ANNUAL & FINAL REPORT

EL26138

MURPHY PROJECT, NT
2012

Report Period: 20/12/2011 to 14/12/2012

David Esser
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EL26138 was part of a group of twelve (12) tenements comprising the Murphy Project in the northeastern part of the Northern Territory. Bondi Mining Limited is conducting exploration for unconformity and sedimentary hosted uranium mineralisation, analogous to the unconformity deposits of the East Alligator River Region (e.g. Jabiluka) of the Northern Territory, and the Westmoreland deposit in northwestern Queensland respectively.

Exploration during the 2011-2012 field season comprised a ground Transient Electromagnetic (TEM) survey in February 2012 over the Goblin target within EL26138, which was designed to detect conductive sulphides in an IOCG-U style deposit associated with a magnetic mafic intrusive. This data has been processed, modelled and an interpretation of the data was completed by Dr. John Coggon of Mines Geophysical Services in March 2012.

No significant conductor associated with uranium or basemetal sulphides was detected by the TEM survey and the strong magnetic anomaly is most likely associated with a mafic feeder dyke of Cambrian age, although only drilling can prove this. No further exploration is recommended and the tenement was surrendered on 14th December 2012.
This annual report documents the results of the work done by Bondi Mining Limited over EL26138 located in the western part of the Murphy Project in the Northern Territory. Figure 1 shows the tenement location and the area previously comprising the Murphy exploration program. The tenement was granted on the 20th of December 2007 and the report comprises the work done during the twelve months to 14th December 2012 being the date of surrender document received from the Northern Territory Department of Mines and Energy.

**Figure 1:** EL26138 and Previous Exploration Tenements of the Murphy Uranium Group NT
3 LOCATION AND ACCESS

The Murphy Uranium Project area is located in the Barkly Tablelands in the eastern Northern Territory. The largest city in the region is Mount Isa located 400 km to the south-east of the project area. The closest townships are Borroloola, which is located 150 km to the north, and Tennant Creek, located 250 km by road to the south-west of the project area. Port facilities are located at Bing Bong a further 50 km north of Borroloola. These port facilities were established to service the McArthur River Lead Zinc Mine owned by Xstrata.

Figure 2: Location of Murphy Uranium Project tenements in the NE of the Northern Territory

The project area is readily accessed the Barkly Highway to the Barkly Roadhouse and then north along the bitumen Tablelands Highway, or alternatively from the Savannah Highway, a formed gravel road leading from Normanton via Burketown to Borroloola. A network of local formed roads and pastoral tracks provides good access to most of the area of interest. During occasional periods of intense rainfall during the wet season (December – April) both the major and minor creeks may be impassable for some days, or weeks. The tenements are situated in remote, sparsely populated country. Topography mostly comprises black soil plains, which are essentially treeless with some broad gentle valleys covered by open woodland dominated by grey box eucalypt trees, to rugged east-west trending ridges on the flanks of the valleys.
EL26138 was applied for by Canon Investments Pty. Ltd., a wholly owned subsidiary of Buffalo Gold Ltd. The tenement were granted in December 2007 for a period of six years and were transferred to Murphy Uranium Pty Ltd, a wholly owned subsidiary of Bondi Mining Ltd (Bondi), as part of an acquisition of Buffalo Gold’s uranium portfolio by Bondi Mining on 17th January 2008. 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. EL26138, originally comprised an area of 1427 square kilometres and encompassing 436 sub-blocks. The tenement was progressively reduced and at the time of surrender comprised 26 sub-blocks and 85 square kilometres. The tenure details and sub-block map of the tenements are shown in Table 1 and Figure 3 respectively.

Bondi Mining Ltd merged with World Titanium Resources Ltd and was renamed WTR. At this time Lyell Resource Ltd, which is a public but unlisted company, purchased Murphy Uranium Pty Ltd.

Table 1 - Tenement Details

<table>
<thead>
<tr>
<th>Tenement No.</th>
<th>Tenement Name</th>
<th>Tenement Holder</th>
<th>Area S/biks</th>
<th>Area Sq km</th>
<th>Grant Date</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>26138</td>
<td>Bullock Ck</td>
<td>Murphy Uranium Pty Ltd 100%</td>
<td>26</td>
<td>85</td>
<td>20/12/2007</td>
<td>14/12/2012</td>
</tr>
</tbody>
</table>

Figure 3: EL26138 Block & Sub-Block Identification Map
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 which were deformed and regionally metamorphosed prior to 1875 Ma. These Murphy Metamorphics (Yates et al, 1962) are represented mainly by phyllitic to schistose metasediments and quartzite. They are overlain by two Proterozoic cover sequences 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, 1997). The Nicholson Granite is predominantly I-type granodiorite in composition.

