



**UNITY**  
Mining Limited

Unity Mining Limited  
Henty Gold Mine  
ABN 61 005 674 073  
Postal Address: PO Box 231 Queenstown TAS 7467  
Site Office: Howards Road Queenstown TAS 7467  
Phone: (03) 6473 2444  
Facsimile: (03) 6473 1857

## **EL 1/2010 Final Relinquishment Report**

**'Ten Mile Creek'**

**EL 1/2010**

Vol. 1 of 1

<b>HELD BY:</b>	<b>UNITY MINING LTD.</b>
<b>MANAGER &amp; OPERATOR:</b>	<b>UNITY MINING LTD</b>
<b>AUTHOR:</b>	<b>P. Stonestreet</b>
<b>DATE:</b>	<b>APRIL 2014</b>
<b>MAP SHEETS:</b>	<b>1:25k Block (3838) Charter (3839) Cradle (4038) Pencil Pine (4039) 1:100k Sophia</b>
<b>GEOGRAPHIC COORDS (GDA94):</b>	<b>Min East: 394,500 mE Max East: 404,000 mE Min North: 5,386,000 mN Max North: 5,390,000 mN</b>
<b>COMMODITY(s):</b>	<b>Au, base-metals</b>

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## **1.0 SUMMARY**

EL 1/2010 (Ten Mile Creek) was purchased by Unity Mining Ltd. (UML), formally Bendigo Mining Ltd in 2010.

No fieldwork has been conducted on this lease during the past year. A proposal submitted to MRT and accepted for further soil sampling was not undertaken.

Expenditure on the tenement for the 12 months since the tenement anniversary has been \$1000.

Unity Mining has decided to relinquish the tenement in its entirety.

### **1.1 List of Figures**

Figure 1: Location map showing EL 1/2010

Figure 2: Geology of EL 1/2010

### **1.2 List of Tables**

Table 1: Cambrian Deposits in the Mt Read Volcanics

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Appendix 1: Geological key for Figure 2

Appendix 2: Summary of Historical Exploration

## **2.0 INTRODUCTION**

No work was done by Unity Mining on the tenement over the past year, and the decision was taken to relinquish the tenement in its entirety.

### **2.1 Tenure**

EL 1/2010 was acquired in 2010 by Bendigo Mining Ltd, now Unity Mining Ltd after a successful tender. The licence area consists of Reynolds Falls Nature Recreation Area and the Granite Tor Conservation Area; both land uses coming under the mines act.

### **2.2 Location and Access**

Ten Mile Creek (EL 1/2010) is located adjacent to the Cradle Mountain, Lake St Clair World Heritage area, in the Northwest of Tasmania (Figure 1). This is a remote area with steep topography. Access and support for exploration activities in the area is by helicopter with an emergency track access via the Cradle Mountain Link Road via the Reynolds Falls walk.

