EXPLORATION LEASE’S 29438 & 26820 – “BARROW CREEK”

FINAL TECHNICAL REPORT
14th May 2014

Tenure Holder: BLACKWOOD CORPORATION LIMITED (ACN: 103 651 538)

A wholly-owned subsidiary of
Cockatoo Coal Limited, (ACN: 112 682 158)

Submitted by: Cockatoo Coal Limited
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1. Abstract

The group of tenements known as Barrow Creek (EL 29438 & 26820) is 220km North of Alice Springs and immediately adjacent to the tenure containing the “Home of Bullion” copper-silver-lead-zinc-deposit deposit.

The Project area is in the Arunta region and mineral deposits in the Arunta region vary in commodity, style and age. Although base-metal and gold deposits in the Arunta are relatively widespread and geologically interesting, these deposits have been economically insignificant.

The tenements are located around the Northern Territory township of Barrow Creek, cut by the Adelaide/Darwin Stuart Highway, and the Adelaide/Darwin Rail line and therefore close to transport infrastructure.

2. Introduction

2.1 TENURE

The two tenements that make up the Barrow Creek Project were granted in 2012, for a term of 6 years (Table 1 & Figure 1). Both tenements were surrendered on the 14 May 2014.

<table>
<thead>
<tr>
<th>Lease</th>
<th>Grant Date</th>
<th>Expiry Date</th>
<th>No. Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL29438</td>
<td>04/04/2012</td>
<td>03/04/2018</td>
<td>250</td>
</tr>
<tr>
<td>EL26820</td>
<td>04/04/2012</td>
<td>03/04/2018</td>
<td>250</td>
</tr>
</tbody>
</table>
Figure 1 Location of Barrow Creek tenements
2.2 LOCATION AND ACCESS

The tenements are located around the Northern Territory township of Barrow Creek, cut by the Adelaide/Darwin Stuart Highway, and the Adelaide/Darwin Rail line. Barrow Creek is a very small town with a population of 11. Barrow Creek is 280km north of Alice Springs

Table 2 Published Maps

<table>
<thead>
<tr>
<th>Scale</th>
<th>Map Series</th>
<th>Sheet</th>
<th>Sheet Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : 100 000</td>
<td>Land Map Series</td>
<td>Barrow</td>
<td>5654</td>
</tr>
<tr>
<td>1 : 250 000</td>
<td>Land Map Series</td>
<td>Alice Springs</td>
<td>SF5306</td>
</tr>
<tr>
<td>1 : 100 000</td>
<td>Land Map Series</td>
<td>Home of Bullion</td>
<td>5754</td>
</tr>
<tr>
<td>1 : 250 000</td>
<td>Land Map Series</td>
<td>Barrow Creek</td>
<td>SF5306</td>
</tr>
</tbody>
</table>

2.2.1 Native Title

There are an active Native Title claims over the area covered by the Barrow Creek Tenements. Stirling and Neutral Junction have an active application (DC2011/002).

2.2.2 Overlapping Tenure

There is a Petroleum tenement application overlapping the Ranken tenements. EP201 was applied for 14th Jan 2011 and the holder is “WISO OIL PTY LTD, CAPRICORN MAPPING & MINING TITLE SERVICES”.

3. Regional Geology

The Arunta region (Figure 2) which comprises the Airleron, Warumpi and Irindina Provinces is one of the most geologically complex areas in Australia.

From Kositcin, 2006: Palaeoproterozoic evolution of southwestern area of the Aileron Province The basal succession exposed in the southwestern Aileron Province comprises siltstones, quartz arenites, quartzofeldspathic sandstones and minor greywackes. U-Pb SHRIMP detrital zircon analysis of these sediments at different metamorphic grades from three locations across LAKE MACKAY and northern MOUNT RENNIE have yielded consistent maximum deposition ages of 1860 Ma (Scrimgeour et al 2002), with detrital histogram patterns similar to sediments elsewhere in the Aileron Province.
Therefore, this succession is interpreted to form part of the broadly defined Lander Rock beds package, a flysch succession that is widespread over this area of the NAC. Intruding the Lander Rock beds is a suite of dolerite sills and minor pyroxenites of the newly recognised Dufaur Suite. Geochemically, these comprise low-K tholeiites, suggesting emplacement in a thinning crust/extensional environment, and they have an Nd value of +4.7, indicating a primitive, depleted mantle source. The age of these mafic intrusives is as yet unknown, but they may
have intruded at 1805 Ma (Stafford Event), synchronous with high-grade metamorphism in northeastern LAKE MACKAY. Deposition of quartzite, calcarenites, pelites and rare volcanics was widespread across central and northern LAKE MACKAY at around 1780 Ma.

