URANIUM EXPLORATION JOINT VENTURE

ANNUAL REPORT OF ACTIVITIES – 1974

19th February, 1975

R.F. Spark

Distribution
Agip Nucleare
Central Pacific
Magellan
Urangesellschaft
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LOCALITY MAP - NGALIA BASIN - TENEMENT OVERLAY
Plan No. NT.NG 17B 1:250,000
SUMMARY

1974 has been a successful year for the Joint Venture in the Ngalia Basin. Despite adverse weather conditions which persisted during the year, the exploration team managed to complete detailed geological mapping on three prospects, a resistivity survey, an airborne survey, a photo interpretation of most of the basin, and to place and recover 2,417 track etch cups over part of each Exploration Licence held by the Joint Venture. Additional to this, the drilling programmes for Currinya, Rinkabeena, Little Cone, Dingo's Rest South and Bigrlyi were completed as well as a supplementary programme at Rinkabeena. The only programme not completed was at Walbiri where breakdowns of equipment and unseasonal rain caused severe delays.

Mineralization was intersected at Karin's Anomaly, Rinkabeena and although of low grade has provided encouragement to carry out further work in 1975. High grade intersections of uraninite in sandstone were found at the Bigrlyi Prospect and this has made this prospect the most favourable for 1975.

In 1974, a total of 31 holes were drilled completely comprising a total of 1,580 m. percussion and 577.6 m. diamond. Of these, 20 holes intersected anomalous radioactivity and/or uranium mineralization. Detailed rotary/percussion and diamond drilling is recommended for the Rinkabeena and Bigrlyi areas.
INTRODUCTION

This report summarises briefly all the work carried out by the Uranium Joint Venture during 1974. During the year, every effort was made to report in detail on all projects completed. As a consequence, this report will only refer to these reports and quote their summaries. Work currently underway will be mentioned and commented on but major reports will be circulated regarding these.

The highlight of the year's work was the promising intersections of uranium mineralization at Bigrlyi and Rinkabeena. Mineralization was also discovered at Dingo's Rest South although only of low grade. No encouragement was received from the drilling at Little Cone or Currinya. The latter area has been surrendered.

Drilling is continuing at Walbiri. The results of the track etch survey were not received before the end of 1974 and therefore will not be mentioned in this report.

GEOLOGICAL MAPPING

Geological mapping with accompanying radiometric prospecting was carried out at Bigrlyi, Little Cone and Karin's Anomaly, Rinkabeena.

1. Bigrlyi

Geological mapping of this prospect was completed at 1:2,000 scale. This work outlined a favourable, reduced, carbonaceous horizon for virtually the whole length of the prospect. It also outlined 15 separate anomalously radioactive areas (Anomalies 1 - 15) and provided drilling targets into the most favourable of these. The summary of this report is as follows:

"During 1974, a geological mapping programme covering the whole of the Bigrlyi Prospect was completed at 1:2,000 scale. This work revealed that the uranium mineralization and radioactivity is confined to a finite sequence close to the base of the Mt. Eclipse Sandstone. This unit is about 450 m. thick and consists of a Lower, red coloured, oxidised sub-unit and an Upper, light coloured, reduced sub-unit the latter containing all the known radioactivity. More than one level of radioactivity can be found within this unit. Carnotite has been found in numerous places at the Prospect the best result being 1.25% U3O8 from a grab sample from Anomaly No. 2."

2. Little Cone

Geological mapping at 1:11,000 scale and radiometric prospecting was completed following the discovery of anomalous radioactivity in the area during the airborne survey. This involved mapping of 3 km. of strike length and 11.5 km. of plane table traverses. The summary from Report NT-103 detailing the work carried out is as follows:

"An airborne radiometric survey and regional mapping has revealed an anomalous radioactivity within the basal part of the Mt. Eclipse Sandstone near the keel of the Patmungala Syncline. This prospect has been named the Little Cone Prospect. Geological and radiometric mapping has shown a discrete bleached, and anomalously radioactive sandstone about 30 m. thick and about 3 km. long (Sand Bi). This rock occurs itself within a sandstone unit (known as Sand B) which has the same lithological characteristics but lacks radioactivity.