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 (Budd et al, 2001).

Unconformably overlying the Nicholson Suite is the Tawallah Group (Yates et al, 1962). This is the oldest segment of the southern McArthur Basin. The base is a sequence of conglomerates and sandstones comprising the Westmoreland Conglomerate (Carter et al, 1958). The conglomerates thin out to the southeast and are in turn conformably overlain by the Seigal Volcanics (Grimes & Sweet, 1979), 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 volcanics are overlain in turn 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 4: Generalised Geology, Westmoreland Area**
5.1 Structure

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).

![Figure 5: Stratigraphy of Murphy Inlier Region](image-url)
6 LOCAL GEOLOGY

Most of ELs 26138 and 26139 are covered by tertiary laterite, sandstone and siltstone and accreted carbonate outcrops of an undesignated formation. Small exposures of the Brunette Limestone which is conglomeratic and fossiliferous in parts are scattered within the tenement area. Recent sediments and black soil, cover approximately 85% of the ELs.

In the extreme central west of the tenements, around Anthony Lagoon area, there are occasional scattered outcrops of the Georgina Basin Cambrian sediments. These include the Middle Cambrian Anthony Lagoon Beds which comprise dolomite, dolomitic limestone, ferruginous grey and white quartz sandstone and mudstone.

6.1 The Georgina Basin

The Palaeozoic Georgina Basin is one of a number of Neoproterozoic to Palaeozoic sedimentary intracratonic Basins (once an extensive super basin) that comprise the Central Australian Platform Cover and are characterised by shallow marine epicontinental successions of carbonate and marine clastic rocks, evaporite, fluvial and lacustrine continental sandstone, Glaciogenic sediments, shale and siltstone. These sediments were succeeded by marine carbonate and clastic deposits, which accumulated into Cambrian and Ordovician times (IGR B.H.McCrow and Associates Phosphate Australia Prospectus).

The Georgina Basin occupies a very large part of the north central part of the continent and extends from western Queensland westwards well into the Northern Territory. A number of orogenic events contributed to the accumulation of a variety of sediments in the basins and sub-basins.

One such event during the Cambrian was responsible for the siliciclastic and carbonate platform deposits which formed the Shadow Group during the Lower Cambrian, the Narpa and Cockroach Groups during the Middle Cambrian.

The basin is a 330 000 km$^2$ erosional remnant of the Centralian Superbasin, a series of originally interconnected Neoproterozoic to Palaeozoic intracratonic basins. Refer to Figure 6.
This Superbasin rests on a Palaeoproterozoic felsic and Granitoid basement and in parts is up to 2.4 km thick in synclinal structures.

There are a number of correlative units which are named on type localities. Most favourable constituent units include

- The Border Waterhole Formation, which hosts the Highland Plains Prospect of Australian Phosphate Ltd. On the Queensland /Northern Territory Border
- The Wonarah beds which host the Wonarah deposit also in the eastern part of the Northern Territory
- The Beetle Creek Formation, which hosts the Duchess deposit in NW Queensland,
- Other correlative formations include Gum Ridge Formation, Anthony Lagoon Beds, Burton Beds, Ranken Limestone, and Camooweal Dolostone of central and western Georgina Basin and Top Springs Limestone of northern Georgina Basin.
- The southern Georgina Basin is also prospective for a range of base metals and other commodities. The best Cu occurrences are in Neoproterozoic siliciclastic rocks. Known Pb-Zn prospects and occurrences are widespread and throughout the succession, from Neoproterozoic siliciclastic rocks to Lower Ordovician carbonate and mixed carbonate-siliciclastic rocks. A wide range of mineralisation styles is observed, including MVT and possible Century-type Zn-Pb mineralisation. And, to that end, several attempts by major and moderate explorers were made over the years to locate another HYC McArthur River, Mississippi Valley style and other regimes favourable for copper and precious metal deposition.
7   HISTORIC EXPLORATION

It wasn’t until the late 1960’s and early 1970’s that IMC and ICI carried out some exploration to evaluate the potential for Phosphate mineralisation in the Northern Territory part of the Georgina Basin. Their results led to the identification of a number of deposits (e.g Wonarah) at or close to surface which at the time proved to be uneconomic due to grade and size constrains when compared to the Duchess Phosphate Hill deposit of NW Queensland. In the last five years the price of phosphate has increased dramatically and these deposits are now being developed.