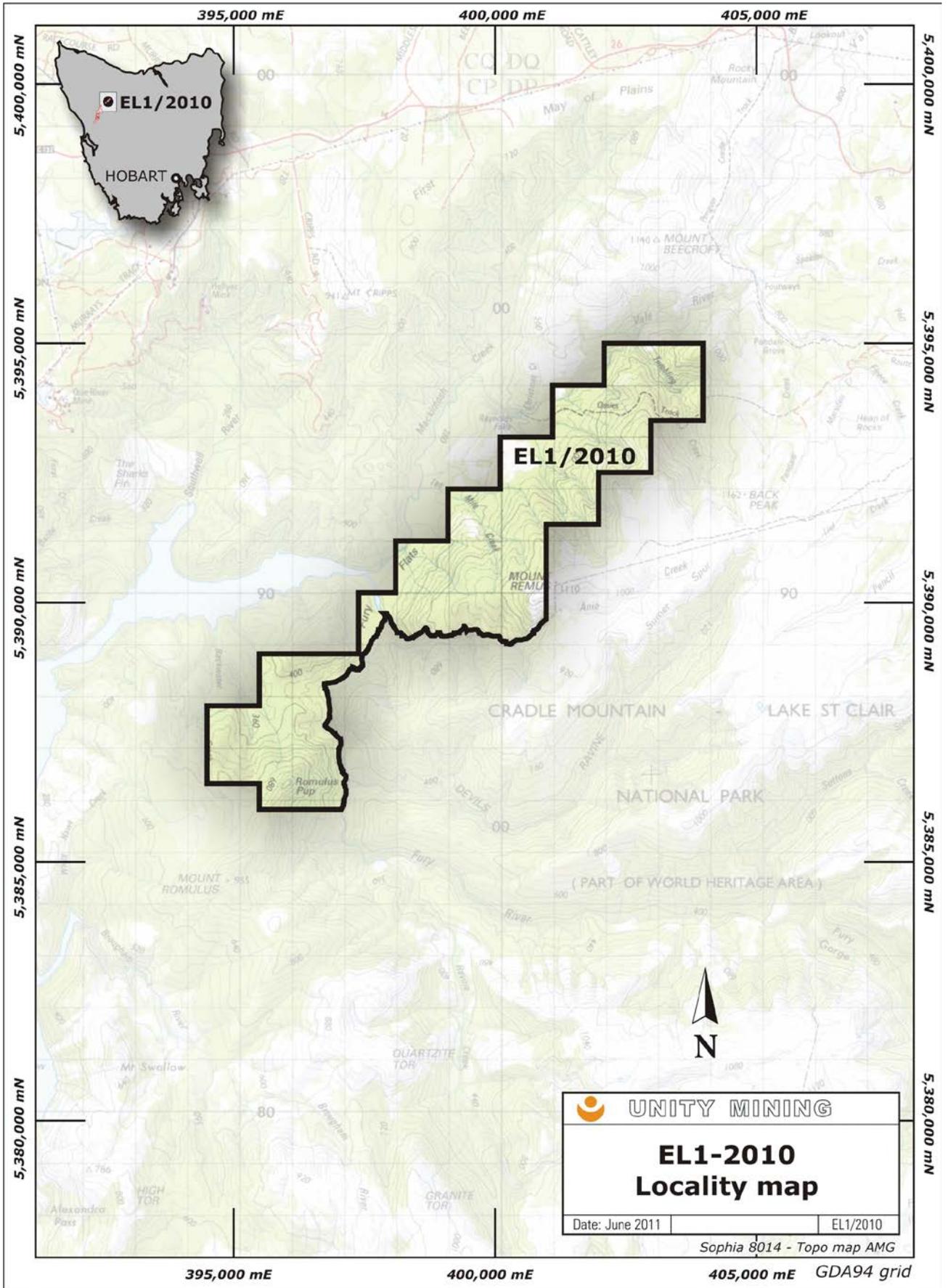


Figure 1: Location of EL 1/2010 (map in GDA 94 projection).

### 2.3 Regional Geology

The following three sub sections are taken from the annual report for this tenement for 2011/12 (Callaghan, 2012):

The regional geology is dominated by a NE trending belt of Late Cambrian, felsic volcanic and sediments of the Mt Read Volcanics (MRV) (Figure 2). The MRV unconformably overlies Precambrian quartzite and phyllite basement of the Tyennan Group to the east. Unconformably overlying the MRV to the west are the siliciclastic conglomerates and sandstones of the Owen Group and the carbonates of the Gordon Group. The valley floors, formed over the Gordon Limestone are covered by thin Quaternary Glacial deposits.

The MRV within EL1/2010 is dominantly represented by the quartz-feldspar-biotite Bonds Range Porphyry. Regionally the Mt Read Volcanics host a number of significant base-metal sulphide and copper-gold deposits (Table 1). Most of the mineralisation within the MRV is considered to be hosted at the base of, or just below the Tyndall Group within the Central Volcanic Sequence and its correlates. The Hellyer and Que River deposits are located approximately 5km NW of the EL.

The Devonian House Top Granite outcrops 5km southwest of the EL. Regional gravity interpretation suggests much of the ERA is underlain by Devonian Granite (Leaman and Richardson, 2003).

The Devonian Granites are responsible for numerous and varied spatially associated mineral occurrences including tin-tungsten, base-metal sulphides, gold, magnetite and phosphate-fluorite. Some of the more significant deposits are listed in Table 2. Small scale granite related gold, tungsten and base-metal mineralisation is prevalent north of the EL in the Moina district.

