



Exploration Permit for Minerals

EPM 19011

Broughton Creek East

Final Report for the Period Ending

9th November 2018

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1. INTRODUCTION

Broughton Minerals Pty Ltd (affiliated with CNW Pty Ltd), a Brisbane-based junior exploration company was granted Exploration Permit for Minerals (EPM) 19011 totaling 26 sub blocks on 28th June 2012 for a period of 3 years. The EPM was given the project name of Broughton Creek East. The tenement was renewed for a further 3 year period in 2015.

The tenement is located ~ 90 kms southeast of Mount Isa and 60 kms south of Cloncurry in Northwest Queensland and was selected for its potential to host large tonnage, Ernest Henry style copper/gold deposits as well as smaller, Tick Hill style gold only orebodies. The potential for uranium and rare earth mineralization also exists.

A further renewal was lodged in March 2018 but this was rejected. Consequently the tenement holding expired on 9th November 2018.

2. LOCATION AND ACCESS

Exploration Permit for Minerals (EPM) 19011 “Broughton Creek East” is located ~ 90 kms southeast of Mount Isa and 60 kms south of Cloncurry in Northwest Queensland. Access to the tenement is via the Pandora copper mine road east of Mary Kathleen on the Mt Isa-Cloncurry highway or the Duchess to Cloncurry road, then west along the Great Northern Railway to Devoncourt siding and along station tracks parallel to the abandoned Ballara rail line.

The tenement straddles the Malbon and Marraba 1:100 000 geology sheets (No's 6955 and 6956 respectively) and the Cloncurry and Duchess 1:250 000 geology sheets (SF54-2 and SF52-6 respectively). The tenement is centred at latitude 20° 59'S and longitude 140° 07'E (Figure 1).

3. TENURE

Exploration Permit for Minerals (EPM) 19011 Broughton Creek East covering 26 sub-blocks was granted 28th June 2012 for a period of three years to Broughton Minerals Pty Ltd. CNW Pty Ltd (affiliated with Broughton Minerals Pty Ltd) entered a joint-venture arrangement with Orion Metals Ltd in September 2011 to explore the potential of several Broughton Creek project tenements including EPM 19011. Broughton Orion Pty Ltd, a 100% owned subsidiary of Orion Metals Limited is the operator for EPM 19011.

Exploration Permit for Minerals 19011 covers the Malbon 1:100 000 map sheet, and is identified on the Cloncurry Block Identification Map of the Mount Isa Mining District as

<u>Block</u>	<u>Sub-blocks</u>
818	---- E ---- K -- N O P - R S T U V W X Y Z
890	A B C D - F G H J - L M N -- Q -----

EPM 19011 is illustrated on Figure 1.