This bleached zone has many characteristics of the outcrop of a "roll front" type of uranium occurrence.

It is proposed to test the zone down dip and below the water table by a programme of percussion drilling."

3. Karin's Anomaly, Rinkabeena

Following the discovery of Karin's Anomaly in 1973, geological mapping and radiometric prospecting at 1:10,000 was carried out (see Report NT-72). During 1974, further geological mapping and radiometric prospecting was completed south of Karin's Anomaly to ascertain if any further favourable rocks occurred. Favourable rocks were found, but no significant radiometric anomalies were found. Report NT-87 deals with this, the summary of which is as follows:

"1. Mapping of discontinuous outcrops of Mt. Eclipse Sandstone in the north-west corner of Rinkabeena (E.L. 453) shows the existence of four white, coarse-grained, "channel"-type sandstone units which can be clearly distinguished from an otherwise monotonous, fine to medium-grained, "red-bed" sequence.

2. Both facies types of clastic sediments represent different conditions of erosion, energy levels of transport and environment of deposition.

3. The total thickness of Mt. Eclipse Sandstone is estimated at 3,500 m., of which the lower section of 3,000 m. is not continuously exposed. One sixth of the section is made up of "channel" type sandstone units."
4. Three of the white "channel" type units - the most potential for uranium - crop out south of Karin's Anomaly and were prospected in detail but no significant anomaly was detected.

**INTERPRETATION OF MAGELLAN SEISMIC SHOT HOLE SAMPLES**

Magellan Petroleum (N.T.) Pty. Ltd. made available all samples collected during a seismic survey conducted over the Ngalia Basin. These samples were logged both lithologically and radiometrically and the results plotted on 1:46,500 maps. Some of these samples were selected for assay. Report NT-91 deals with this work, the summary of which is as follows:

1. 529 Magellan shot hole samples were logged, lithologically from February - April, 1974.

2. 988 samples were radiometrically checked using a portable McPhar TV5 instrument. Results are plotted on the accompanying Exploration Licence maps.

3. 47 samples were selected for assay from the results of the radiometric checking. Uranium, thorium, chromium, vanadium, molybdenum and manganese were determined.

4. Logging has shown a number of bleached and carbonaceous sands within the Mt. Eclipse Sandstone. These may be favourable rock types for the localization of uranium mineralization.

5. **Autobahn (E.L. 359)** - 407 samples were radiometrically logged, 21 were analysed resulting in no anomalous uranium values being recorded. Of these 336 samples were lithologically logged. Reduced or carbonaceous sandstones were identified in a number of localities. Maximum uranium content was 6 ppm.

6. **Oodnappina (E.L. 455)** - 115 samples were radiometrically logged, two analysed resulting in a maximum of 4 ppm uranium. One sample - of white sand - suggests 'favourable' lithology.

7. **Kilwan (E.L. 456)** - 48 samples were lithologically examined and one zone of grey carbonaceous sand identified, of these 57 samples were logged radiometrically and no anomalous radioactivity recorded.

8. **Djuburula West (E.L. 402)** - 314 samples were radiometrically, 20 analysed resulting in one sample recording 10 ppm uranium. The remainder returned 4 ppm of these 276 samples were lithologically logged and revealed white or carbonaceous rocks in drill holes in the western part of E.L. 402.
9. **Gurner** (E.L. 360) - 47 samples were lithologically logged and showed conglomerate and white carbonaceous sands in two horizons east of Waite Creek Fault of these 42 samples were studied and no anomalous radioactivity was recorded.

10. **Albinia** (E.L. 358) - 72 samples were radiometrically logged, 4 sent for analysis and recorded 4 ppm uranium. Three zones, in the 68 samples of seismic shot hole cuttings studied, were found to consist of 'favourable' reduced and carbonaceous sands south-east of Vaughan Springs Homestead.