The EL can be considered as prospective for Cambrian intrusion related mineralisation. The style of alteration and mineralisation identified by previous workers is analogous to the broad range of deposits categorised as iron-oxide copper-gold deposits. There is the possibility for Devonian granite related mineralisation, particularly in the southwest.

<b>TABLE 1. CAMBRIAN DEPOSITS IN THE MT READ VOLCANICS</b>	
Hellyer	16.5 Mt @ 13.9%Zn, 7.2% Pb, 0.38% Cu, 169g/t Ag, 2.55 g/t Au
Que River	3.3 Mt @ 13.3% Zn, 7.4% Pb, 0.7% Cu, 195g/t Ag, 3/3g/t Au
Mt Charter	6.1 Mt @ 0.5% Zn, 25.5g/t Ag, 1.22g/t Au, 9.7% Ba
Rosebery	34.03 Mt @ 17.3% Zn, 4.1% Pb, 0.57% Cu, 143g/t Ag, 2.2g/t Au
Hercules	3.33 Mt @ 17.3% Zn, 5.5% Pb, 0.45 Cu, 171g/t Ag, 2.1g/t Au
Henty-Mt Julia	2.83 Mt @ 12.5g/t Au
Mt Lyell	311 Mt @ 0.97% Cu, 0.31g/t Au