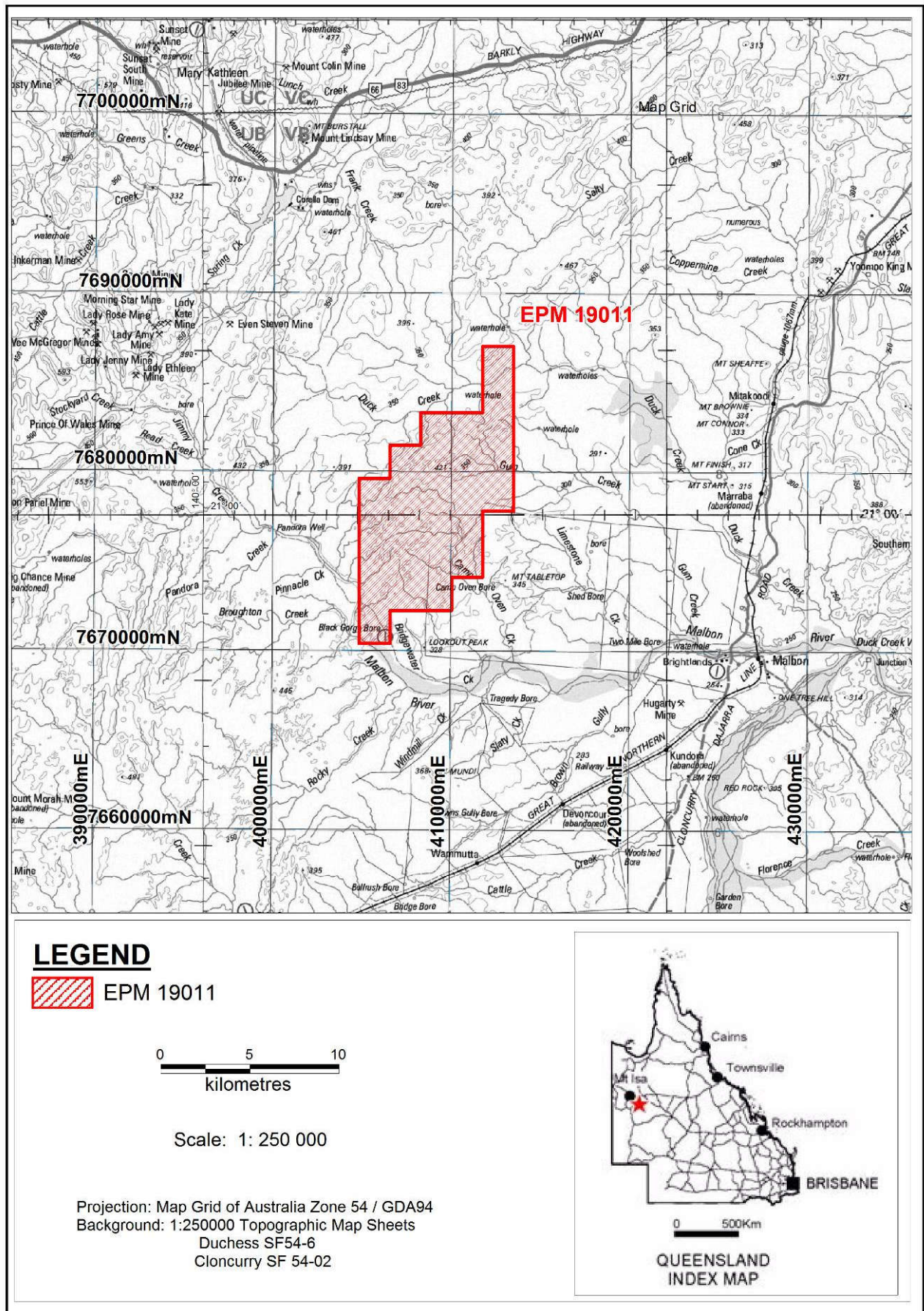


Figure 1. EPM 19011 Broughton Creek East location

4. GEOLOGY

The Mount Isa Inlier in which the Broughton Creek East tenement EPM 19011 is located is subdivided by major north striking faults into three broad tectonic belts, namely the Western Succession, the Kalkadoon/Leichhardt Belt and the Eastern Succession (Figure 2).

