ANNUAL REPORT

On EXPLORATION LICENCE 22206

AuQuest Project

PERIOD ENDING 21 OCTOBER 2010

Title Holder: Crocodile Gold Australia Pty Ltd

Distribution:-

1. DOR Darwin NT
2. Crocodile Gold Australia, Humpty Doo
3. Burnside Operations P/L Brocks Creek

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SUMMARY

EL 22206 is a significant asset within Crocodile Gold Australia’s portfolio which is situated about 90 km south-east of Darwin in the vicinity of the Toms Gully gold mine. The tenement was granted on 22 October 2003 to Renison Consolidated Mines Limited and expires on 21 October 2011. It comprises 2 graticular blocks that comprises 6.5 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 22206. However, GBS Gold Australia went into voluntary administration on 15 September 2008 and in November 2009, Crocodile Gold Australia purchased all assets held by GBS Gold Australia (liquidated).

EL 22206 is located within the Pine Creek Orogen, which has been interpreted as an intracratonic basin lying on an Archaean basement, and containing a 14 km thick sequence of Palaeoproterozoic sediments, accompanied by lesser volcanics, granite plutons and dolerite intrusions. The sequence was deformed and metamorphosed during the Top End Orogeny (~1870 – 1780 Ma. Cullen Batholith and satellite plutons intruded the Palaeoproterozoic meta-sedimentary sequence dated at 1850 – 1780 Ma).

During the year under review, new owner acquired the control of the tenement and commenced a thorough review of the project area. EL 22206 is situated in a close proximity to the Toms Gully gold mine and has similar geological setting, which points towards mineral potential of the project area. Interpretation of high resolution geophysical data obtained in 2008-09 showed a number of magnetic and radiometric anomalies which require field checking. However, much attention remained focused in bringing on-line mining and assets with a multi-million dollars budget. Other activities included reconnaissance visits, tenement administration and report writing.

In the next reporting year, selective parts of the project area will be mapped in detail and identified radiometric and magnetic anomalies will be examined in the field. Soil/rock chip sampling of the areas of interest will be undertaken, and if encouraging results received, it will lead to RC drilling.
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1.0 INTRODUCTION

EL 22206 is an important tenement which is located in the vicinity of Toms Gully gold deposit. Significant surface exploration and sampling has already been carried out across the tenement in the hope of locating extensions of the Toms Gully Reef. This report documents the exploration activity undertaken during 2009-10.

2.0 LOCATION AND ACCESS

The tenement is located about 90 km south-east of Darwin in the Mount Bundy area. Arnhem Highway connects the project area with Darwin, the capital of Northern Territory. From the Toms Gully turn off, access to the tenement is via station fence lines and secondary tracks leading from the Arnhem Hwy. These tracks provide good access for 4WD vehicles during the dry season, however these tracks become impassable after heavy rain, and therefore no access is possible throughout the wet season.

3.0 TENEMENT DETAILS

EL 22206 was granted on 22 October 2003 to Renison Consolidated Mines NL and expires on 21 October 2011. It covers 2 graticular blocks and comprises 6.5 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 22206 in the Toms Gully area, Northern Territory. On 21 August 2007, uranium exploration rights were acquired by Rum Jungle Uranium Limited under an agreement with GBS Gold Australia. GBS Gold Australia went into voluntary administration on 15 September 2009. In November 2009, all assets held by GBS Gold Australia (liquidated) were acquired by Crocodile Gold Australia.

Underlying cadastre is held by B.F. Coulter under PPL 1163.
Figure 1 Tenement Location Map
4.0 REGIONAL GEOLOGY

EL 22206 is located within the Pine Creek Orogen, which has been interpreted as an intra-cratonic basin lying on an Archaean basement, and containing a 14 km thick sequence of Proterozoic meta-sediments, accompanied by lesser volcanics, granitic plutons and dolerite intrusions. The sequence was deformed and metamorphosed during the Top End Orogeny (1870 – 1780 Ma). Cullen Batholith and satellite plutons intruded the Palaeoproterozoic meta-sedimentary sequence dated at 1850 – 1780 Ma. The Northern portions of the project area contain the oldest sediments (Figure 2). Here, the Mount Partridge Group that is unconformably overlain by the South Alligator Group, and comprises most of the tenement areas. The southern portion of the Project area is comprised of the 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 Soils Regions”. All of the Palaeoproterozoic meta-sediments and volcanics in the Mount Bundey area were folded in a major deformation event dated around 1870 – 1780 Ma. The fold axes trend north-northeast, and generally plunging gently to the south. A brief description of geology within the tenement and surrounding is provided below. Figure 2 portrays the geology of the area.