During the 1780-1760 Ma Yambah Event, a series of porphyritic biotite granites intruded the southwestern Aileron Province. Subsequent to this intrusive event, the southwestern Aileron Province was pervasively overprinted by regionscale deformation at lower amphibolite grade. This deformation produced isoclinal folding with associated bedding-parallel andalusite-muscovite-biotite foliation in the Lander Rock beds, hornblende-actinolite foliation in mafic sills, and biotite foliation in Yambah Event granites. The interpreted age of this deformation is late in the Yambah Event. The Ardmore - May Downs Domain of the Mount Isa Orogen is correlated with and therefore included within the outline of the Aileron Province.

3.1 MINERALISATION

After Huston et al; Mineral deposits in the Arunta region vary in commodity, style and age. Although base-metal and gold deposits in the Arunta are relatively widespread and geologically interesting, these deposits have been economically insignificant.

The economically most important deposits are industrial minerals: vermiculite associated with the weathered rocks in the Mud Tank carbonatite complex, and garnet-amphibole-rich sands concentrated by aeolian and alluvial processes to the north of the Harts Ranges. In addition to these deposits, the most significant recent discovery in the Aileron Province is the Nolans Bore (Arafura Resources) REE deposit, which is developing into a world class deposit.

The oldest deposits in the eastern Arunta are base-metal and gold deposits hosted by the Strangways Metamorphic Complex, Bonya Schist and Cadney Metamorphics.

<table>
<thead>
<tr>
<th>Type</th>
<th>Metal assemblage</th>
<th>Other elements</th>
<th>Host</th>
<th>Alteration assemblages</th>
<th>Interpreted age (Ma)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utsalanama</td>
<td>Mineralised marble: Zn-Pb-Cu(Ag-Au)</td>
<td>Mineralised marble: Bi-Cd</td>
<td>Marble and calc-silicate after carbonate rocks.</td>
<td>Quartz-cordierite: orthopyroxene rock &gt; massive amphibole: spinel:clinopyroxene rock. Both are concentrated in the footwall to mineralised marble lens.</td>
<td>1810-1890 (age of host); calc-silicate may be younger</td>
</tr>
<tr>
<td></td>
<td>Calc-silicate: Pb-Zn</td>
<td>Calc-silicate: Sn, HFSE, REE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Footwall garnetiferous zone: Au(Cu)</td>
<td>Footwall garnetiferous zone: Bi:Mo</td>
<td>Footwall garnetiferous zone: Quartz-biotite-garnet-magnetite gneiss.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oonagalabi</td>
<td>Zn-Cu-Pb(Ag-Au)</td>
<td>Bi</td>
<td>Marble → calc-silicate → massive anthophyllite schist.</td>
<td>Quartz-garnet rock symmetrically developed about host marble lens.</td>
<td>1765 (?) (age of host)</td>
</tr>
</tbody>
</table>
Utnalanama-type deposits, which constitute the majority of known Palaeoproterozoic deposits in the Strangways Metamorphic Complex, are Zn-Pb-Cu(Ag-Au) deposits characterised by the extensive development of asymmetric alteration zones dominated by quartz-cordierite ± orthopyroxene ± biotite ± orthoamphibole ± garnet gneiss. Feldspar is typically absent in these rock types. Most of the quartz-cordierite rocks lack magnetite and have a very low magnetic susceptibility. Magnetite is not a major component of the ores or alteration assemblage. However, localised magnetite rich zones do occur. Geochemical analyses suggest that prior to metamorphism the quartz-cordierite rocks had a quartzchlorite ± muscovite/illite protolith, which are interpreted to be the alteration assemblage associated with mineralisation.

Other minerals inferred to be present in the protolith alteration assemblages at these deposits include talc, tremolite and carbonate. These rocks are Mg-rich with (Mg/Mg+Fe) values typically between 0.6 and 1.0. The altered rocks have δ18Owhole rock between 1.8 and 7.0‰ (most values between 2.5 and 4.8‰), consistent with formation through interaction with high temperature, evolved seawater. These deposits have 100Zn/(Zn+Pb) values mainly between 60 and 75. The presence of asymmetric proto-quartz-chlorite alteration zones formed via interaction with heated seawater and the 100Zn/(Zn+Pb) values are characteristic of VHMS deposits (Hussey et al., 2005).