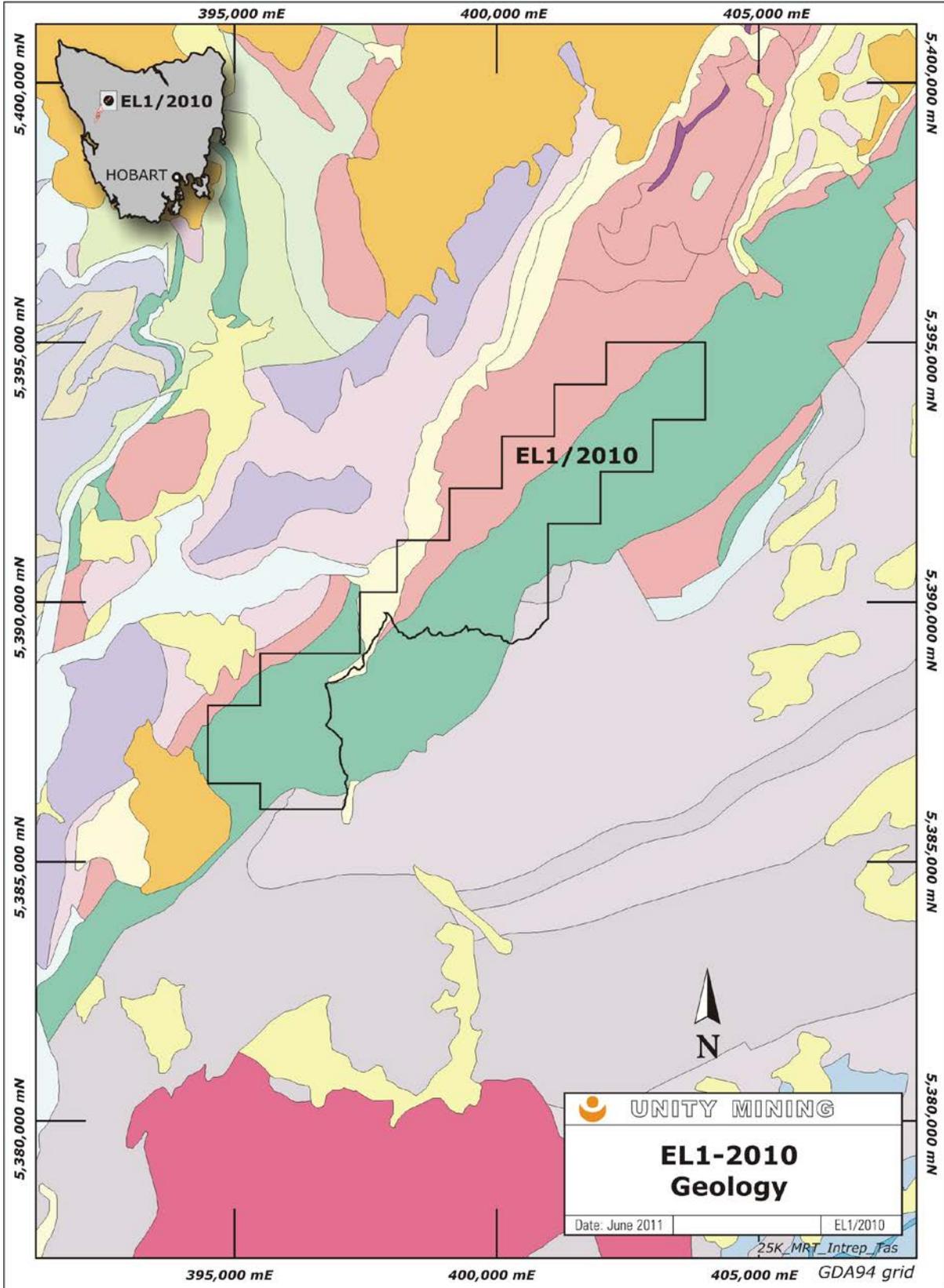


Figure 2: Geology Map of EL 1/2010 from the MRT 1:25,000 series; Geological key for map is in Appendix 1 (map in GDA 94 projection).

Renison Bell	24.54Mt @ 1.41% Sn
Mt Bischoff	10.54 Mt @ 1.1% Sn
Cleveland	12.4Mt 0.615 Sn, 0.25% Cu
Foley Zone	3.8Mt @ 0.28% WO <sub>3</sub> , 0.02% MoS <sub>2</sub> , 0.05% Sn
Aberfoyle	2.1Mt @ 0.91% Sn, 0.28% WO <sub>3</sub>
Anchor	2.39Mt @ 0.28% Sn
Storeys Creek	1.1Mt @ 1.09% WO <sub>3</sub> , 0.18% Sn
King Island Field	23.8Mt @ 0.66% WO <sub>3</sub>
Kara	5.2Mt @ >30% Fe, minor WO <sub>3</sub>
Avebury	18.2Mt @ 0.95% Ni
Moina	18Mt @ 26% CaF <sub>2</sub> , 0.1% Sn, 0.1% WO <sub>3</sub>
Hugo (Moina)	0.25Mt @ 5.5% Zn, 1g/t Au, 0.1% Bi
Stormont (Moina)	0.14Mt @ 3.44g/t Au, 0.21% Bi
Mt Farrell	0.9Mt @ 12.5% Pb, 2.5% Zn, 408g/t Ag
Magnet	0.63Mt @ 7.3% Zn, 7.3% Pb, 427g/t Ag

## **2.4 Local Geology**

The local Geology of the EL is dominated by rocks of the Cambro-Ordovician Owen Group, Ordovician Gordon Group, Cambrian MRV and the Precambrian Tyennan Group. Structurally the EL covers the eastern limb of a broad northeast trending syncline with the Gordon Group Limestone in the syncline axis.

### **2.4.1 Owen Group**

The Owen Group on the EL consists of fine grained siliciclastic sandstone and quartzose pebble conglomerates. The basal unit has been described as a pink to grey medium grained quartzite with a micaceous component. Overlying these is a pink siliciclastic conglomerate with interbedded sandstone. The upper unit is grey siliciclastic sandstone. All units strike northeast and young to the northwest (Henman, 1989).

### **2.4.2 Bonds Range Porphyry**

The entire Cambrian sequence is dominated by the massive, pink to brown quartz- biotite-feldspar-hornblende Bonds Range porphyry of broadly felsic composition. The Bonds Range porphyry is a large intrusive body extending in excess of 50km in strike length and attaining a maximum width of 3.5km in the Tumbling Creek area (Pemberton et al, 1991). The porphyry is one of a series of high level domes and granitic intrusives on the eastern margin of the Mt Read Volcanics. Contact relationships have been identified as fracture controlled and intrusive, with late stage quartz-feldspar porphyritic dykes identified in the underlying Tyennan Group and the overlying Owen Group siliciclastics, (Pemberton et al, 1991). The western contact with the Cambro-Ordovician sediments is considered to be largely unconformable with two relatively minor reverse faults with 100-200m of movement (Henman, 1989).

The porphyry is dominantly coarsely quartz-k feldspar-biotite-hornblende porphyry with K-feldspar phenocrysts to 10mm in diameter in a fine grained micro-granitic groundmass in many outcrops. Variations in phenocrysts size and abundance are common with some outcrops tending to more mafic compositions with more abundant biotite and hornblende. Much of the porphyry is strongly K-feldspar altered with biotite and hornblende commonly altered to chlorite. The porphyry is moderately strained with a mild foliation and elongation of porphyritic phenocrysts.

