CRA EXPLORATION PTY LIMITED

EL 7187 BREAKNECK CREEK, N.T.

THIRD ANNUAL REPORT FOR THE YEAR ENDING
10 DECEMBER, 1993

Authors: G. Thomas
          D.C. Palmer

Submitted to: Chief Geologist

Date: January, 1994

Copies to: N.T. Department of Mines & Energy
           CIS Canberra
           CRA Exploration, Darwin
           CRA Exploration, Mount Isa
           CRA Exploration, Brisbane

Map Reference: Calvert Hills, SE53-08

Report No.: 19410

The contents of this report remain the property of CRA Exploration Pty. Limited and may not be published in whole or in part, nor used in a company prospectus without the written consent of this Company.
CONTENTS

1. SUMMARY 1
2. CONCLUSIONS/RECOMMENDATIONS 3
3. INTRODUCTION 3
4. GEOLOGY 4
5. EXPLORATION ACTIVITIES 6
   5.1 Gravel Sampling and Indicator Mineral Results 6
   5.2 Open File Data - Geostatistical Interpretation 7
      5.2.1 'Upper' Seigal Volcanics 7
      5.2.2 'Lower' Seigal Volcanics 8
   5.3 Follow-up Stream Sediment and Rock Chip Sampling 8
   5.4 Airborne Geophysical Surveys - Radiometric Anomalies 9
6. REFERENCES 10

LOCATION 11
KEYWORDS 11
LIST OF DPO'S 11
LIST OF TABLES 11
LIST OF APPENDICES 11
LIST OF FIGURES 11
LIST OF PLANS 13
EL 7187 BREAKNECK CREEK, N.T.
THIRD ANNUAL REPORT FOR THE YEAR ENDING
10 DECEMBER, 1993

1. SUMMARY

EL 7187 (Breakneck Creek), initially comprising 220 blocks, was granted to CRA Exploration Pty. Limited on 11 December 1990 for a period of six years. On the second and third anniversaries of tenure of this tenement 110 and 55 blocks respectively were surrendered. A total of 55 blocks (179 sq. kms.) were retained in tenure year four. This report documents exploration undertaken in the Exploration Licence during the third year of tenure to 10 December, 1993.

The licence area was considered prospective for diamondiferous kimberlitic diatremes and for uranium (+ gold) mineralisation at the Tawallah Group Seigal Volcanics contact with the Westmoreland Conglomerate.

During the first year of tenure, helicopter-assisted reconnaissance density gravel sampling and BLEG sampling programs were completed over the tenement area. In addition, fine fraction stream sediment sampling was undertaken over the northern portion of the licence area covered by the Wollogorang 1:100,000 map sheet.

During the second year of tenure, gravel samples were processed for kimberlitic indicator minerals, minus 80 mesh stream sediment samples assayed, and programs of follow-up gravel sampling and reconnaissance rock chip sampling of the Carolina Sandstone Member completed.

The Breakneck Creek airborne magnetic and radiometric survey of 1023 line kilometres was flown over the central southern portion of EL 7187. The Seigal Blocks A and B airborne magnetic and radiometric digital located data, covering the central eastern portion of EL 7187, was acquired. Data for these surveys was digitally combined and reprocessed by ECS of Bowral, New South Wales.
Work programs completed within EL 7187 during tenure year three included processing of gravel samples for kimberlitic indicator minerals, follow-up gravel sampling, statistical analysis of BMR minus 80 mesh stream sediment results, rock chip and stream sediment sampling of selected anomalous catchments and selected radiometric anomalies.

Non-kimberlitic chromite grains were recovered from two follow-up gravel samples collected within the central-southern portion of the licence area.

The BMR Seigel minus 80 mesh stream sediment geochemical digital database covering the licence area was statistically analysed to define base metal anomalies. Zinc/copper anomalous catchments within the Doctors Creek/Debbil Debbil Creek drainage divide were identified.

Limited follow-up minus 80 mesh stream sediment sampling (21 samples) and rock float geochemical assaying (5 samples) was undertaken within selected anomalous catchment areas. Although the anomaly magnitudes were repeated, the elevated base metal values were deemed to be directly attributable to the scavenging effect of iron.

Low order copper anomalism reports from basalts within the Debbil Debbil Creek catchment area, with isolated rock chip samples reporting up to 0.31% Cu.

The Breakneck Creek and Seigel Blocks A and B airborne radiometric data was interpreted and anomalies selected for follow-up. Follow-up of these anomalies consisted of either rock chip or minus 80 mesh stream sediment sampling.

No significant assay values were returned from either the rock chip or minus 80 mesh stream sediment samples of radiometric anomalies.
2. CONCLUSIONS/RECOMMENDATIONS

Work programs completed within the confines of EL 7187 Breakneck Creek, have downgraded the areas potential for exposed or outcropping kimberlitic diatremes. Non-kimberlitic chromite reporting from catchment areas in the southern/central portions of the licence appear sourced from the Seigal Volcanics and Westmoreland Conglomerate.

Zinc/copper anomalous catchment areas within the Doctors Creek/Debbil Debbil Creek drainage are directly attributable to the scavenging effect of iron, rather than representing significant indications of exposed base metal mineralisation.

Although no significant uranium mineralisation was detected in follow-up of selected airborne radiometric anomalies, the Seigal Volcanics Westmoreland Conglomerate contact within EL 7187 represents a valid target for possible concealed or sub-cropping uranium (± gold) mineralisation. It is recommended that this contact should be systematically explored.

3. INTRODUCTION

EL 7187 Breakneck Creek comprising 220 blocks was granted to CRA Exploration Pty. Limited (CRAE) on 11 December 1990 for a period of six years (plan NTd 5708). On the second and third anniversaries of tenure of this tenement, 110 and 55 blocks respectively were surrendered as per requirements of the Northern Territory Mining Act, 1980. A total of 55 blocks (179 sq. kms) have been retained in tenure year four (plan NTd 5879).

The licence area was considered prospective for diamondiferous kimberlitic diatremes and for uranium (± gold) mineralisation at the Tawallah Group Seigal Volcanic contact with the Westmoreland Conglomerate.

Work programs completed within EL 7187 during the first year of tenure included; helicopter-assisted reconnaissance density gravel sampling, BLEG and minus 80 mesh
sampling and historical open file data review.

Work programs completed within EL 7187 during the second year of tenure included; gravel sample processing, helicopter-assisted follow-up gravel sampling, rock chip sampling and multi-element geochemical assaying of minus 80 mesh stream sediment samples. A low level detailed airborne geophysical survey was completed over a portion of the tenement area. This data was digitally combined with open file data by ECS of Bowral, New South Wales.

During the third year of tenure, gravel sample processing, helicopter-assisted gravel sampling, statistical analysis of BMR minus 80 mesh stream sediment results, follow-up minus 80 mesh stream sediment sampling, rock chip sampling and interpretation of airborne radiometric data were carried out.

This report describes in detail exploration activities undertaken by CRAE within EL 7187 Breakneck Creek during the third year of tenure.

4. GEOLOGY

The geology of the southern McArthur Basin region has been described by Jackson et al. (1987), whilst the metallogeny of the Calvert Hills 1:250,000 map sheet is reported by Ahmad and Wygralak (1989). The following geological summary of the region encompassed by EL 7187 Breakneck Creek is drawn from these sources. The stratigraphic succession appears in Table 1.

Exploration Licence 7187 Breakneck Creek covers a sequence of Middle Proterozoic sediments and volcanics (Tawallah Group) which flank the northern margin of the Early-Proterozoic Murphy Metamorphic Inlier.

The Murphy Metamorphics are a sequence of isoclinally folded, and greenschist facies metasediments which are unconformably overlain by a felsic volcanic/pyroclastic sequence (Cliffdale Volcanics), both of which are intruded by granite/adamellite of the Nicholson
Granite Complex. The Cliffdale Volcanics are restricted to the south-eastern portion of the exploration licence.

