ANNUAL REPORT

EL 27729

MURPHY PROJECT

NT

Report Period: 30/7/2011 to 29/7/2012

David Esser

July 2012
EXECUTIVE SUMMARY

This annual report describes the work carried out in EL 27729 up to the 29th July 2012. EL 27729 is located over the western end of the Murphy Inlier, NT and is held by Murphy Uranium Pty Ltd, which is a wholly owned subsidiary of Lyell Resources Limited (Lyell). EL 27729 has the potential to host unconformity style and sandstone hosted style uranium deposits, similar to those located in the Alligator Rivers Uranium Field at the northern end of the McArthur Basin and the Westmoreland deposit approximately 100km to the east of the project area, respectively.

An environmental audit of drilling rehabilitation on the Murphy Project was completed during the 2011 field season, however no holes were drilled on EL 27729.

Murphy Uranium decided to surrender EL 27729 in total as it focuses on other tenements within the Murphy project.

Exploration during the 2011-2012 reporting period comprised tenement data evaluation and assessment with the objective of providing recommendations to the joint venture partner (JOGMEC) for the total relinquishment of the tenement.
1 INTRODUCTION

Murphy Uranium Pty Ltd, is the holder of EL 27729. The license is located west of the Westmoreland Uranium Field and forms part of Lyell’s Murphy Project targeting uranium deposits about the Murphy Inlier in the Northern Territory. The Murphy Project currently comprises EL’s 24841, 25710, 26138 and 26139. Refer to Figure 1 for the Murphy project tenement locations.

Figure 1 - Location Map showing Murphy Project.

This annual report covers all the exploration work carried out within EL 27729 up to 29th of July 2012. Exploration during the 2011-2012 reporting period comprised of complete tenement data evaluation and assessment with the objective of preparing recommendation to the joint venture partner (JOGMEC) for the total relinquishment of the tenement.
2 LOCATION & ACCESS

EL 27729 is located approximately 130km west of the NT - QLD border and 170km south east of the McArthur River mine in eastern NT, see Figure 2. The licence covers four 1:250,000 map sheets; Wallhallow, Burnette Downs, Calvert Hills and Mount Drummond. Access is via the Barkly Highway from Mt. Isa, to the Barkly Roadhouse, then via the Tablelands Highway to the Calvert Hills Road. Access around the project area is via graded station roads and tracks. An alternative access can be gained via Cape Crawford to the north via the Tablelands highway, or from the east by the Calvert Hills Rd which crosses the border near Woollogorang.

Figure 2 - Tenement Location Map.
3 TENURE DETAILS

EL27729 was initially granted to Bondi Mining Ltd., on 30th July 2010 a company which owned Murphy Uranium Ltd. In December 2011 Bondi Mining Ltd. was taken over by World Titanium Resources Ltd., as part of this transaction the Murphy Project tenements of which EL 27729 was acquired by Lyell Resources Ltd.

In December 2008 a Letter of Agreement was signed between Bondi and Japan Oil, Gas and Metals National Corporation (JOGMEC) wherein JOGMEC can earn a 51% undivided interest in the Murphy Project tenements by funding AUD $3 million in exploration over four years. Murphy Uranium Pty Ltd. is the operator of the exploration program. Tenement details are shown below in Table 1 and sub-block identification is shown in Figure 3. Exploration expenditure for this period totaled $225 (including tenement costs). Refer to the Expenditure Report in Appendix 1 for details.