**RESISTIVITY SURVEYS**

A reconnaissance resistivity survey was conducted within the Agamba I exploration licence by Murdoch Geology and Geophysics Pty. Ltd. A total of 126 km. of traversing was involved. This survey was commissioned to ascertain the extent of Mt. Eclipse Sandstone beneath a thick veneer of Tertiary and Quaternary rocks. The method appeared to be able to differentiate between basement rocks, Vaughan Springs Quartzite, Mt. Eclipse Sandstone and Tertiary rocks. Report NT-88 provides details of the survey, the conclusions of which are as follows:

"A reconnaissance resistivity survey carried out over the Agamba I Block of the Ngali Basin in the Northern Territory has successfully differentiated that basin into 3 geological zones. These zones comprise the Tertiary sub-basins (hereinafter called the Northern and Southern Tertiary sub-basins) separated by a central zone of shallow Carboniferous rocks.

The survey determined:

(a) Shallow Precambrian rocks are generally confined to within 1\(\frac{1}{2}\) km. of outcrop.

(b) The scattered Carboniferous outcrops located near the centre of the basin form part of a probably continuous zone or ridge of shallow Carboniferous rock running east-west through the centre of the Basin.

(c) The central zone of shallow Carboniferous rock separate the Northern Tertiary sub-basin from the Southern Tertiary sub-basin.

(d) The Tertiary sub-basins have in excess of 300 m. of section.

(e) The Northern Tertiary sub-basin has several arms or tributaries that extend outside the generally accepted northern limits of the Basin."
The shallow Carboniferous zone and the arms of the Northern Tertiary sub-basin, which would have drained prospective Precambrian rocks north of the basin, are considered of further interest in the exploration for sedimentary uranium in the Agamba I Block.

The recommendations contained in this report involve conducting detailed resistivity surveys over these areas to determine optimum sites for a preliminary drilling programme."

**AUGER DRILLING AND EMANOMETRY**

During the year, three separate surveys involving auger drilling have been conducted. They are:

(a) Auger drilling programme (Stage II) Currinya (Report NT-82),

(b) Auger drilling (Report NT-91),

(c) Heavy auger drilling programme, Currinya (Report NT-104).

(a) **Auger Drilling Programme (Stage II) Currinya**

The auger drilling programme carried out in the latter part of 1973 on the Currinya Exploration Licence was a follow-up to the previous year's work. Difficulties were still encountered in penetrating hard calcrete layers. 1,000 m. of drilling was involved. The summary of Report NT-82 which gives details of the work is as follows:

1. In 1973 1,000 m. (Stage II) of Jacro auger drilling was completed on E.L. 454, Currinya, to further test a radioactive sandy-clay unit occurring at shallow depths. The initial auger programme (early 1973) was documented in Report NT-68.

2. Anomalous radioactivity has been followed within a sandy-clay unit for 4,800 m. north-easterly/south-westerly with indications of extending up to 8,000 m. A maximum surface width of 700 m. has been observed.

3. The elongated and narrow nature of this sub-surface anomaly together with its spatial relationship to present drainage patterns (see Mode of Occurrence, Report NT-68) suggests it is part of a fossil drainage system. There may be other fossil drainage channels.

4. The maximum assay value recorded during the programme was an average 7.36 ppm U₃O₈ over a 2 m. sample interval (4 to 6 m. depth in NGAH-198).
5. It is recommended that the southern part of the Currinya Exploration Licence be investigated by means of east-west oriented, shallow holes to ensure detection of any fossil drainage system. A hole spacing of 500 m. is planned."

(b) Auger Drilling

As part of the Joint Venture's area maintenance programme, shallow auger drilling coupled with down the hole radiometric probing and emanometry were conducted. A total of 1,033 m. of auger drilling was involved. Report NT-91 documented the results of this work, the summary of which is as follows:

"1,033 m. of shallow auger drilling has also been completed. All holes were logged for gamma-ray activity and most for radon content using an emanometer. Three holes showed slightly anomalous radioactivity (explained by bottom hole lithologies) and one showed anomalous radon content.