The igneous and metamorphic complexes of the Murphy Inlier are overlain with angular unconformity and disconformity by the Tawallah Group. The Tawallah Group is the oldest group of the McArthur Basin sequence.

The Westmoreland Conglomerate is the oldest unit of the Tawallah Group and consists of a thick sequence (up to 1800m) of fluvial arkosic conglomerate and quartz arenite. Permeable lithofacies within the Westmoreland Conglomerate host uranium mineralisation. The unit forms northwest trending dip slopes in the southern portion of the exploration licence. By contrast, outcrop of the Westmoreland Conglomerate within the central portion of the licence is largely confined to fault zones.

The Seigal Volcanics outcrop throughout the majority of the licence area forming a north-east trending belt of tholeiitic basic lavas with minor tuff interbeds which conformably overlie the Westmoreland Conglomerate. A thin (up to 20m) arenaceous and conglomeratic sequence termed the Carolina Sandstone Member occurs as medial lenses within the Seigal Volcanics.

The McDermott Formation conformably overlies the Seigal Volcanics in the north-western portion of the licence area. The McDermott Formation is characterised by alternating beds of shallow-water marine arenites, shale and dolostone.

The carbonate rocks of the McDermott Formation are conformably overlain by the Sly Creek Sandstone sequence which grades upwards into the glauconitic sandstone of the Aquarium Formation. Exposures of Aquarium Formation within the licence area are very limited.

The entire Proterozoic sequence has undergone gentle flexuring and fault reactivation. The Phanerozoic records minor Cambrian and Cretaceous marine transgressions during which thin veneers of sediment were deposited.
Soil, sand and ferruginous detritus of Tertiary and Quaternary Age cover areas in the northern portion of the licence area.

5. EXPLORATION ACTIVITIES

5.1 GRAVEL SAMPLING AND INDICATOR MINERAL RESULTS

During tenure year one, incised drainage systems developed across the entire licence area were subjected to a helicopter-supported reconnaissance density, minus 2mm fraction trapsite gravel sampling program (Palmer, 1991). Samples collected were processed for kimberlitic indicator minerals by the CRAE, Belmont laboratory in tenure year two.

Ubiquitous non-kimberlitic chromite was reported from catchment areas located along the eastern margin of EL 7187 Breakneck Creek sourced from Early-Proterozoic Cliffdale Volcanics. The nature of chromites reporting from within catchment areas located in the central-southern portion of the licence were non-definitive. To provide additional grains for assessment, two repeat, minus 2mm fraction trapsite gravel samples were collected in tenure year two (Palmer and Thomas, 1992).

During tenure year three, the two repeat 60kg gravel samples were processed by the CRAE Belmont laboratory for kimberlitic indicator minerals.

Results are detailed below;

3319684 3 x +0.4mm chromite, 16 x +0.25mm chromite
3319799 6 x +0.4mm chromite, 34 x +0.25mm chromite

The chemistry of the chromite grains in samples 3319684 and 3319799 proved to be non-kimberlitic.

During tenure year three, one additional gravel sample was collected and submitted for processing by CRAE Belmont laboratory, for kimberlitic indicator minerals. Results are
awaited for this sample. Sample ledgers appear in Appendix I, whilst sample locations are shown on plan NTd 5278.

5.2 OPEN FILE DATA - GEOSTATISTICAL INTERPRETATION

During tenure year three, the BMR Seigal 1:100,000 map sheet minus 80 mesh stream sediment geochemical database (Rossiter and Scott, 1979) covering the licence area, was purchased.

Examination of the data revealed a zone of copper/zinc elevation within the Doctors Creek drainage area located in the northwestern portion of EL 7187 Breakneck Creek. Values of up to 178 ppm Cu and 337 ppm Zn, reported from within the 60 sq. km (approx.) catchment area draining Tawallah Group Seigal Volcanics and its medial Carolina Sandstone Member.

Univariate statistics computed on the stream sediment data covering the Seigal Volcanics are displayed in Table 2 and indicate the presence of enhanced base metal values within the 'upper' Seigal Volcanics stratigraphy.

Multivariate statistics were computed on the 'upper' and 'lower' Seigal Volcanics data sets to determine whether the elevated base metal stream sediment values reflect 'false' anomalism (i.e. due to Fe/Mn scavenging) or are in fact significant indicators of exposed mineralisation.

5.2.1 'Upper' Seigal Volcanics

Regression scattergrams for Fe% vs. Cu, Pb and Zn clearly demonstrate via high correlation coefficient values, a direct linear relationship between Fe% and Zn (Figures 1 - 3).

Anomalous zinc values (>90th percentile; >169 ppm) occur within the Doctors Creek catchment area in association with iron values >9.7% (i.e. >90th percentile). Copper/lead anomalism is largely confined to the central drainage divide, with
the exception of highest order copper values (>174 ppm Cu; >98th percentile) reporting from contiguous drainages in the headwaters of Doctors Creek (plan NTd 5896).

5.2.2 'Lower' Seigal Volcanics
Stream sediment basemetal values returned from drainages developed within the 'lower' Seigal Volcanics display lower absolute magnitudes and report correspondingly lower Fe% and Mn assay values (Table 2).

Regression scattergrams computed for Fe% vs. Cu, Pb, Zn (Figures 4 - 6) and Mn vs. Cu, Pb and Zn (Figures 7 - 9) demonstrate via high correlation coefficient values, that a linear relationship exists between Fe%/Zn and Mn/Zn values, as previously noted in the 'upper' Seigal Volcanics geochemical data set.

The distribution of anomalous zinc values (>90th percentile; >100 ppm) coincides with elevated Fe% and or Mn values in three areas;

(i) Branch Creek drainage system within central EL 7187,
(ii) Scattered occurrences along Debbil Debbil Creek, and
(iii) Scattered occurrences draining the 'lower' Seigal Volcanics/Westmoreland Conglomerate contact (also sporadically anomalous in copper >90th percentile; 106 ppm and lead >90th percentile; >15 ppm).

Copper/lead anomalisim is largely confined to the Fe%/Mn elevated catchment areas, with the exception of a highest order (>99th percentile) copper value of 132 ppm (5.4% Fe, 443 ppm Mn) reporting from a small (<1km) catchment in the headwaters of Debbil Debbil Creek (plan NTd 5895).

5.3 FOLLOW-UP STREAM SEDIMENT AND ROCK CHIP SAMPLING

During tenure year three, helicopter-borne detailed minus 80# stream sediment sampling was undertaken within selected copper anomalous catchment areas in the southwestern portion of EL 7187 Breakneck Creek. Repeat sampling of zinc/lead elevated catchments
in the northern portion of the licence was also completed.

A total of 21, minus 80 mesh samples was collected and submitted to Classic Laboratories, Darwin, for assay by the AAS technique for Ag, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn, As, and by XRF for Ba. Sample locations are shown on plan NTd 5260, whilst sample ledgers appear in Appendix II.

Follow-up stream sediment assay results returned failed to upgrade or confirm the presence of significant copper values within the Debbil Debbil Creek and Doctors Creek catchment areas. Zinc anomalous catchments in the northern portion of the licence area returned zinc values in the range of 155-410 ppm, with coincident high iron values (5.9-11.2%).

Five rock samples of representative catchment lithologies collected concurrent with the stream sediment samples were analysed by Classic Laboratories, Darwin for Ag, As, Cd, Co, Cr, Cu, Fe, Bi, Mn, Mo, Ni, Pb, P, V and Zn by the ICP technique.

A sample of weathered basalt collected within the copper anomalous headwaters of Doctors Creek reported 0.31% Cu over a two metre interval. Sample locations are shown on plan NTd 5660, whilst assay results appear in Appendix III.

