Annual and Final Report

MA 413

18 May 2015

Map Sheets
Pine Creek SD5208 - 1:250,000 scale
McKinlay River 5271 - 1:100,000 scale

Distribution:-

1. DOR Darwin, NT
2. Crocodile Gold Australia, Darwin
3. Rockland Resources, Brisbane
4. Phoenix Copper, Adelaide

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EXECUTIVE SUMMARY

Tenement MA 413 has been relinquished. The tenement is located in the central part of the Pine Creek Orogen, which is one of the main gold producing areas in the Northern Territory. The tenements are located roughly 140 km southeast of Darwin, NT. The surrounding Brocks Creek and Iron Blow area has historically been the focus of open pit, underground and alluvial gold mining with significant quantities of gold being discovered along the Brocks Creek-Zapopan (BKZ) structure as well as the Princess Louise and Iron Blow areas. Crocodile Gold Australia acquired the group of tenements in August of 2011.

The project area is underlain by a sequence of Palaeoproterozoic meta-sedimentary rocks found in the South Alligator Group and Finniss River Group, which are intruded by the Burnside Granite. This rock sequence has been tightly folded on axes, which trend north westerly and has been subjected to greenschist facies metamorphism. Thermal effects from the late-orogenic Burnside Granite, which lie to the north of the Group, have imparted hornfelsing and porphyroblastic spotting of garnet, biotite and andalusite/cordierite. This tends to depend not only on lithology but also the proximity to the intrusive contact.

Figure 1: Relinquished Tenement Location Map
Exploration activities conducted over the relinquished tenements time of acquisition in 2011 until 2015 has included several desktop reviews and campaigns of reconnaissance mapping and data compilation.

Crocodile Gold has made the decision to relinquish mineral title MA 413 (Figure 1) to allow another party to conduct exploration activities within the area.
2 COPYRIGHT

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Any information included in the report that originates from historical reports or other sources is listed in the “References” section at the end of the document.

This report may be released to open file as per Regulation 125(3)(b).
3 INTRODUCTION

MA413 is located approximately 5 kilometres east of the Brocks Creek exploration office, on the Ban Ban (14/3-III) 1:50,000 scale and Burnside (14/2-II) 1:50,000 scale map sheets. The mineral claims lie between latitudes 13°26’ south and 13°29’ south and longitudes 131°29’ east and 131°32’ east (Figure2). The tenements are situated within Perpetual Pastoral Lease No. 1111, Ban Ban Springs, held by Ban Ban Springs Station Pty. Ltd.
Figure 2: Relinquished Tenement Regional Location Map
MA413 is located about 140 km south of Darwin and about 10 km east of the Brocks Creek gold mine. The tenement was applied for on 11 February 1994 by Dominion Mining Ltd for a period of 4 years. It was granted on 5 May 2006, and will expire on 4 May 2010. In 2008, GBS Gold Australia’s subsidiary Territory Goldfields Pty Ltd negotiated the purchase of AN 413 and tenement was transferred to Territory Goldfield by a Deed of Assignment and Assumption dated 9 August 2008.

Area underlain by MA 413 mainly belongs to the Burrell Creek Formation which hosts many gold deposits in the Pine Creek Orogen. It mainly comprises interbedded shale, slate, phyllite, siltstone, greywacke and volcanilithic conglomerate and rare altered felsic to intermediate banded iron formation. The Burrell Creek Formation is conformably overlies, or is faulted against the Mt Bonnie Formation.

Technical review of the project area shows that it mainly covers part of crescent-shaped valley which is magnetically recessive. From geological information it appears that Burrell Creek Formation covers such magnetically recessive valleys. This could be due to de-magnetisation of rocks. It may be noted that several gold deposits/prospects occur in such magnetically recessive valleys (e.g. Fountain Head, The Jar, and Lady Josephine). Review undertaken shows that it has good potential in hosting gold mineralisation. However, there is a need to devise a dedicated exploration program to pursue geochemical targets.

4 LOCATION AND ACCESS

MA 413 is situated approximately 140km SE of Darwin NT and roughly 45Km northwest of Pine Creek (Figure 2). Access may be gained by travelling approximately 160 km south from Darwin via the Stuart Highway, then heading east along the Fountain Head Road for approximately 12 km and then along the Cosmo/Howley haul road.

