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# Diversified Minerals Pty. Ltd. EL 8-2009 Red Hills Annual Report for Period 12 November 2017 to 11 November 2018 Vol. 1 of 1 November 2018

<b>Held by:</b>	Unity Mining Limited
<b>Manager &amp; Operator:</b>	Diversified Minerals Pty Ltd
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<b>Date:</b>	November 2018
<b>Map Sheets:</b>	Tasmania 1:25,000 Series Selina (3836) Tasmania 1:100,000 Series Sophia (8014)
<b>Geographic Co-ord (GDA94):</b>	Min East: 380,900m Max East: 387,100m Min North: 5,362,900m Max North: 5,376,100m
<b>Commodity(s):</b>	Base metals, gold, silver

## ABSTRACT

Two drill holes, BCD03, and BCD04 were completed at Bruce Creek in the Sterling Valley, targeting separate multiple anomaly signatures. BDC03 and BCD04 both intersected pyrite-pyrrhotite-arsenopyrite-chalcopyrite mineralization within Farrell Sequence lithologies to the east, and altered volcanic to the west of the Henty Fault. Assay results are currently pending.

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## List of files

EL8\_2009\_2018\_01\_REPORT.pdf

EL8\_2009\_2018\_02\_APPENDIX1\_BCD03 Graphic log.pdf

EL8\_2009\_2018\_03\_APPENDIX2\_BCD04 Graphic log.pdf

EL8\_2009\_2018\_04\_COLLAR.xls

EL8\_2009\_2018\_05\_GEOLOGY.xls

EL8\_2009\_2018\_06\_SURVEY.xls

EL8\_2009\_2018\_07\_FILELISTING.xls

## **INTRODUCTION**

This report is an account of work carried out on Tenement EL 08/2009 (Red Hills) during the tenement year November 2017 – November 2018.

### **Location & Access**

EL 8/2009 Red Hills is centred approximately 25 km north of Queenstown in western Tasmania. The western boundary of the EL abuts UML's Henty Gold Mine Lease 7M-1991 (Figure 1).

Access to the EL 8/2009 area from the south is via the Anthony Road (B28), the unsealed Howards Road to the Henty mine site, then by mine service road and formed 4WD tracks. The main 4WD track from the Henty mine crosses from the west over Moxon Saddle into the central section of the EL. The northern part of the EL is accessed by 4WD tracks from the Murchison Highway (A10), between Tullah and Rosebery and from the northern section of the Anthony Rd.

### **Tenure**

The current tenement is the product of the consolidation of EL8/2009 (Red Hills) and EL11/2010 (Tullah-Moxon). The latter tenement was itself the result of consolidation of EL34/2010 (Tullah) with EL11/2010 (Moxon Saddle).

These tenements were initially held by Bendigo Mining Ltd. In 2011 the name of the company was changed to Unity Mining Ltd but ownership remained the same. In 2016 Unity Mining Ltd was purchased by Diversified Minerals Pty Ltd, a private (non-listed) company based in Orange, NSW.

The entire EL area is located within the Mount Murchison and Lukes Knob Regional Reserves.