5.4 AIRBORNE GEOPHYSICAL SURVEYS - RADIOMETRIC ANOMALIES

The Breakneck Creek and Seigal Blocks A and B airborne radiometric data was interpreted and eighteen anomalies selected for follow-up (plan NTm 100).

Follow-up of selected airborne radiometric anomalies consisted of helicopter-assisted rock chip or minus 80 mesh stream sediment sampling.

A total of 32 rock chip samples was collected and submitted to ALS, Mt. Isa, for analysis of Ag, As, Bi, Cd, Cu, Hg, Mo, Pb, Sb and Zn (IC588), Co, Cr, Fe, Mn, Ni and P (IC580), Au (PM219), and U (XRF1). Sample locations are shown on plan NT'd 5660,
whilst sample ledgers appear in Appendix III.

A total of seven, minus 80 mesh stream sediment samples was collected and submitted to ALS, Mt. Isa for analysis of Ag, As, Bi, Cd, Cu, Hg, Mo, Pb, Sb and Zn (IC588), Co, Cr, Fe, Mn, Ni and P (IC580), Au (PM219), and U (XRF1). Sample locations are shown in plan NTd 5260, whilst sample ledgers appear in Appendix II.

No significant assay values were returned from either the rock chip or minus 80 mesh stream sediment samples collected in the vicinity of the radiometric anomalies.

6. REFERENCES


LOCATION
Calvert Hills 1:250,000 Sheet SE53-08
Wollogorang 1:100,000 Sheet 6463
Seigal 1:100,000 Sheet 6462

KEYWORDS
diamond, uranium, chromite geochemistry, stream sediment sampling, gravel sampling, geochem-statistics, kimberlitic indicator, rock sampling, aerial magnetic survey, aerial radiometric survey, Proterozoic-Mid, Westmoreland Conglomerate, Tawallah Group, Seigal Volcanics

LIST OF DPO’S
71105, 71112, 75420, 75421, 75422

LIST OF TABLES
Table 1 Stratigraphic Relations of Rock Units within Breakneck Creek EL 7187
Table 2 EL 7187 Breakneck Creek BMR -80# Drainage Geochemistry Data Statistical Summary

LIST OF APPENDICES
Appendix I EPM 7187 Breakneck Creek -2mm Gravel Sample Indicator Mineral Results
Appendix II EPM 7187 Breakneck Creek -80# Stream Sediment Geochemistry Results
Appendix III EPM 7187 Breakneck Creek Rock Sample Ledger and Geochemistry Results

LIST OF FIGURES
Figure 1 EL 7187 Breakneck Creek (Upper Seigal Volcanics) Cu(ppm) vs Fe%
Figure 2  
EL 7187 Breakneck Creek  
(Upper Seigal Volcanics)  
Pb(ppm) vs Fe%  

Figure 3  
EL 7187 Breakneck Creek  
(Upper Seigal Volcanics)  
Zn(ppm) vs Fe%  

Figure 4  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Cu(ppm) vs Mn(ppm)  

Figure 5  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Pb(ppm) vs Mn(ppm)  

Figure 6  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Zn(ppm) vs Mn(ppm)  

Figure 7  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Cu(ppm) vs Fe%  

Figure 8  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Pb(ppm) vs Fe%  

Figure 9  
EL 7187 Breakneck Creek  
(Lower Seigal Volcanics)  
Zn(ppm) vs Fe%
# LIST OF PLANS

<table>
<thead>
<tr>
<th>NTd 5708</th>
<th>EL 7187 Breakneck Creek</th>
<th>1:250 000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduction of Area</td>
<td></td>
</tr>
<tr>
<td>NTd 5879</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:250 000</td>
</tr>
<tr>
<td></td>
<td>Location Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduction of Area</td>
<td></td>
</tr>
<tr>
<td>NTd 5260</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>-80# Stream Sediment Sample Location Plan</td>
<td></td>
</tr>
<tr>
<td>NTd 5278</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>Gravel Sample Location Plan</td>
<td></td>
</tr>
<tr>
<td>NTd 5660</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>Rock Sample Location Plan</td>
<td></td>
</tr>
<tr>
<td>NTd 5895</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>Lower Seigal Volcanics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anomalous Basemetal Catchments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary Plan</td>
<td></td>
</tr>
<tr>
<td>NTd 5896</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>Upper Seigal Volcanics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anomalous Basemetal Catchments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary Plan</td>
<td></td>
</tr>
<tr>
<td>NTm 100</td>
<td>EL 7187 Breakneck Creek</td>
<td>1:100 000</td>
</tr>
<tr>
<td></td>
<td>(Reduced Area)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airborne Radiometric Anomaly Location Plan</td>
<td></td>
</tr>
</tbody>
</table>
Table 1. STRATIGRAPHIC RELATIONS OF ROCK UNITS WITHIN BREAKNECK CREEK EL 7187
TABLE 2:

EL 7187 BREAKNECK CREEK

BMR -80# Drainage Geochemistry Data Statistical Summary

SEIGAL VOLCANICS

<table>
<thead>
<tr>
<th></th>
<th>Cu (ppm)</th>
<th>Mn (ppm)</th>
<th>Pb (ppm)</th>
<th>Zn (ppm)</th>
<th>Fe (%)</th>
<th>Cu (ppm)</th>
<th>Mn (ppm)</th>
<th>Pb (ppm)</th>
<th>Zn (ppm)</th>
<th>Fe (%)</th>
<th>Cu (ppm)</th>
<th>Mn (ppm)</th>
<th>Pb (ppm)</th>
<th>Zn (ppm)</th>
<th>Fe (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>82.20</td>
<td>735</td>
<td>11.80</td>
<td>77.30</td>
<td>5.70</td>
<td>95.50</td>
<td>782</td>
<td>13.10</td>
<td>90.10</td>
<td>6.70</td>
<td>71.60</td>
<td>697</td>
<td>10.90</td>
<td>67.20</td>
<td>4.90</td>
</tr>
<tr>
<td>s.d</td>
<td>34.40</td>
<td>559</td>
<td>3.80</td>
<td>50.50</td>
<td>2.20</td>
<td>39.50</td>
<td>398</td>
<td>3.90</td>
<td>67.20</td>
<td>2.50</td>
<td>25.20</td>
<td>659</td>
<td>3.40</td>
<td>27.90</td>
<td>1.60</td>
</tr>
<tr>
<td>min.</td>
<td>25.00</td>
<td>79</td>
<td>5.00</td>
<td>12.00</td>
<td>0.30</td>
<td>30.00</td>
<td>91</td>
<td>7.00</td>
<td>12.00</td>
<td>2.70</td>
<td>25.00</td>
<td>79</td>
<td>5.00</td>
<td>16.00</td>
<td>0.30</td>
</tr>
<tr>
<td>max.</td>
<td>178.00</td>
<td>6650</td>
<td>31.00</td>
<td>337.00</td>
<td>14.80</td>
<td>178.00</td>
<td>2090</td>
<td>31.00</td>
<td>337.00</td>
<td>14.80</td>
<td>132.00</td>
<td>6650</td>
<td>23.00</td>
<td>178.00</td>
<td>9.60</td>
</tr>
</tbody>
</table>
FIGURE 1  Scattergram Cu(ppm) vs Fe%

FIGURE 2  Scattergram Pb(ppm) vs Fe%

FIGURE 3  Scattergram Zn(ppm) vs Fe%
FIGURE 4 Scattergram Cu(ppm) vs Mn(ppm)

FIGURE 5 Scattergram Pb(ppm) vs Mn(ppm)

FIGURE 6 Scattergram Zn(ppm) vs Mn(ppm)
EL 7187 BREAKNECK CREEK (Lower Seigal Volcs)