The Bonds Range porphyry appears to be a heterogeneous, multiphase intrusion with at least three different porphyries identified in the field:

- 1 Quartz-plagioclase-biotite-hornblende-k-feldspar porphyry with large phenocrysts of quartz and k-feldspar to 10mm.
- 2 Quartz-hornblende-biotite-feldspar porphyry with phenocrysts 4-5mm and abundant biotite-hornblende (15-25%).
- 3 Fine grained quartz-plagioclase porphyry in a vitric matrix

Several intrusive facies have been identified suggesting a differentiation trend to more felsic facies (Pemberton et al 1991). This is supported by whole rock and trace element geochemistry (Section 6) suggesting the main porphyry body was emplaced from a single magmatic source undergoing fractionation either insitu or from a deeper magmatic chamber.

### **2.4.3 Tyennan Group**

The Tyennan Group outcrops along the eastern boundary of the EL. It is dominated by interlayered pelite and quartzite. The rocks have been strongly silicified, foliated and altered to greenschist facies.

## **2.5 Ten Mile Creek Mineralisation and Alteration**

K-feldspar alteration is prominent in most of the porphyry with the exception of the fine-grained rhyolite.

An extensive alteration zone of hematite-chlorite has been identified at the Ten Mile Creek Prospect. The alteration zone consists of irregularly spaced stockwork veins of quartz and specular hematite to 10mm in width. The alteration is hosted in all facies of the Bonds Range Porphyry but particularly the biotite-hornblende rich porphyry facies. Strong pervasive chloritisation and hematisation forms an associated halo around the stockwork, extending to the northeast but remains open to the southwest (Henman, 1989). The mineralisation and alteration has been mapped over a strike length of 2km striking NE broadly concordant with stratigraphy. The stockwork becomes weaker north of local grid 10400N. Similar although stronger hematite-silica alteration and specular hematite veining was located in samples along the southern traverse around 7600N indicating that the zone extends much further southwest.

Soil sampling over the stockwork veining is Fe, Au and Cu anomalous with peaks over the stock work breccia zone (see Section 4). Rockchip sampling has returned numerous anomalous Au values mainly in the 0.01-0.1g/t range although peak values to 8.08g/t Au were returned (Funnell and Von Strokirch, 1987). CRAE drilled 4 shallow holes with a man portable rig in 1992 (Newnham, 1992). Two holes stopped prematurely due to hard ground. Gold values were similar to those seen in rockchip samples with a peak value of 0.52ppm Au. Base-metal and gold values are reported to have been increasing down hole and the prospect was considered to have been poorly tested mainly due to the limitations of the rig.

The two highest grade rockchip samples (8.08 and 1.04g/t Au) were collected by CRA contract geologist Roger Poltock (Funnell and Von Strokirch, 1987). These samples were taken immediately east of the mapped hematite stockwork and were reported to have been from a medium grained porphyry with sericite altered feldspars and minor pyrite. Follow up sampling by Aberfoyle on a nearby grid line did not return significant gold (see Section 5). Extensive follow up rockchip sampling was completed in 2012 but again no significant gold above 0.1g/t Au was identified.

Mineralography completed by Aberfoyle identified minor chalcopyrite and a single grain of gold associated with the hematite alteration. Martitised magnetite was also observed although it is unclear if the magnetite was magmatic or hydrothermal. The mineralisation style best fits into the spectrum of IOCG deposit.

## **2.6 Previous Exploration**

The exploration history for Ten Mile Creek/Bonds Range region prior to Unity Mining Ltd acquiring the tenement is summarised in Appendix 2.

### **2.6.1 Unity Mining Ltd 2011-2013**

Unity Mining commenced exploration with a LIDAR survey and historic data compilation and review (Callaghan, 2011). During the 2012 field season the northern CRA base camp was re-established and the baseline and gridlines 9200-10,000 recut. Soil sampling was conducted on lines 9200-9600; 35 samples were collected however no anomalies were generated. Rock chip sampling was undertaken in proximity to anomalous CRA samples and on a traverse 2km to the south of the base camp, in the Anio Creek drainage. Of the forty five rockchip samples collected 10 samples returned a result above detection for Au (0.01-0.1g/t); these low level results are associated with the hematite stockwork alteration zone and suggest the mineralisation at Ten Mile Creek is of low tenor (Callaghan, 2012).

