EL 2788 FRAZER CREEK, N.T.
ARUNTA BLOCK
FINAL REPORT
6th SEPTEMBER, 1983

submitted by: B.E. Harvey
accepted by: W.H. Johnston
date: September, 1983
copy to: CRAE - Canberra
         N.T. Dept of Mines & Energy

Map Reference
Huckitta: SF53-11
Dmeiper: 5952

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Confidential Report No: 130389
<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>2. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>3. CONCLUSIONS</td>
<td>1</td>
</tr>
<tr>
<td>4. LOCALITY</td>
<td>2</td>
</tr>
<tr>
<td>5. FOLLOW UP ON AIRBORNE MAGNETOMETER FEATURES</td>
<td>3</td>
</tr>
<tr>
<td>6. REFERENCES</td>
<td>7</td>
</tr>
<tr>
<td>7. KEYWORDS</td>
<td>9</td>
</tr>
<tr>
<td>8. LIST OF PLANS</td>
<td>10</td>
</tr>
</tbody>
</table>

APPENDIX I  - Heavy Mineral Ledgers

APPENDIX II - Ground Magnetic Profiles
1. SUMMARY

CRA Exploration Pty Limited (CRAE) carried out ground magnetometer follow up on selected aeromagnetic dipolar responses within EL 2788, Frazer Creek. No indications of kimberlite were apparent in the field and regional reconnaissance suggests alpine-type ultramafics are the causative bodies for dipolar magnetic responses. No further work is planned.

2. INTRODUCTION

EL 2788 Frazer Creek, was granted to CRAE on 16th February, 1981. Area reduction by 50% was carried out on 16th February 1983. During 1982 the N.T. Department of Mines & Energy released data from a low level airborne magnetic and radiometric survey which included the Frazer Creek area. This report presents results from ground magnetometer recovery of selected aeromagnetic responses.

3. CONCLUSIONS

Magnetic responses identified by ground magnetometer traversing are not due to kimberlite. The magnetic responses are probably due to magnetic contrast in metamorphic rock types and, regionally, a suite of alpine-type ultramafics.
AREA: 45 BLOCKS
142.245 sq. kilometres

POSITION OF EL 2788

HUCKITTA 1:250,000 SHEET

CRA EXPLORATION PTY LIMITED

FRAZER CREEK
E.L. 2788

REFERENCE SF 53-11 HUCKITTA
SCALE 1:250,000  DATE JANUARY 1983
AUTHOR BEH  REPORT 130389
DRAWN SJR  PLAN No Nd 2043
5. SUMMARY OF EXPLORATION

During the first year of tenure CRAE carried out a reconnaissance geochemical drainage survey. Weakly anomalous lead and thorium were related to Tertiary sediments and weathering profile. Full report was by W.J. Fraser in December, 1981. (CRAE Report No. 11005).

During 1982 the N.T. Department of Mines and Energy released data from a low level airborne magnetic and radiometric survey which included prominent NW-SE trending parallel lineaments in magnetic basement. A number of dipolar magnetic features associated with these lineaments were selected for further investigation. Orientation ground magnetometer traverses and heavy mineral sampling were carried out. Full report was by B.E. Harvey in February, 1983 (CRAE Report No.11906).

During 1983, further dipolar magnetic responses were located on the ground by ground magnetometer traversing and investigated. Full results are presented below.

Broad total-count radiometric anomalies were investigated using multiplot profiles of K, Th and U-channel data. No significant U-channel contributions to total-count anomalies were present. No further work was carried out.

6. FOLLOW UP ON MAGNETIC FEATURES

Six airborne magnetic responses were selected for investigation for ground magnetometer traversing and sampling. The location of these responses is shown on plan N7d 3157.
6.1. **Magnetic Feature H2**

See Appendix III for ground magnetic profile.

Broad alluvial flat with no prominent drainage. Somewhat circular area about 1km in diameter devoid of locally dominant mulga scrub but supporting pasture grasses. Ground appears slightly 'pulpy' and does not hold water after rain. Loam sample 968946 taken from a shallow depression at 600m mark of magnetic traverse.

No Proterozoic exposure locally; a 20m high Tertiary sediment and silcrete capped mesa occurs 1.5km west.

The loam sample (968946) reported negative for kimberlitic indicators and reported a diverse heavy mineral assemblage typical of the Arunta terrain (see Appendix I). A gravel sample (821718) collected in drainage close-by also reported negative for kimberlitic indicators and reported a similar heavy mineral assemblage.

6.2. **Magnetic Feature H3**

See Appendix III for ground magnetic profile.

Flat plateau of silcrete on Tertiary sediments at least 20 - 30m thick; loam sample taken at north end of magnetic traverse from a rabbit burrow in the escarpment where gully drainage begins. Soil was 'pulpy', calcareous and no Proterozoic exposure was evident.

The loam sample (968948) reported negative for kimberlitic indicators and reported a diverse heavy mineral assemblage typical of the Arunta metamorphic terrain.
6.3. Magnetic Feature H9
See Appendix III for ground magnetic profile.
Broad area of swall drainage and alluvium. Ground magnetometry
traverse suggested deep cover over magnetic basement and a response
atypical of those developed over ultramafic intrusives elsewhere in
the region. Drainage gravel sample 821692, collected 2km downstream
within EL 2789, reported negative for kimberlitic indicators.

6.4. Magnetic Feature H10
See Appendix III for ground magnetic profile.
Silcrete capped Tertiary sediments forming a plateau 20m high. No
basement lithologies were exposed in the break-away escarpment.
The ground magnetic profile is very suggestive of a magnetic intrusive.
Proximity to a known nickeliferous serpentinite and vermiculite
occurrence, six km along magnetic trend to the SE near Middle Dam,
suggests the feature is due to a similar body.

6.5. Magnetic Feature Hill
See Appendix III for ground magnetic profile.
Silcrete capped Tertiary sediments at least 20m thick effectively
cover Proterozoic metamorphic basement. Ground magnetometer profile
reflects this with a narrow zone of magnetic disturbance suggesting
a discrete causative body beneath cover. As with H10, the response
is probably due to an intrusive body similar to that near Middle
Dam. No kimberlite source is indicated.

6.6. Magnetic Feature H12
See Appendix III for ground magnetic profile.
Highly ferruginised and weathered schists were exposed beneath a
Tertiary unconformity surface. Ground magnetometer traversing
indicated a pronounced magnetic gradient with no response typical
of ultramafic intrusive.

6.7. The serpentinite and vermiculite occurrence mentioned above was visited and appears to form a sheet-like body of highly weathered serpentinite within felsic schists and gneiss. Vermiculite and pyrolusite occur at the surface and serpentinite is reported from a drill hole into the prospect (Barraclough, 1978). Anomalous nickel has been reported but the occurrence is not indicative of economic grades or kimberlithic affinity. A suite of similar occurrences to the SE along strong magnetic trends (see CRAE Report Nos. 130390, 130391 and 130392), range from concordant sill-like bodies to elongate discordant dykes and stocks. Mineralogy, rock association and structure resemble alpine-type ultramafics of Phanerozoic age. No economically anomalous metals were indicated and no further work is planned.

B.E. HARVEY
7. REFERENCES


8. KEYWORDS


9. LIST OF PLANS

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