ANNUAL AND FINAL REPORT
E.L. 2710, WANYILPA
PERIOD ENDING JULY 16TH, 1986
AREA RELINQUISHED NOT
SUBJECT TO E.R.L. APPLICATIONS

OPEN FILE

CENTRAL PACIFIC MINERALS N.L.
REPORT NO. NT 263
AUGUST, 1986

Distribution:
Department of Mines & Energy, Darwin
CPM – Brisbane and Sydney
Agip Australia Pty Ltd
Yuendumu Mining Company N.L.
Offshore Oil N.L.
Gulf Resources N.L.

NORTHERN TERRITORY
GEOLOGICAL SURVEY
CR 86/250
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>SITUATION AND ACCESS</td>
<td>1</td>
</tr>
<tr>
<td>TOPOGRAPHY AND CLIMATE</td>
<td>1</td>
</tr>
<tr>
<td>TENEMENT</td>
<td>2</td>
</tr>
<tr>
<td>PREVIOUS INVESTIGATIONS</td>
<td>2</td>
</tr>
<tr>
<td>REGIONAL GEOLOGICAL SETTING</td>
<td>3</td>
</tr>
<tr>
<td>INVESTIGATIONS OF THE RELINQUISHED AREA OF EL2710</td>
<td>4</td>
</tr>
<tr>
<td>REFERENCES AND BIBLIOGRAPHY</td>
<td></td>
</tr>
</tbody>
</table>

### Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Location of Bigrlyi Prospect</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Locality of E.L. 2710</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Regional Geology, Ngalia Basin (after Wells et al 1972)</td>
</tr>
</tbody>
</table>
INTRODUCTION

In late 1973, carnitite mineralisation was discovered in Mount Eclipse Sandstone at the northern edge of the Ngalia Basin. Further uranium mineralisation and radiometric anomalies were found over a strike length of 12 kilometres of what became the Bigryli Prospect.

The bulk of the exploration effort was carried out between 1971 and 1977 when E.L.605 was in force. From 1977 to the date E.L.2710 was granted (July, 1981), the Bigryli Prospect Area saw no exploration work as the area was then under an S.M.L. Application.

Essentially, E.L.2710 was taken out in order that exploration work could continue on the Bigryli Prospect which, at the end of 1977 contained reserves of 1,717,200 kg U3O8. No exploration of consequence was undertaken outside the Bigryli Prospect during the currency of E.L.2710. The Bigryli Prospect is now the subject of ten Exploration Retention Lease applications.

SITUATION AND ACCESS

The Bigryli Prospect is situated 390 kilometres (by road) northwest of Alice Springs. Access to the area is via the sealed Stuart Highway for 20 km north of Alice Springs and then a further 345 km, northwesterly, via the Yuendumu Aboriginal Settlement towards the Mt Doreen Station Homestead at Vaughan Springs. Ninety kilometres of the road to Yuendumu is sealed and there are plans to extend this further. The last 25 kms to the Bigryli camp site is northerly towards Davis Gap on graded station tracks (Figure 1).

A 1,000m long, earthen-base airstrip has been constructed approximately 2 kms north of the Bigryli camp. Although this airstrip is nominally able to take relatively large aircraft, the altitude (600m) and high ambient temperatures in summer limits use to smaller aircraft. At present, the airstrip is not serviceable.

The prospect is situated on the northern margin of the Ngalia Basin which is shown on the Mt Doreen 1:250,000 scale Geological Sheet (SF52-12).

TOPOGRAPHY AND CLIMATE

The geomorphological features in the western portion of the E.L. strongly reflect rock type and structure. Quartzites and harder sandstones form long, abrupt, parallel ridges (in an east-west direction) and stand 100m above the aeolian sand-filled valleys. Prominent escarpments, scree slopes and dip slopes are thus notable features.

To the east, these features are broken by the Davis Gap, a broad floodplain area draining the northern margin of the Ngalia Basin.
Further east, in the eastern section of the E.L., the arcuate ridges of sandstones reflect the structure of the easterly plunging Patmungala Syncline.

The climate is generally warm with high temperatures (40degC+) during the summer days but near freezing temperatures are experienced on winter nights. The bulk of the annual average rainfall of 250mm occurs largely from November to March with the heaviest falls during January and February, although "unseasonal" rainfall of up to 1,000mm has been recorded.

Cattle raising is the major industry in the Basin.

