Hammer Creek
NORTHERN TERRITORY

FINAL REPORT
To 12 February 1997

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May 1997
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SUMMARY

Exploration Licence 8745 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, Abner 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 six 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 EL8745 be relinquished.

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

1995 (MIM Ltd. & Perilya Mines NL)
Collection of 51 lag samples. No follow up work undertaken.

Data review into diamond prospectivity

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

1997
Relinquish tenement
1. LOCATION AND Access

EL8745 is located on the Bauhinia Downs (SE 53-03) 1:250,000 sheet and Mount Young (SD 53-15) 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 by a track which goes north from the Nathan River - Roper Bar Road at the old Tawallah Homestead.

2. Tenure

Exploration Licence 8745 was initially granted to MIM Ltd. on 6 October 1994 for a period of six years. It contains 13 sub blocks. 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 EL8745 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 EL8745 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, intruders 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.
Structure dominated by the interaction of the north-north-west trending Calvert Fault and Mallapunyah Faults with the north-south striking Emu Fault Zone.

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 EL6236 for the McArthur River Joint Venture from 1988 (Thornett, 1989; 1990; 1991; Thornett and Kwiecien, 1992). Most of their work concentrated on the Yalco Prospect.

MIM undertook a limited sampling programme which contained 51 lag samples in three discrete locations. Best samples returned 200 - 300 ppm Pb and 170 - 220 ppm Zn. These results were not considered worthy of follow up work and MIM withdrew from the exploration licence. This work is reported in Kwiecien, 1996.

With the discovery of the Merlin kimberlite field by Ashton Mining Ltd. exploration focus has now turned to the diamond potential for the area.

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 six samples from EL8745. The samples were delivered to Ashton Mining Ltd’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 EL8745 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

FIGURES
Appendix 1
Gravel sample results
<table>
<thead>
<tr>
<th>Sample</th>
<th>Type</th>
<th>Result</th>
<th>Diamond Macro</th>
<th>Micro</th>
<th>Chromite</th>
<th>Other</th>
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NOTE: G = Gravel sample