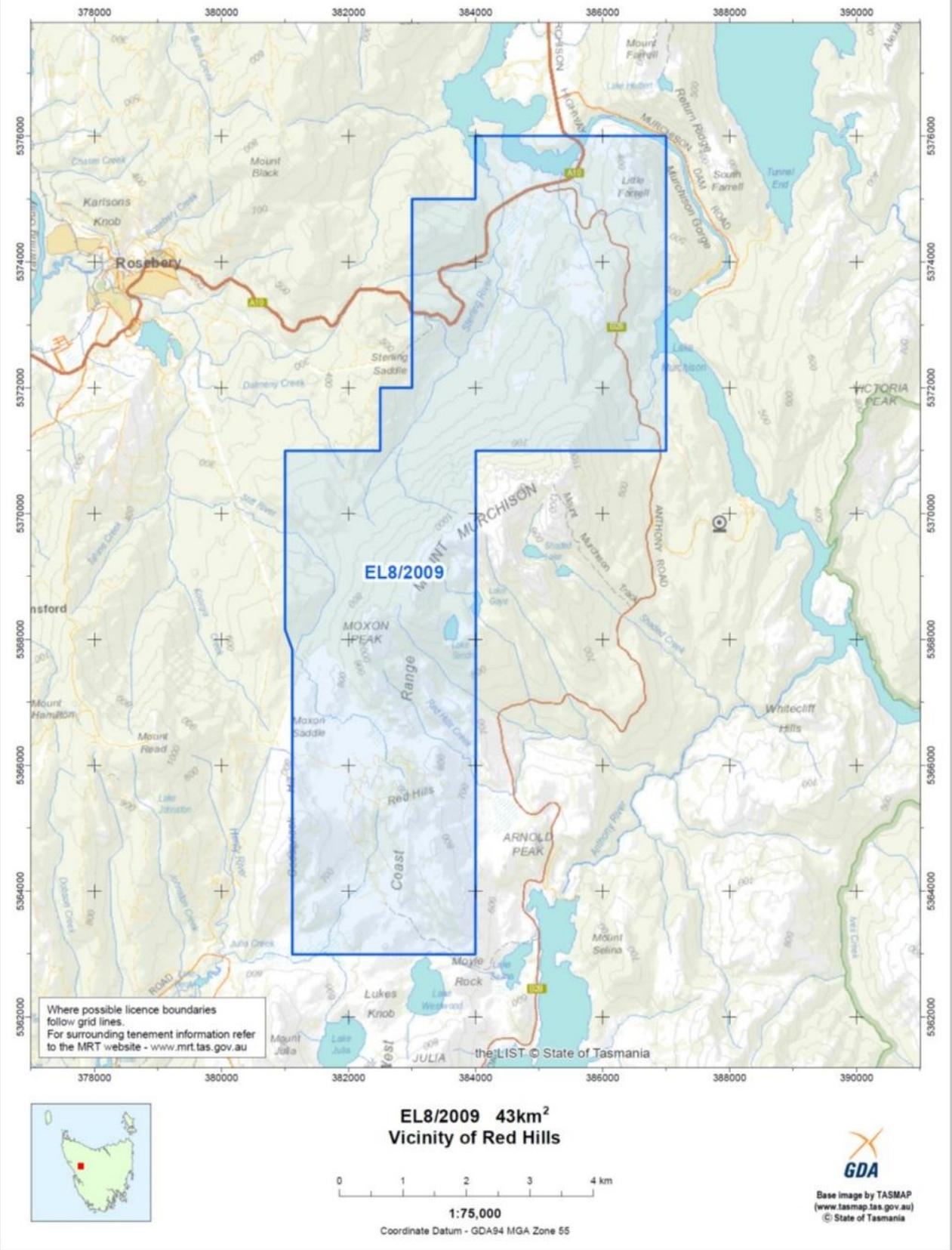


Figure 1: EL8/2009 Tullah location map

## **GEOLOGY**

### **Regional geology**

A major portion of the EL 8/2009 Red Hills area is underlain by the Cambrian Mount Read Volcanics (MRV), apart from the eastern section of the tenement which covers a thin strip of Late Cambrian - Ordovician Owen Group.

The MRV comprise a package of massive, feldspar-phyric lavas and volcanoclastics, which passes upwards into a mixed sequence of basaltic to rhyolitic lavas, intrusives and volcanoclastics, with intercalated shale and siltstone. In general, there is a transition from feldspar-phyric to strongly quartz-phyric lithologies from the bottom to the top of the sequence. On a regional scale the MRV is divided by the north-northeast – trending Henty Fault. Red Hills EL 8/2009 is located to the east of this major structural feature (Ref. Figure 2).

The Owen Conglomerate consists of siliciclastic sediments, including large volumes of very coarse siliciclastic conglomerate, which unconformably overlies the MRV. Clasts within the conglomerate are dominantly metaquartzite, derived from the Proterozoic Tyennan basement further to the east, with little or no material from the MRV.

Rocks in the region have been subjected to at least two major polyphase deformations, one in the Cambrian and the other in the Devonian (the latter probably equivalent to the Tabberabberan Orogeny). Evidence of the Devonian deformation is apparent in a regional NNE- striking cleavage and development of west-over-east thrusting on pre-existing, NNE structures and synchronous NW striking structures.

### **Local geology**

The oldest rocks in the EL 8/2009 Red Hills area are rhyodacitic lavas of the MRV, with intercalated black siltstone and shale (correlated with the Central Volcanic Sequence). These volcanic and volcanoclastic sequences are exposed on the eastern limb of an interpreted south - plunging syncline. Massive, quartz-phyric lavas (Mt Julia Rhyolite) and quartz-phyric volcanoclastic sediments, correlated with the Tyndall Group, occur stratigraphically above the CVC rocks in the keel of the interpreted synclinal structure. These younger rocks are also exposed along the overturned western limb of the syncline, truncated by the Henty Fault in proximity to the Henty mine.