Mount Partridge Group

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 interbedded with undifferentiated volcanics up to 100m. Minor dolomitic sediments may also be present. The sediments near the granite intrusion are generally hornfelsed. The Wildman Siltstone is interpreted to be prospective for large tonnage, low-grade gold deposits and small tonnage, high-grade deposits. The Wildman Siltstone hosts the Tom’s Gully gold deposit.

South Alligator Group

The Koolpin Formation, Gerowie Tuff and the Mount Bonnie Formation represent the South Alligator Group. The rocks of the South Alligator Group are considered to be prospective for either large tonnage, low grade gold deposits (such as that at the nearby Rustler’s Roost gold mine) or small tonnage, high grade deposits.
Koolpin Formation
The Koolpin Formation comprises ferruginous siltstone and shale, which are 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 Formation 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 the Koolpin Formation sediments).

Gerowie Tuff
The Gerowie Tuff conformably overlies the Koolpin Formation and has similar characteristics of siltstones and shales but iron enrichment is low as compared to the Koolpin Formation or Mt Bonnie Formation. Within the Mount Bundey Region, it is dominated by graded beds of siliceous tuffaceous mudstones grading to greywacke and arenite, diagenetically altered, up to 600m thick, and generally poorly mineralised. The highly siliceous component of the tuffs and arenites make them resistant to erosion, and they tend to form areas of high relief.

Mount Bonnie Formation
The Mount Bonnie Formation conformable 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.

Finniss River Group
Burrell Creek Formation
Conformably overlying the Mount Bonnie Formation is the Burrell Creek Formation interpreted as a flysch sequence of fine to coarse marine sediments and appears to be part of continuous sedimentation process. Due to the lack of marker horizons and poor exposure the width of the unit is unknown but is thought to be >1000m. It 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. Also high-grade deposits such as Bandicoot, Marrakai and the Ringwood line which all lie on a major deep-seated magnetic trend.
INTRUSIVES

Zamu Dolerite

The Zamu Dolerite 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 Formation but this is not fully understood at this stage. Mineralisation is also hosted within this unit at Quest 29 and at Chinese Howley.

Mount Bundey Granite & Mount Goyder Syenite

The meta-sedimentary sequences and the Zamu Dolerite are intruded by the Palaeoproterozoic Mount Goyder Syenite and Mount Bundey Granite which form a co-genetic complex that crops out over about an 80km$^2$ area. This intrusion is believed to source of mineralisation, which occurs throughout the local region. Their mineralogy and geochemistry suggests they are both differentiated from a common magma, which intruded into the gently south plunging folded belt of meta-sediments.

A thermal metamorphic overprint associated with the southern margin of the Mount Bundey Granite intrusive has resulted in the development of both cordierite and andalusite, and probably was responsible for gold mineralisation in adjacent meta-sediments. Further to the south of the Mount Bundey and Mount Goyder intrusive is possibly a second deep-seated pluton to the south as indicated by a roughly circular magnetic feature.

Deformation & Metamorphism

Regional deformation with north-northeast folding which plunges gently south, occurred around 1870 – 1780 Ma, causing metamorphism to greenschist, and sometimes higher to amphibolite facies. This event also resulted in the intrusion of thin sills of Zamu Dolerite, and the post-tectonic emplacement of the Mount Bundey Granite and Mount Goyder Syenite as a complex dated at 1790 ± 110 My in the region. Structural deformation of the metasediments is complex.

The major folding episode resulted in tight folds whose axes plunge southwest (Figure 2). However within these major folds the more incompetent beds, i.e. carbonaceous shales, have been deformed into localised complex structures. The granitic emplacement has also influenced the fold structures as can be seen on the regional geological map. Metamorphism
Figure 2: Regional Geology and GIS Data
to greenschist facies through dynamic compression associated with intense folding is common. The granitic emplacement and the associated structural deformation and generation of hydrothermal fluids are thought to have been responsible for most of the gold mineralisation throughout the Pine Creek Orogen. e.g. Cosmo Howley, Rustlers Roost, Toms Gully, Moline, Mt Todd and Quest 29.

5.0 PREVIOUS EXPLORATION

The earliest known record of exploration in this area of the Mount Bundey region was undertaken during the 1970’s by Geopeko who used costeanning, rock sampling, soil sampling, and drilling.

