Annual Report On
EL 28496
for The Period
30 March 2012 to 29 March 2013
Northern Territory
(Gold and Base Metals Project)

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May 2013
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Distribution: NT Department of Mines and Energy
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SUMMARY

EL 28496 is situated in the central part of the Pine Creek Orogen (PCO), which is considered prospective for gold, base metals and uranium mineralisation. It is located about 90 km south of Darwin (Figure 1) and approximately 15 km north of Adelaide River. EL 28496 was granted to syndicate of Abrar Hussain Malik and Zia U. Bajwah on 30 March 2012, and will expire on 29 March 2018. It comprises 6 blocks that covers approximately 13.6 km². It is intended to explore the project area for gold and base metals mineralisation.

Geological setting of the project area is dominated by the Burrell Creek Formation whereas subordinate lithologies of the South Alligator River Group such as the Gerowie Tuff and Mt Bonnie Formations are also present in the north-western part of the project area. The Burrell Creek Formation mainly comprises grewacke, silts stone, slate and phyllite. The Gerowie Tuff is composed of cherty tuff, silt-greywacke and siltstone, whereas Mt Bonnie Formation is represented by siltstone, mudstone, greywacke and chert horizons. The meta-sediments are tightly folded about axes, plunging towards south. However, much of the Palaeoproterozoic stratigraphic is under the Quaternary sediments and regolith cover which could be 10 - 40 meter deep.

During the reporting period, a technical review of the project area was undertaken. It involved search of historical geological, geochemical and geophysical data from NTGS repository. In addition, a number of field trips were undertaken for ground-truthing. These rocks are folded into anticlinal structures which generally plunge southward. These anticlinal structures are host to gold mineralisation (e.g Zapopan and Howley anticlines) in the PCO. All the rock formations present in the project area prospective for gold and base metals mineralisation.

In the next reporting period, available geophysical data will be re-processed and interpreted. In addition, a program of ground-truthing/field mapping will be undertaken which will be complimented with geochemical sampling program. Data collected will be entered into GIS and processed. If encouraging results received, then it will lead to drilling in the following years.
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1.0 INTRODUCTION

EL 28496 is situated in the central part of the Pine Creek Orogen (PCO), which is considered prospective for gold, base metals and uranium mineralisation. This tenement is explored for gold and base metals mineralisation, and this is the first annual report on the exploration activities undertaken during the reporting period.

2.0 LOCATION AND ACCESS

EL 28496 is located about 90 km south of Darwin (Figure 1) and about 15 km north of Adelaide River. Stuart Highway and Darwin to Adelaide Railway line transect the project area (Figure 1). Access within the tenement is possible by the station tracks, which could be difficult in the wet season. The tenement falls on the Pine Creek 1:250,000 sheet and on the Batchelor 1:100,000 sheet. The area underlain by EL 28496 is generally low-lying, open, black soil plains, with little rock exposures.

3.0 TENEMENT STATUS AND CLIMATE

EL 28496 was granted to syndicate of Abrar Hussain Malik and Zia U. Bajwah on 30 March 2012, and will expire on 29 March 2018. It comprises 6 blocks that covers approximately 13.6 km$^2$. It is intended to explore the project area for gold and base metals mineralisation.

The project area has semi-arid, tropical climate with April to September warm dry season followed by wet season from October to March. The average rain fall is about 1200 mm and most of which falls during wet season. Temperatures are highest in October to November with the mean maximum $35^\circ - 37^\circ$ C, whereas mean minimum is $22^\circ - 24^\circ$ C. The coolest months are June and July when the mean maximum is $30^\circ - 32^\circ$ C, with the mean minimum of $12^\circ - 14^\circ$ C.
Figure 1: Tenement Location Map of EL 28496
4.0 GEOLOGICAL SETTING

EL 28496 is located within the Pine Creek Orogen (PCO), a tightly folded sequence of Palaeoproterozoic rocks, 10 km to 14 km in thickness, laid down on a rifted granitic Archaean basement during the interval ~2.2-1.87Ga (Ahmad et al. 1993). The sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with minor inter-layered tuff units. Pre-orogenic mafic sills of the Zamu Dolerite intruded the sequence prior to regional metamorphism and deformation.

During the Top End Orogeny (~1.87-1.85Ga) the sequence was tightly folded and pervasively altered with metamorphic grade averaging greenschist facies to phyllite. The Cullen intrusive event introduced a suite of fractionated calc-alkaline granitic batholiths into the sequence in the period ~1.85-1.78Ga (Bajwah 1994). These high temperature, I-type intrusives induced strong contact metamorphic aureoles ranging up to (garnet) amphibolite facies, and created more extensive biotite and andalusite hornfels facies.

Geological setting of the project area is shown in Figure 2. Here, the Burrell Creek Formation dominates the tenement area. Subordinate lithologies of the South Alligator River Group such as the Gerowie Tuff and the Mt Bonnie Formations area are also present in the north-western part of the project area. The Burrell Creek Formation mainly comprises grewacke, siltstone, slate and phyllite. The Gerowie Tuff is composed of cherty tuff and silt-greywacke and siltstone, whereas Mt Bonnie Formation’s main lithologies are siltstone, mudstone, greywacke and chert horizons. The meta-sediments are tightly folded about axes, plunging towards south (Figure 2). A number of gold, uranium and base metal deposits are hosted by these formations in the PCO. Gold mineralisation is found in saddle reefs in anticlinal closures, fissure veins in N-S shear zones, bedding parallel veins, and stock-works. Gold is also associated with minor sulphides in quartz veins. A major base metal deposits (Woodcutter) is located about 22 km north of EL 28496. It produced a total of 4.65Mt ore at 12.28% Zn, 5.65% Pb and 87 g/t Ag. In addition, two more base metal deposits such as Iron Blow and Mt Bonnie are confined to the Mt Bonnie Formation, which have produced significant quantities of base metals and gold in the past, and still have a combined resource of about 1Mt of ore which can increase substantially with further exploration.
Figure 2: Geological Setting of the Project Area
However, much of the Palaeoproterozoic stratigraphic is under the recent sediments and regolith cover which could be 10 - 40 meter deep.

