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Mining Limited

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**EL13/2011 Annual Report**

**'Henty River'**

**EL13/2011**

**Vol. 1 of 1**

**HELD BY: UNITY MINING LTD.**

**MANAGER & OPERATOR: UNITY MINING LTD**

**AUTHOR: P. Stonestreet**

**DATE: October 2014**

**MAP SHEETS: 1:25k Oceana (3635)  
1:100k Sophia (8014)**

**GEOGRAPHIC COORDS (GDA94): Min East: 374,000mE  
Max East: 379,000mE**

**Min North: 5,350,500mN  
Max North: 5,358,000mN**

**COMMODITY(s): Basemetals, Au**

## **ABSTRACT**

EL 13/2011 (Henty River) was granted to Unity Mining Ltd on the 4<sup>th</sup> of October 2011, for a period of five years.

In the 2013/2014 season several attempts were made on foot to reach the Henty River adits area for reconnaissance and sampling, but each time access was found to be too difficult.

Expenditure on the tenement since October 2013 has been \$3500.

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# **1. Introduction**

This report details work completed by Unity Mining Limited (UML) on EL 13/2011 over the past year.

EL13/2011 is due for relinquishment on the 4th September 2016.

## **1.1 Tenure**

EL13/2011, the Henty River exploration lease, was acquired in 2011 by Unity Mining Ltd after a successful tender. The license area is all crown land designated as part of the Mt Dundas Regional Reserve, HEC and State Forest, all of which are available for exploration under the Mineral Resources Act 1995. Any disturbances in Regional Reserve require notification and approval from the Mineral Exploration Working Group (MEWG). Further conditions of exploration are outlined in the Exploration Code of Practice (produced by Mineral Resources of Tasmania (MRT)).

The land vested in the HEC includes the Anthony, Howards and Bradshaws Road access.

## **1.2 Location and Access**

Henty River (EL13/2011) occurs midway between Queenstown and Tullah on Tasmania's West Coast. The EL's eastern boundary abuts Unity Mining lease, EL28/2001 (Figure 1). Local access to the tenement is off the Howards and Anthony Roads and the Zeehan highway. Much of the tenement is difficult to access due to dense forestry and degradation of existing roads and bush tracks and the steep nature of the terrain.

