CRA EXPLORATION PTY. LIMITED

EL 8151 REDBANK CREEK

Final Report

For Period Ending 18th February, 1996

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Date: March 1996

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Map Reference: Barrow Creek SE 53-06
               Alcoota SE 53-10

Report No.: 21708

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1. SUMMARY

EL 8151 Redbank Creek is situated in the western portion of the Georgina Basin, approximately 200km north of Alice Springs. The area was considered prospective for kimberlitic diatremes.

The licence area is extensively underlain by Cainozoic deposits, highlighting the importance of airborne magnetics as an exploration tool. Outcrop is dominated by arenaceous sediments of Adelaideal and Cambro-Ordovician age. NW trending faults and splay are common parallel and sub-parallel to stratigraphy.

Helicopter-supported reconnaissance gravel sampling was conducted in northern portions of the licence area. Nineteen stream gravel samples were processed for diamonds and kimberlitic indicators, returning negative results.

A sacred site clearance survey was carried out by the AAPA.

CRAE completed an airborne magnetic and radiometric survey over the western portion of the tenement on Barrow Creek 1:250 000 mapsheet during 1978. The remainder of the tenement is covered by BMR aeromagnetic data. Several magnetic anomalies were identified as possible diatreme targets from the imaged data of the merged CRAE and BMR data sets. However, following a review of the contoured aeromagnetic data, it was established that the anomalies were not true dipolar features indicative of possible diatremes and follow-up work was not required.

2. CONCLUSIONS

• Reconnaissance gravel sampling did not record diamonds or kimberlitic indicator minerals.
• A review of contoured aeromagnetic data failed to identify significant dipolar anomalies.
• Follow-up work was not warranted and relinquishment of EL 8151 was recommended.

3. INTRODUCTION

EL 8151 Redbank Creek is located in the SW Georgina Basin approximately 200km north of Alice Springs (Location Plan NTd 5770). The exploration licence, covering an area of 1265km$^2$ (407 blocks), was granted to CRAE on 15th April 1994 for a six year period. EL 8151 was acquired due to the perceived potential for kimberlitic diatremes.
The licence area is generally of low topographical relief with most of the area underlain by sandy, alluvial plains averaging approximately 500m AMSL. Spring Range in the central portion of the licence area forms significant relief (with maximum elevation of 647m AMSL), while Tomahawk Range to the south is of comparatively low relief. Drainage is of ephemeral nature with creeks flowing for only brief periods following heavy rainfall. Tomahawk Swamp, located in the south of the tenement, drains southward into the Sandover River.

Vehicle access is limited to tracks to Colters Camp Bore and Illjerica Bore to the N and S of the tenement respectively.

This report details exploration within EL 8151 during the two years of tenure.

4. REGIONAL GEOLOGY

EL 8151 Redbank Creek is situated in the SW Georgina Basin, flanking the NE margin of the Arunta Block. The tenement is extensively underlain by surficial Cainozoic deposits including aeolian sands, pisolitic soils and alluvial deposits. Elsewhere, outcrop is dominated by arenaceous sediments of Upper Proterozoic and Palaeozoic age, as outlined in Table 1.

Table 1: Stratigraphy within EL 8151

<table>
<thead>
<tr>
<th>Cainozoic</th>
<th>Quaternary</th>
<th>Aeolian Sands; alluvial deposits.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary</td>
<td></td>
<td>Fan gravels and conglomerates; calcrite, ferricrete.</td>
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</table>