A submission was made to MRT for a field campaign exploring the southernmost portion of the Ten Mile Creek tenement. This proposal for additional soil sampling and geological mapping and sampling in the region of Romulus Pup was accepted in early December of 2012. With a change in company focus, however, the program was never undertaken.

**3.0 WORK COMPLETED DURING THE REPORTING PERIOD**

No work at Ten Mile Creek was undertaken in the last year of tenure.

**4.0 CONCLUSION**

After taking into consideration the low tenor soil sampling results of the 2012 program, the difficult access and location of the tenement, and changing priorities of the company with the Henty Gold Mine undergoing operational difficulties, Unity Mining took the decision to relinquish the tenement.

**5.0 EXPENDITURE 2013/14 REPORTING PERIOD**

Total Expenditure for the 2013/14 Reporting Period was \$1000.

<b>Expenditure EL 1/2010 May 2013- April 2014</b>	<b>\$</b>
Personnel	1000
Consultants	
Admin	
<b>TOTAL</b>	<b>1000</b>

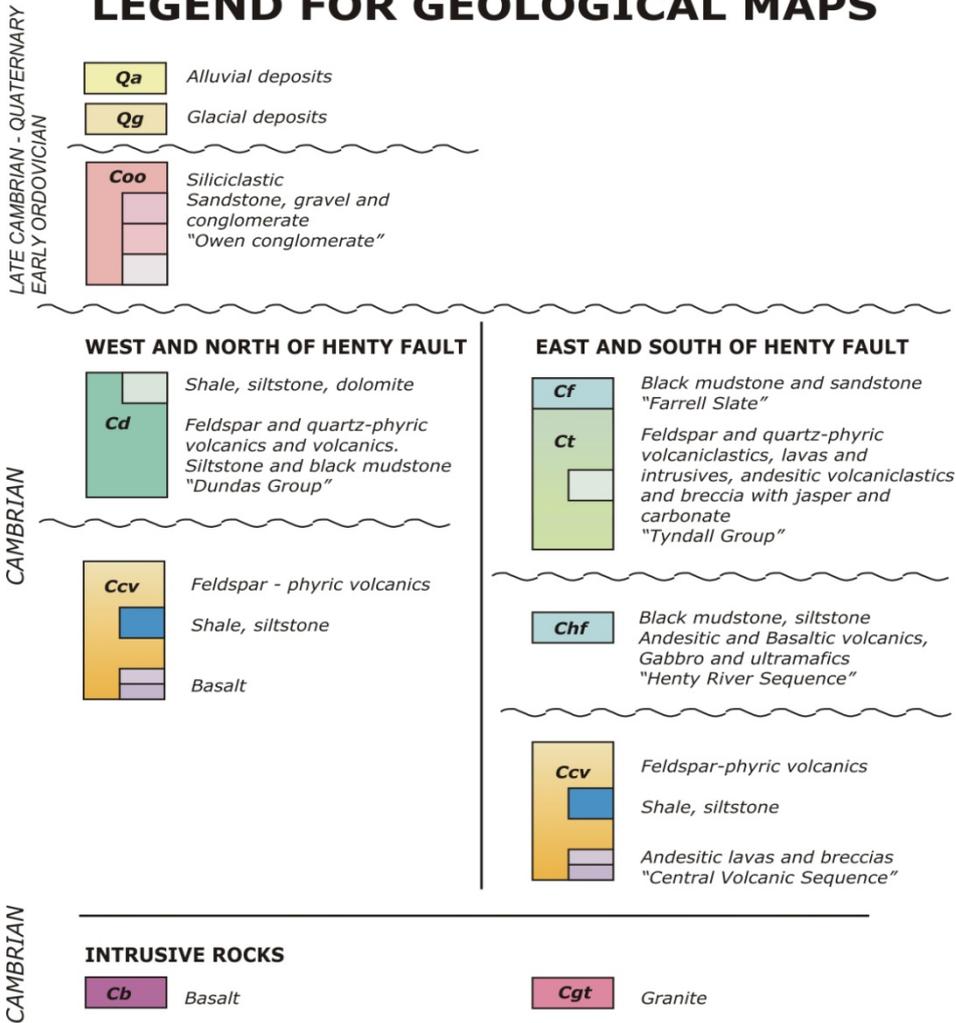
**Table 3:** EL 1/2010 'Ten Mile Creek' Exploration Expenditure 2013-2014