The tenements falls on the Pine Creek 1:250,000 sheet and on the Batchelor 1:100,000 sheet. The tenements are located on Douglas Station pastoral lease, PL2683. The area consist of hills, flats and undulating terrain which generally support tall and mixed open woodland with tall grassy understory (NSR, 1995).
5 GEOLOGICAL SETTING

5.1 REGIONAL GEOLOGY

Tenements of the Brocks Creek Project are located within the Pine Creek Orogen, a tightly folded sequence of Palaeoproterozoic rocks, 10 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 Zamu Dolerite intruded the sequence prior to regional metamorphism and deformation.

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.

Less deformed Neo- to Meso-Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat lying Palaeozoic and Mesozoic strata along with Cainozoic sediments and proto-laterite overlie parts of the Pine Creek Orogen lithologies. Recent scree deposits occupy the lower hill slopes, while fluvialite sands, gravels and black soil deposits mask the river/creek flats areas.
Strata comprising of Gerowie Tuff are the host rocks for mineralisation within the Brocks Creek area. This unit contains a repetitious sequence of volcano-sedimentary rocks comprised of argillite (siltstones/shales/schists) and silicified tuffs. The formation has an apparent thickness of more than 500 meters and is the middle of three discrete units comprising the South Alligator Group (Figure 3). These three formations, and the overlying Burrell Creek Formation (part of the Finniss River Group and can be seen in Figure 4 below), are host to almost all of the significant gold deposits in the Pine Creek Inlier.
Upper and lower contacts between these four formations are gradational and interdigitations are common, however, there is an angular unconformity at the base of the Koolpin Formation. Subjacent to the unconformity is the Mount Partridge Group, though it does not outcrop in the Brocks Creek area.
5.2 LOCAL GEOLOGY

The project area encloses a sequence of Palaeoproterozoic meta-sedimentary rocks of the South Alligator Group and Finniss River Group, intruded by the Burnside Granite (Figure 5). This rock sequence has been tightly folded on axes that trend north westerly, and have been subjected to phyllitic - middle greenschist facies metamorphism. Thermal effects from the post orogenic Burnside Granite that lies to the north of the group has imparted hornfelsing and porphyroblastic spotting of garnet, biotite and andalusite/cordierite depending on lithology and proximity to the contact. Calc-silicate hornfels is reported from some thermally higher grade areas. The granite emplacement has also distorted and disrupted pre existing fold and fault patterns.

The relinquished tenements are underlain by Burrell Creek Formation sediments according to available geological maps. Burrell Creek Formation is made up of generally coarser and high-energy greywacke dominant units and siltstone-argillite. Late-stage biotite-lamprophyre and felsic porphyry dykes also cut the meta-sedimentary sequence.

The Burrell Creek Formation hosts many of the gold deposits in the Union Reefs area. The Fountain Head and Tally Ho gold deposits, previously mined by open pit, lie a few kilometres to the north of the relinquished tenements in a similar geological sequence.
Figure 5: Local Geology of Relinquished Tenement
6 EXPLORATION ACTIVITIES PRE-2011

The project area has been explored moderately in the past as part of EL 615, EL 4415 and EL 7539. Exploration programs conducted under these programs included geological mapping, geochemical sampling and drilling. Although none of drilling intersected geological setting in the project area, but these campaigns do provide important information about the project area. Similarly none of assay data fall within MA 413 but provide some information about the prospectively of the area.

Project area falls in a triangle between Brocks Creek gold mine, Fountain Head/Tally How deposits and North Point/Princess Louise gold deposits. Pine Creek Shear Zone intersects the area which is an important feature for gold localisation within MA 413. Geochemical sampling undertaken shows elevated level of gold and arsenic values which is consistent with prospectively of the area. Gold values as high as 7.2 ppm has been recorded (Curnow and Vooids, 1990). Geochemical sampling in EL 4415 and EL 7539 further shows a number of gold anomalous zones. It is likely that these trends extend into the project area.

During the previous exploration program a number of aerial photographic survey were also undertaken in the surrounding areas and some of these surveys cover part of MA 413. Information obtained from these surveys was mainly used for regional and detailed geological mapping and structural interpretation.

Territory Resources Pty Ltd in 1988 carried out Geo-Flite multispectral survey which identified a number of possible mineralised zones which may extend into MA 413. These are characterised by mineralisation associated alteration and weathering zones.

6.1 EXPLORATION ACTIVITIES 2011- 18 MAY 2015

No exploration activities were reported in 2011 as Crocodile Gold took over the titles from the receivers of GBS Gold.

From 2012 to 2014, exploration over MA 413 included a complete review of the data associated with the tenements as well as the collation of historic reports and maps associated with the area. These reports and maps are now stored at the Brocks Creek document library.
REFERENCES


SHAW J. 2005 Annual Exploration Report EL23270, Year ending 19th March 2005. For DBIRD and Burnside JV.


