exploration in the tenement areas was undertaken. These highlighted areas that had not been adequately explored. Proposed gravel sample locations were then selected.

5.2 Gravel Sampling

During the reporting period a stream sediment sampling programme which collected eight samples from EL8456. The samples were delivered to Ashton Mining’s Perth laboratory for diamond and indicator analysis. All samples were negative.

Sampling was completed using helicopters as they pose the most practical mode of transportation with the advantage of ease of access and navigation. They also enable the geologist to scan for potential trap sites. The best quality heavy mineral traps in the vicinity of the pre-selected site was chosen for sampling.

Once a suitable site was located, approximately 40kg of gravel is gathered, sieved ad the minus four millimetre fraction collected in calico bags for laboratory examination. This
fraction generally weighs between 25 and 30kg and is usually contained within two bags. The bags are then sent to Ashton Mining’s Perth laboratory for diamond and indicator analysis.

Sample locations are provided in Figure 2. A list of sample results is provided in Appendix 1.

5.3 Laboratory Procedure

The samples are processed by Ashton Mining Ltd. laboratory in Perth, where they are concentrated by Wilfley Table and heavy liquid separation techniques. The heavy liquid used is tetrabromoethane with specific gravity of 2.96.

The concentrates are then screened into various size fractions, further concentrated by magnetic and electrostatic separation techniques and a comprehensive grain by grain examination carried out on the minus 1.0mm plus 0.425mm fractions.

5.4 Rehabilitation

No work undertaken that caused substantial disturbance and therefore no rehabilitation work was necessary.

6. RECOMMENDATIONS

Due to the lack of encouraging results and the lack of additional diamond targets no further work is justified and hence it is recommended that EL8456 be relinquished.
REFERENCES


Thornett, S.E., 1990b. Report to the Department of Mines and Energy on the McArthur River Project Area, N.T. for the period 13/7/89 to 12/7/90. Perilya Mines NL.

Appendix 1
Gravel sample results
<table>
<thead>
<tr>
<th>Sample</th>
<th>Coll_date</th>
<th>Type</th>
<th>Result</th>
<th>Diamond Macro</th>
<th>Diamond Micro</th>
<th>Chromite</th>
<th>Other</th>
</tr>
</thead>
<tbody>
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<td>29/06/96</td>
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<td>neg</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

NOTE: G = Gravel sample