ANNUAL EXPLORATION REPORT

EL 22232

Au Quest Project

YEAR ENDING 2nd SEPTEMBER 2010

Darwin 1:250,000 SD5204
Noonamah 1:100,000 5172

Distribution:-

1. DoR Darwin NT
2. Crocodile Gold Australia Humpty Doo
3. Crocodile Gold Australia Brocks Creek

Report No: PC/BJV/10-33

Zia U. Bajwah
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EL22232 is a strategic landholding which is situated about 80 km SE of Darwin and 10 km NW of the Toms Gully Mine along the Arnhem Highway. The tenement was granted to Renison Consolidated Mines NL on 3rd September 2003 and expires on 2nd September 2009. GBS Gold Australia Pty Ltd acquired the tenement on 25 July 2007. However, GBS Gold Australia went into voluntary administration on 15 September 2008, and Crocodile Gold Australia purchased all assets including EL 22232 on 6 November 2009.

EL 22232 is located within the Pine Creek Orogen, a tightly folded sequence of Palaeoproterozoic rocks, 10km to 14km in thickness, laid down on a rifted granitic Archaean basement during the interval ~2.2-1.87Ga. The sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with minor interlayered tuff units. The Cullen intrusive event introduced a suite of fractionated calc-alkaline granitic batholiths into the sequence in the period ~1.85-1.78Ga.

After taking the control of EL 22232, Crocodile Gold Australia embarked on the review of the project area. TMI image of the project area shows a north-west trending magnetic trend within EL 22232, which probably represent a sliver of the South Alligator Group (Koolpin Formation, Gerowie Tuff and Mt Bonnie Formation). This lithological assemblage is an important host for gold mineralisation in the Pine Creek Orogen and their presence in the vicinity of Mt Bundy Granite further highlights their potential for gold mineralisation. Radiometric data revealed some anomalous areas in the eastern part of the tenement. However, much of the project area is covered by recent alluvial cover which probably hampers any radiometric response from bed rock.

Crocodile Gold Australia plans to explore the area with a dedicated exploration program, which will involve geochemical soil/rock chip sampling program, followed by a campaign of RC/RAB drilling. Samples retrieved during drilling will be assayed for gold and base metals and rocks will be assessed for uranium mineralisation.
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1.0  INTRODUCTION

EL22232 was originally applied for by Renison Consolidated Mines NL on the 3rd September 2003 as part of a group of tenements (AuQuest Project) that have a northwest trend, which covered Renison Consolidated Mines NL Noonamah-Corroboree trend. This report deals with exploration activity carried out during the fourth year of this tenement, ending 2nd September 2010.

2.0  TENEMENT DETAILS

EL 22232 was granted on 3rd September 2003 and expires on 2nd September 2009. Renewal application was lodged with the Dept of Mines and accepted and now tenement will expire on 2nd September 2011. It consists of 4 graticular blocks and comprises approximately 10.60 km². On 25 July 2007, GBS Gold Australia Pty Ltd acquired all tenements and Toms Gully gold mine held by Renison Consolidated Mines NL including EL 22232 in Toms Gully area, Northern Territory. GBS Gold Australia went into voluntary administration on 15 September 2008 and all assets were placed under care and maintenance. On 6 November 2009, Crocodile Gold Australia purchased all assets including EL 22232 held by GBS Gold Australia (liquidated), and commenced exploration, mining and processing activities in the Northern Territory.

3.0  LOCATION AND ACCESS

EL22232 is situated 80km SE of Darwin NT and 10km NW of the Toms Gully Mine along the Arnhem Highway.

Access to the tenement is via the Arnhem Highway, thence via secondary tracks that provide good access during the dry season. After heavy rain the tracks become impassable during the wet season.
Figure 1: EL 22232 Tenement Location
The existing bush tracks lead to and from Scott Creek, and in the east old station tracks were utilised to gain access into the denuded laterite and residual soil areas.

A major wet season creek (Scott Creek) drains the region to the northwest towards the Adelaide River Floodplains. Black soil plains cover the tenement and subdued areas of eroding laterite and residual soils cover the remainder.

The tenement falls on the Darwin 1:250,000 sheet and on the Noonamah 1:100,000 sheet. The tenement is within the Limilngan-Wulna (Land Holding) Aboriginal Corporation.