<table>
<thead>
<tr>
<th>Palaeozoic</th>
<th>Cambro-Ordovician</th>
<th>Tomahawk Beds</th>
<th>Quartz arenite; siltstone and silty limestone interbeds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambrian</td>
<td>Mid-Late</td>
<td>Chabalowe Fm</td>
<td>Quartz arenite; dolostone and siltstone interbeds.</td>
</tr>
<tr>
<td>Early</td>
<td>Neutral Junction Fm</td>
<td></td>
<td>Silty sandstone and siltstone; minor silty limestone.</td>
</tr>
<tr>
<td></td>
<td>Octy Fm</td>
<td></td>
<td>Quartz arenite; minor siltstone and conglomerate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proterozoic</th>
<th>Adelaidean</th>
<th>Central Mt Stuart Fm:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adneca Member</td>
<td>Quartz arenite; interbedded red-brown sandstone and siltstone near top.</td>
</tr>
<tr>
<td></td>
<td>Tops Member</td>
<td>Arkose and quartz arenite, siltst. interbeds; minor conglomerate and dolostone.</td>
</tr>
</tbody>
</table>
Both the Proterozoic and Palaeozoic lithologies are dominantly arenaceous, with subordinate siltstone and limestone interbeds. The sediments trend roughly NW-SE, dipping gently to the SW for the most part.

NW trending faults and splays are relatively common. Faulted contacts between formations are observed, particularly in the Spring Range area.

5. EXPLORATION ACTIVITIES

5.1 Reconnaissance Gravel Sampling

Helicopter-supported stream gravel sampling was conducted at reconnaissance density in the northern portion of the tenement on the Barrow Creek mapsheet. A total of 19 gravel samples (each approx. 26kg; -4mm mesh) were collected from heavy mineral trap sites. The samples were processed by the CRAE laboratory in Belmont, Perth, for kimberlitic indicator mineral observation. All samples reported negative. Sample locations are presented on Plan NTd 6171.

5.2 Aeromagnetic Data Processing

A CRAE airborne and radiometric survey (300m line-spacing) was completed over the western portion of the licence area on the Barrow Creek mapsheet during 1978. The remainder of the tenement is covered by BMR aeromagnetic data (500m line spacing on Barrow Creek mapsheet and 1.6km line spacing on Alcoota mapsheet).

The digital aeromagnetic data for Barrow Creek were re-processed by CRAE and the digital aeromagnetic data for Alcoota were acquired and re-processed by Cowan Geodata Services to produce images which enhanced weak dipolar responses (Figures 1 and 2).

Using the Barrow Creek imaged data, a number of magnetic anomalies were originally identified as possible diatreme targets. However, following a review of the contoured aeromagnetic data, it was established that no significant anomalies were present and follow-up work was not warranted. No dipolar anomalies were identified from the Alcoota imaged data.

5.3 AAPA Site Clearance

Prior to the commencement of tenure Year 2, a work programme was submitted to the Aboriginal Areas Protection Authority (AAPA) for site clearance. The AAPA completed a sacred site clearance survey which highlighted areas where exploration is not permitted (Authority Certificate C95/073).
6. REFERENCES

Shaw, RD and Warren, RG (1975) 1:250 000 Geological Series
Explanatory Notes
Alcoota SF 53-10.

Explanatory Notes
Barrow Creek SF 53-06

Louwrens, DJ (1995) EL 8151 Redbank Creek, First Annual
Report For Year Ending 14th April 1996
(CRAE Rpt. No. 20850)

7. KEYWORDS

Georgina Basin, Proterozoic, Palaeozoic, Gravel Sampling, Geophys Airborne
Magnetics.

8. LOCATION

Barrow Creek SF 53-06 1:250 000
Home of Bullion 5754 1:100 000

Alcoota SF 53-10 1:250 000
Woodgreen 5753 1:100 000

9. LIST OF DPO's

21619

10. LIST OF FIGURES

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<th>Title</th>
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<td>Figure 1 Enhanced Barrow Creek Aeromagnetic Image</td>
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<tr>
<td>Figure 2 Enhanced Alcoota Aeromagnetic Image with Stacked Profiles</td>
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11. LIST OF PLANS

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<td>NTd 5770</td>
<td>EL 8151 Redbank Creek Location Plan</td>
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<tr>
<td>NTd 6171</td>
<td>EL 8151 Redbank Creek Gravel Sample Location Plan</td>
<td>1:100 000</td>
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