**FIGURE 7** Scattergram Cu(ppm) vs Fe%

\[ y = 10.464x + 20.22, r^2 = .443 \]

**FIGURE 8** Scattergram Pb(ppm) vs Fe%

\[ y = .171x + 10.006, r^2 = .007 \]

**FIGURE 9** Scattergram Zn(ppm) vs Fe%

\[ y = 13.583x + .447, r^2 = .615 \]
APPENDIX I

EL 7187 Breakneck Creek
-2mm Gravel Sample Indicator Mineral Results
CRA EXPLORATION PTY LIMITED

Indicator Mineral Results

Location : EL 7187 Breakneck Creek
Sample Type : -2mm Trapsite Drainage Gravel Samples
Collected by : D. C. Palmer
Date : November 1992
DPO : 71105

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>EASTING</th>
<th>NORTHING</th>
<th>KI</th>
<th>MINERALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AMG</td>
<td>AMG</td>
<td>&gt;0.4mm Fraction</td>
<td>+0.25mm Fraction</td>
</tr>
<tr>
<td>3319684</td>
<td>803300</td>
<td>8055600</td>
<td>3 x chromite</td>
<td>16 x chromite</td>
</tr>
<tr>
<td>3319799</td>
<td>806250</td>
<td>8054050</td>
<td>6 x chromite</td>
<td>34 x chromite</td>
</tr>
</tbody>
</table>
CRA EXPLORATION PTY. LIMITED

Kimberlitic Indicator Minerals

Location : EL 7187 Breakneck Creek
Sample Type : -2mm Trapsite Drainage Gravel Samples
Collected by : G. Thomas
Date : October, 1993
DPO : 75422
Results : Awaited

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>EASTING (AMG)</th>
<th>NORTHING (AMG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3482890</td>
<td>807050</td>
<td>8053875</td>
</tr>
<tr>
<td>3482891</td>
<td>807050</td>
<td>8053875</td>
</tr>
</tbody>
</table>

NB: Sample Numbers 3482890 and 3482891 constitute one gravel sample AMG Zone 53
APPENDIX II

EL 7187 Breakneck Creek
-80# Stream Sediment Geochemistry Results
**CRA EXPLORATION PTY LIMITED**

**GEOCHEMICAL SAMPLE LEDGER**

**PROGRAMME:** -80# STREAM SEDIMENT  
BMR Geochem. Anomalism Follow-up

**TENEMENT:** EL 7187 Breakneck Creek  
MAP REF: Calvert Hills SE53-08

**GEOLOGIST:** D.C. Palmer  
DATE: 12 May 1993

**DPO No.:** 71112  
**NO. SAMPLES:** 21

<table>
<thead>
<tr>
<th>SAMPLE No.</th>
<th>EASTING AMG</th>
<th>NORTTHING AMG</th>
<th>Ag ppm</th>
<th>Cd ppm</th>
<th>Co ppm</th>
<th>Cr ppm</th>
<th>Cu ppm</th>
<th>Fe %</th>
<th>Mn ppm</th>
<th>Ni ppm</th>
<th>Pb ppm</th>
<th>Zn ppm</th>
<th>As ppm</th>
<th>Ba ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3379994</td>
<td>788083</td>
<td>8052750</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>35</td>
<td>10</td>
<td>84</td>
<td>5.30</td>
<td>500</td>
<td>20</td>
<td>11</td>
<td>69</td>
<td>&lt;20</td>
<td>490</td>
</tr>
<tr>
<td>3319995</td>
<td>788800</td>
<td>8052600</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>42</td>
<td>29</td>
<td>100</td>
<td>5.70</td>
<td>680</td>
<td>25</td>
<td>12</td>
<td>89</td>
<td>&lt;20</td>
<td>490</td>
</tr>
<tr>
<td>3319996</td>
<td>787800</td>
<td>8052400</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>29</td>
<td>23</td>
<td>42</td>
<td>4.68</td>
<td>230</td>
<td>15</td>
<td>9</td>
<td>36</td>
<td>&lt;20</td>
<td>420</td>
</tr>
<tr>
<td>3319998</td>
<td>786834</td>
<td>8052780</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>15</td>
<td>43</td>
<td>29</td>
<td>4.74</td>
<td>94</td>
<td>12</td>
<td>8</td>
<td>15</td>
<td>&lt;20</td>
<td>350</td>
</tr>
<tr>
<td>3319999</td>
<td>786850</td>
<td>8052800</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>42</td>
<td>23</td>
<td>78</td>
<td>6.10</td>
<td>730</td>
<td>21</td>
<td>13</td>
<td>77</td>
<td>&lt;20</td>
<td>500</td>
</tr>
<tr>
<td>3320000</td>
<td>786400</td>
<td>8052800</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>31</td>
<td>67</td>
<td>135</td>
<td>7.50</td>
<td>490</td>
<td>34</td>
<td>18</td>
<td>94</td>
<td>&lt;20</td>
<td>410</td>
</tr>
<tr>
<td>3346001</td>
<td>786400</td>
<td>8052181</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>36</td>
<td>47</td>
<td>95</td>
<td>5.60</td>
<td>1560</td>
<td>28</td>
<td>19</td>
<td>79</td>
<td>&lt;20</td>
<td>400</td>
</tr>
<tr>
<td>3346002</td>
<td>793930</td>
<td>8053830</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>34</td>
<td>65</td>
<td>105</td>
<td>5.50</td>
<td>490</td>
<td>35</td>
<td>16</td>
<td>76</td>
<td>&lt;20</td>
<td>400</td>
</tr>
<tr>
<td>3346003</td>
<td>793600</td>
<td>8053430</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>36</td>
<td>34</td>
<td>77</td>
<td>7.70</td>
<td>670</td>
<td>23</td>
<td>14</td>
<td>97</td>
<td>&lt;20</td>
<td>410</td>
</tr>
<tr>
<td>3346004</td>
<td>793675</td>
<td>8053880</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>32</td>
<td>100</td>
<td>57</td>
<td>4.28</td>
<td>940</td>
<td>43</td>
<td>11</td>
<td>75</td>
<td>&lt;20</td>
<td>440</td>
</tr>
<tr>
<td>3346005</td>
<td>793700</td>
<td>8053900</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>29</td>
<td>98</td>
<td>54</td>
<td>3.82</td>
<td>890</td>
<td>34</td>
<td>13</td>
<td>105</td>
<td>&lt;20</td>
<td>380</td>
</tr>
<tr>
<td>3346006</td>
<td>793150</td>
<td>8053800</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>30</td>
<td>98</td>
<td>50</td>
<td>3.88</td>
<td>810</td>
<td>39</td>
<td>12</td>
<td>89</td>
<td>&lt;20</td>
<td>460</td>
</tr>
<tr>
<td>3346007</td>
<td>793130</td>
<td>8054250</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>32</td>
<td>70</td>
<td>46</td>
<td>4.44</td>
<td>750</td>
<td>46</td>
<td>13</td>
<td>76</td>
<td>&lt;20</td>
<td>410</td>
</tr>
<tr>
<td>3346009</td>
<td>797090</td>
<td>8060470</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>28</td>
<td>94</td>
<td>47</td>
<td>4.00</td>
<td>770</td>
<td>39</td>
<td>12</td>
<td>86</td>
<td>&lt;20</td>
<td>430</td>
</tr>
<tr>
<td>3346010</td>
<td>796500</td>
<td>8060500</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>34</td>
<td>73</td>
<td>48</td>
<td>4.54</td>
<td>490</td>
<td>56</td>
<td>14</td>
<td>92</td>
<td>&lt;20</td>
<td>430</td>
</tr>
<tr>
<td>3346011</td>
<td>796500</td>
<td>8060700</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>23</td>
<td>20</td>
<td>54</td>
<td>9.80</td>
<td>1070</td>
<td>28</td>
<td>20</td>
<td>410</td>
<td>&lt;20</td>
<td>390</td>
</tr>
<tr>
<td>3346012</td>
<td>793763</td>
<td>8061994</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>27</td>
<td>20</td>
<td>72</td>
<td>5.90</td>
<td>880</td>
<td>18</td>
<td>22</td>
<td>185</td>
<td>&lt;20</td>
<td>430</td>
</tr>
<tr>
<td>3346014</td>
<td>793700</td>
<td>8061400</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>30</td>
<td>49</td>
<td>82</td>
<td>11.20</td>
<td>830</td>
<td>30</td>
<td>22</td>
<td>290</td>
<td>&lt;20</td>
<td>420</td>
</tr>
<tr>
<td>3346015</td>
<td>793700</td>
<td>8061884</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
<td>30</td>
<td>73</td>
<td>82</td>
<td>1.50</td>
<td>750</td>
<td>32</td>
<td>17</td>
<td>380</td>
<td>&lt;20</td>
<td>370</td>
</tr>
<tr>
<td>3319990</td>
<td>797550</td>
<td>8052800</td>
<td>&lt;0.1</td>
<td>0.1</td>
<td>32</td>
<td>79</td>
<td>92</td>
<td>12.10</td>
<td>720</td>
<td>30</td>
<td>18</td>
<td>155</td>
<td>&lt;20</td>
<td>360</td>
</tr>
<tr>
<td>3319991</td>
<td>778600</td>
<td>8052800</td>
<td>&lt;0.1</td>
<td>0.1</td>
<td>32</td>
<td>72</td>
<td>105</td>
<td>8.40</td>
<td>990</td>
<td>42</td>
<td>20</td>
<td>180</td>
<td>&lt;20</td>
<td>300</td>
</tr>
</tbody>
</table>