Table 1: Tenement details

<table>
<thead>
<tr>
<th>Exploration Licence No.</th>
<th>No. Blocks</th>
<th>Area (km²)</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>Expenditure Commitment</th>
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<tr>
<td>EL 27729</td>
<td>6</td>
<td>19.6</td>
<td>30/07/2010</td>
<td>29/07/2016</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

Figure 3 - EL 27729 Sub-Block Identification Map
4 REGIONAL GEOLOGY

The Murphy Project tenements are situated within the Calvert Hills, Wallhallow, Mount Drummond and Brunette Downs (Northern Territory) 1:250,000 geological sheets. The first geological observations in the area were reported by explorer Gregory in 1861. The Redbank copper deposit was discovered in 1916 by prospectors, however little geological work was done until the late 1930s when the federal government funded the Aerial Geological and Geophysical Survey of Northern Australia (“AGGSNA”). The discovery of uranium in 1955 at Pandanus Creek led to increased interest from mining companies.

The oldest rocks exposed in the area are early Proterozoic sediments, volcanics and intrusives of the Murphy Metamorphics which were deformed and regionally metamorphosed prior to 1875 Ma (refer to Figure 4 and Figure 5). The Murphy Metamorphics are represented mainly by phyllitic to schistose metasediments and quartzite and are overlain by two Proterozoic cover sequences; the Clifffdale Volcanics and the Westmoreland Conglomerate. The cover sequences were laid down after the early deformation and metamorphism of the basement and before a period of major tectonism, which began at about 1620 Ma. The oldest cover sequence is the Clifffdale Volcanics unit, which unconformably overlies the Murphy Metamorphics. The Clifffdale Volcanics contain over 4000 m thickness of volcanics of probably sub-aerial origin, more than half of which consist of crystal-rich ignimbrites with phenocrysts of quartz and feldspar. The remainder are rhyolite lavas, some of which are flow banded. The ignimbrites are more common in the lower part of the sequence, with the Billicumidjii Rhyolite Member occurring towards the top.

The Clifffdale Volcanics are comagmatic with the Nicholson Granite and together they comprise the Nicholson Suite. SHRIMP dating of both the Nicholson Granite and the Clifffdale Volcanics gave an age of 1850 Ma (Scott et al, 2000). The Nicholson Granite is predominantly an I-type granodiorite. The Nicholson Suite shows little evidence of fractional crystallisation and on this basis the potential for forming large tonnage deposits is considered to be minor, although small tonnages of high grade are possible. In the vicinity of the granites there are no significant potential host rocks documented. Potential exists for small Sn and W deposits within the granite and for smaller Cu and Au deposits outside the granite.

Unconformably overlying the Nicholson Suite is the Tawallah Group. This is the oldest segment of the southern McArthur Basin. The base is a sequence of conglomerates and sandstones comprising the Westmoreland Conglomerate. The conglomerates thin out to the southeast and are in turn conformably overlain by the Seigal Volcanics; an andesitic to basic sequence containing interbedded agglomerates, tuffs and sandstones. Together these units comprise about two-thirds of the total thickness of the Tawallah Group. The Seigal Volcanics are overlain (in ascending order) by the McDermott Formation, the Sly Creek Sandstone, the Aquarium Formation and the Settlement Creek Volcanics. Age dating of volcanics within the Tawallah Group indicates a depositional age of between 1780 and 1710 Ma.
To the south and south-west of the Murphy Tectonic Ridge, the Tawallah Group is unconformably overlain by shallow marine and fluvial sandstone and siltstone of the mid Proterozoic (1570 -1590 Ma) South Nicholson Group. To the southwest of the Murphy Tectonic Ridge, the South Nicholson Group appears to have been deposited directly onto lithologies of the Murphy Metamorphics.

To the west of the exposed parts of the Murphy Tectonic Ridge and the area in which the Murphy Project tenements are located, Proterozoic Rocks are concealed by Quaternary colluvium and black soil plain and Cambrian shallow marine sediments of the Barkly Group. Sporadic outcrop of Westmoreland Conglomerate and Murphy Metamorphics indicates that the depth to potentially prospective lithologies is minimal in the eastern half of the tenement holding. Interpretations of Proterozoic geology presented with the BMR Calvert Hills 1:250 000 geological map publication indicate that the Murphy Tectonic Ridge continues to the west under younger cover rocks and the Murphy Project tenement block.
Figure 5 - Stratigraphy of Murphy Inlier Region.
4.1 Structure and tectonics