Location of holes is as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autobahn</td>
<td>116</td>
</tr>
<tr>
<td>Oodnappina</td>
<td>102</td>
</tr>
<tr>
<td>Kilwan</td>
<td>42</td>
</tr>
<tr>
<td>Djuburula West</td>
<td>140</td>
</tr>
</tbody>
</table>

(c) Heavy Auger Drilling Programme, Currinya

This programme utilised a Mayhew 1500 drilling rig. Although this machine was too big for the job, it was found to be very quick and efficient. A total of 840 m. of drilling was involved in the programme. Report NT-104 provides details of this work, the summary of which is:

"In August/September 1974 a heavy auger drilling programme was completed on E.L. 454, Currinya. A total of 75 holes with an accumulative depth of 840 m. were drilled using a Mayhew 1500 rotary rig. Possible mineralized fossil drainage systems and continuations of known weak anomalies were investigated. No significant radiometric anomalies were detected.

The Quaternary cover (calcrete - sandy clay units) of the exploration licence has now been sufficiently tested by auger drill holes; no significant mineralization was delineated and therefore no further work is justified."

The recommendation of this report was to relinquish the area and this has now been done.
DRILLING

Rotary/percussion drilling using a Mayhew 1500 drilling rig and a Gardner-Denver 1,000 CFM/250 psi compressor was conducted on Karin's Anomaly, Rinkabeena (Stage I and Stage II), Little Cone Prospect, Dingo's Rest South Prospect and the Walbiri Prospect. A total of 496 m. was completed for Stage I Rinkabeena, 564 m. Stage II Rinkabeena, 314 m. at Little Cone, 206 m. at Dingo's Rest South and 265 m. at Walbiri. This comprises a total of 1,845 m. This work was severely hampered by a major breakdown to the compressor which was unable to be fixed quickly and by very heavy unseasonal rain.

Diamond drilling using a Boyles rig was conducted on the Bigryly Prospect (506.6 m.) and on the Dingo's Rest South Prospect (71 m.). This comprises a total of 577.6 m. Again, drilling was often delayed by heavy rainfall.

1. Karin's Anomaly, Rinkabeena

A stage I and a stage II rotary/percussion drilling programmes were completed at Karin's Anomaly comprising a total of 1,060 m. Report NT-105 deals with Stage I, the summary of which is as follows:

"A rotary and percussion drilling programme was completed on E.L. 453, Rinkabeena, in September 1974. Five holes with an accumulated depth of 496 m. were drilled using a Mayhew 1500 rig.

Holes RPH-1, 2A and 3 were drilled on positions A, B and C outlined in the drilling proposal. Holes RPH-4 and 5 are situated 165 and 235 m. south-south-west of RPH-1. All holes were logged for gamma-ray and resistivity immediately on completion.

Holes 2A and 3 situated north-east of Karin's Anomaly, proved barren. Radiometric anomalies were discovered in Holes 1, 4 and 5 in one stratigraphic level which is confined at its base by an impervious shale and siltstone layer. Host rocks are medium light grey, medium to coarse grained, feldspathic sandstones that are very rich in carbonaceous matter. The dip of strata is 17°S. Although there was no water recorded in Holes RPH-4 (and 5) it appears that stratiform primary uranium mineralization was intersected beneath the water table in a primary reduced sub-channel.

Best assay values are 2,300 ppm U₃O₈ from 64 - 65 m. and 963 ppm U₃O₈ from 62 - 67 m. in Hole RPH-4.

It is recommended to test the lateral extension of the tabular mineralization by a Stage II drilling programme comprising a total of 520 m. in 12 holes."
A report of the Stage II programme (Report NT-109) has been completed and is currently being processed. The summary of this report is:

"A Stage II rotary and percussion drilling programme was completed on E.L. 453, Rinkabeena, in November 1974. Fourteen holes with an accumulated depth of 564 m. were drilled using a Hayhew 1500 rig. Six metres of section were cored in one hole.