TENEMENT

The Bigryli Prospect is currently held by virtue of Exploration Retention Lease Applications by Central Pacific Minerals on behalf of a joint venture group consisting of itself and:

Agip Australia Pty Ltd
Cocks Eldorado NL
Offshore Oil NL
Southern Cross NL
Yuendumu Mining Company NL

The area was initially acquired as A.P.2677. The A.P.2677 was later converted to E.L.605 (1971-1977) and then an S.M.L. Application (October 1977 - July 1981) before E.L.2710 came into force.

Figure 2 shows the locality of the Bigryli Prospect Exploration Retention Lease Applications, within E.L.2710.

PREVIOUS INVESTIGATIONS

The rocks of E.L.2710 were first examined in 1967 by the BMR (Wells et.al, 1968) in the course of regional geological mapping of the central part of the Ngalia Basin.

During the mapping of the area by the BMR, a seismic survey was also carried out.

In 1968 Magellan Petroleum Australia Ltd and Southern Pacific Petroleum N.L. began active oil exploration which involved detailed seismic and gravity surveys being done in 1971.

The discovery of uranium mineralisation was made in early 1970 when K. Rankin, a prospector for Central Pacific Minerals N.L., discovered a
Figure 2

CENTRAL PACIFIC MINERALS N.L.

LOCALITY OF E.L. 2710

SCALE 1:250,000  DATE  JULY 1985
radioactive gossan in a quartz vein at a site now known as Rankin’s Reward (Ivanac and Spark, 1976). Ground prospecting followed and this covered most of the Ngalia Basin. Carnotite mineralisation was found in Mt Eclipse Sandstone at Walbiri and Dingos Rest in the northern part of the Basin and in Tertiary calcretes (at Currinya) in the southern part of the Basin. Systematic examination of the outcrops of Mt. Eclipse Sandstone on the northern edge of the Basin found carnotite mineralisation at Bigrlyi in 1973.

In early 1974, an airborne radiometric survey covered the Ngalia Basin portion of E.L.2710. This survey located all the previously known radiometric anomalies at Bigrlyi and a small anomaly, known as Little Cone, in the Patmungala Syncline.

Geological mapping of the northern margin of the Ngalia Basin at a scale of 1:25,000 included that part covered by E.L.2710.

From 1975 onwards, exploration was confined to detailed investigation of the Bigrlyi Prospect. (Pope & Fidler, 1982; Fidler, 1983; and Pope, 1984,1985).

REGIONAL GEOLOGICAL SETTING

The rocks within the Ngalia Basin portion of E.L.2710 are dominated by the Devonian-Carboniferous Mount Eclipse Sandstone, the youngest pre-Tertiary sediments of the Ngalia Basin (Figure 3).

The Basin is an elongate, intracratonic depression, about 300 km long and 70 km wide and filled by Upper Proterozoic and younger sediments with an aggregate thickness exceeding 4,800 metres. The surrounding and underlying pre-Adelaidian basement of crystalline and metamorphic rocks include granites and porphyritic rocks, quartz-mica schist, quartzites, basic intrusives and amphibolites, and granulites. They have been intruded by dolerite dykes, pegmatites, quartz and quartz-ironstone reefs. In some cases the reefs have been found to contain up to 400 ppm uranium.

The predominantly arenaceous, continental and marine sediments of pre-Cainozoic age which fill the basin have been divided into 8 formations and one member by Wells et.al. (1968). It is the youngest of these, the Mt Eclipse Sandstone, which is of most interest.

Faulting and some broad-scale folding has disturbed the strata, particularly at the northern edge of the Basin, and has resulted in the stratigraphic section of interest at Bigrlyi having a near vertical dip.

Thrusting along the northern edge of the Basin is considered by Wells et.al. (1972) to have moved Precambrian basement over the younger sediments of the Basin. This interpretation has been developed from seismic and gravity surveys and finds its most convincing expression in the far west of the Ngalia Basin.
Figure 3: Regional Geology, Ngalia Basin (after Wells et al. 1972)
INVESTIGATIONS ON THE RELINQUISHED AREA OF E.L. 2710

As mentioned earlier, the primary thrust of exploration was towards continuing work on the Bigrlyi Prospect. A summary of the results of this work is dealt with in a separate confidential report on the ex-E.L. 2710 area held under Exploration Retention Lease applications.
REFERENCES AND BIBLIOGRAPHY


