EXPLORATION LICENCE 9890

YAMBLA

NORTHERN TERRITORY

ANNUAL REPORT

YEAR ENDED 20 MAY 2004

By E Becker and P Hogarth

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1  **Introduction**

Exploration Licence 9890 is located at Yambla in the northeast Arunta Province of the Northern Territory. Exploration targets include multi-element PGE, Cu, Au, Ag and U mineralisation in the Central Australian Proterozoic Basement Complex. Uranium as well as Cu, Ag, Pb, Zn mineralisation was found by PNC Exploration (Australia) Pty Ltd in the early 1990’s in altered Amphibolite host rocks. Paladin considers this combination of metals and minerals highlights the possibility for PGE or Au mineralisation in these Amphibolites as was found by PNC and more recent explorers at other locations within the same host rocks. The locations of known mineralised occurrences in and around EL 9890 are shown in *Figure 1*.

2.  **Location And Access**

EL 9890 is located 140 kilometres north east of Alice Springs in the Harts Range of Central Australia on the Illogwa Creek SF53-15 1:250,000 Map Sheet. Geographical co-ordinates of the centroid of EL 9890 are 23° 17’ S, 135° 06’ E.

Access from Alice Springs is east via the all-weather Ross Highway for 70km to the Ross River turnoff, then via gravel road for 45km to Claraville homestead. From there it is a further 45km to the project area via the Claraville to Hardings Spring track.

3.  **Tenure and Land Status**

Application for EL 9890 was lodged in May 1997 by Paladin Energy Minerals NL and Brightstar Power Corporation Pty Ltd, each holding 50%. Paladin Energy Minerals NL is a wholly owned subsidiary of Paladin Resources Ltd. Brightstar withdrew from its joint venture with Paladin in June 1999 and Paladin Energy Minerals NL now holds EL 9890 in its sole name.

The licence was granted for a six year term on 21 May 2002 following negotiation and conclusion of an agreement with the Central Land Council acting on behalf of the relevant native title holders. The underlying land is part of the Ambalindum pastoral lease and native title is taken not to have been extinguished although application has not been made to register a native title claim. Under the agreement with the CLC exploration activities are subject to prior Aboriginal heritage surveys and payments for impairment of native title rights.

The area applied for and granted was 43 graticular blocks or about 142 square kilometres. In accordance with the terms of the Mining Act 21 graticular blocks were relinquished from EL 9890 at its second anniversary on 20 May 2004. The 22 blocks retained and 21 blocks relinquished are shown in *Figure 1*.

4.  **General Geology and Targets**

The Yambla Exploration Licence is located in the Proterozoic Arunta Block. The Arunta comprises mainly Precambrian metamorphosed and deformed igneous and sedimentary rocks. It differs from other Australian Proterozoic inliers in the marked intensity and frequency of its deformation and the high grade metamorphism that has affected these rocks.
In the early 1990’s exploration by PNC Exploration (Australia) Pty Ltd located a 1,400m long radiometric anomaly (Yambla Prospect) within the Yambla Amphibolite, a typical hornblende-feldspar rock, which is part of the regional Riddock Amphibolite. It is 10-50m thick, and in the prospect area dips about 15° west. Metamorphic grade is amphibolite facies. The amphibolite occurs within a sequence of garnet-biotite gneiss, meta-dolerite and sillimanite-garnet-biotite gneiss.

Drilling through the amphibolite has defined a crudely strataform, but not strictly stratabound vein-like zone of plagioclase, scapolite, quartz and amphibole, varying from 1m to about 10m thick. The assemblage represents a late stage albite-scapolite alteration controlled by shears, foliation planes and lithological layering. Spectacular uranium mineralisation occurs in association with this alteration, as egg shaped nodules of uraninite up to 10cm in length. Drilling has confirmed that the discreet nodular style of mineralisation appears to persist at depth. Additional to the Yambla Prospect, Cu, Ag, Pb and, Zn occurrences were also identified on the tenement. The Culay Cu-Au prospect is located nearby within a ministerial exclusion zone covering the old Valiant Sisters Mica Mining Area.

*Figure 1* shows the known mineral occurrences in relation to the prospective Amphibolite within EL 9890.

Recent field investigations by AGSO, as part of the National Geoscience Agreement with the Northern Territory Geological Survey, evaluated the geological setting and economic potential of Proterozoic mafic-ultramafic intrusions in the Arunta Province of central Australia. Historically, the Arunta Province was generally thought to have low potential for mineralising systems associated with mafic-ultramafic rocks, because of its high-grade metamorphic character and protracted tectonothermal history spanning more than 1,500 million years. Field observations and new preliminary geochemical data, however, indicate that intrusions from the western and central Arunta have some potential for Ni-Cu-Co sulphide deposits, and the eastern Arunta is considered prospective for platinum group element (PGE) mineralisation. These results highlight, for the first time, geographical differences in mineral prospectivity, and the PGE potential of the eastern Arunta Block.