Cratonisation of the northern Australian orogenic domains during the Barramundi Orogeny was accompanied by the establishment of a fundamental framework of deep-seated NW, NNW to NNE and NE-trending crustal structures (Etheridge et al., 1987). It is widely speculated that these structures were reactivated and became the major controlling influence on the depositional geometry of succeeding basin phases and the localisation of subsequent deformation (e.g., Plumb, 1979; Etheridge and Wall, 1994; Rogers, 1996). The majority of models for the evolution of the McArthur Basin promote extensional tectonics, in which specific fault orientations acted as normal or ‘growth’ structures and others acted as accommodation or transfer structures during various stages of basin formation. The most influential aspect of McArthur Basin geology that has driven extensional models is the presence of significant volcanic and coarse-grained clastic rocks at the base of the basin succession (Rogers, 1996).

The igneous rocks of the Westmoreland region are markedly bimodal with respect to silica content, a typical feature of intracratonic rifting. No rocks older than the Murphy Metamorphics are known east of the Westmoreland area, implying that the detrital sediments of the Tawallah Group were derived from either within or west of the Murphy Tectonic Ridge. The Tawallah Group is dominated by shallow-water marine sediments deposited on a regionally extensive platform.

Subsequent contractional reactivation of earlier ‘extensional fault systems’ is thought to have occurred at least three times during and after basin development (Plumb, 1994; Rogers, 1996).
5 LOCAL GEOLOGY

Most of EL 27729 is covered by Cainozoic material consisting of recent alluvium, tertiary laterite, sandstone and siltstone, black soils and accreted carbonate outcrops of an undesignated formation (Figure 6 – 1:250,000 Published Geology). Small exposures of Cambrian sediments, belonging to the Georgina Basin, are scattered through the tenement and consist of conglomerates, dolomitic limestone (fossiliferous in parts), ferruginous grey and white quartz sandstone and mudstone. Neoproterozoic sediments belonging to the South Nicholson Group also occur in and around the southern and western part of the tenement.

Figure 6 – 1:250,000 Published Geology.
6 SUMMARY OF PREVIOUS WORK

A comprehensive review of previous mineral exploration was carried out and an outline is presented here. Important information gained from this review includes the following:

- First recorded work in the area was by Mount Isa Mines in 1956 and consisted of crude airborne radiometric surveys. The results of this work located the Westmoreland deposits and most likely all of the significant outcropping occurrences.

- There was a distinct hiatus in exploration between 1963-1970, reflecting a slump in the global demand for uranium; the post war proliferation of nuclear weapons had slowed and the nuclear power industry was still in its infancy.

- A second wave of exploration commenced in the 1970's as the demand for uranium for use in nuclear power stations increased. Many of the companies were also operating in the Alligator Rivers region, at the northern end of the Pine Creek fold belt, and much of their focus was on this area after the discovery of significant deposits at Jabiluka, Ranger, Nabarlek and Koongarra. The similarity between the two areas was known, however at this time the nature of the Alligator Rivers deposits was poorly understood and exploration was targeted toward roll front and sandstone hosted uranium deposits in both areas. By the time unconformity type uranium deposits were understood, uranium exploration restrictions were in place and work did not resume in the area until recently.

- More detailed radiometric surveys have been carried out. This work has revealed many outcropping anomalies related to brecciation, quartz veining (silicification) and iron-metasomatism (ferruginisation) associated with faulting in the Nicholson granite and Murphy Metamorphics. None of these anomalies appear to warrant follow-up work, however they indicate that processes associated with the formation of unconformity type uranium deposits have been active in the early Proterozoic basement.

- The region has been explored for gold, basemetal (sedex type deposits) and Kimberlite hosted diamonds by several major companies. No significant gold or basemetal discoveries were made. A large number of diamonds were recovered from Ashton’s Creswell prospect outside the licence and the area is currently under an ERL.