4.0 GEOLOGICAL SETTING

4.1 Regional Geology

EL 22232 is located within the Pine Creek Orogen, a tightly folded sequence of Palaeoproterozoic rocks, 10 to 14km 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. During the Top End Orogeny (Nimbuwah Event ~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.

The Northern portions of the project area contain the oldest sediments. In the project area, the Mount Partridge Group is unconformably overlain by the South Alligator Group and covers most of the tenement area. The southern portion of the Project area is comprised of Burrell Creek Formation, which conformably overlies the South Alligator Group. Tertiary and Quaternary Soils and Gravel’s unconformably overlie all the lower lying portions of the tenement areas, generally referred to as “Black
Figure 2: Geological setting of EL 22232
Soils Regions”. All of the Palaeoproterozoic sediments and volcanics in the Mount Bundey area were folded in a major deformation event dated around 1800 million years. The fold axes trend north-northeast, and generally plunging gently to the south.

4.2 Local Geology

- The Mount Partridge Group is represented by the Wildman Siltstone, which is interpreted to be up to 1500m thick. In the Mount Bundey Region the Wildman Siltstone consists of laminated and banded shale, carbonaceous and often pyritic siltstone inter bedded with undifferentiated volcanics in up to 100m interbeds, minor dolomitic sediments may also be present. The sediments near the granite intrusion may also be hornfelsed. The Wildman Siltstone is interpreted to be prospective for large tonnage, low-grade gold deposits and small tonnage, high-grade deposits. Wildman Siltstone hosts the Tom’s Gully gold deposit.

- The South Alligator Group is represented by the Koolpin Formation, which comprises ferruginous siltstone and shale and is commonly carbonaceous and pyritic. Chert bands and nodular horizons are common and lenses of ironstone occur occasionally, as haematitic breccias throughout the sequence into undisturbed quartz-veined siltstone and shale. Minor components of dolomite can also occur. The Koolpin is one of the most prospective units in the Mount Bundey Region for hosting mineralisation (West Koolpin, Taipan, BHS and North Koolpin Open Pits at Quest 29 are all within Koolpin sediments)

- The South Alligator Group is represented by the Gerowie Tuff which comprises silstone, argillite and crystal tuff. Pale green, brown or grey siliceous siltstone and phyllite interbedded with pale cherty argillite, black cherty crystal tuff, spotted feldspathic crystal tuff and lithic tuff; minor felsic ignimbrite, chloritic volcanoclastic shale, lithic tuff and lapilli tuff; porphyritic dacite. The depositional environment is described by the NTGS as Subaerial dacitic volcanic ash with shallow marine lutites.
- The *South Alligator Group* is represented by the **Mount Bonnie Formation** which conformably overlies the Gerowie Tuff and is dominated by a shallow marine sequence of interbedded and graded siltstone, chert and greywacke with occasional BIF’s. The unit can be up to 600m thick and is generally iron-rich and may be siliceous in places. The Mount Bonnie Formation hosts the Rustler’s Roost deposit.

- The *Finniss River Group* is represented by the **Burrell Creek Formation** which conformably overlies the Mount Bonnie Formation and is interpreted as a flysch sequence of fine to coarse marine sediments and appears to be part of continuous sedimentation process. Due to lack of marker horizons and poor exposure the width of the unit is unknown but is thought to be >1000m. This Formation is considered prospective for large low-grade gold deposits as typified by the Batman deposit of Mount Todd. The potential also exists for small high-grade deposits similar to Possum and Happy Valley with John Shields GIGIAC Theory (Gold in Greywacke in Anticlinal Crests). Also high-grade deposits such as Bandicoot, Marrakai and the Ringwood line which all lie on a major deep-seated magnetic trend.

- **Intrusives** within the Exploration Licence include the **Zamu Dolerite**. This occurs as small bodies that are poorly exposed, as a result of its weathering, some rubble boulders may be present at surface. It consists of altered quartz dolerite and gabbro and is generally narrow and broadly conformable to bedding as thin sills. The Zamu Dolerite is the only known suite of mafic intrusives that were emplaced prior to regional metamorphism and deformation. The Zamu Dolerite appears to have a controlling influence on the mineralisation at Quest 29 within the Koolpin sediments but this is not fully understood at this stage. Mineralisation is also hosted within this unit at Quest 29 and also at Chinese Howley.
5.0 PREVIOUS EXPLORATION ACTIVITY

Previous work on EL22232 has been compiled into GIS format for target generation and to reduce repetition by Renison Consolidated Mines Pty Ltd. Several ground reconnaissance trips along with vehicle/geological traverses were undertaken, both north and south of the highway by Renison Consolidated Mines Pty Ltd.