5.0  PREVIOUS EXPLORATION HISTORY

A brief exploration history in and around the project area is given below. It is mainly derived from previous exploration reports stored in the NTGS repository along with Governmental geological and geophysical surveying programs.

Perhaps the earliest geological investigation of the area was conducted by the Aerial, Geological and Geophysical Survey of Northern Australia (AGGSNA) between 1935 – 1939. BMR (now Geoscience Australia) conducted geological mapping program in 1950’s and produced the first 1: 250 000 geological map of Pine Creek sheet covering the project area. Between 1971 – 1980, region including the project area was mapped in-detail with the production of Batchelor (1: 100 000) geological map.

Part of the project area was explored by Pancontinental Mining Pty Ltd under expired EL 1577. It included geological mapping, rock chip sampling, costeanning, auger and diamond drilling. Locally, high values of gold were encountered at Sundance prospect which was later mined. Uranium and base metal concentrations were also encountered (Pancontinental Mining Limited, 1981).

A syndicate of Jimberlana Minerals / Euralba Mining / WR Grace Australia / Pan D'Or Mining explored part of EL 28496 from 1982 – 1986 under ceased EL 1656 (Hancock,1987). Geological mapping, geochemical sampling were undertaken to search for gold and base metals mineralisation. However, the exploration was not very successful due to lack of geophysical survey.

From 1987 – 1991, part of the project area was explored by Eupene Exploration Enterprises under EL 5105 (ceased). It involved geological mapping, geochemical sampling, costeanning and drilling. Significant anomalous values were obtained from the main quartz reef at Area 3, Mt Woods. One sample from southern end of Mt Woods showed significant gold mineralisation, assaying 13.93 ppm Au (Smith, 1990).
Some base metals anomalies were identified from Glen Luckie and Predictor Hill area while part of the area was explored under expired EL 6422 (Butler, 1991). Eighty stream sediments (-40 mesh) were taken from EL 6422 which outlined 4 anomalous areas outside the current project area. Forty rock chip samples were also collected during the same program. Elevated Cu (312 ppm maximum), Pb (531 ppm maximum) and weakly anomalous Zn (168 ppm maximum) were obtained from the Tortilla Flats, Heaton Hill and Predictor Hill anomalies. At Glen Luckie 4 anomalous Zn (2050 ppm maximum), As (540 ppm maximum), Cu (280 ppm maximum) and Pb (100 ppm maximum) were obtained. All gold values were low.

6.0 EXPLORATION ACTIVITY PERIOD ENDING ON 29 MARCH 2013

During reporting period, a technical review of the project area was undertaken. It involved search of historical geological, geochemical and geophysical data from NTGS repository. In addition, a number of field trips were undertaken for ground-truthing. Exploration index map of the project area is shown in Figure 3.

Ground-truthing of the project area shows that much of it is covered by recent sedimentary cover which hampers access to bed rock geology. Geological mapping undertaken, so far, indicates that in the north-western part of the tenement Gerowie Tuff and Mt Bonnie Formation are present, which probably are overlain by the Burrell Creek Formation. These rocks are folded into anticlinal structures that generally plunge southward (Figure 2 and 3). These anticlinal structures are generally host to gold mineralisation (e.g Zapopan and Howley anticlines) in the PCO. All the rock formations present in the project area are prospective for gold and base metals mineralisation. In addition, geological setting may also be fertile for the uranium mineralisation, particularly due to its close proximity to the Rum Jungle Uranium Mineral field. Figure 2 shows that nose of the anticlinal fold terminates just inside the tenement area. However, TMI image (Figure 4) of the project area shows that it extends well into the southern part of EL 28496, where it is covered by recent sedimentary cover. The western limb of the anticline appears to be magnetic which could also be host to gold mineralisation as elsewhere in the PCO.

The project area was also searched for geochemical and drilling data. However, no data were found and search will continue to examine the historical annual exploration report.
Figure 3: Exploration Index Map of EL 28496

[Diagram depicting an exploration index map with features such as fault and anticline.]
Figure 4: TMI Image of the Project Area
7.0 PROPOSED EXPLORATION PROGRAM

EL 28496 is located in the central part of the Pine Creek Orogen and is prospective for gold and base metals mineralisation. In the next reporting period, available geophysical data will be re-processed and interpreted. In addition, a program of ground-truthing/field mapping will be undertaken which will be complimented with geochemical sampling program. Data collected will be entered into GIS and processed. If encouraging results received, then it will lead to drilling in the following years. A minimum budget of $13000.00 is proposed for this program.

8.0 CONCLUSIONS AND RECOMMENDATIONS

A review of EL 28496 has shown significant potential for gold and base metals mineralisation. As much of the project area is concealed under recent sedimentary cover. It is recommended that high resolution geophysical survey of the project should be undertaken which will help to understand the subsurface geology of the project area, in addition, to selection of exploration targets which should be drill-tested.

9.0 REFERENCES