**METHOD**  
AAS  
AAS  
AAS  
AAS  
AAS  
AAS  
AAS  
AAS  
AAS  
XRF

**DET. LIMIT**  
0.1ppm  
0.1ppm  
2ppm  
2ppm  
1ppm  
5ppm  
2ppm  
2ppm  
2ppm  
1ppm  
20ppm  
10ppm
# CRA EXPLORATION PTY LIMITED

## GEOCHEMICAL SAMPLE LEDGER

**PROGRAMME:**  -80# STREAM SEDIMENT AIRBORNE RADIOMETRIC ANOMALY FOLLOW UP  
**TENEMENT:**  EL 7187 BREAKNECK CREEK  
**GEOLOGIST:**  G. THOMAS  
**NO. SAMPLES:**  7  
**DATE:**  1 OCTOBER 1993  
**MAP REF:**  CALVERT HILLS SE5308  
**DPO:**  75420

<table>
<thead>
<tr>
<th>Sample No</th>
<th>East AMG</th>
<th>North AMG</th>
<th>Radiometric Anomaly</th>
<th>Ag ppm</th>
<th>As ppm</th>
<th>Au ppm</th>
<th>Bi ppm</th>
<th>Cd ppm</th>
<th>Co ppm</th>
<th>Cu ppm</th>
<th>Cr ppm</th>
<th>Fe ppm</th>
<th>Hg ppm</th>
<th>Mn ppm</th>
<th>Mo ppm</th>
<th>Ni ppm</th>
<th>P ppm</th>
<th>Pb ppm</th>
<th>Sb ppm</th>
<th>U ppm</th>
<th>Zn ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3482865</td>
<td>808225</td>
<td>8058025</td>
<td>BCD5</td>
<td>-0.1</td>
<td>1.1</td>
<td>-0.001</td>
<td>-0.2</td>
<td>-0.1</td>
<td>-5</td>
<td>3</td>
<td>27</td>
<td>7900</td>
<td>-0.5</td>
<td>24</td>
<td>1.3</td>
<td>-5</td>
<td>111</td>
<td>3</td>
<td>0.4</td>
<td>-4</td>
<td>9</td>
</tr>
<tr>
<td>3482866</td>
<td>810225</td>
<td>8059400</td>
<td>BCD6</td>
<td>-0.1</td>
<td>3</td>
<td>0.039</td>
<td>0.4</td>
<td>-0.1</td>
<td>19</td>
<td>44</td>
<td>55</td>
<td>53200</td>
<td>-0.5</td>
<td>442</td>
<td>0.9</td>
<td>40</td>
<td>301</td>
<td>7</td>
<td>0.4</td>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>3482867</td>
<td>798650</td>
<td>8061250</td>
<td>BCD1</td>
<td>-0.1</td>
<td>0.8</td>
<td>0.069</td>
<td>0.5</td>
<td>-0.1</td>
<td>23</td>
<td>70</td>
<td>71</td>
<td>60800</td>
<td>-0.5</td>
<td>835</td>
<td>0.4</td>
<td>68</td>
<td>279</td>
<td>6</td>
<td>0.7</td>
<td>5</td>
<td>95</td>
</tr>
<tr>
<td>3482871</td>
<td>804100</td>
<td>8062775</td>
<td>BCD9</td>
<td>-0.1</td>
<td>0.8</td>
<td>0.066</td>
<td>0.6</td>
<td>-0.1</td>
<td>29</td>
<td>95</td>
<td>85</td>
<td>67000</td>
<td>-0.5</td>
<td>845</td>
<td>0.3</td>
<td>86</td>
<td>296</td>
<td>13</td>
<td>0.4</td>
<td>-4</td>
<td>110</td>
</tr>
<tr>
<td>3482876</td>
<td>793350</td>
<td>8051400</td>
<td>BCA3</td>
<td>-0.1</td>
<td>1.3</td>
<td>0.049</td>
<td>-0.2</td>
<td>-0.1</td>
<td>-5</td>
<td>7</td>
<td>66</td>
<td>9500</td>
<td>-0.5</td>
<td>45</td>
<td>2.9</td>
<td>6</td>
<td>97</td>
<td>2</td>
<td>0.5</td>
<td>-4</td>
<td>9</td>
</tr>
<tr>
<td>3482877</td>
<td>794100</td>
<td>8051975</td>
<td>BCA4</td>
<td>-0.1</td>
<td>1.1</td>
<td>-0.001</td>
<td>0.2</td>
<td>-0.1</td>
<td>26</td>
<td>28</td>
<td>37</td>
<td>53100</td>
<td>-0.5</td>
<td>477</td>
<td>1</td>
<td>47</td>
<td>403</td>
<td>5</td>
<td>0.5</td>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td>3482878</td>
<td>798550</td>
<td>8052525</td>
<td>BCA8</td>
<td>-0.1</td>
<td>1.1</td>
<td>-0.001</td>
<td>-0.2</td>
<td>-0.1</td>
<td>-5</td>
<td>4</td>
<td>80</td>
<td>8100</td>
<td>-0.5</td>
<td>37</td>
<td>4.1</td>
<td>6</td>
<td>133</td>
<td>3</td>
<td>0.4</td>
<td>-4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX III

EL 7187 Breakneck Creek
Rock Sample Ledger and Geochemistry Results
CRA EXPLORATION PTY LIMITED