8   EXPLORATION BY BONDI

8.1  2008 Exploration

In 2008 a reconnaissance RAB drilling program comprising a total of 26 wide spaced holes for 1244m, was conducted to determine if there is any potential for economic phosphate mineralisation within the Cambrian limestones of the Georgina Basin sediments. The phosphate holes were all planned as vertical holes to intersect the top sections of the Cambrian to a limit depth of 60m. As this was the initial program to test the concept, it was decided to place the holes at wide spacing on a regional scale, and because the drilling program encompassed the entire Murphy project area, two of these holes (MPRB 18 & 19) were drilled on EL26138. Refer to Figure 7 for a map of the drill-hole locations.

All samples were tested for the presence of phosphorous on site using the field test otherwise referred to as the Shapiro Chemical Test. Almost all limestone intervals were composited over 2m and the samples submitted to ALS for analysis.

Phosphorous was detected in relatively low amounts in all the holes. Values range from a background of 10 to 350ppm P. There are also second order anomalies ranging from 350 to in excess of 1000 ppm P. These are too low to warrant further investigation.

The wide spaced RAB drilling program at the Murphy tenements identified the presence of Cambrian Georgina Basin sediments. Some of the drill holes also revealed the presence of weak anomalous Phosphorous mineralisation. Although no further work is planned, this program is not considered to be a thorough test of the potential of the Georgina Basin sediments for hosting phosphate mineralisation. For further information on the exploration rationale and sampling refer to Tahan (2008).

Results of this program were presented in the 2008 annual statutory report.
8.2 2009 Exploration

In 2009 a detailed airborne magnetic and radiometric survey, comprising approximately 69,000 line kilometres, was flown over the entire area of EL 26138, 26139 and 26140 at 100m line spacing and a 50m flying height by UTS Geophysics. The survey was flown on north - south lines, with tie lines every 1 km. The airborne survey also covered EL 25708 to the north and the eastern portion of EL 24694 to the east (Figure 8). All data and interpretation relating to this survey was compiled and presented in the 2009 combined annual report for EL’s 26138 to 26140.

A ground reconnaissance survey was conducted in May – June 2009 to ‘ground check’ 20 target areas for the presence of Proterozoic outcrop and determine whether access tracks needed to be cut for drill testing in September. Only ten targets occur on the western tenements.

None of the target areas had any Proterozoic outcrop and all but three targets were located on black soil plain. The other three targets to the SW were over lateritic ridges with low scrub cover. A report on the ground reconnaissance survey was presented in the 2009 annual report.

An RC / diamond drilling program comprising four holes for a total of approximately 1500m was completed in September – October 2009. MURD011, testing target CDP1, is the only hole drilled on the western tenements and was outside the boundary of EL26138.
The aim of the program was to determine:

- Whether the Murphy Inlier basement lithologies were a suitable host for uranium mineralisation.

- The depth of the Cainozoic and Cambrian cover sequences over the CDP1 target and the CDP4 target (Seigal Creek volcanics – Westmoreland target along the major NW trending fault. Note- this target is on EL 25710 and not on the western EL’s).

- Whether an alteration or uranium mineralisation occurred at CDP1, CDP2 and CDP3 and CDP4 (Note – CDP2, CDP3 and CDP4 occur on EL’s 25710 and 24841).

**Figure 8: Extent of 2009 Airborne geophysical survey**
8.3 2010 Exploration

**Airborne EM Survey**

On 6th October 2010 Fugro Airborne Services completed an Airborne Electo-Magnetic survey (AEM) comprising a total of 2,355 line kilometres covering the Murphy West area (1,478 line km at 500m spacing), the UC19 area (624 line km at 300m spacing) and the UC 17 survey (253 line km). Refer to Figure 9 for location of the AEM survey. None of this survey fell within EL 26138.

**Drilling**

In 2010 Bondi was awarded a $30,000 Collaborative drilling grant from the NT government as part of the ‘Bringing Forward Discovery’ initiative, provided to partially fund the drill testing of the ‘Goblin’ target, which is a magnetic anomaly within a major NW trending fault (Figure 10). The target has been modelled as being approximately 230m from the surface (UBC software). It was decided to defer drilling this target until 2011, however, the March tsunami in Japan led to a significant reduction in the annual budget and the grant subsequently lapsed.