### **Alteration and mineralisation**

Three principal styles of mineralisation have been identified in the Red Hills area:

- Stratabound base metal sulphides+gold+silver VMS mineralisation hosted by CVC mass flow units (Lower Mineralised Horizon). Modern exploration has mainly focused on testing for this style of mineralisation following the discovery intersection in hole RH5. Based on isotopic data, metal ratios and analysis of the alteration assemblages this mineralisation has strong similarities to the Rosebery VHMS system (Purvis, 2010).
- Vein and disseminated copper+gold+magnetite mineralisation associated with chlorite+feldspar alteration of the Red Hills lava. Earliest prospecting and small scale mining activity was concentrated on this type of mineralisation, as at the Northern Adits area. Thin zones of base metal sulphides+gold mineralisation hosted within black shale

and siltstone units in the CVC comprise the Upper Mineralised Horizon (UMH). Recent drilling has also intersected gold mineralisation associated with pyrite veining in CVC dacitic volcanics, located between the LMH and UMH.

- Structurally-controlled gold mineralisation along the Henty Fault at Sterling Valley and Lakeside. This mineralisation has a very strong association with arsenopyrite, with arsenic concentrations above 1% in some instances. It also exhibits a strong correlation with pyrrhotite. Fluids related to an underlying Devonian granite appears to have more influence on the style of mineralisation than at Henty Gold Mine.