GEOCHEMICAL SAMPLE LEDGER

PROGRAMME: ROCK SAMPLING
BMR Geochem. Anomalism Follow-up

TENEMENT: EL 7187 Breakneck Creek
MAP REF: Calvert Hills SE 53-08

GEOLOGIST: DCP
DATE: 12 May 1993

DPO No.: 71112
NO. SAMPLES: 4

<table>
<thead>
<tr>
<th>SAMPLE No</th>
<th>EASTING AMG</th>
<th>NORTHING AMG</th>
<th>SAMPLE TYPE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3746008</td>
<td>793130</td>
<td>8054250</td>
<td>Grab</td>
<td>Red brown, weathered, aphanitic basalt. Representative catchment area lithology. Sampled for geochem background levels.</td>
</tr>
<tr>
<td>3746013</td>
<td>793760</td>
<td>8061990</td>
<td>Float</td>
<td>Red brown, laminated, micaceous shale with relict iron oxide voids.</td>
</tr>
<tr>
<td>3319992</td>
<td>787550</td>
<td>8052800</td>
<td>Float</td>
<td>Red brown laminated shale, ferruginous shale.</td>
</tr>
<tr>
<td>3319993</td>
<td>787600</td>
<td>8052800</td>
<td>Channel</td>
<td>2m TVT. Manganiferous, weathered fine crystalline basalt.</td>
</tr>
<tr>
<td>3319997</td>
<td>787800</td>
<td>8052400</td>
<td>Float</td>
<td>Quartz-veined, quartz brecciated basalt.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAMPLE No</th>
<th>EASTING AMG</th>
<th>NORTHING AMG</th>
<th>Ag ppm</th>
<th>As ppm</th>
<th>Cd ppm</th>
<th>Co ppm</th>
<th>Cr ppm</th>
<th>Cu ppm</th>
<th>Fe %</th>
<th>Bi ppm</th>
<th>Mn ppm</th>
<th>Mo ppm</th>
<th>Ni ppm</th>
<th>Pb ppm</th>
<th>P ppm</th>
<th>V ppm</th>
<th>Zn ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3746008</td>
<td>793130</td>
<td>8054250</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>14</td>
<td>62</td>
<td>88</td>
<td>3.70</td>
<td>&lt;10</td>
<td>360</td>
<td>&lt;3</td>
<td>22</td>
<td>5</td>
<td>360</td>
<td>66</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>3746013</td>
<td>793760</td>
<td>8061990</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>16</td>
<td>100</td>
<td>36</td>
<td>3.90</td>
<td>&lt;10</td>
<td>1200</td>
<td>&lt;3</td>
<td>8</td>
<td>5</td>
<td>540</td>
<td>78</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>3319992</td>
<td>787550</td>
<td>8052800</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>6</td>
<td>98</td>
<td>10</td>
<td>3.10</td>
<td>&lt;10</td>
<td>80</td>
<td>&lt;3</td>
<td>6</td>
<td>&lt;5</td>
<td>145</td>
<td>60</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>3319993</td>
<td>787600</td>
<td>8052800</td>
<td>76</td>
<td>&lt;1</td>
<td>68</td>
<td>58</td>
<td>3100</td>
<td>9.35</td>
<td>45</td>
<td>1060</td>
<td>6</td>
<td>24</td>
<td>5</td>
<td>460</td>
<td>105</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>3319997</td>
<td>787800</td>
<td>8052400</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>6</td>
<td>320</td>
<td>26</td>
<td>2.75</td>
<td>&lt;10</td>
<td>230</td>
<td>4</td>
<td>8</td>
<td>25</td>
<td>250</td>
<td>54</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

METHOD: ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP ICP
DET. LIMIT: 1ppm 3ppm 1ppm 2ppm 2ppm 10ppm 10ppm 10ppm 3ppm 2ppm 5ppm 10ppm 2ppm 2ppm
# GEOCHEMICAL SAMPLE LEDGER

**PROGRAMME:** ROCK SAMPLING  
**AIRBORNE RADIOMETRIC ANOMALY FOLLOW UP**  

**TENEMENT:** EL 7187 BREAKECK CREEK  
**DATE:** 1 OCTOBER 1993  

**GEOLOGIST:** G. THOMAS  
**NO. SAMPLES:** 32  
**DPO:** 75421

---

<table>
<thead>
<tr>
<th>Sample No</th>
<th>East AMG</th>
<th>North AMG</th>
<th>RADIOMETRIC ANOMALY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3482840</td>
<td>803300</td>
<td>8050000</td>
<td>BC81</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482841</td>
<td>804250</td>
<td>8050400</td>
<td>BC82</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482842</td>
<td>803100</td>
<td>8050300</td>
<td>BC81</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482843</td>
<td>803100</td>
<td>8050100</td>
<td>BC81</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482844</td>
<td>804200</td>
<td>8050400</td>
<td>BC81</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482845</td>
<td>806700</td>
<td>8050450</td>
<td>BC83</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482846</td>
<td>806600</td>
<td>8050500</td>
<td>BC83</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482847</td>
<td>806700</td>
<td>8050500</td>
<td>BC83</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482848</td>
<td>806750</td>
<td>8050500</td>
<td>BC83</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482849</td>
<td>807175</td>
<td>8052900</td>
<td>BC84</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482850</td>
<td>807175</td>
<td>8052850</td>
<td>BC84</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482851</td>
<td>807175</td>
<td>8052600</td>
<td>BC84</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482852</td>
<td>807175</td>
<td>8052625</td>
<td>BC84</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482853</td>
<td>807225</td>
<td>8052700</td>
<td>BC84</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482858</td>
<td>813900</td>
<td>8051750</td>
<td>ECC2</td>
<td>Rhyolite (Pcc5)</td>
</tr>
<tr>
<td>3482859</td>
<td>813900</td>
<td>8051650</td>
<td>ECC2</td>
<td>Rhyolite (Pcc5)</td>
</tr>
<tr>
<td>3482863</td>
<td>810200</td>
<td>8056100</td>
<td>BC85</td>
<td>Rhyolite (Pcc5)</td>
</tr>
<tr>
<td>3482864</td>
<td>810200</td>
<td>8056250</td>
<td>BC85</td>
<td>Rhyolite (Pcc5)</td>
</tr>
<tr>
<td>3482866</td>
<td>802400</td>
<td>8059500</td>
<td>BCD2</td>
<td>Basalt (Pts)</td>
</tr>
<tr>
<td>3482869</td>
<td>802700</td>
<td>8062550</td>
<td>BCD8</td>
<td>Basalt (Pts)</td>
</tr>
<tr>
<td>3482870</td>
<td>802700</td>
<td>8062650</td>
<td>BCD8</td>
<td>Basalt (Pts)</td>
</tr>
<tr>
<td>3482872</td>
<td>805400</td>
<td>8061450</td>
<td>BCD7</td>
<td>Basalt (Pts)</td>
</tr>
</tbody>
</table>

---

CRA EXPLORATION PTY LIMITED
CRA EXPLORATION PTY LIMITED

GEOCHEMICAL SAMPLE LEDGER

PROGRAMME: ROCK SAMPLING
AIRBORNE RADIOMETRIC ANOMALY FOLLOW UP

TENEMENT: EL 7187 BREAKNECK CREEK

GEOLOGIST: G.THOMAS

DPO: 75421

MAP REF: CALVERT HILLS SE5308
DATE: 1 OCTOBER 1993
NO. SAMPLES 32

<table>
<thead>
<tr>
<th>Sample No</th>
<th>East AMG</th>
<th>North AMG</th>
<th>Radiometric Anomaly</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3482873</td>
<td>805900</td>
<td>8061200</td>
<td>BCD7</td>
<td>Basalt (Pts)</td>
</tr>
<tr>
<td>3482879</td>
<td>795100</td>
<td>8051900</td>
<td>BCA5</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482880</td>
<td>795100</td>
<td>8051725</td>
<td>BCA5</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482881</td>
<td>795100</td>
<td>8051800</td>
<td>BCA5</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482882</td>
<td>795250</td>
<td>8051900</td>
<td>BCA5</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482883</td>
<td>795400</td>
<td>8051850</td>
<td>BCA5</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482884</td>
<td>797400</td>
<td>8053800</td>
<td>BCA7</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482885</td>
<td>797600</td>
<td>8053700</td>
<td>BCA7</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482886</td>
<td>797400</td>
<td>8053350</td>
<td>BCA7</td>
<td>Laterite (Tpf)</td>
</tr>
<tr>
<td>3482887</td>
<td>797400</td>
<td>8053450</td>
<td>BCA7</td>
<td>Laterite (Tpf)</td>
</tr>
</tbody>
</table>
RA EXPLORATION PTY LIMITED