See previous annual report (2006) for summary table of historic data.

The earliest record of exploration in this area of the Mount Bundey region was located in the EL114 and AP2605 tenures, conducted in 1973 by Kewanee Australia Pty Ltd with no significant results found; Geopeko (EL114) also were interested in the area but reported no geophysical or geochemical anomalies of interest.

Geopeko were then the dominant exploratory company until 1977. They were looking for uranium and base metals using costeanning and rock chipping on EL142, however results form these samples were poor, with no economic value. Four costeans were completed in 1975, and a seven hole diamond drill program and the collection of soil and rock chip samples. One further diamond hole was drilled in 1976.

During 1979 both CRA Exploration and the Northern Territory Geological Survey conducted tests on EL1468, rock chips and soil samples were collected and analysed, with CRA receiving only poor results while the Northern Territory Geological Survey data suggested gold possibilities but no base metals. Carpentaria Gold took over EL5863 in 1989, with minimal gold found by stream sedimentation this area however the this method was successful in locating Tom’s Gully Mine.

A major creek system passes through the tenement (Scott Creek) draining to the northwest on to the Adelaide River floodplain. Topography is very subdued and extensive Black Soil plains are developed over half the licence area. Proximal to the black soil regions are denuded laterite with residual soil flatlands. Linear outcrops of highly silicified quartz arenite/quartzite were noted in the residual lateritic soil areas just north of Scott Creek. These exposures are barely half a metre above the soil surface, and are the only occurrence of the Wildman Siltstone throughout the tenement. Along the eastern boundary of the licence, cobbles and small boulders of residual quartz veining occur within the eroding laterite and on the residual soils.
During the 2006 field season several reconnaissance trips and geological/vehicle traverses were conducted within EL22232. West of Scott Creek, low lying areas of eroded laterite with quartz vein fragments scattered throughout was also inspected.

6.0 EXPLORATION YEAR ENDING 2nd SEPTEMBER 2010

Crocodile Gold Australia regards EL 24944 a strategic landholding due to its multi-commodity potential. After securing all assets including EL 22232, new owner commenced review of assets acquired along with mining and processing activities in the Northern Territory. Mining started from Brocks Creek underground and Chinese South (Extension) open pit; hauling ore to Union Reefs gold mill for treatment. Work is underway to re-commence mining and processing at Toms Gully gold project. So far, over $150.00 million has been spent, of which, approximately $15.0 million has been directed towards drilling in order to prove up resource base, which is vital for mining and processing operations in the region.

Review of the project area involved examination of previous exploration data, geological setting and high resolution geophysical data. TMI image of the project area is shown in Figure 3. A north-west trending magnetic ridge is prominent within EL 22232 which probably represent a sliver of the South Alligator Group (Koolpin Formation, Gerowie Tuff and Mt Bonnie Formation). This lithological assemblage is an important host for gold mineralisation in the Pine Creek Orogen and their presence in the vicinity of Mt Bundy Granite further highlights their potential for gold mineralisation.

Radiometric image of EL 22232 is shown in Figure 4 where some radiometric anomalous areas in the eastern part of the tenement can be seen. However, much of the project area is covered by recent alluvial cover which probably hampers any radiometric response from bed rock.

Other activities during the reporting year include:

- Reconnaissance visit
- Planning for up-coming field season
- Report writing and tenement management activities.
Figure 3: TMI Image of the Project area
Figure 4: Radiometric Image of the project area
This exploration activity costed $8510.00 during the year 2009-10 and details are given in Appendix 1.

7.0 FORWARD PROGRAMME YEAR ENDING 2nd SEPTEMBER 2011

Review of the project area along with high resolution geophysical data has shown significant mineral potential of the project area. Much of the project is under recent alluvial cover and hampers access to bed rock geology. To gain access to bed rock geology drilling is required.

In the next reporting year, a campaign of RC/RAB drilling will be undertaken. Samples retrieved during drilling will be assayed for gold and base metals and rocks will be assessed for uranium mineralisation. Proposed expenditure for the year ending 2nd September 2011 is expected to be a minimum of $16000.00.

8.0 REFERENCES


NTDME, 1999. Rum Jungle Magnetics Survey

NTDME, 2000. Mary River Magnetics Survey