Importantly initial geochemical research showed the Riddock Amphibolite to be poor in S non-primitive mafic intrusion favourable for PGE mineralisation. Potential for hydrothermal polymetallic deposits of PGE’s - Cu-Au ± Ag ± Pb spacially associated with the intrusion also exists.

The recent emerging evidence that the eastern Arunta is prospective for PGE mineralisation is supported by company investigations at several locations. Tanami Gold NL noted that hydrothermal quartz-carbonate-tourmaline veins associated with chlorite-hematite altered amphibolite near Mount Riddock contained up to 0.6 ppm Pt, 1.4 ppm Pd, 5.8 ppm Au, 6.8% Cu, and 12 ppm Ag. Other Tanami prospects include the Copper Queen showing up to 72 ppm Au, 14 ppm Pt and 1.3 ppm Pd and the Copper King showing assays of up to 38 ppm Au, 4.8 ppm Pd and 77 ppb Pt. All are hosted by the Riddock Amphibolite.
5. Results

Research of previous explorers’ work show that PNC excavated 22 trenches at the Yambla Prospect. Approximately 15 of the trenches show uranium mineralisation of which two have reasonable zones of ore grade material. Better trench assays of channel samples (0.5-1.0m) ranged 0.1-10% U3O8. Elsewhere, assays adjacent to mineralisation ranged 10-200 ppm U3O8. One campaign of diamond drilling (13 holes) was completed, with two holes (D8 and D9) showing moderate downhole anomalies. All holes intersected at least some alteration proving the extent of the mineralising system. Drillhole assays ranged 5-50 ppm U3O8 in altered rock.

The drill core is available at the DME ore shed in Alice Springs.

Regional prospecting and geological mapping showed that the upper Riddock Amphibolite contact is generally gradational into biotite rich felsic gneiss; there is often a narrow sillimanite rich unit above this gradational contact. The sequence grades further upwards into more felsic and garnetiferous biotite gneiss with sporadic and discontinuous lenses of marble and hessianite bearing calc-silicate gneiss. The latter units are associated with minor Cu-Ag-Zn mineralisation in the area of the Boots Costeans (200m north of the Claraville-Hardings Spring track, 2km west of Yambla). Small ultramafic plugs commonly intrude the sequence, particularly in an EW belt just south of Yambla Creek.

Prospecting of the main NW-SE trending Fault west of Yambla located minor epidosite and chlorite alteration adjacent to the fault within garnetiferous felsic gneiss 100m north of the Claraville-Hardings Springs track. Sample HR05880 was collected from quartz-limonite gossan (56% Fe) within an EW splay off the Fault 1.5km SW of Yambla Dam. Anomalous assays of 2500 ppm Co, 970 ppm Cu, 25 ppb Pt and 2500 ppm Ba were recorded as well as weakly elevated V, Ni.

The original 1993, 1994 and 1995 PNC annual reports including all maps and appendices, together with a large amount of regional data are held on file at Paladin’s head office.

6. Conclusion And Assessment

Recent research results by AGSO indicate the potential of metabasic and ultrabasic intrusions in the Eastern Arunta Region to host PGE and multi-element PGM, Au, Cu, Ag, Pb mineralisation. Exploration results announced by Tanami Gold in recent years confirm the potential for high grade multi-element PGE, Au, Cu, Ag mineralisation especially in the Riddock Amphibolite.

Paladin’s EL 9890 covers 15km strike length of this prospective unit, showing indications for multi-element mineralisation including a high grade uranium prospect as well as Cu or Cu, Ag, Zn with traces of Pt occurrences and a Cu - Au prospect a few hundred metres north of the tenement boundary.

Paladin’s objectives at Yambla should be to test the known uranium mineralised zone along strike and at depth to determine the potential for a significant uranium mineralised system. Shallow drilling has confirmed that the mineralised zone extends at depth to the west. The deepest intersection recorded is at approximately 50 metres depth. Only 30% of the known surface trend of the prospect has been tested. An initial program should test this prospective structure to a depth of 100 metres along a strike length of 1,000 metres. The uraninite nodules
obtained from surface trenching suggest that, if a sufficient tonnage were located, gravity or radiometric sorting could be used to produce an acceptable mill feed.

Previous work by PNC appears to have concentrated exclusively on uranium exploration being guided by radiometric methods. Geochemical blanket exploration methods including stream sediment sampling or modern soil sampling methods were not applied on the tenement. These methods have the potential to identify new PGE, Cu, Au, Ag mineralisation within EL 9890.

7. Expenditure

Details of expenditure on exploration and related activities on EL 9890 for the year ended 20 May 2004 and for the two-year period since the licence was granted on 21 May 2002 are set out below.

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<th>Description</th>
<th>Year Ended 20 May 2004</th>
<th>Total to Date</th>
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