EL 27729
ANNUAL REPORT
MURPHY PROJECT – NT

Report Period: 30/7/2010 to 29/7/2011

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EXECUTIVE SUMMARY

This annual report describes the work carried out in EL 27729 up to the 29th July 2011. 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 Bondi Mining Limited (Bondi).

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.

Exploration during the 2010-2011 field season comprised a compilation of published geological data, a review of openfile reports and the generation of an ArcGIS project. This work highlighted the potential for unconformity related U mineralisation in the portoerozoic basement which appears to only partially or shallowerly covered by younger sediments.
1 INTRODUCTION

Bondi Mining Limited, through its wholly owned Australian subsidiary Murphy Uranium Pty Ltd, is the holder of EL 27729. The license is located west of the Westmoreland Uranium Field and forms part of Bondi’s Murphy Project targeting uranium deposits about the Murphy Inlier in the Northern Territory. The Murphy Project currently comprises EL’s 24694, 24841, 25708, 25709, 25710, 26138, 26139, 26140, 27379, 27728, 27729, and 27730. Refer to Figure 1 for Murphy project tenement locations.

This annual report covers all the exploration work carried out within EL 27729 up to 29th of July 2011. Exploration during the 2010-2011 field season comprised an Airborne EM survey in September 2010 which did not include the area of EL 27729.

Figure 1 - Location Map showing Murphy Project.
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 Wollogorang.
3 TENURE DETAILS

Murphy Uranium Pty Ltd who are a 100% owned subsidiary of Bondi Mining Limited (Bondi) was granted the tenement 30\textsuperscript{th} July 2010. 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 project by funding AUD $3 million in exploration over four years. Bondi 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 $9,361.78 (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 (km\textsuperscript{2})</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>
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</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 Cliffdale 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 Cliffdale Volcanics unit, which unconformably overlies the Murphy Metamorphics. The Cliffdale 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 Cliffdale Volcanics are comagmatic with the Nicholson Granite and together they comprise the Nicholson Suite. SHRIMP dating of both the Nicholson Granite and the Cliffdale 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 1710Ma.
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 (refer to 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.
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>
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</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>EL1427</td>
<td>Mines Administration/Otter Exploration “Bowgan Creek” JV</td>
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<tr>
<td>EL 1253</td>
<td>Mines Administration/Union Oil JV</td>
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<tr>
<td>EL1234</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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<tr>
<td>EL 4352</td>
<td>Ashton Mining</td>
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<tr>
<td>EL 6836</td>
<td>Carpentaria Exploration Company</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.

No ground work was carried on the tenement in the 2010-2011 reporting period. Office work included the compilation of published geological data, a review of open file reports and the creating of an ArcGIS project. 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. Despite this a north-north-west structure trend, cutting a north-east thrusted Proterozoic stratigraphy was interpreted. Refer to Figure 7.

Figure 7 – Open File Magnetics and Geological Interpretation.
8 CONCLUSIONS

A compilation of published geological data and open file reports indicates that Paleozoic and Mesozoic cover is not thick in the area. The present of sub-cropping and/or partially exposed Proterozoic basement around the tenement suggests that basement outcrop maybe more extensive than that suggested by 1:250,000 published geological mapping. In addition, the open file magnetic data indicated that a magnetic Proterozoic unit or dyke, possible a dolerite, occurs in the tenement and that the north-east trending Proterozoic stratigraphy is cut by north-north-west structures. In light of this the area is thought to have the potential for a basement hosted unconformity U uranium mineralization and the area is probably amendable to partial extraction soil geochemical sampling to target mineralisation.

9 RECOMMENDATIONS

A follow-up field program of mapping, and where possible rock-chipping, along with ground magnetics and scintillometer surveys over structural favourable areas is recommended. Areas of interest arising from this work should be covered with partial extraction soil sampling.

10 FUTURE WORK

- Detailed geophysical interpretation.
- Geological mapping and rock-chipping.
- Focused ground magnetic and scintillometer or spectrometer surveys.
- Partial extraction soil geochemistry.