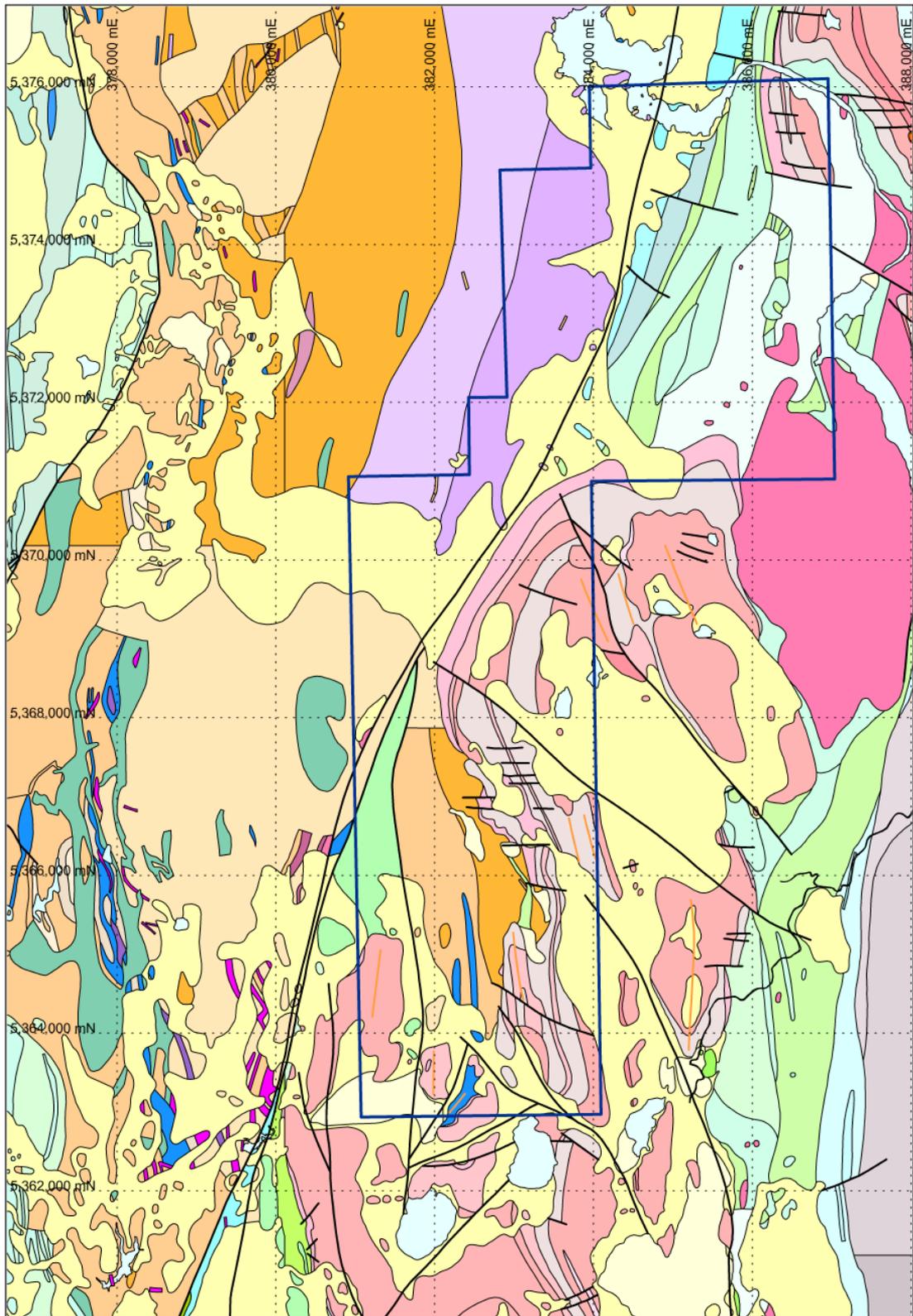


Figure 2. Geological map showing the location of EL8/2009. MGA94, Zone 55.

# LEGEND FOR GEOLOGICAL MAPS

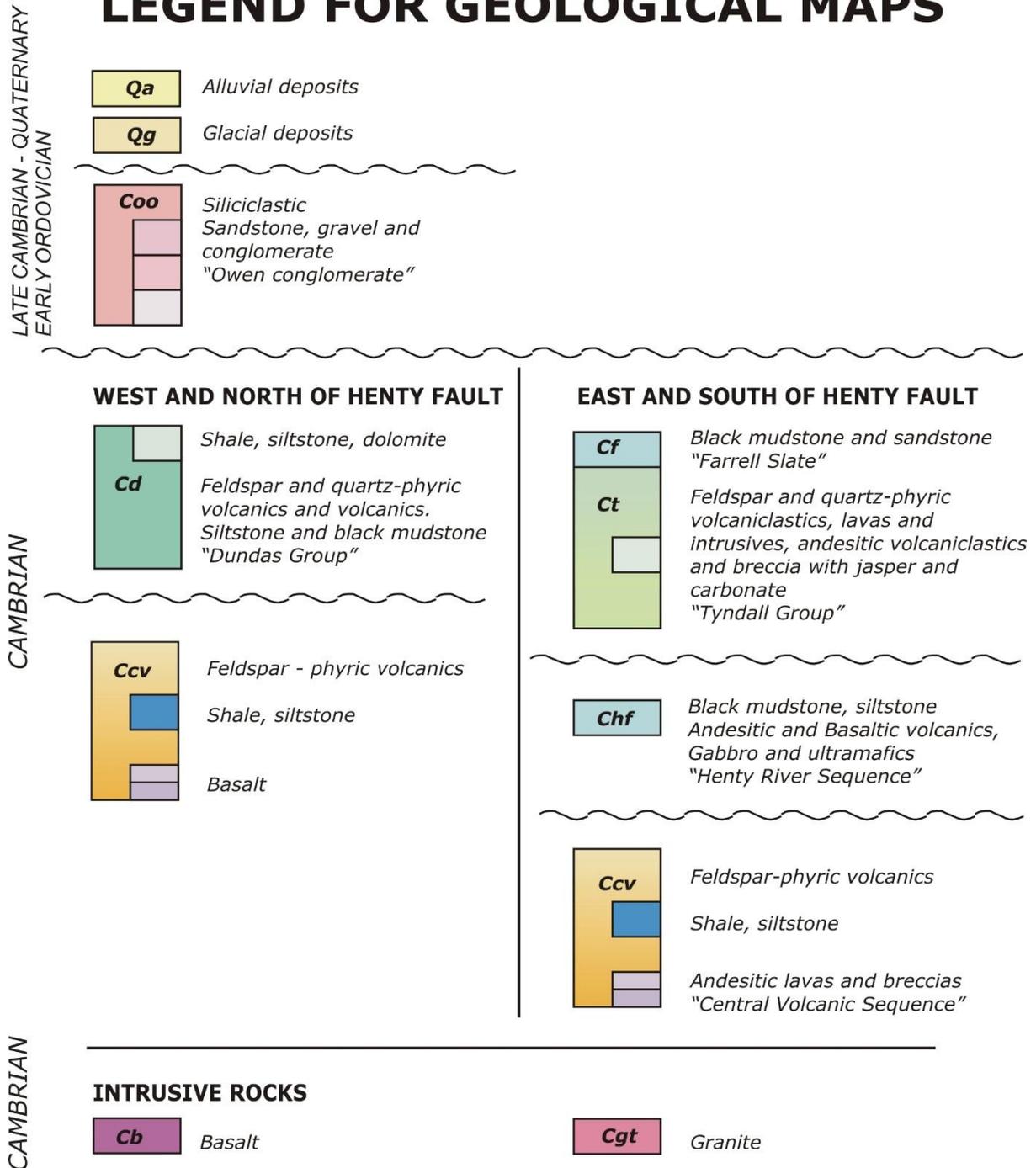


Figure 3. Legend for geological Map.