During the early 1980’s Aquitaine Australian Minerals/ Pan D’Or Mining/ Jimberlana Mining occupied EL1653, as well as Optimal Mining/ ACA Howe Australia, then in 1986 AGIP Australia occupied EL4642 undertaking limited exploration.

During the late 1980’s to the early 1990’s Carpentaria Gold held the tenements as EL4927, in which they took stream sediment samples and some percussion drilling as a means of searching for gold deposits. Stream sediment sampling was successful in identifying the Tom’s Gully Deposit.

During the early 1990’s Kakadu Resources held the tenement as EL7322, and Dominion Gold Operations held tenement for EL8688 during 1995 and conducted lag sample analysis. Soil and rock chip samples were also taken within EL8688 by Northern Gold / Territory Goldfields along with lag and soil samples.


This work has been compiled into GIS format for target generation and to prevent repetition with follow up work.

Under the ownership of Renison Gold, work on this tenement began during the dry season. Data entry of previous work was incorporated into GIS databases, along with all information from literature reviews. Lag and stream sediment samples from previous explorers are displayed diagrammatically.
Interpretation of all available data were carried out prior to field activities. Geology maps, 1:20,000 colour aerial photography, Landsat imagery, reprocessed aeromagnetic and radiometric imagery, and 1:20,000 detailed Topographic maps were all consulted. The geology of the tenement consists of the Wildman Siltstone, Koolpin Formation, and the Gerowie Tuff, folded into two gently southwest plunging synclines and an anticline. The folds have northeast trending axes. Mount Bundy Creek enters the tenement in the southwest corner and drains northeast along the axis of the anticline in the Wildman Siltstone. Black soil flats occur along the northern boundary of the licence.

Ground exploration consisted of surface traverses across the northern area of the tenement along with vehicle and geological traverses. Koolpin formation rocks form a prominent upstanding ridgeline oriented northeast – southwest, while the Wildman Siltstone forms a more subdued surface. No outcropping quartz veins were noted. Stream sediment anomalies generated by previous explorers were not visited this field season, however will be followed up during the next reporting period.

During 2008-09, TEMPEST survey of the project area was conducted which identified graphitic black siltstone unit in the area.

6.0 EXPLORATION YEAR ENDING 21 OCTOBER 2010

During the year under review, Crocodile Gold Australia took over the control of EL 22206 and other assets held by GBS Gold Australia (liquidated), and commenced mining, processing and exploration activities in the region. The new owner embarked on the due diligence of all the assets including EL 22206.

High resolution air borne geophysical data obtained during 2008-9 was processed and interpreted. TMI image of the project area is shown in Figure 3 where subtle magnetic anomalies can be observed. These anomalies are mainly confined to the hinge of folds present within the Koolpin Formation. It may be noted that some magnetic anomalies also show enhanced radiometric signature. These subtle magnetic anomalies could be related to gold mineralisation.

Figure 4 displays radiometric image of the project area showing radiometric anomalies which are again confined to the hinge zone of folds within the Koolpin Formation.
Figure 3: TMI image of the project area

Figure 4: Radiometric image of the project area
Crocodile Gold regards EL 22206 highly due to its close proximity to the Toms Gully gold mines, and having extension of similar geological structures which host gold mineralisation. An in-depth review of the Toms Gully and Rustler’s Roost project is underway to commence mining and processing activity in the area and EL 22206 will play an important role for the supply of ore to the Toms Gully mill. Furthermore, the tenement also holds good potential for uranium and base metals mineralisation which will be explored with the help of JV partner. Other activities are given below:

- Reconnaissance visit
- Technical review of the tenement
- Planning for up-coming field season
- Report writing and tenement management activities.

This activity incurred a cost of $13040.00 and details are given in Appendix 1.

7.0 FORWARD PROGRAMME YEAR ENDING 21 OCTOBER 2011

Interpretation of geophysical data has provided significant lead for the mineral potential of the project area. For gold and base metals mineralisation, a soil/rock chip sampling along the NW trending magnetic lineament is proposed. Section of the exposed stratigraphy will be mapped in detail. For uranium mineralisation, identified radiometric anomalies will be examined in the field and ground radiometric survey will be conducted to assess the full potential of these anomalies. Some soil/rock chip samples will be taken for assaying. This will lead to RC drilling campaign. This exploration activity has been budgeted at least $15000.00.

8.0 REFERENCES


NTDME, 1999. *Rum Jungle Magnetics Survey*

NTDME, 2000. *Mary River Magnetics Survey*