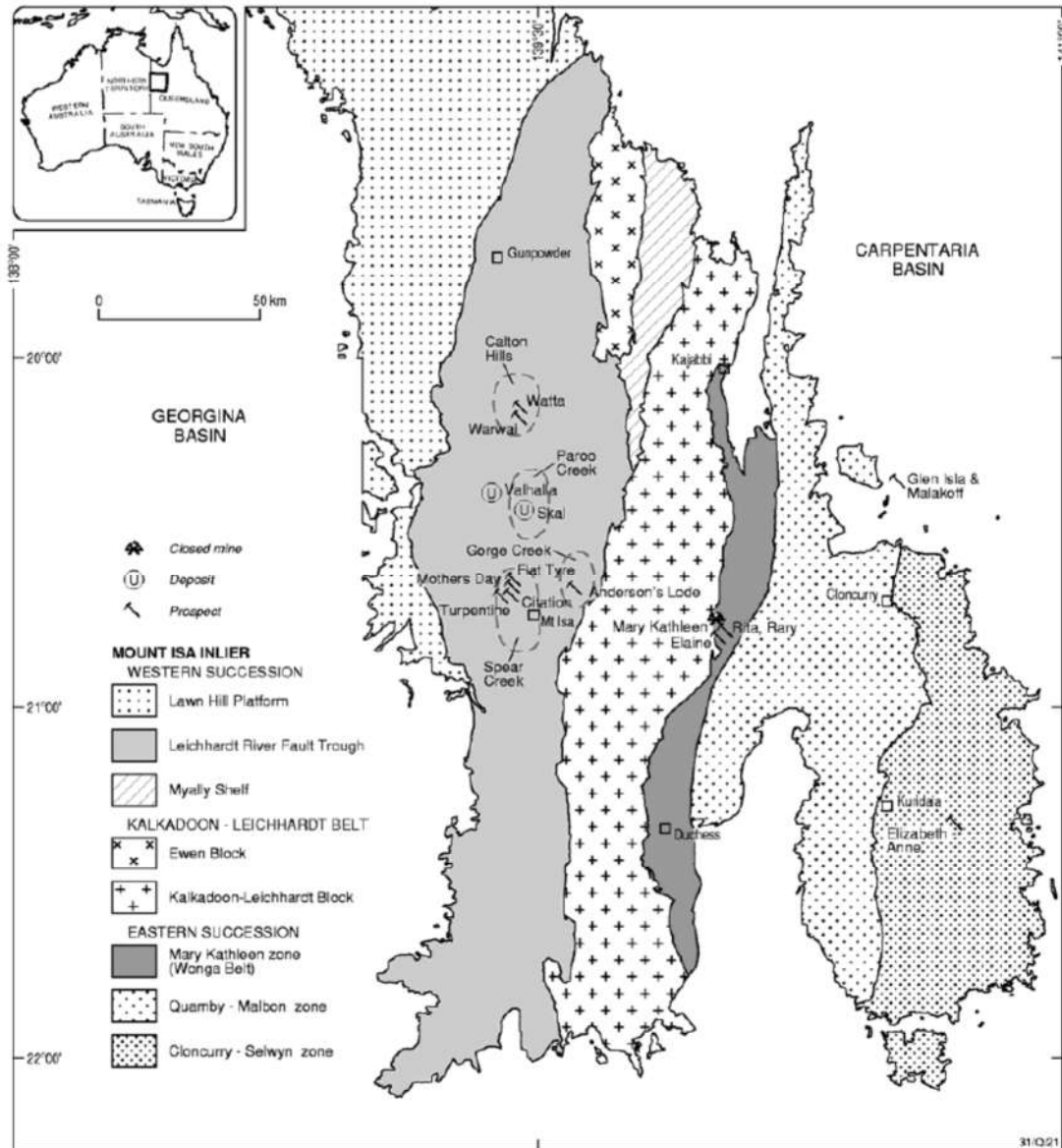


Figure 2. Mount Isa Inlier, Northwest Queensland

The Western Succession consists of the Lawn Hill Platform, the Leichardt River Fault Trough and the Myally Shelf. The Kalkadoon/Leichhardt Belt is bounded to the west and east respectively by the Quilalar and Pilgrim Fault Zones. This belt comprises the Ewen Block and the Kalkadoon/Leichhardt Block. The Eastern Succession is subdivided into the Mary Kathleen zone to the west, the Quamby/Malbon zone and the Cloncurry /Selwyn zone in the east.

On a more prospect scale, The Broughton Creek East tenement is located in the Kalkadoon/Leichhardt Block and covers Proterozoic metavolcanic and metasedimentary rocks of the Quamby/Malbon zone, which is unconformably overlain by Cambrian rocks of the Georgina Basin (Figure 3).