- An airborne GEOTHEM survey carried out by BHP targeting unconformity U-Au-PGE deposits indicated the usefulness of input EM surveys in targeting unconformity uranium deposits under cover. In particular the ability to locate basement conductors related to graphite in fault zones or clay alteration. Part of the BHP survey covers the current EL.

- The western covered region of the Murphy Inlier has the potential to host an unconformity type uranium deposit at depth

A list of the ATPs and ELs previously covering area about EL 27729 is provided in Table 2.
Table 2: Previous tenements over EL 27729

<table>
<thead>
<tr>
<th>Licence</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATP 444</td>
<td>MIM</td>
</tr>
<tr>
<td>ATP 983</td>
<td>Carpentaria Exploration Company</td>
</tr>
<tr>
<td>ATP 3401</td>
<td>ESSO Australia</td>
</tr>
<tr>
<td>EL 122</td>
<td>Noranda Australia</td>
</tr>
<tr>
<td>EL 886 &amp; EL 887</td>
<td>T.W. Cawley and R.A. Weston</td>
</tr>
<tr>
<td>EL 1339</td>
<td>AAR Ltd/Otter Exploration “Coolibah” JV</td>
</tr>
<tr>
<td>EL 1427</td>
<td>Mines Administration/Otter Exploration “Bowgan Creek” JV</td>
</tr>
<tr>
<td>EL 1253</td>
<td>Mines Administration/Union Oil JV</td>
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<tr>
<td>EL 1234</td>
<td>Mines Administration/ESSO Australia JV</td>
</tr>
<tr>
<td>EL 2232</td>
<td>Amoco Minerals</td>
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<tr>
<td>EL 4392 &amp; 4438</td>
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<td>Ashton Mining</td>
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<td>MIM</td>
</tr>
<tr>
<td>EL 8997, 8998, 9163 &amp; 9660</td>
<td>BHP</td>
</tr>
</tbody>
</table>
7 2011 EXPLORATION PROGRAM

7.1 Data compilation and interpretation.

The published geological and exploration data was compiled and the open file reports were reviewed and interpreted. The data compilation included published magnetic data extracted from Geoscience Australia’s GADD system and digital 1:250,000 geological sheets. These data plus open file data indicated that cover in the area is shallow and that an easterly trending magnetic unit, possibly a Proterozoic mafic intrusive, occurs on the west side of the tenement. The open file data are not detailed enough to accurately interpret structure and the more subtle geological units, however north-north-west trending faults, cutting a north-east thrusting Proterozoic stratigraphy was interpreted. These structures observed in the regional magnetics are more clearly defined to the north where Bondi Mining Ltd flew detailed (100m line spacing) airborne magnetics. Refer to Figure 7.

![Figure 7 – Open File Magnetics and Geological Interpretation.](image)
8 2012 EXPLORATION PROGRAM

The only exploration completed in 2011 - 2012 was a five day environmental audit of all previous drilling and track building by two field assistants. In particular, the field personnel located all previous drilling which included locating each RAB and RC hole and checking that:

- All rubbish was removed from the site (including PVC collar and plastic bags)
- The collar was removed and the hole plugged below surface.
- Any sump or excavation was backfilled and plastic liner removed.

There has been no drilling on this tenement; none of this work was applicable to EL27729.

9 CONCLUSIONS

Tenement EL 27729 was applied for on the basis that there was good potential for unconformity style mineralisation to occur to the north of the Murphy tectonic ridge. Although this concept has not been thoroughly tested results from drilling and negative results of a GEOTEM survey on adjacent leases (Coggon, 2010 and Esser, 2011) to the north and northwest suggests that the lower Proterozoic basement is not as carbonaceous as anticipated. Therefore, the unconformity target is less attractive and no further exploration was recommended. The tenement was totally surrendered in May 2012.
10 REFERENCES