Ten shallow holes were completed along strike of RPH-1. Four holes were drilled on either side of the original discovery and two holes were drilled as follow-up. Holes were spaced at 50 m. intervals along strike. Radiometric anomalies were recorded in six of the holes along the shallow drill line delineating a total anomalous strike extension of 200 m. with RPH-1 in the centre. A further four holes were drilled along strike of RPH-4 (two on either side). Hole spacing was 25 m. Anomalous radiometric values were detected in all these holes but significant peaks are restricted to the two centre holes 25 m. east and west of RPH-4. Mineralization at this level is therefore only 50 m. wide.

Correlation between all holes drilled in this area proved to be satisfactory. All radiometric anomalies occur in one stratigraphic level which is confined at its base by an impervious shale unit, and at its top by a low porosity fine grained sandstone (including shale and siltstone) marker bed. Host rocks are light grey to greenish grey, medium to coarse grained, feldspathic sandstones that are very rich in carbonaceous matter. Dip of strata is 17°20' south. Along the level of RPH-4 it appears that tabular primary uranium mineralization was intersected below the water table (40 m.) in a primary reduced sub-channel. A north-east/south-west/westerly trend can be concluded from the radiometric pattern.

Best uranium assay values are 684 ppm U₂O₅ in Hole RPH-19 (61 - 62 m.) or 620 ppm U₂O₅ (60 - 62.5 m.) in the same hole. Incompatible assay results and peak gamma values indicate very unreliable sampling which was caused by drilling problems.

Recommendations for a rotary/percussion drilling programme (total meterage 5,000 m.) include holes to test down dip extension of the known mineralization at Karin's Anomaly and reconnaissance holes to test the potential of the area along strike of RPH-1."
2. Little Cone Prospect

A total of 314 m. of rotary/percussion drilling was completed at this prospect. Although favourable looking rocks were intersected, no mineralization was found. Report NT-106 provides details of this work, the summary of which is as follows:

"Three rotary drill holes were drilled to depths of 80 m., 103 m., and 131 m., at the Little Cone Prospect during September 1974 by Afrac Drilling. All holes were sampled at 1 m. intervals and logged by McPhar Geophysics with gamma and resistivity tools. All holes were above the water table in deeply weathered rocks and only narrow weak radiometric peaks similar to those found on the surface were discovered. The geology was correlatable with that mapped at the surface.

As the drilling did not penetrate the target zone of a possible uranium accumulation below the water table, it is proposed to drill one deep hole to test this target."

3. Dingo's Rest South Prospect

A combination of rotary/percussion pre-collaring to 206 m. followed by diamond drilling to the total depth of 279 m. was utilised for this area. This drill hole (DRS-1) was sited directly down-dip from the Dingo's Rest South trench to intersect the projection of the mineralization at a depth of about 250 m. Mineralization was intersected in a fault zone of 237.5 m. A report (Report NT-111) on this work is currently being processed, however, the summary of which is given below:

"A 279 m. percussion and diamond drill hole was drilled 300 m. west of NGDD-2 at Dingo's Rest South. The purpose of the hole was to test whether the bleaching intersected in NGDD-1, 2 and 3 persisted to this depth or whether a roll front situation exists.

The hole intersected reduzate facies sandstones from 232 to 252 m. with minor mineralization over this interval. The most intense mineralization of 12,000 cps occurs at 237.5 m. in a small calcite filled fault zone within carbonaceous pyritic sandstone with calcite stringers. The best assay was 1,770 ppm U_0.3 from 237.70 to 237.80 m."

4. Walbiri

Rotary/percussion pre-collaring of holes commenced at the Walbiri Prospect in December and to the end of that month pre-collaring was completed on WPH-1 (119 m.), WPH-2 (108 m.) and WPH-3 (38 m.). This comprises a total of 265 m. of drilling. All three holes are scheduled to a total depth
of about 210 m. The projection of the mineralization is expected at about 180 m. No mineralization has been found to date in any of these holes.