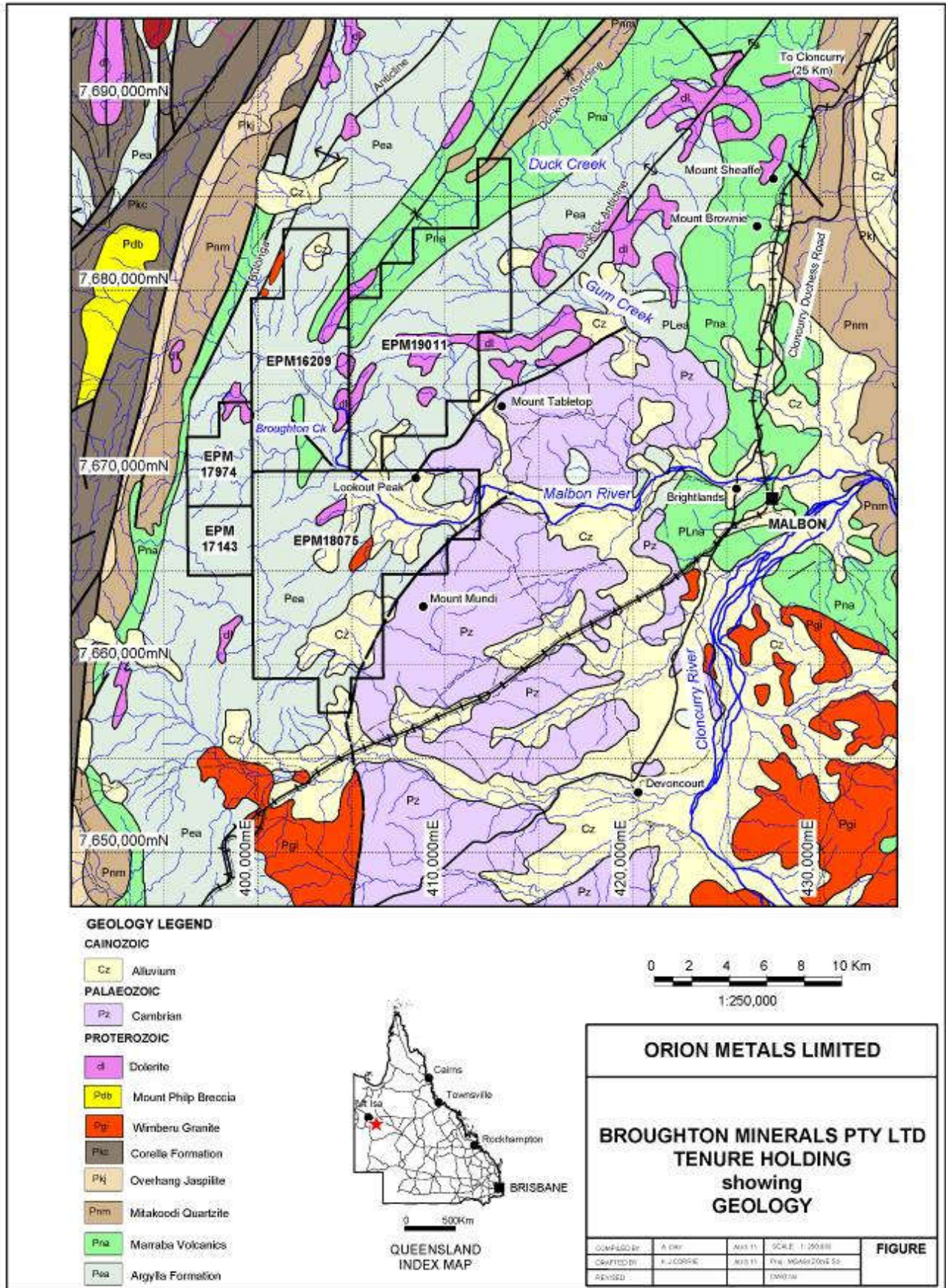


Figure 3. Regional Geology of Broughton Creek

These Proterozoic rocks are sub-divided into two major lithological units: the basal Argylla Formation, and the overlying Marraba Volcanics. The Argylla Formation comprises predominantly a felsic volcanic suite which is variably recrystallised, and contains minor intercalations of quartzite, metaarenite and pelitic schist. Numerous thin units and dykes of amphibolite and meta-basalt are present, and predominate in the northern portion of the tenement.

Overlying the Argylla Formation are the amphibolites and meta-siltstones of the Marraba Volcanics. Flat lying limestones and sandstones of the Cambrian Georgina Basin unconformably overly the Proterozoic rocks in the eastern to southeastern portion of the tenement east of the Camel Fault and its southwestern extension.

5. PREVIOUS EXPLORATION

The area covered by EPM 19011 has been the subject of numerous mineral surveys by various companies. A review of literature held on open file reveals the following relevant activities:

MOUNT ISA MINES LIMITED (late 1960's, ATP 359), evaluated the Pindora Cu workings (age 1915 to 1930) to the NW of the EPM. No drilling was conducted.

CLUTHA DEVELOPMENT (1967-1968, ATP 406) explored the Cambrian sediments of the Georgina Basin for Duchess style Phosphate.

MINES EX. - BROKEN HILL SOUTH JOINT VENTURE (late 1970's, ATP 415) explored for phosphate in the Cambrian Bottle Creek Formation, no drilling conducted on EPM Pandora area.

NEWMONT P/L / CRAE (1977, ATP 1794) targeted roll-front type U deposits in the Cambrian Mt. Birnie Formation, however no work conducted within current EPM boundaries.

CRAE (1981-1982, ATP 2562) conducted an airborne radiometric and magnetic survey, targeting uranium and/or base metal mineralisation within the Lower Proterozoic Tewinga Group. This work resulted in the application for two areas that coincided with the current EPM (listed below).