## PREVIOUS EXPLORATION

Previous exploration on the Red Hills tenement is summarised in Lorrigan (2016).

A detailed account of exploration of the pre-existing Tullah tenement prior to 2011 was given by Purvis, in Lorrigan (2012). For Moxon Saddle previous exploration is summarised in Stonestreet (2013).

Exploration completed by Unity Mining is summarised in the table below.

<b>Year</b>	<b>Areas</b>	<b>Work conducted</b>
2010-2011	Red Hills	Drill holes RHD24-29 testing the area of known massive sulphide mineralisation for extensions and for a Au-rich zone.
2011-2012	All tenement	Airborne LIDAR survey and structural interpretation by consulting geologist.
	Lakeside	Drillholes LSUD01-LSUD05, testing deep extensions of the Lakeside mineralisation.
	Red Hills	Down-hole EM on RHD24-25 and 27-29
2012-2013	Moxon Saddle	Drillhole MX05 to test interpreted fault wedge extension zone.
	Lakeside, Upper Sterling, Murchison Mine,	Drillholes LSUD06, LSUD06A, MUD01, MUD02, MXUD01-03. Lakeside Mineragraphy study. Reprocessing of IP data.
	Red Hills	Rock chip sampling, northern adits and RHD 30 drilled to test for an eastern off-set of the Red Hills Lower Mineralised Horizon.
2013-2014	Upper Sterling/South Stitt Valley	Drillholes MXUD02 and MXUD03, testing Henty position on west side of Henty Fault, petrography on drillholes, Farrell Mining Desktop Study, drill proposal for 2 holes at Bruce Creek in the Sterling Valley.
	Red Hills	Additional rock chip samples at Northern Adits.
2014-2015	Red Hills	Access track restored to direct drainage away from the track.
2015-2016	Tullah-Moxon	Access lines cut into the Tullah Bluffs area and grid lines extended at Moxon Saddle.
	Red Hills	Detailed review of past work on Northern Adits.
2016-2017	Tullah-Moxon	Soils sampling in the Tullah-Moxon area No anomalous geochemistry was detected

## WORK COMPLETED (NOVEMBER 2017 TO NOVEMBER 2018)

Two diamond holes BCD03 and BCD04, were drilled in the Sterling Valley at Bruce Creek, targeting multiple co-incident anomalies that had not been fully tested previously. The two holes were drilled scissor style on a grid east-west basis, from the Sterling Valley access track.

Targeting for the Bruce creek area was produced from a combination of previous work undertaken by Pasminco Exploration (MMI soils analysis and the drilling of DDH BCD02), and Unity Mining (anomalous rock chips), with a re-interpretation of Helicopter EM data from the 2002 Western Tasmanian Regional Minerals Program survey. Geophysical interpretations had been previously done for Unity Mining by Phil Muir of Southern Minerals Exploration Geophysics.

The Bruce Creek target had been previously proposed for a work program by Unity Mining in 2014 but the program was not executed due to the impact of the exploration downturn (Global Financial Crisis) at that time.

DDH Collar Location and Orientation (GDA94)						
ID	Easting*	Northing*	RL (m AHD)	Azimuth (deg.)*	Dip (deg.)	Depth (m)
BCD03	384399	5373391	190	270	-45	258.1
BCD04	384385	5373400	190	86	-55	188.5

\*Positions 4 metre accuracy with GPS pickup. Azimuth in GDA94 grid.