ECOCHEMICAL SAMPLE LEDGER

PROGRAMME: ROCK SAMPLING
AIRBORNE RADIOMETRIC ANOMALY FOLLOW UP

TENEMENT: EL 7187 BREAKNECK CREEK

DATE: 1 October 1993

GEOLOGIST: G. THOMAS

MAP REF: CALVERT HILLS SE5308

NO. SAMPLES: 32

Sample No | East AMG | North AMG | RADIOMETRIC ANOMALY | Ag ppm | As ppm | Au ppm | Bi ppm | Cd ppm | Co ppm | Cu ppm | Cr ppm | Fe ppm | Hg ppm | Mn ppm | Mo ppm | Ni ppm | P ppm | Pb ppm | Sb ppm | U ppm | Zn ppm
3482840 | 803300 | 8050000 | BCB1 | 0.1 | 80 | -0.001 | 2.1 | 0.8 | -5 | 120 | 63 | 157200 | 0.9 | 49 | 40 | -5 | 3260 | 2 | 1.4 | 53 | 15
3482841 | 804250 | 8050400 | BCB2 | 0.4 | 110 | -0.001 | 1.8 | 0.9 | -5 | 22 | 50 | 133300 | 1 | -5 | 26 | -5 | 908 | 7 | 2 | 6 | 5
3482842 | 803100 | 8050300 | BCB1 | 0.1 | 125 | -0.001 | 2 | 1 | -5 | 22 | 53 | 339300 | 0.8 | 7 | 11 | -5 | 3030 | 2 | 0.9 | 10 | 7
3482843 | 803100 | 8050100 | BCB1 | -0.1 | 55 | -0.001 | 1 | 0.3 | -5 | 18 | 74 | 130300 | 0.6 | 98 | 55 | -5 | 1990 | 5 | 1.4 | 20 | 4
3482844 | 804240 | 8050400 | BCB1 | 0.2 | 110 | -0.001 | 2 | 0.9 | -5 | 55 | 135 | 323300 | 0.8 | 39 | 20 | -5 | 3220 | 5 | 1.6 | 21 | 4
3482845 | 806760 | 8050450 | BCB3 | 0.1 | 95 | -0.001 | 2.3 | 1.2 | 14 | 55 | 56 | 311000 | 0.9 | 795 | 12 | 18 | 4380 | 4 | 1.4 | 29 | 24
3482846 | 806600 | 8050500 | BCB3 | -0.1 | 75 | -0.001 | 1.6 | 0.7 | -5 | 32 | 105 | 299000 | 0.6 | 49 | 17 | -5 | 3020 | 2 | 0.9 | 20 | 3
3482847 | 806760 | 8050500 | BCB3 | 0.1 | 90 | -0.001 | 2.7 | 1.5 | 23 | 55 | 68 | 313200 | 1 | 986 | 15 | 29 | 4690 | 5 | 2 | 41 | 50
3482848 | 806750 | 8050500 | BCB3 | 0.1 | 38 | -0.001 | 2 | 1 | 7 | 46 | 52 | 299200 | 0.8 | 527 | 7.3 | 12 | 4420 | 2 | 1 | 31 | 19
3482849 | 807175 | 8052900 | BCB4 | -0.1 | 44 | -0.001 | 1.2 | 0.4 | -5 | 28 | 46 | 157400 | 0.7 | 338 | 14 | 6 | 2170 | 3 | 1 | 18 | 6
3482850 | 807175 | 8052850 | BCB4 | -0.1 | 65 | -0.001 | 1.5 | 0.5 | -5 | 32 | 50 | 209000 | 0.8 | 52 | 42 | 5 | 2930 | 4 | 1.5 | 31 | 8
3482851 | 807175 | 8052690 | BCB4 | -0.1 | 46 | 0.003 | 1.9 | 0.9 | -5 | 24 | 113 | 235500 | 0.8 | 43 | 8.7 | 6 | 4220 | 2 | 1.4 | 47 | 5
3482852 | 807175 | 8052625 | BCB4 | 0.1 | 65 | 0.006 | 2.1 | 0.9 | -5 | 50 | 116 | 270400 | 0.9 | 46 | 30 | 7 | 5300 | 4 | 1.8 | 58 | 7
3482853 | 807225 | 8052700 | BCB4 | -0.1 | 55 | 0.006 | 1.2 | 0.4 | -5 | 26 | 63 | 149000 | 0.7 | 59 | 80 | -5 | 2540 | 2 | 1.4 | 20 | 6
3482854 | 813990 | 8051750 | BCC1 | -0.1 | 2.7 | -0.001 | 0.4 | 0.1 | -5 | 12 | 7 | 21800 | -0.5 | 247 | 0.9 | -5 | 450 | 3 | 0.5 | 7 | 65
3482855 | 813990 | 8051650 | BCC1 | -0.1 | 3.1 | -0.001 | 0.3 | 0.1 | -5 | 2 | 18 | 13000 | -0.5 | 178 | 0.8 | -5 | 231 | 4 | 0.3 | -4 | 38
3482856 | 812020 | 8056100 | BCC5 | -0.1 | 4.6 | -0.001 | 0.3 | 0.1 | -5 | 2 | 23 | 9800 | -0.5 | 28 | 1 | -5 | 80 | 4 | 2.5 | 6 | 7
3482864 | 812020 | 8056250 | BCC5 | -0.1 | 3.8 | -0.001 | 0.3 | 0.1 | -5 | 1 | 18 | 7000 | -0.5 | 22 | 1.2 | -5 | 52 | 1 | 13 | 4 | 3
3482865 | 802400 | 8059500 | BCD2 | -0.1 | 0.7 | -0.001 | 1.8 | -0.1 | 27 | 28 | 16 | 53700 | 0.5 | 989 | 0.4 | 48 | 386 | 4 | 0.5 | -4 | 160
3482866 | 802700 | 8062550 | BCD6 | 0.6 | 14 | 0.014 | 24 | -0.1 | 15 | 250 | 60 | 44800 | 0.5 | 541 | 2 | 37 | 360 | 1 | 110 | 1.3 | 5 | 90
3482870 | 802700 | 8062650 | BCD8 | -0.1 | 1.3 | 0.002 | 4.2 | -0.1 | 36 | 230 | 23 | 54300 | -0.5 | 800 | 0.4 | 65 | 382 | 4 | 0.5 | 8 | 85
3482872 | 805400 | 8061450 | BCD7 | 0.5 | 1.3 | 0.009 | 1.3 | -0.1 | 31 | 32 | 57 | 59300 | 0.5 | 1220 | 0.7 | 102 | 323 | 6 | 0.6 | 7 | 145
3482873 | 805900 | 8061200 | BCD7 | 0.5 | 3.3 | 0.001 | 1.1 | -0.1 | 8 | 9 | 91 | 37400 | -0.5 | 444 | 0.7 | 26 | 1410 | 16 | 1.1 | 28 | 28
3482879 | 795100 | 8051900 | BCA5 | 0.1 | 175 | -0.001 | 1.8 | 0.7 | -5 | 36 | 100 | 204600 | 0.8 | 67 | 70 | -5 | 3750 | 4 | 1.8 | 68 | 2
## GEOCHEMICAL SAMPLE LEDGER

