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EXPLORATION LICENCE 2341

MOUNT STAFFORD, NORTHERN TERRITORY

ANNUAL REPORT FOR THE YEAR ENDED 27TH JANUARY 1983
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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 four kilometre square grid outlined three anomalies. These have now been drilled but no kimberlites were located. A loam sampling programme over the same four kilometre grid also revealed no kimberlitic indicators. A bulk sample and a number of stream samples were collected and results are awaited.

2. TITLES

Exploration licence 2341 of 414.28 square miles was granted to BHP Minerals Ltd on 27th January, 1981 for six years. Figure 1 shows its location. An application for partial relinquishment was submitted to the Department of Mines and Energy on 20th December, 1982 (Figure 2).

3. FIELD INVESTIGATIONS

3.1 Drilling

The geophysical interpretation of the ground magnetometer grid (Figure 3) produced in November, 1981, delineated three drill targets which could be possible sources for the kimberlitic indicators found in bulk sample CJAll in June, 1981.

Anomaly 1 - This was considered to be shallow source and the source rock would be only mildly magnetic. Four shallow holes were recommended:-

Co-ordinates 11000E/10100N Drillhole PMS4 11000E/10150N Drillhole PMS1 11000E/10200N Drillhole PMS2 11000E/10250N Drillhole PMS3

Anomalies 2 and 3 - These were considered to be much lower priority targets and three holes were recommended for each anomaly.
Anomaly 2
Co-ordinates 8800E/11440N Drillhole PMS8
25m 050° from PMS8 Drillhole PMS10
25m 230° from PMS8 Drillhole PMS9

Anomaly 3
Co-ordinates 8400E/10050N Drillhole PMS6
8400E/10100N Drillhole PMS5
8400E/10150N Drillhole PMS7

This drilling programme was carried out in mid-June using a BHP Company Edson drilling rig. The rocks encountered are various mica schists. Lenses rich in magnetic haematite were located and are the probable cause of the magnetic anomalies. The results are detailed in 4.1.

3.2 Loam Sampling

In view of the presence of Kimberlitic indicator minerals including chrome diopside in CJA011, the four kilometre magnetometer grid block was loam sampled. Each loam sample comprised residual surface soils collected over one square metre at 200 metre centres. This residual sediment was screened and then concentrated in a Pleitz Jig to produce a heavy mineral concentrate of -10+24 mesh size (approx. -2mm +1mm). This concentrate was observed in the field for Kimberlitic indicator minerals. A total of 441 loam samples were collected.

3.3 Stream Sampling

A further ten stream samples, RTO992 - 994 and RTO996 - 1002 were collected in the drainage upstream from CJA11 and CJ0280. These samples were each approximately 100 kilogrammes of which 80 kilogrammes were concentrated and observed in the field and 20 kilogrammes were sent to our Perth Laboratory for analysis.

3.4 Bulk Sampling

The first bulk sample in the tributary of Tower Creek, CJA11, which contained Kimberlitic indicators, was only 5 tonnes. Therefore a larger bulk sample, CJ0280 of 25 tonnes, was treated from the same site when the loam sample grid proved to be negative. A small mobile jig plant was used with a supporting tipper truck and tractor mounted back-hoe. The coarse fraction of the concentrate (+3mm) was observed in the field and no Kimberlite indicators were found. The fine fraction (-3mm) was despatched to Perth for laboratory examination.
RESULTS OF FIELD INVESTIGATIONS

4.1 Drilling

A total of 166 metres of RAB drilling was completed in ten drill holes PMS1 to 10. (see Figures 3 & 4)

Anomaly 1 (Drillholes PMS1,2,3,4)

The bedrock at this locality comprises various mica schists which are cut by pegmatites in drill holes PMS1 and PMS2. Magnetic haematite was found in PMS1, 2 and 4 between 4 metres and 20 metres and is considered to be the source of this anomaly.

Anomaly 2 (Drillholes PMS8,9,10)

Mica schists are the dominant rocks encountered in drill holes PMS8, 9 and 10 with some minor granulites. A few grains of magnetic haematite were found in PMS8 and 9 which would explain this weak anomaly.

Anomaly 3 (Drillholes PMS5,6,7)

Mica schists and quartzites were located in drill holes PMS 5,6 and 7 under a surface cap of calcrete. Magnetic haematite was found in PMS5 from 10 to 14 metres and is considered to be the explanation of this anomaly.

Some chips of equigranular magnetic haematite and quartz were recovered suggesting lenses of this composition within the schists of the area.

These schists form part of Lander Rock beds of the Arunta Block. Outcrop in the general area of the drill holes shows similar rocks to those found in the drill hole rock chips. Lineations and dips measured agree with mapped geological data shown on the Reynolds Range Region 1:100,000 Geology 1981 B.M.R. map.

4.2 Loam Sampling

The -10+24 mesh heavy mineral concentrate was observed in the field by an experienced mineral observer. No kimberlitic indicator minerals were found. Therefore it is assumed that no sizeable kimberlitic source is located within the area of the grid.
4.3 Stream Sampling

The results of field observation of the concentrates from 80 kilogrammes of each sample were negative. The results from the laboratory in Perth are still awaited as a number of delays have occurred which have reduced sample throughput in recent months. It is anticipated that results will be available before the 1983 field season begins.

4.4 Bulk Sampling

The laboratory analysis of the bulk sample concentrate has also been delayed in our Perth laboratory but results are expected soon.

5. FUTURE PROGRAMME

1. Completion of laboratory analysis of outstanding stream and bulk sample concentrates for kimberlitic indicators.

2. Check and follow-up stream sampling of any further positive samples.

3. Location and outlining of any kimberlite bodies using stream and loam sampling techniques, geophysical methods and drilling as necessary.

4. Any kimberlite bodies located will be bulk tested for diamonds together with any associated alluvial gravels.

5. Regional studies to relate any kimberlites to our adjacent licence areas.

6. EXPENDITURE

Expenditure debited to E.L. 2341 during the ten months February to November, 1982, was as follows. Expenditure for December has not yet been consolidated.

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$46,180

Total expenditure to 30th November, 1982, is $157,846.
This map accompanies an application dated on behalf of BHP Minerals Ltd.

This map photo copied from 1:250,000 Topo: Mt. Peak and Napperby.

Scale 1: 250,000

Area to be relinquished
Area to be retained

BHP MINERALS LTD.
APPLICATION FOR REDUCTION OF E.L.2341.
MT. STAFFORD, N.T.