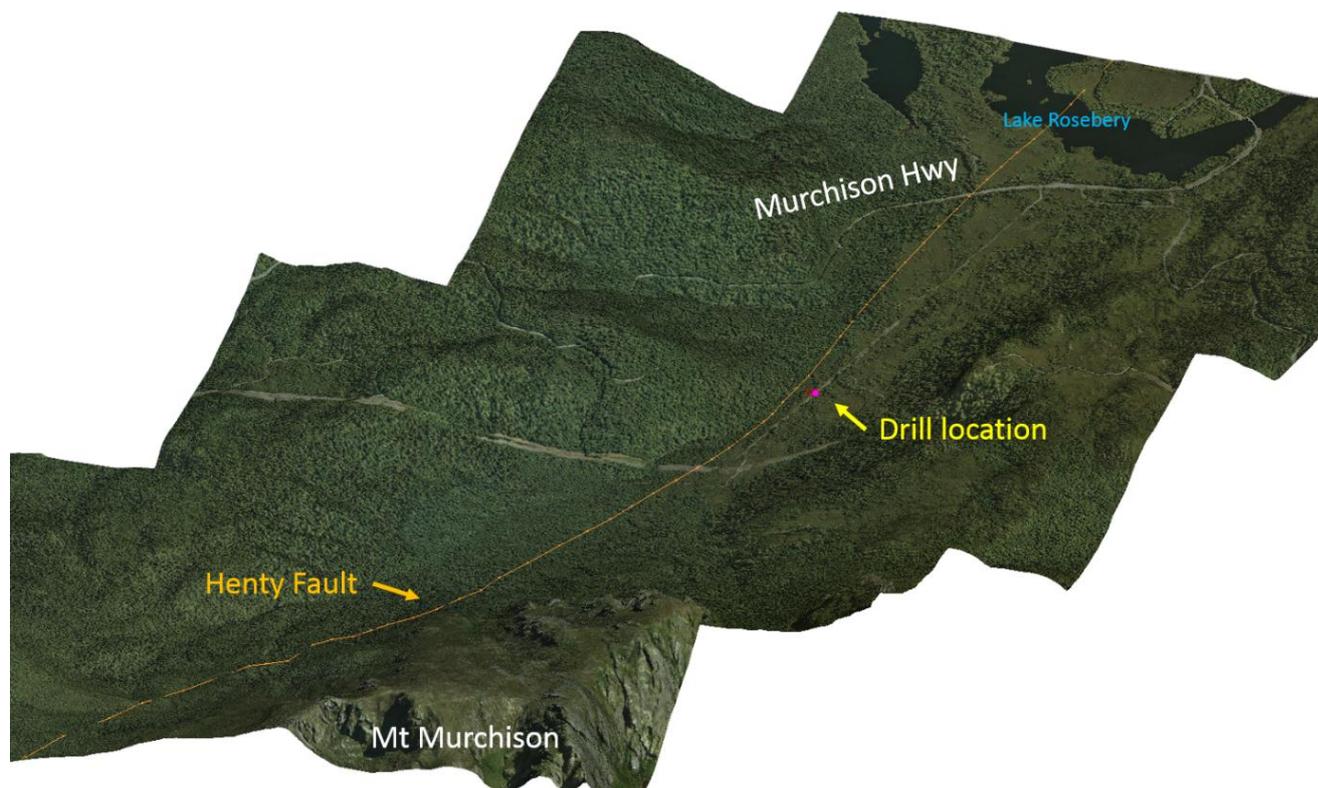


Figure 4. Sterling valley drill location.

