FINAL REPORT
EXPLORATION PROGRAMME
E.L.672 MIRIAM SPRINGS
E.L.145 DENVER CARPENTARIA
NORTHERN TERRITORY AUSTRALIA
SEPTEMBER 5 - DECEMBER 1, 1974

by

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PANCONTINENTAL MINING LIMITED

for

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BUKA MINERALS N.L.
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JOINT VENTURE

Sydney, N.S.W. June 18, 1975
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ENCLOSURES

1 : 50,000 Denver Carpentaria/Miriam Springs, N.T.
Surface Geology and Airborne Anomalies

1 : 500 DC10 Surface Geology and Surface Radiometrics

1 : 2000 DC13 Surface Geology and Surface Radiometrics
1.0.0 SUMMARY

This report describes exploration activities carried out over E.L's 672 Miriam Springs, 145 Denver Carpentaria, Northern Territory, during the period September to December 1974.

Ground follow-up prospecting of twenty-one airborne radiometric anomalies was carried out on these properties.
2.0.0 DENVER CARPENTARIA/MIRIAM SPRINGS PROGRAMME

2.1.0 INTRODUCTION

Some twenty-one anomalies located during the 1972 airborne radiometric survey were radiometrically prospected on the ground. Location was by means of photo mosaics.

Anomalies located included DC1, DC6, DC7, DC10, DC11, DC13, DC17, DC19, MS6, MS7, MS8, MS18 and MS22.

The following anomalies were prospected but not located: DC16, MS5, MS15, MS20, MS21, MS23 and MS24.

In this report the anomalies are dealt with under two headings, those located on Kombolgie and those located on volcanics. A brief description of each anomaly follows.

2.1.1 ANOMALIES WITHIN THE KOMBOLGIE

Seven of the anomalies occur on Kombolgie sandstone. They include DC7, DC11, DC17, DC19, MS6, MS13 and MS22.

DC7

The source of the anomaly was not found in situ. Boulders of banded sandstone in a creek bed gave readings of 400-500 (Geometrics 300), equivalent to 40-50 cps on a GIS-3. The highest readings were obtained on bands of heavy mineral sands (2cm wide). The boulders occur at the base of an almost vertical, 25 metres high cliff.

DC11

A small area of Kombolgie gave readings between 25-30 cps (GIS-3). Average reading on the surrounding Kombolgie was 10-15 cps. Quartz veining and hematitic mineralisation occur along joint planes and fracture surfaces.
DC17

Average reading over Kombolgie sandstone is 10-15 cps (GIS-3). A small area of sandstone gave readings between 25-33 cps. The sandstone is coarse grained, porous and darker in colour than the surrounding sandstone.

DC19

Anomalous readings ranging between 100-200 cps (GIS-3) occur over a zone of banded sandstone 0.5 metres wide, 30 metres long. Normal readings over Kombolgie sandstone are 10-15 cps. Readings of up to 320 cps were obtained in contact with the darker bands which are composed of heavy mineral sands. A sample, No. 8807, was submitted for uranium analysis and gave 29 ppm U₃O₈. In thin section the specimen is described as composed of bands of lithifield heavy mineral sands intercalated with quartzose sandstone. The mineral sands are predominantly ilmenite with minor amounts of zircon, monazite and quartz, cemented by secondary silica and anatase.

MS6

This is a spring fed black soil anomaly situated at the base of a Kombolgie escarpment. The anomaly covers an area of 20 metres by 40 metres and gives readings up to 225 cps (GIS-3). Water issues from a crevice in the quartzite escarpment.

MS13

This anomaly is caused by a bed of hematitic micaceous siltstone, thickness 5 metres, within the Kombolgie, occurring just below the McAdden Creek volcanics horizon. A sample,
No. 8806, was submitted for analysis and contained 4 ppm $U_{308}$. In thin section the specimen is composed of very fine grained quartz, colourless mica and reddish brown hydrated iron oxides. Readings range up to 45 cps (GIS-3), background in the sandstone being 15 cps.

**MS22**

This is caused by a laterite on a low ridge of Mullaman beds, overlying Kombolgie. Readings range up to 48 cps (Geometrics 100), equivalent to approximately 300 cps (GIS-3).

### 2.1.2 ANOMALIES WITHIN THE VOLCANICS

All the airborne anomalies occurring over volcanics and defined as definite anomalies were investigated. They included: DC1, DC5, DC6, DC10, DC13, DC16, MS5, MS7, MS8 and MS15. Anomalies DC16, MS5 and MS15 were not located by ground prospecting.

**DC1**

This anomaly occurs on Mullaman beds, overlying Antrim Plateau volcanics. Sandy soil in this area gives readings of 70-100 cps (Geometrics 300), equivalent to 7-10 cps on GIS-3. Slightly darker sandy soil lying in a depression gives readings up to 22 cps.

**DC5**

This anomaly occurs in a valley over McAdden Creek Volcanics. Background readings over alluvium in the valley range between 10-15 cps (GIS-3). Swampy black soil areas give readings averaging 45 cps and ranging up to 100 cps. Small outcrops of volcanics give readings up to 35 cps.
DC6

A weak, spring fed black soil anomaly approximately 50 metres west of the sandstone/volcanics boundary gives readings up to 45 cps (GIS-3).

DC10

This anomaly occurs in McAdden Creek volcanics which have been subjected to silicification and hematitic mineralisation. The volcanics form a low hill surrounded by recent sediments to the north and sandstone to the south. Readings over the volcanics range between 30-170 cps (GIS-3).

A sample, No. 8801, was submitted for fluorimetric analysis and contained 50 ppm $U_3O_8$. In thin section the rock is described as brecciated devitrified basalt which has been invaded by secondary silica. Abundant hematite and goethite occurs intergrown with secondary quartz cement.

DC13

This anomaly occurs in amygdaloidal basalts of the Dorothy Volcanics. Readings range between 14-82 cps (GIS-3). The higher readings occur erratically as spot highs. The anomaly was grided. Three samples were submitted for uranium analysis and contained between 7-10 ppm $U_3O_8$.

MS7

This is a swamp anomaly giving readings up to 88 cps. Geometrics 100 (equivalent to approximately 60 cps on GIS-3). It occurs in a valley bottom, underlain by Henwood Volcanics.
This anomaly is similar to MS7 with readings ranging to 75 cps.

Respectfully submitted,
Pancontinental Mining Limited,

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