## **6.0 REFERENCES**

- Callaghan, T. 2011**                    **Geological review and Exploration Proposal, EL 1/2010 Bonds Range, NW Tasmania. Unpublished consultant report for UML.**
- Callaghan, T. 2012**                    **Exploration Report EL 1/2010 Bonds Range, NW Tasmania. Annual Report to MRT, April 2012**

7.0 APPENDIX 1

**LEGEND FOR GEOLOGICAL MAPS**



## **8.0 APPENDIX 2**

Summary of Historical exploration

### **EXPLORATION HISTORY**

#### **Mid 1960's Pickands Mather**

The first modern exploration of the district was completed by Pickands Mather in the mid 1960's. Stream sediment sampling was completed as part of a regional program. Several base-metal anomalies were identified but not followed up. No Au determinations were involved with the program.

#### **1974 CRA Exploration**

CRA completed Reconnaissance mapping and soil sampling over "Cambrian Tuffs and sericitic schists" in the south (Porter 1976). No significant base-metal mineralisation was identified. Again no gold determinations were involved with the program.

#### **1978-1980 Alcoa**

Alcoa commenced exploration on "EL2/1978 Granite Tor" with a remote sensing style exploration program involving photo-geological interpretation, aeromagnetic survey and some stream sediment sampling.

Follow-up exploration focused on Sn/W mineralisation around the Granite Tor batholith to the south of the EL boundary.

#### **1981-1984 Shell**

Shell completed a helicopter supported digital electromagnetic survey (DIGHEM) and several stream sediment surveys over the district. Ground follow up was mainly restricted to anomalies within the MRV although some follow up of anomalies in the Ordovician and Precambrian was completed at Ray's prospect and the Backwater Creek Prospect. Most DIGHEM anomalies were attributed to carbonaceous phyllites in the Precambrian.

Their work identified the Ten Mile Creek, Mt Swallow and Romulus East Au prospects and the Fury River Pb-Ba-As anomaly. A gossan in a silicified breccia at Romulus East returned a gold assay of 2.3 g/t.

#### **1985-1992 CRA/Aberfoyle**

CRA commenced exploration within the district in 1985 focusing on previously identified prospects from the Shell Exploration program. Targets selected for initial follow up included the Fury River Pb-Ba-As, Romulus East Au, Rays Prospect Pb, Sophia As-Ba, Mt Swallow Au and Ten Mile Creek Au-Hematite stockwork.

Initial work included reconnaissance mapping and sampling of the Ten Mile Creek and Romulus East Prospects. Two anomalous rockchip samples (1.04g/t and 8.08g/t Au) were obtained from the Ten Mile Creek prospect and the hematite

stockwork mineralisation identified (Poltock, 1987 in Funnell and Von Strokirch, 1987).

Aberfoyle and CRA formed a joint venture in 1988 and subsequent gridding, soil sampling and mapping identified the approximately 2km long by 50-200m wide northeast trending hematite-chlorite alteration zone within the Bonds Range porphyry (Henman, 1989).

Aberfoyle withdrew from the JV in 1991 and CRA drilled four short man portable drill holes (Newnham, 1992). Three of the holes tested the hematite stockwork with two stopped short due to hard ground conditions for the equipment being used. Low level gold was detected (0.05 – 0.5g/t Au). The fourth hole tested a copper anomalous zone in chloritic rocks further to the east. Minor chalcopyrite in quartz veining was identified in drill core with corresponding elevated copper levels.

Follow up of Romulus East downgraded the prospect after a further 24 rock chips returned a best result of 0.64 g/t Au from a high graded sample.

### **1991 Mineral Resources Tasmania**

Mineral Resources Tasmania completed a regional mapping program as part of the Mt Read Volcanics Project in 1991. Their work is presented as MRVP Map 7 and the accompanying MRVP Geological Report 4 (Pemberton et al, 1991).