ANNUAL REPORT
ON
EXPLORATION LICENCE 2417
FOR THE PERIOD
21ST APRIL 1981 - 20TH APRIL 1982

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All results of heavy mineral separation (Appendix 1) and geochemical analysis (Appendix 2) are given in a separate report; GEOPEKO REPORT NO. D81/28.
INTRODUCTION

Exploration Licence 2417 covering 208.76 square miles was granted on 21st April 1980 and this is the Annual Report for the 2nd year of tenure.

This Licence is part of a regional exploration programme, mainly for diamonds, comprising Exploration Licences 2411, 2412, 2417, 2418, 2419, 2420, 2421, 2504, 2513, 2514, 2515, 2584 and 2585 which are the subject of a joint venture between Design and Construction Pty Limited, BP Australia Limited and Peko-Wallsend Operations Ltd, where Peko-Wallsend, through Geopeko, are the operators. The joint venture commenced on 1st May, 1981.

Because of recent successful exploration for kimberlites in Western Australia, the recognition of a potential kimberlite province in the Kimberleys, and possible influence of the Hall's Creek Fault on emplacement of the Argyle diamondiferous kimberlite, the Fitzmaurice Mobile Zone and Sturt Shelf in the vicinity of the Victoria River Fault must also be considered prospective for diamonds.

Potential for stratiform base metal deposits in the sediments of the Victoria River Basin was also recognised and samples were taken for geochemical analysis. Sample density was inadequate and was controlled by the sample density used in the diamond search.

LOCATION

Waterloo Station, Pastoral Lease 528; Amanbidji Station, Pastoral Lease 706 on the Waterloo 1:250,000 sheet (SE52-3).

TARGET

Diamonds were the primary exploration target with stratiform base metal deposits a secondary target.
SUMMARY

Rocks exposed in the area covered by the Waterloo 1:250,000 geological sheet consist of the Adelaidesan Auvergne Group (Proterozoic) disconformably overlain by the Antrim Plateau Volcanics (Lower Cambrian), consisting of basalt flows with thin interbeds of chert and sandstone.

Exploration work carried out included the following:

(i) Collection of 40kg, +0.6mm fraction samples from trap sites in streams.

(ii) Collection of -80 mesh sample for geochemical analysis.

(iii) Collection of bulk gravel samples.

(iv) Heavy mineral separation and identification.

Results achieved to date are not encouraging.
GEOLOGY

Extract from Waterloo 1:250,000 Geological Series - Explanatory Notes.

Jasper Gorge Sandstone and overlying Angalarri Siltstone are the only formations of the Adelaidean Auvergne Group exposed in the exploration area. The Jasper Gorge Sandstone marks a widespread marine transgression which inundated much of the Victoria River District. The predominance of siltstone in the Angalarri Siltstone indicates deeper water conditions.

The Auvergne Group is disconformably overlain by the Lower Cambrian Antrim Plateau Volcanics. These volcanics consist of numerous basalt flows, averaging about 30 metres in thickness, with thin interbeds of chert and sandstone.

Folds are rare in the Auvergne Group and younger rocks, except to the north of the exploration area, where northeast trending structures are developed. The most prominent fault in the exploration area is the West Baines Fault.
WORK DONE

Geological Mapping

No formal mapping programme was carried out other than brief field observations at sample sites.

Stream Sediment Sampling

Gravel Samples:

1. Sample sites were selected in the office to give a sample density of one 40kg sample representing 10 km² and one 2,000kg sample representing 100 km².

2. The sample area was reached by helicopter and the streams were flown along to aid selection of the best possible trapsites for heavy minerals.

3. Gravel from the trapsites were sieved by hand to give the required fraction (0.6mm - 4mm) and weight of sample.

4. Samples were transported by helicopter to the base camp for processing.

5. Here the samples were sieved into three fractions; 0.6mm - 1.0mm, 1.0mm - 2.0mm, 2.0mm - 4.0mm.

6. Each fraction was put over a Plietz jig and the heavy mineral concentrates removed, dried and bagged.

7. These concentrates were despatched to Geopeko, Perth, for mineral identification by a trained observer.

Results:

Sample localities are given on Maps 1 and 2. The results of the heavy mineral identification are given in Appendix 1. Neither diamonds nor kimberlitic indicator minerals were observed.
Geochemical Samples:
Three hundred grams (300g) of sample were taken from each 40kg sample and despatched to Analabs, Perth, for analysis. The elements assayed for by X.R.F. were Cu, Pb, Zn, Fe, Co, Sn, W, Cr, Ni, Nb, Mg and the mineral barite. Only the -80 mesh fraction was used.

Results:
Details of all results are given in Appendix 2.
EXPENDITURE

As this licence is part of a regional programme, expenditure has been allocated according to its areal percentage.

Total allocated expenditure from 21st April, 1981 to 28th February, 1982 (latest available figures) was $88,816.
FIGURE 2
EXPLORATION LICENCE NO. 2417
TENEMENT LOCALITY PLAN
SCALE: 1:250,000
AREA: 208.76 SQUARE MILES
540.71 SQUARE KILOMETRES