FINAL REPORT FOR E.L. 1376

SIRIUS


P.W. Green

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1. INTRODUCTION

Exploration Licence 1376, designated as Sirius, was granted to Central Pacific Minerals N.L. on the 17th May, 1977. The area was considered to be prospective for uranium in the Tertiary and Quaternary sequences of the Ngalia Basin.

2. SITUATION & ACCESS

The licence area was situated approximately 240 kilometres west-north-west of Alice Springs and covered 322.8 sq. miles (836.0 sq. kms) (Fig. 1.). Access was gained via the sealed Stuart Highway for 20 kilometres, thence 170 kilometres of formed beef road, thence 75 to 95 kilometres of station tracks past Mount Wedge homestead.

Movement within the area was hindered by sand dunes and salt lakes and was generally restricted to 4 wheel drive vehicles.

3. PREVIOUS INVESTIGATIONS

The area was mapped by the Bureau of Mineral Resources at 1:250,000 scale during the mapping of the Napperby and Mount Doreen 4 mile sheets. A stratigraphic hole, B.M.R. Mount Doreen No. 11, which lies 6 kilometres to the north-west of the area, was drilled to a depth of 180 metres through Ngalia Basin sediments.

The licence area closely corresponded to that of E.L. 454, known as Currinya, held by Central Pacific Minerals N.L. from 28/5/72 to 22/4/75. The results of exploration conducted during this period are as follows.

1. Bore Water Sampling

Analyses of water from 3 bores in the area returned values of 15 to 30 ppm.

2. Carborne Radiometric Surveying

180 line - kilometres of carborne radiometrics, using a modified GDS 12 aircraft scintillometer, outlined two broad anomalies over calcrete rises. Each of the anomalous areas measured approximately 1.2 x 2.4 kilometres, with a maximum radiation level of four times background.

3. Trenching

4 trenches in the calcrete exposed carnitite as films and disseminations. A grab sample assayed 83 ppm \( U_{308} \).

4. Auger Drilling

Over a period of two years, a three stage auger drilling programme was completed entailing 2517 metres in 264 holes. Carnitite
SUMMARY

A literature survey suggested that economic uranium mineralization may have existed in Tertiary and Quaternary sediments. The exploration programme was discontinued when drilling of similar sediments in a nearby tenement was unsuccessful.
mineralization was discovered at shallow depth in a sandy clay unit, generally beneath the calcrete. Gamma logging of all open holes delineated a sinuous 5000 x 700 m. zone of anomalous radioactivity. The grades however, were uneconomic. The configuration of this zone suggested that the mineralization was concentrated in an ancestral drainage system.

5. Rotary Drilling

Four rotary holes, totalling 898 metres, were drilled through a sequence of fluvialite sediments, thought to be Tertiary in age. Dark grey pyritic clay and sand, and carbonaceous matter were intersected in basal sections of the holes. All samples taken from the Tertiary sequence returned assays of less than 5 ppm U$_3$O$_8$.

4. INVESTIGATION OF E.L. 1376

After E.L. 454 had been relinquished, experience in a nearby tenement in the Ngalia Basin suggested that potential still existed for uranium mineralization in the Tertiary sequence. E.L. 1376 was therefore acquired to cover the break in the southern rim of the basin, termed the "spill-point", where a considerable thickness of Tertiary sediments was known to exist. A resistivity survey was envisaged to determine the extent and structure of the sediments, preparatory to a drilling programme. The licence area was also considered to be prospective for uranium mineralization in Quaternary sediments.

A literature survey was conducted, confirming the presence of reduced horizons in the Tertiary sequence. It was considered that economic mineralization may have developed as southward moving uraniferous groundwaters were channelled through the "spill-point" sediments. Similar mineralization exists in carbonaceous Tertiary sediments of the Lake Frome embayment, S.A where 15,900 tonnes of contained U$_3$O$_8$ have been outlined in the Beverly Deposit (Haynes, 1972).

However, the licence was relinquished when drilling of the Tertiary sediments in the nearby area failed to realize expectations.

5. CONCLUSIONS

There exists little likelihood of locating economic uranium mineralization in the licence area in Cainozoic sediments.
BIBLIOGRAPHY

Haynes, R.W. 1972 Beverly Sedimentary Uranium Orebody, Prome embayment, S.A.