## Summary

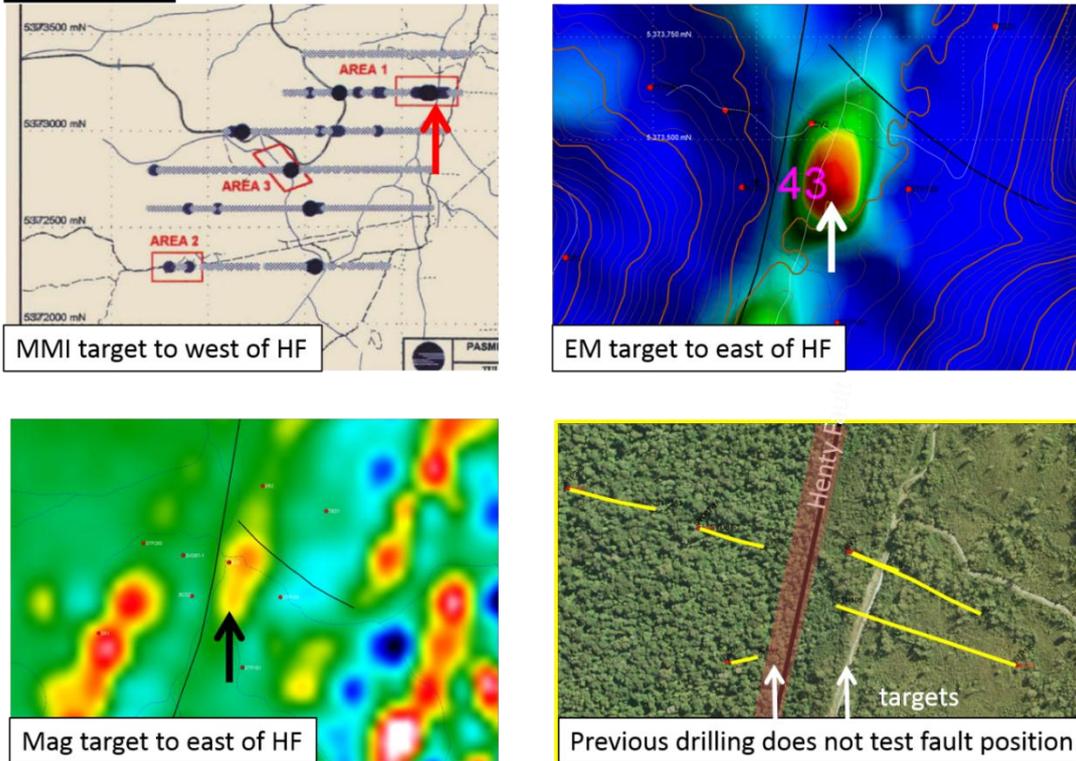


Figure 5. Bruce Creek anomalism

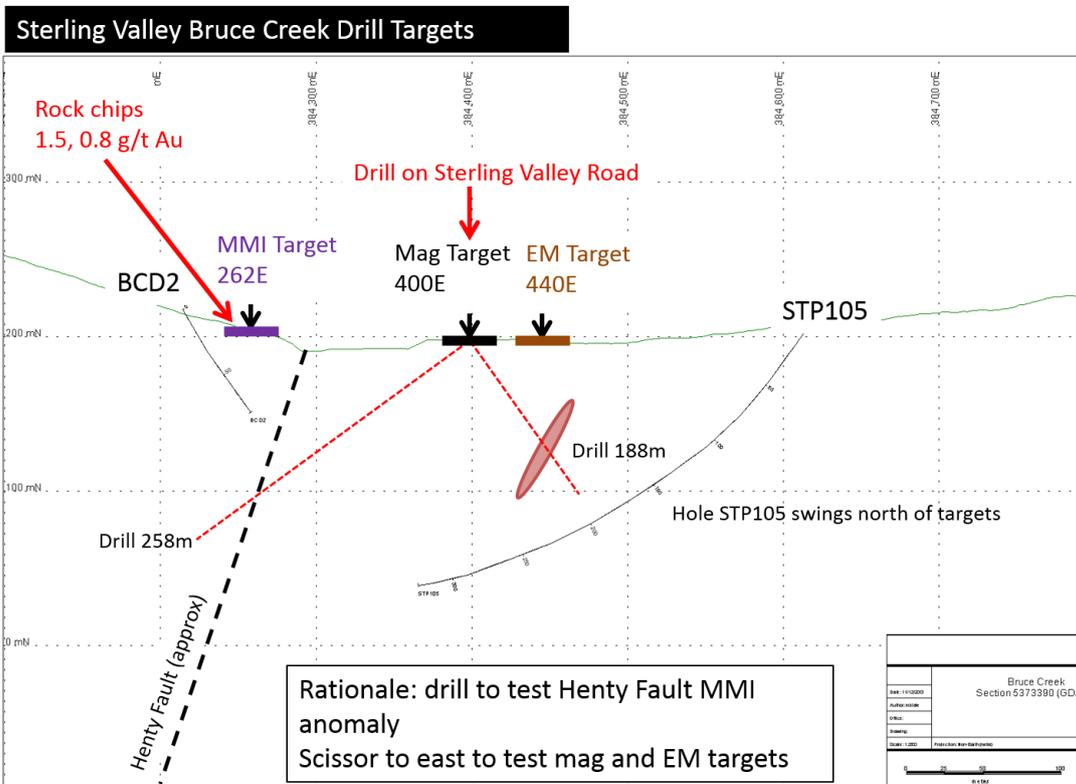


Figure 6. Schematic Cross Section of Bruce Creek Drilling

## RESULTS

BCD03 was drilled to the west to test the Henty Fault position, with co-incident gold anomalies from rock chip sampling, and MMI soils analyses. BCD03 intersected a 19m zone of mineralization hosted in Farrell sequence to the east, and within Volcanics immediately west, of the western margin of the Henty Fault Zone. Mineralization is quartz vein hosted Pyrite-Pyrrhotite-Arsenopyrite dominant sulphides with trace Chalcopyrite-Galena, within altered black shales, and is fracture hosted pyrrhotite-arsenopyrite within altered volcanics . The mineralized zone occurs on both sides of the western fault separating the black shale sequence from altered volcanics, which is analogous to the Henty Fault.