![Figure 9: Location of Airborne EM Survey](image-url)
Figure 10: The ‘Goblin’ copper – uranium target (CDP009)

8.4 2011 Exploration

Exploration during the 2011 field season was minimal due to JOGMEC budgets being cut due to the March 2011 tsunami in Japan. An environmental audit was completed, which involved checking that rehabilitation of drill holes and tracks on all exploration leases within the Murphy project including EL26138. All drill holes on EL26138 were satisfactorily rehabilitated.
9 2012 EXPLORATION

Ground TEM Survey

A transient electromagnetic (TEM) survey comprising a total of 13.5 line kilometres was carried out at the Goblin magnetic target in June 2012. The survey was designed to find conductors that may be associated with IOCG-U style mineralisation, at the magnetic target described by Haynes as UC41 (Haynes, 2009). Haynes described the target as follows:

Target UC41 (Figure 9, 13, 14, 18) requires evaluation if modelling of sources of the magnetic anomalies in this target indicate shallow depths. If permissive, the higher amplitude magnetic anomalies within it require a targeted drill test. This target is within a very favourable structural and redox setting, with likely good potential for (lower temperature) styles of iron oxide-copper-(gold)-uranium mineralisation. Potential for uranium is adjudged to be good because the target appears to contain a pronounced redox boundary: a complex, magnetite-bearing mafic sill overlying the Westmoreland Conglomerate. The anticline is constrained by left-stepping bends in a pair of NNW-striking contractional faults, indicating that the faults here may have a dextral component of strike-slip displacement. Magnetic anomalies associated with the inferred sill indicate complex magnetite-additive alteration and local magnetite-destructive alteration, a potentially very favourable feature.

A moving ‘in-loop’ survey was chosen, as best suited to detect conductors of unknown size, geometry and orientation. Zonge Engineering and Research Organization (ZERO) Australia was contracted to carry out the survey, using a powerful Zonge transmitter and an EMIT Smartem receiver.

The survey area, comprised nine (9) 1.5 km long NE – SW trending lines, spaced at 500 m, with a station interval of 100 m. The survey was designed using 100m loops, but this was changed to 200m loops to increase the depth of penetration. The daily production rate was slower than anticipated due to the rough surface of the black soil plains and it was decided to keep using 100m loops to save time. Refer to Figure 11 for a map of the survey area and Appendix 2 for a description of the survey specifications.

A three component fluxgate sensor and an RVR coil sensor were used at all stations.

A report was written by John Coggon (MINES GEOPHYSICAL) which described the survey specification and discussed the results (Appendix 2). The report concluded that:

- Use of the high power Zonge 30 kVA transmitter and an RVR induction coil sensor provided good sensitivity for the weak late time signals expected from such a target. Although 200 m loops would have been preferable to maximise the depth of exploration, the 100 m loops used should have been effective and were significantly faster to lay out.

- Profile plots show moderate variations over the survey but no obviously anomalous zones. In a couple of areas there are weak late time ‘highs’ that are not much above the noise levels.

- The conductivity sections and plans do not reveal any anomalies indicative of conductive mineralisation.
• There is a thin conductive layer at the surface (black soil and weathered material), with resistive (i.e., much less conductive) rock beneath.

• Deep (100-400 m) conductivity patterns may relate broadly to the bedrock geology as indicated by magnetic anomalies, with the main magnetic zone appearing to be less conductive.

Figure 11: Goblin TEM Survey Area
A transient electromagnetic (TEM) survey comprising nine 1500 m long traverses at 500 m spacing, for a total of 13.5 line kilometres was completed at the Goblin magnetic target in June 2012. The survey was designed to find conductors associated with uranium or other metallic mineralisation, based on geological modelling by Haynes (2009). A moving ‘in-loop’ survey was chosen, as best suited to detect conductors of unknown size, geometry and orientation (*Appendix 2*).

The anomaly, which is long and narrow and trends NNW to SSE is most likely caused by a mafic dyke / ‘feeder zone’ for the Cambrian aged, Antrim Plateau basalt. However, it’s location on a NW trending transfer (strike slip) fault, with NE conjugate trending faults, and adjacent to an interpreted granitic intrusion (Haynes, 2009) made this ‘bullseye’ magnetic anomaly a worthy target.

A report describing the TEM survey and discussing the results was completed by Dr John Coggon. The report concluded that:

- The conductivity sections and plans do not reveal any anomalies indicative of conductive mineralisation.

- There is a thin conductive layer at the surface (black soil and weathered material), with resistive (ie much less conductive) rock beneath.

- Deep (100-400 m) conductivity patterns may relate broadly to the bedrock geology as indicated by magnetic anomalies, with the main magnetic zone appearing to be less conductive.

Therefore the Goblin magnetic target is most likely associated with a strongly magnetic, mafic (gabbro / dolerite) feeder dyke which has no significant sulphide mineralisation associated with it. However, the EM survey is only effective to 400m and will not detect lower grade, disseminated sulphide mineralisation.
REFERENCES


Appendix 1 - Expenditure Statement (Supplied under separate cover)
Appendix 3 - Ground TEM Survey Data (Supplied as separate zip file)