**PROGRAMME:** ROCK SAMPLING
AIRBORNE RADIOMETRIC ANOMALY FOLLOW UP

**TENEMENT:** EL 7187 BREAKNECK CREEK

**GEOLOGIST:** G. THOMAS

**DPO:** 75421

**MAP REF:** CALVERT HILLS SE5308

**DATE:** 1 OCTOBER 1993

**NO. SAMPLES** 32

### Sample Data

<table>
<thead>
<tr>
<th>Sample No</th>
<th>East</th>
<th>North</th>
<th>Radiometric Anomaly</th>
<th>Ag (ppm)</th>
<th>As (ppm)</th>
<th>Au (ppm)</th>
<th>Bi (ppm)</th>
<th>Cd (ppm)</th>
<th>Co (ppm)</th>
<th>Cu (ppm)</th>
<th>Cr (ppm)</th>
<th>Fe (ppm)</th>
<th>Hg (ppm)</th>
<th>Mn (ppm)</th>
<th>Mo (ppm)</th>
<th>Ni (ppm)</th>
<th>P (ppm)</th>
<th>Pb (ppm)</th>
<th>Sb (ppm)</th>
<th>U (ppm)</th>
<th>Zn (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3482880</td>
<td>795100</td>
<td>8051725</td>
<td>BCA5</td>
<td>0.2</td>
<td>135</td>
<td>-0.001</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>42</td>
<td>99</td>
<td>350900</td>
<td>0.8</td>
<td>857</td>
<td>22</td>
<td>34</td>
<td>5380</td>
<td>4</td>
<td>1.8</td>
<td>83</td>
<td>32</td>
</tr>
<tr>
<td>3482881</td>
<td>795100</td>
<td>8051800</td>
<td>BCA5</td>
<td>0.1</td>
<td>95</td>
<td>-0.001</td>
<td>2</td>
<td>1</td>
<td>17</td>
<td>36</td>
<td>95</td>
<td>371700</td>
<td>0.8</td>
<td>542</td>
<td>15</td>
<td>31</td>
<td>5670</td>
<td>5</td>
<td>1.5</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>3482882</td>
<td>795250</td>
<td>8051900</td>
<td>BCA5</td>
<td>0.1</td>
<td>120</td>
<td>-0.001</td>
<td>1.8</td>
<td>0.8</td>
<td>8</td>
<td>38</td>
<td>98</td>
<td>207500</td>
<td>0.8</td>
<td>123</td>
<td>70</td>
<td>26</td>
<td>3600</td>
<td>2</td>
<td>2</td>
<td>41</td>
<td>65</td>
</tr>
<tr>
<td>3482883</td>
<td>795400</td>
<td>8051850</td>
<td>BCA5</td>
<td>0.1</td>
<td>90</td>
<td>-0.001</td>
<td>1.9</td>
<td>0.9</td>
<td>15</td>
<td>30</td>
<td>104</td>
<td>242700</td>
<td>0.7</td>
<td>723</td>
<td>40</td>
<td>43</td>
<td>3770</td>
<td>3.1</td>
<td>7.3</td>
<td>63</td>
<td>50</td>
</tr>
<tr>
<td>3482884</td>
<td>797400</td>
<td>8053800</td>
<td>BCA7</td>
<td>0.1</td>
<td>38</td>
<td>-0.001</td>
<td>1.2</td>
<td>0.4</td>
<td>-5</td>
<td>24</td>
<td>104</td>
<td>188400</td>
<td>0.6</td>
<td>76</td>
<td>16</td>
<td>66</td>
<td>2100</td>
<td>3.0</td>
<td>9</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>3482885</td>
<td>797600</td>
<td>8053700</td>
<td>BCA7</td>
<td>-0.1</td>
<td>24</td>
<td>-0.001</td>
<td>0.9</td>
<td>0.2</td>
<td>-5</td>
<td>9</td>
<td>37</td>
<td>117100</td>
<td>0.6</td>
<td>12</td>
<td>12</td>
<td>8</td>
<td>1430</td>
<td>3.0</td>
<td>7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3482886</td>
<td>797400</td>
<td>8053350</td>
<td>BCA7</td>
<td>-0.1</td>
<td>42</td>
<td>-0.001</td>
<td>1.1</td>
<td>0.3</td>
<td>-5</td>
<td>38</td>
<td>59</td>
<td>132000</td>
<td>0.6</td>
<td>106</td>
<td>36</td>
<td>6</td>
<td>2360</td>
<td>4</td>
<td>1</td>
<td>54</td>
<td>4</td>
</tr>
<tr>
<td>3482887</td>
<td>797400</td>
<td>8053450</td>
<td>BCA7</td>
<td>-0.1</td>
<td>36</td>
<td>-0.001</td>
<td>0.9</td>
<td>0.2</td>
<td>-5</td>
<td>26</td>
<td>38</td>
<td>116300</td>
<td>0.6</td>
<td>15</td>
<td>22</td>
<td>5</td>
<td>2150</td>
<td>2.0</td>
<td>8.1</td>
<td>19</td>
<td>3</td>
</tr>
</tbody>
</table>
NICHOLSON
ABORIGINAL FREEHOLD

ORIGINAL AREA: 220 blocks.
approx. 718 sq.Km.

Area to be Relinquished.

Area Retained 110 blocks.
approx. 359 sq.Km.

CRA EXPLORATION PTY LIMITED
EL 7187
BREAKNECK CREEK
LOCATION PLAN
REDUCTION OF AREA

REFERENCE SE 53-8 CALVERT HILLS
SCALE 1:250,000          DATE SEPTEMBER 1990
AUTHOR D.C.P.          REPORT 19410
DRAWN SRJ           PLAN No NTd 5708
NICHOLSON ABORIGINAL FREEHOLD

ORIGINAL AREA: 220 blocks.

- Area reduced 1992
- Area to be reduced 1993
- Area Retained 55 blocks.
  approx. 179 sq.Km.

CRA EXPLORATION PTY LIMITED
EL 7187
BREAKNECK CREEK
LOCATION PLAN
REDUCTION OF AREA

REFERENCE SE 53-8 CALVERT HILLS
SCALE 1:250,000
DATE NOVEMBER 1993
AUTHOR D.C.P.
REPORT 19410
DRAWN SRJ
PLAN No NTd 5879
CRA Exploration Pty. Limited
Incorporated in New South Wales
A.C.N. 000 057 125
18 Km Stuart Highway, Berrimah, N.T. 0828

29th December, 1993

The Secretary
Département of Mines & Energy
GPO Box 2901
DARWIN NT 0801

Dear Sir

RE : EL7187 - BREAKNECK CREEK, N.T.
Third Annual Report for Year Ending 3 December, 1993

Please find herewith Annual Report No. 19410 by G. Thomas, titled as above.

Sepia copies of plans over A3 size are also included, they are plans numbered NTd5260; 5660 and 5278.

Expenditure to the nearest accounting period was as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractors</td>
<td>$4,644</td>
</tr>
<tr>
<td>Laboratory</td>
<td>$4,960</td>
</tr>
<tr>
<td>Rent &amp; Property</td>
<td>$587</td>
</tr>
<tr>
<td>Payroll &amp; Benefits</td>
<td>$39,761</td>
</tr>
<tr>
<td>Field &amp; Transport</td>
<td>$8,489</td>
</tr>
<tr>
<td>Travel &amp; Accommodation</td>
<td>$1,170</td>
</tr>
<tr>
<td>Office &amp; Miscellaneous</td>
<td>$2,613</td>
</tr>
<tr>
<td>District Administration</td>
<td>$5,957</td>
</tr>
<tr>
<td>Regional Indirect Costs</td>
<td>$7,410</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$75,591</strong></td>
</tr>
</tbody>
</table>

Rehabilitation

No rehabilitation was required as no significant disturbance was created during the exploration programme.

Yours faithfully

Sandra Johnson (Mrs.)
Superintendent Drafting/Tenements