Johnnies-type deposits, which include Johnnies Reward and Gumtree in the Strangways Metamorphic Complex and the base-metal-Au deposits of the Jervois district in the Bonya Schist further to the east, are Cu-Au(Pb-Zn-Ag) deposits characterised by a close association with abundant magnetite, and an asymmetric quartz-biotite-garnet ± feldspar alteration assemblage. These deposits are closely associated with magnetite, either in a magnetite-diopside ± amphibole skarn assemblage (e.g. Johnnies Reward) or in an iron formation (amphibole-quartz-magnetite rocks, e.g. Gumtree). The host rocks are considerably more Fe rich than the Utnalanama-type deposits, with (Mg/Mg+Fe) values usually between 0.3 and 0.6. Although base-metals are most concentrated in magnetite-rich zones, Au is concentrated in the structural footwall of these deposits. Johnnies-type deposits are characterised by highly variable 100Zn/(Zn+Pb), with Pb concentrations generally greater than Zn abundances. Gold values are typically one or two orders of magnitude higher in the Johnnies-type than the Utnalanama-type. Moreover, at Johnnies Reward, Mn and some high field strength elements (HFSE) and REE are highly enriched in places within the lode. Based on these characteristics, Johnnies-type deposits are more likely to be IOCG deposits rather than VHMS deposits (Hussey et al., 2005).

Oonagalabi-type deposits, which are represented by the Oonagalabi deposit and two nearby prospects, are hosted by the ~1765 Ma Oonagalabi assemblage of the Ledan package. Like the Utnalanama-type deposits, Oonagalabi-type deposits are not associated with abundant magnetite, are characterised by a Zn-Cu-Pb(Ag-Au) metal assemblage and have high 100Zn/(Zn+Pb) ratios (87 at Oonagalabi). However, unlike the Utnalanama-type deposits, the main alteration assemblage outside of the host marble is a quartz-garnet-feldspar rock: quartz-cordierite gneiss is rare. Carbonate in the ore host is progressive replaced by calc-silicate and then massive anthophyllite rock. All three rock types are mineralised.
3.2 History of Exploration / Mining

Over the last century there has been some small mining operations take place, mainly before and after WW2 abandoned mines are shown in pink on the map.

- Krakatoa Mine – Abandoned Underground niobium, tantalum, tin and tungsten mine.
- Mulbangas Mine- Abandoned Copper Mine
- Barrow Creek Mine – Abandoned underground uranium mine.
- Slippery Mine – Abandoned niobium, tantalum, tin and tungsten open pit
- Qt Mine – Abandoned underground niobium, tantalum, tin and tungsten mine
- Johannsons Mine – Abandoned tantalum, tin and tungsten mine
- Ballaces Claim 1 Mine – Abandoned tantalum mine
- Jump Up Mine – Abandoned niobium, tantalum, tin and tungsten mine
- Ivy Mine – Abandoned tin mine
- Brannellys Mine – Abandoned tin and tungsten open pit

Millionaires Well – Historical workings mined in the 1940’s mined tungsten
Figure 3 Abandoned Mines
4. Current Exploration

The below map shows the location of significant projects located close to Blackwood’s Tenements in the Barrow Creek area (Figure 4), with the geology underlay showing the regional geology of the Aileron Province which forms part of the Arunta Region.
4.1 **ENIGMA MINING – EL27941, 27787, 27706, 29578**

Engima Mining is 100% owned by TNG Ltd. TNG have the 100% owned Mount Peake Project (Figure 5 & Figure 6), located directly west from the Blackwood Barrow Creek Tenements. In 2008 TNG discovered a substantial ferrous metals deposit at Mount Peake which has subsequently emerged as a potentially world class Vanadium – Titanium – Iron Resource, mineralization is located in large magnetite rich gabbro-norite (after TNG Website).

In 2009 TNG announced a maiden JORC inferred Resource Estimate of 107Mt @ 0.4% V2O5, 9% TiO2, 28% Fe. Further drilling has increased the extent of mineralization to at least 3,000m in length and 500m width.

![Figure 5 TNG - Mount Peake Project (TNG Website)](image-url)
The Neutral Junction Project (214 km²) is held by joint venture partners Hindmarsh (subsidiary of Mega Uranium) (33.3%), the Australian public company Mithril Resources (ASX:MTH, 33.3%) and the private company Bowgan Minerals (33.3%).

The project covers 80km of the concealed unconformable contact between the Proterozoic basement of the Arunta Province and the overlying sediments of the Georgina Basin. The sediments are thought to have potential for uranium mineralisation sourced from uraniferous granites in the basement (Mega Uranium website).

After confirmation of radiometric (uranium) targets at Adnera Hill in 2010-11 sampling of surface rock chips has identified:

- 1.575g/t gold and 0.12g/t silver/35.5ppm copper at target NJR002
- 0.177g/t gold, 0.25g/t silver and 135ppm copper at target NJR004.