CRAE (1982-1983, ATP 3263) conducted a 1 sample/10km² multi-element stream sediment survey, and minor rock chip program. No follow up work recommended on current EPM area, although several magnetic and radiometric anomalies were identified. Other target styles considered in these investigations included Argylla Formation acid volcanic hosted, bedded or stockwork metal sulphide deposits and skarn related mineralisation hosted by calc-silicates adjacent to the Wimberu Granite.

CRAE (1988, ATP 5237 and ATP 5238) acquired this ground on the basis of gold anomalism encountered within Mitakoodi Quartzite on another CRAB tenement ATP 3967. No significant discovery was made in ATP 3967 so ATP 5237 and ATP 5238 were relinquished with no work having been conducted. A major conclusion of the exercise was that the Mitakoodi Quartzite contained elevated background gold levels of about 3 ppb.

PLACER EXPLORATION LTD (1993, EPM 8605) targeted this ground to search for gold and copper mineralisation associated with splays off the north-northeast trending Pilgrim Fault zone. Results from the stream sediment sampling program in the area produced low order gold anomalies in the NW and NE corners of the tenement which were ascribed to small sulphide bearing carbonate vein pods. Also produced was a broad, low order silver anomaly in the southern portion of the EPM which was not explained.

MIMEX (1994 -1995, EPM 9385) selected the ground on the basis of potential for Ernest Henry style Au-Cu mineralization and for Tick Hill style Au only mineralization.

In the first year's exploration, interpretation and modelling of the MIM Airborne Magnetics dataset was carried out, followed by regional BCL stream sediment sampling. This 258 sample stream sediment survey highlighted a > 5ppb gold anomaly trending 300° over 5 kms in length and 2 kms in width on the southwestern side of the Malbon River. Peak values within this anomalous zone ranged between 10 and 60 ppb Au. Coincident copper anomalism ranged up to 10.4 ppm Cu. This anomalous chemical area was named Seven Split and exploration in the second year was focused on this prospect.

During this second year of exploration, a further 60 samples were taken to refine the anomalous zone at 'Seven Split'. A number of elevated gold results were recorded to maxima of 46.4, 43.0 and 42.1 ppb Au in the drainages of first order creeks. Maximum copper values coincided broadly with the gold anomalism drainages to maxima of 13.0, 11.4, 17.4ppm Cu.

BROUGHTON MINERALS PTY LTD / ORION METALS LIMITED (BROUGHTON ORION PTY LTD) (2012 - EPM 19011). Broughton Minerals Pty Ltd selected the ground on the basis of potential for Ernest Henry style Au-Cu mineralization and for Tick Hill style Au only mineralization. Broughton Minerals Pty Ltd / CNW Pty Ltd completed data compilation with the creation of a Gocad "Common Earth Model" (CEM) which included all the regional geophysical datasets, geochemistry and mapped geology over the Broughton Creek project tenements. In a joint-venture arrangement, Broughton Orion Pty Ltd, a wholly-owned subsidiary of Orion Metals Ltd became the operator for EPM 19011. Broughton Orion Pty Ltd commissioned a remote sensing desktop study by GEOIMAGE Pty Ltd that delineated a possible area of sericite and/or potassic alteration.

6. EXPLORATION RATIONALE

The area covered by EPM 19011 has been the subject of gold, base metals and uranium exploration by various companies since the late 1950s, including Rio Tinto Australia Exploration Pty Ltd, Mount Isa Mines Limited, CRAE, Placer Exploration Ltd and MIMEX. Numerous copper and gold anomalism occurrences have been discovered at surface. However, no significant drilling has been completed within the tenement area to ascertain the depth extent of this mineralization and the structural controls of its emplacement.

Broughton Minerals Pty Ltd applied for EPM 19011 based upon:

- i) An extensive study of Queensland government open file reports.
- ii) Analysis of the geophysical datasets over the area – namely magnetics, gravity and radiometrics.
- iii) Compilation of the available geology, geophysics and geochemistry.
- iv) Results of its joint venture exploration campaign with CNW Pty Ltd over a number of tenements contiguous with the EPM 19011 area which had returned significantly anomalous copper, gold and uranium geochemistry.

Broughton Minerals Pty Ltd concluded the area covered by EPM19011 has the potential to host base, precious metals, REE and uranium mineralization in a number of different concepts/models.

7. CONCLUSIONS & RECOMMENDATIONS

A further renewal was lodged in March 2018 but this was rejected. Consequently the tenement holding expired on 9th November 2018.

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