BCD04 was drilled to the east from an adjacent location (avoiding powerlines), in order to test co-incident EM and Magnetic anomalies identified in airborne data. This hole encountered 23.4m of similar mineralization to BCD03 at shallow depths, with the addition of 0.75 m of semi-massive Pyrite-Pyrrhotite-Arsenopyrite sulphide with massive chlorite at the downhole margin of mineralization.

Given the shallow nature of the BCD04 intercept, and the presence of stronger sulphide, two short diamond holes were designed as follow up and were in progress at the end of the reporting period.

Mineralized intercepts from BCD03-4 were sampled for analyses, with results pending. This mineralization is considered to be of similar style to that encountered at the Lakeside prospect.



**Figure 7. BCD03 221.35-222.25m composite photo.**

Quartz-chlorite veining with pyrite,pyrrhotite,arsenopyrite, trace chalcopyrite and fluorite.  
Quartz-Chlorite veinins with pyrite, arsenopyrite, fluorite and trace chalcopyrite



**Figure 8. BCD03 233-233.75m photo.**  
Pyrrhotite-pyrite-arsenopyrite-chalcopyrite mineralization in chloritized volcanic.



**Figure 9. BCD04 39.7-40.4m photo.**  
Quartz vein with pyrrhotite, pyrite, chalcopyrite and arsenopyrite



**Figure 10. BCD04 46.95-47.6m photo.**

Semi-massive sulphide vein with shale fragments in chlorite matrix. Pale green phase is unidentified

## CONCLUSIONS

Drilling work has highlighted the presence of Lakeside-Lorregans Luck style mineralization at Bruce Creek, and has explained the presence of anomalism at this location.

Two mineralized zones associated with faults have been identified – one at the “Henty Fault” position, corresponding to targeted MMI and anomalous rock chip results, and one to the east of the fault position, associated with MMI and Magnetic anomalies interpreted from airborne data.

The mineralized position associated with magnetic and EM anomalies to the east of the Henty Fault is likely to be vein and fissure style mineralization, related to the Farrell lodes, as discussed in McNeill and Corbett, 1992.

By association the mineralization seems to be Devonian in character, and bears the pyrrhotite-arsenopyrite signature attributed to the influence of Devonian Granite intruding to shallow depths beneath the Sterling Valley. At Lorregans Luck and the Lakeside prospect, this style of mineralization is gold bearing. At the time of writing assays had not been returned, however it is assumed that some level of gold will be present, particularly in BCD04 at the semi massive sulphide position.

Whilst this style of mineralization is not the preferred target (Arsenic rich), it remains possible that Henty Style mineralization (Si-Py dominant) might occur proximal to the Henty Fault either within the Sterling Valley or further south along the fault on the tenement.

## **EXPENDITURE FOR THE PERIOD 12 NOVEMBER 2016 - 11 NOVEMBER 2017**

Expenditure by UML on EL 08/2009 for the 12 months ended November 2018 was \$113,594 as follows:

<b>Expenditure for 12 months ending September 2016</b>	<b>\$</b>
Personnel	30,359
Geochemistry	
Geophysics	
Remote Sensing	
Gridding	
Drilling	69,741
Access	
Rehab	
Feasibility	
Roads and tracks	1705
Other	
Admin	11,789
<b>TOTAL</b>	<b>113,594</b>

## **PLANNED WORK AND EXPENDITURE**

The proposed work plan is as follows:

1-3 Drill holes, Moxon and Red Hills area	\$150,000
<b>Total</b>	<b>\$150,000</b>

## REFERENCES

### Reports

Lorrigan, A., 2012, EL 34-2010 Tullah Annual report for period 3 April 2011 to 2 April 2012, unpublished Unity Mining report to Mineral Resources Tasmania.

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McNeill, A.W.; Corbett, K.D., 1992, Geology and mineralization of the Mt Murchison area (MRVP Map 4). Geol. Rep. Mt Read Volc. Proj. Tasm. 3.

Parfrey, O., Murphy, F.C., 1998, Tullah EL 22/90. Annual Report for the period ending September 1998, unpublished Pasminco Exploration report to Mineral Resources Tasmania.

Purvis, J.G., Tullah EL 22/90 and Sterling River EL 24/91. Annual Report September 1994-September 1995., unpublished Pasminco Exploration report to Mineral Resources Tasmania.

Staltari, G., 2006, Exploration Licence 47/2003 – Tullah. Annual report. Year ending 11 June 2006, unpublished Saracen Metals report to Mineral Resources Tasmania.