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EXPLORATION LICENCE 2341

MOUNT STAFFORD, NORTHERN TERRITORY

ANNUAL REPORT FOR THE YEAR ENDED 27th JANUARY, 1982
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EXPLORATION LICENCE 2341
MOUNT STAFFORD, NORTHERN TERRITORY

ANNUAL REPORT FOR THE YEAR ENDED 27th JANUARY, 1982

1. GENERAL STATEMENT

Exploration Licence 2341 was taken up primarily to test the diamond potential of the area. A subsidiary interest is the potential for base metal mineralisation.

Exploration commenced with a programme of reconnaissance stream sediment sampling. Two of these samples proved to be encouraging and a follow-up programme of check sampling was undertaken together with bulk testing of river gravels. Kimberlitic indicators have now been found in one of the bulk samples. A ground magnetometer survey on a 4 kilometres square grid was carried out upstream from this site.

2. TITLES

Exploration Licence 2341 of 414.28 square miles was granted to Dampier Mining Company Limited (now BHP Minerals Limited) on 27th January, 1981 for one year. Figure 1 shows its location. An application for renewal was submitted to the Department of Mines and Energy on 23rd December, 1981.

3. FIELD INVESTIGATIONS

3.1 Stream Sampling

A programme of heavy mineral stream sediment sampling was carried out over those parts of the exploration licence with active drainage, essentially the Reynolds Ranges. At each site a 20 kilogram sediment sample was collected together with a geochemical sample. This sampling was under the supervision of a geologist. The most favourable trap site was selected where the heavy mineral content of the stream sediment was at a maximum for the drainage channel. The sites are marked on Figure 2.

3.2 Follow-up Stream Sampling

The two reconnaissance samples which contained kimberlitic indicators were CA0028 and CA0029, located in streams draining the southern side of the Reynolds Range.

Initially fourteen follow-up stream samples RT0517 to RT0530 were taken in the immediate vicinity of CA0028 and CA0029. One of these, RT0526, also contained a kimberlitic indicator. Therefore a closer interval sampling programme was carried out along the flanks

cont./..
of the Reynolds Range to ascertain the presence of any more kimberlitic indicator minerals. In all, 58 samples were collected; their locations are shown on Figure 3. All these follow-up samples were 20kg stream sediment samples. They were collected by helicopter from selected trap sites under the supervision of an experienced geologist.

3.3 Bulk Sampling of River Gravels

The positive results from RT0526 warranted the bulk testing of the river gravels in the area. Five samples totalling 43 tonnes were taken from selected sites and treated in our mobile jig plant. Their locations are shown on Figure 3.

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Tonnes</th>
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<tr>
<td>CJA009</td>
<td>10</td>
</tr>
<tr>
<td>CJA010</td>
<td>20</td>
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<td>CJA011</td>
<td>5</td>
</tr>
<tr>
<td>CJA012</td>
<td>5</td>
</tr>
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<td>JJA014</td>
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The jig concentrates from these samples were examined for diamonds and kimberlitic minerals in our laboratory in Adelaide.

3.4 Survey of Aboriginal Sacred Sites

The Central Land Council in Alice Springs commenced a survey of the Exploration Licence towards the end of October and this was completed in November. The survey was carried out by Simon Harrison, an anthropologist from Canberra together with Central Land Council officers and local traditional owners. The report was received in November and outlined large areas within the licence area where sacred sites are located (Figure 4). However the present area of active interest in the tributaries of Tower Creek west of Mt. Thomas was declared free of sacred sites. Therefore further field work continued in November and December.

3.5 Ground Magnetometer Survey

The positive bulk sample CJA011 contained several kimberlitic indicators including chrome diopside. This indicator is not considered to travel in streams for distances of much over a kilometre. This, together with high sand content of the creeks and relatively low indicator counts, led to the decision to carry out a ground magnetometer survey, four kilometres square, upstream from CJA011 (Figure 5) to locate potential kimberlitic magnetic anomalies. The grid comprised north south traverses at 200 metre

cont./..
3.6 **Loam Sampling**

A programme of grid loaming to follow the ground magnetometer work was planned but the onset of wet weather curtailed this, and only 15 samples were collected. The programme will be completed next field season.

### 4. RESULTS OF FIELD INVESTIGATIONS

#### 4.1 **Stream Sampling**

Two reconnaissance samples CA0028 and CA0029 were found to contain kimberlitic indicator minerals when the heavy mineral concentrates were examined in our Perth Laboratory.

#### 4.2 **Bulk Sampling**

No diamonds were found in the heavy mineral concentrates from the 5 bulk samples CJA009-12 and CJA014. CJA011 was found to contain kimberlitic indicator minerals.

#### 4.3 **Follow-up Sampling**

**4.3.1 First Stage**

Sample RT0526 taken upstream from CA0029 was found to contain kimberlitic indicator minerals. (Figure 2).

**4.3.2 Second Stage**

None of the 58 follow-up samples taken in May contained any indicator minerals.

#### 4.4 **Report of the Aboriginal Sacred Sites Survey**

This report was received from the Central Land Council in November, 1981. BHP was advised that the area of present activity in the eastern tributaries of Tower Creek is clear of sacred sites with the exception of land within one kilometre radius of Mt. Thomas.

However the rest of the Exploration Licence contains many traditional sites and "the traditional owners have instructed the Central Land Council to inform Dampier that they do not want any work at all to take place in the areas marked on the accompanying map". (Figure 4).
This area amounts to approximately 75% of the total area of the exploration licence.

A final part of the report relates to a series of drill holes in the vicinity of Blackhill Creek which have been drilled across the middle of an "extremely dangerous and sacred site". They requested "to know whether or not Dampier Mining Company is responsible for the destruction of the site." The Central Land Council has been informed that Dampier Mining Company Limited (now BHP Minerals Limited) have no knowledge of the drill holes referred to in their report.

Complete copies of this report and map have been sent to the Aboriginal Sacred Sites Protection Authority and the Senior Exploration Registrar, both in Darwin.

4.5 Ground Magnetometer Survey

The total magnetic intensity contours for this survey are shown in Figure 5. This map also shows the geology derived from the Reynolds Range 1:100,000 geological series sheet 5453. The magnetically flat areas to the north and south correspond to the known foliated biotite granites. Schist outcrops and associated rock units coincide with the WSW to ENE linear magnetic trends across the centre north of the grid. Calc silicate rocks associated with the granite margin relate to the W to SE trend in the south central part of the grid.

An interesting anomaly with related calcrete outcrop is found at 11000E 10100N. Drilling and loaming is proposed to ascertain the source of this anomaly.

4.6 Loam Sampling

No kimberlitic minerals were found in the fifteen loam samples collected along grid line 8200E between 9400N and 10800N at 100 metre intervals. Further loam sampling is planned for the next field season.

5. Future Work

The loam sampling programme will be completed. The ground magnetic anomaly will be investigated by drilling to ascertain the source of the anomaly. Two further stream sample sources of kimberlitic indicators have to be followed up. Further magnetometer grid work, loam sampling and stream sampling will be carried out as necessary. Any kimberlites and associated alluvial gravels will be bulk tested for diamonds.

cont./..
6. **EXPENDITURE**

Expenditure debited to EL 2341 during the year ended 31st January, 1982, was:

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<th>Description</th>
<th>Amount</th>
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**Total**: $111,666

This report is submitted to the Department of Mines and Energy as required by Condition 7 of Exploration Licence 2341.