Follow-up soil sampling in 2012-13 has identified anomalous results including:

- >500ppm copper, >6000ppm cobalt, >60ppm wolfram, >30ppm arsenic.

4.2 **Bowgan Minerals – EL28615**

The Neutral Junction Project (214 km²) is held by joint venture partners Hindmarsh (subsidiary of Mega Uranium) (33.3%), the Australian public company Mithril Resources (ASX:MTH, 33.3%) and the private company Bowgan Minerals (33.3%).

The project covers 80km of the concealed unconformable contact between the Proterozoic basement of the Arunta Province and the overlying sediments of the Georgina Basin. The sediments are thought to have potential for uranium mineralisation sourced from uraniferous granites in the basement (Mega Uranium website).

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Follow-up soil sampling in 2012-13 has identified anomalous results including:

- >500ppm copper, >6000ppm cobalt, >60ppm wolfram, >30ppm arsenic.
EL23186 covers two deposits, Home of Bullion (Figure 7) a VMS deposit, high grade Cu, Ag, Pb, Zn, Au with historical production occurring in the 1950’s. The deposit contains two known copper lenses/lodes. The main lode is from 1 to 6m wide, 160m long, open to the east and down plunge.

Best Historic Intercepts include:

- 5.3m @ 4.8% Cu, 61.6g/t Ag, 2% Zn, 0.5% Pb
- 3.2m @ 4.8% Cu, 71.4g/t Ag, 5.3% Zn, 1.8% Pb

The southern lense is under explored and remains open in all directions.

The second deposit Prospect D-is a Cu, Ni, Ag. Mineralization is known to continue for greater than 1km and lies in the same corridor as the Krodo copper-gold deposit (owned by ABM Resources).
4.4 **INTERCEPT MINERALS LTD – EL26543, 28527, 27516, 26748**

Intercept Minerals is targeting Tungsten within the Millionaires Well Project (Figure 16). The style of mineralization being targeted is a quartz-vein based tungsten ( scheelite/wolframite), trending WSW. The vein system occurs near a contact between the Barrow Creek Granite and older Bullion schist.

Intercept plan to test for strike extensions and possible repeats to the north of the shears hosting the historical Millionaires Well workings by trenching, to expose any tungsten bearing quartz veins or shears.

![Figure 8 Intercept Minerals - Millionaires Well Project (From Intercept Website)](image)

4.5 **AUSTRALIAN MINERAL RESOURCES – EL28521**

Tenement EL28521 adjoins Blackwood’s tenement to the east. Most of the tenement covers the northwestern extension of the host geology to the Home of Bullion copper-zinc-lead-silver VHMS deposit (Kidman Resources) (Figure 9). The Prospect D magmatic nickel-copper prospect is adjacent to the tenement (Kidman Resources) and so any mafic intrusions within the area should be tested for similar mineralisation. The Kroda gold-copper prospects are to the northwest of the tenement (ABM Resources) and their host structures appear to cut the tenement.
ABM Resources NL - EL26825, 28748

ABM has tenements to the North of Blackwood’s. *From there website:* A 14 hole program drilling 2,490 metres has been completed at the Kroda Gold Project confirming a second discovery camp in the Northern Territory with results: 29 metres averaging 6.38g/t gold with 57 metres averaging 3.83g/t gold.

The Kroda Gold Project is located 18 kilometres west of the Stuart Highway (*Figure 10*), 30 kilometres north of the town of Barrow Creek and 200 kilometres south of Tennant Creek. The project consists of 4 individual prospects (Kroda 1 to 4) with a combined anomalous strike length of 14 kilometres. The principal target commodity is gold, however, Kroda 2 in particular has anomalous copper associated with the gold.

The Kroda Gold Project is located within the Company’s Barrow Creek Regional Project area. The Barrow Creek Regional Project consists of a 160 kilometre long geophysical gravity trend with associated metamorphosed sedimentary rocks, dolerite intrusions and large granite intrusions. The region has several known mineral occurrences including gold, copper, nickel, zinc, tin and tantalum.
5. Conclusion

Historical evidence alone points to a reasonable chance of mineralisation in the Barrow Creek Project Tenements. Known deposits – in particular the Home of Bullion Deposit (less than 10km away) High grade Cu, Ag, +/- Pb, Zn, Au. Exploration is continuing along strike from the Home of Bullion deposit and finds are regularly being announced to the ASX. Barrow Creek continues to be a prospective area, although not a business focus for Blackwood Corporation at this time.
6. References

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