5. Bigrlyi Prospect

Diamond drilling was conducted on the Bigrlyi Prospect following the completion of the geological mapping which outlined targets. Eight holes (BDD-1 - 8) were drilled comprising a total of 506.6 m. A report has been completed on this work and is currently being processed before circulation to partners. The summary of this report (Report NT-108) is as follows:

"A diamond drilling programme of 506.6 m. in 8 inclined holes was also completed. These holes were drilled primarily to assess the down dip significance of the main surface radiometric anomalies. Uraninite in sandstone was intersected in Hole BDD-2. The highest assay being 9.78% UO₂ from 53.22 m. to 53.36 m. (14 cms.). Significant radioactivity was also discovered in Holes BDD-4, 5, 6, 7 and 8, although not as high grade as in BDD-2. The mineralization occurs as uraninite in reduced feldspathic sandstone containing carbonaceous matter except for holes 5 and 6 which were drilled at Anomaly No. 2 and intersected carnobite in bleached sandstone. The best mineralization intersected was from BDD-2 where 0.66% UO₂ over 5.24 m. was found (line of hole). True width is estimated to be 4.13 m."

6. Dunja Bore, Agamba I

One reconnaissance hole was planned in the vicinity of Dunja Bore in Agamba I. This hole was sited to test the Tertiary section in this area. The hole was started using conventional rotary drilling but gravel beds at about 40 m. were too hard to be penetrated. The hole was abandoned.

This hole will be drilled with percussion methods as soon as the Walbiri Prospect drilling is completed.

MINERALIZATION

Promising intersections of uranium mineralization in sandstone were discovered at the Bigrlyi Prospect and Karin's Anomaly. Mineralization was also found in a fault zone at Dingo's Rest South. All assay data and intersections are recorded in the relevant reports. Assay results for the intersection at Dingo's Rest South gave a maximum of 1,770 ppm UO₂ from 237.70 to 237.80 m. Mineralization above and below this was very low grade.
The significant results from all drill holes are:

<table>
<thead>
<tr>
<th>Drill No.</th>
<th>Mineralisation Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bigrlyi BDD-1</td>
<td>No significant mineralization</td>
</tr>
<tr>
<td>2</td>
<td>0.66% U₃O₈ over 4.13 m. (true)</td>
</tr>
<tr>
<td>3</td>
<td>No significant mineralization</td>
</tr>
<tr>
<td>4</td>
<td>945 ppm U₃O₈ over 0.63 m. from 13.68 - 14.31 m.</td>
</tr>
<tr>
<td></td>
<td>1,915 ppm U₃O₈ over 0.78 m. from 22.22 - 23.00 m.</td>
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<tr>
<td></td>
<td>579 ppm U₃O₈ over 0.70 m. from 37.00 - 37.76 m.</td>
</tr>
<tr>
<td></td>
<td>685 ppm U₃O₈ over 0.08 m. from 40.29 - 40.37 m.</td>
</tr>
<tr>
<td></td>
<td>523 ppm U₃O₈ over 1.05 m. from 47.00 - 48.05 m.</td>
</tr>
<tr>
<td>5</td>
<td>No significant mineralization</td>
</tr>
<tr>
<td>6</td>
<td>1,635 ppm U₃O₈ over 8.75 m.</td>
</tr>
<tr>
<td>7</td>
<td>705 ppm U₃O₈ over 4.66 m.</td>
</tr>
<tr>
<td>8</td>
<td>896 ppm U₃O₈ over 2.53 m.</td>
</tr>
<tr>
<td>Rinkabeena RPH-4</td>
<td>963 ppm U₃O₈ over 5.00 m. from 62 - 67 m.</td>
</tr>
<tr>
<td>19</td>
<td>620 ppm U₃O₈ over 2.00 m. from 60 - 62 m.</td>
</tr>
</tbody>
</table>

From these results, the best intersection was from BDD-2 at Bigrlyi. The mineral was uraninite in sandstone with minor oxidation to carnotite. In most of the other intersections shown, the uranium mineral was not readily identifiable. Vanadium was found to accompany the uranium.

**TRACK ETCH SURVEYS**

In the second half of the year, it was decided to conduct a track etch survey over all the exploration licences in the Ngalia Basin. A spacing of 1 km. north-south and 500 m. east-west was decided upon and 2,500 cups were made available. With this number of cups it was impossible to cover all of each exploration licence, so that areas were selected from each one which seemed to be the most prospective for uranium.

A total of 2,417 cups were put into the ground and a total of 2,380 cups were recovered and sent to the USA for processing. A total of 256 hrs. bulldozer time was utilised
in clearing lines for the track etch survey. The results are not expected until January 1975. A breakdown of cups placed and recovered exploration licence by exploration licence is:

<table>
<thead>
<tr>
<th>Licence</th>
<th>Place</th>
<th>Recovered</th>
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</thead>
<tbody>
<tr>
<td>E.L. 605, Yuendumu</td>
<td>64</td>
<td>56</td>
</tr>
<tr>
<td>E.L. 402, Djuburula West</td>
<td>272</td>
<td>268</td>
</tr>
<tr>
<td>E.L. 257, Agamba I</td>
<td>126</td>
<td>120</td>
</tr>
<tr>
<td>E.L. 453, Rinkabenea</td>
<td>576</td>
<td>571</td>
</tr>
<tr>
<td>E.L. 701, Uldirra</td>
<td>164</td>
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</tr>
<tr>
<td>E.L. 552, Djuburula East</td>
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<td>E.L. 360, Gurner</td>
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<td>E.L. 359, Albinia</td>
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</tbody>
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The results of the survey will be assessed early in 1975 and a full report with recommendations for further work will be written.

GEOLOGICAL INTERPRETATION OF COLOURED AIR PHOTOGRAPHS

Coloured aerial photographs at 1:25,000 scale of the northern margin of the Ngalia Basin were purchased early in 1974. A programme of geological interpretation of these photographs, combined with selected geological field traverses, has been undertaken during the year. The main aim of this work was to stratigraphically sub-divide the Mt. Eclipse Sandstone and to isolate the units which were favourable for uranium deposition. A total of 11 geological maps have been produced covering all the outcrops of Mt. Eclipse Sandstone on the northern part of the basin and including the Yuendumu Aboriginal Reserve.

Although the maps are completed and have been circulated, a full report on this work is still in preparation. It is expected to be complete early in 1975.

Additional to the photo interpretation, the colour air photographs of the Bigryli Prospect have been blown up to 1:5,000 scale. This was thought necessary when drilling at this prospect highlighted the fact that the structural geology seemed to be directly associated with the mineralization. It was decided to use the photographs as a base for a detailed structural interpretation. This work is currently underway.
AIRBORNE RADIOMETRIC AND MAGNETIC SURVEY

During the year a radiometric and magnetic airborne survey was conducted over all outcropping Mt. Eclipse Sandstone in the Basin. A total of 1,850 line kms. of survey was completed. Preliminary ground follow-up work has been completed on the anomalies and those considered worthy of detailed ground work have been defined. Report NT-102 provides the details of the survey and the ground follow-up work. The summary of this report is:-

"Between the 26th and 29th of April, 1974, an airborne radiometric and magnetic survey of 1,850.3 line kms. was conducted over all outcropping Mt. Eclipse Sandstone in the northern margin of the Ngallia Basin. The interpretation of the radiometry revealed a total of 123 radiometric anomalies having possible uranium sources.

Ground inspection of these anomalies has shown that 91 have a variety of causes, mainly lithological contrast effects and no further work is recommended for these. Of the remainder, fourteen are related to previously known mineralization and eighteen (in twelve separate locations) have causes which necessitate further field work. Preliminary ground examination of these has not revealed any visible uranium mineralization.

Preliminary interpretation of the magnetic data has been completed and contour maps at 20 gamma intervals completed. This work has shown the existence of north to north-east trending flexures with a strong spatial relationship to known mineralized showings."

REFERENCES

Acknowledgement

The following company reports, although in single authors names, have been prepared with the co-operation of the entire Uranium Exploration Team including the Company's geological assistants, D. Dixon, Q. Fuller and G. Pope.