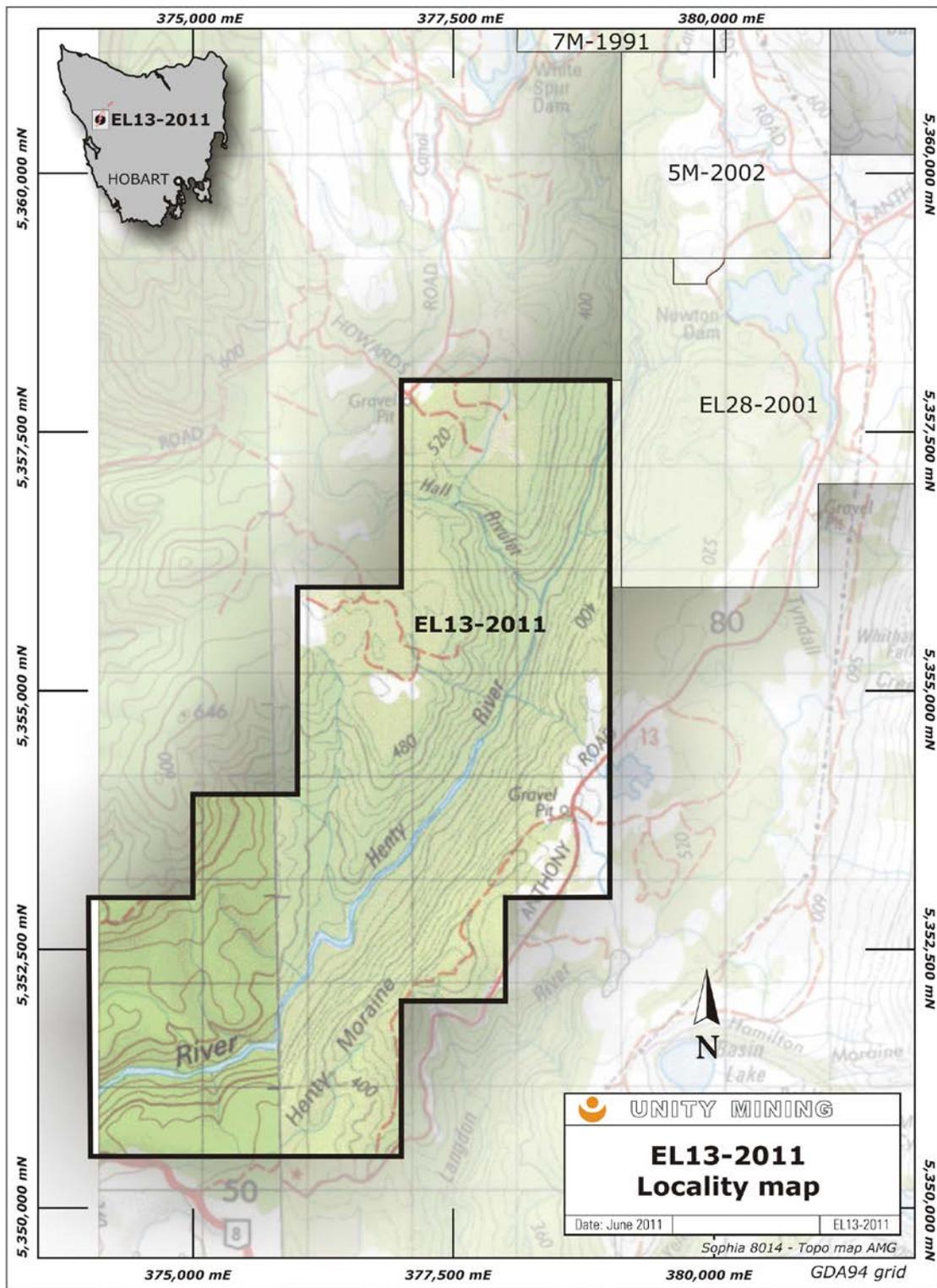


Figure 1: Location of EL13/2011 (map in GDA 94 projection).

## 1.3 Regional Geology

This section is taken from the Annual Report for neighbouring tenement for the period April 2008-April 2009 (Barrick 2009):

Basement rocks of western Tasmania comprise sediments multiply deformed during the Late Proterozoic Penguin Orogeny (700±50 Ma) (Berry, 1994). A rift phase followed, characterised by continental shelf sedimentation and tholeiitic volcanism (Crawford and Berry, 1992).

The first phase of the Cambrian Delamerian Orogeny (510-490 Ma) is characterised by extensional tectonism which resulted in the rapid deposition of sediments and calc-alkaline volcanics (Mount Read Volcanics), particularly along the eastern margin of the newly formed Dundas Trough (Berry, 1994).

The Mount Read Volcanics (MRV) interfinger with the Dundas Group to the west and are bound by Precambrian rocks of the Tyennan Region to the east.

On the south-eastern side of the Henty Fault, the MRV package can be divided into four main lithostratigraphic groups (Corbett, 1992). These are: the Western Volcano-Sedimentary Sequence (WVSS), the Central Volcanic Complex (CVC), the Eastern Quartz Phyric Sequence (EQPS) and the Tyndall Group (TG).

The WVSS comprises rocks of the Dundas Group and the Yolande River Sequence (Corbett, 1992) which interfinger with the lava rich zones of the CVC and the EQPS sequence. The WVSS was deposited in a marine setting and consists of tuffaceous mass flow deposits, volcano-sedimentary siltstones/mudstones, volcanoclastic turbidites and black graphitic shales (Corbett & Lees, 1987).

The CVC is the central belt of the MRV and interfingers with both the WVSS and EQPS. CVC lithologies are predominantly feldspar-porphyrific rhyolitic to andesitic volcanics and pumiceous volcanoclastics, with lesser intercalated minor sediments and mafic units (Corbett 1992). A useful geochemical subdivision is proposed by Crawford et al (1992) where the CVC is split into two distinct geochemical suites (Suite 1 and Suite 2, see Section 2.5: Local Geology).

The EQPS occurs along the eastern margin of the MRV belt and interfingers with the CVC to the west. The package comprises rhyo-dacitic lava-dominated volcanics with common quartz-feldspar phyric intrusives (Corbett, 1992).

The TG comprises a lower association consisting mainly of crystal-rich sandstones and polymictic breccias with minor rhyolitic and andesitic lavas, overlain by the volcanogenic conglomerate and sandstone units of the upper TG.

The last phase of the Cambrian Delamerian Orogeny (~490 Ma) caused the earlier faults to be reactivated as reverse faults and formed open north trending folds along with the uplift and erosion of the Tyennan Block which formed the Owen Group conglomerates (Berry, 1994). The Owen Group appears to conformably overlie the TG in the Henty area (Corbett, 1992).

Deposition of the Owen Group ceased in the mid Devonian with the onset of the Tabberabberan Orogeny resulting in tightening of the north trending Cambrian Folds in the Dundas Trough with formation of a NNW striking cleavage (Berry, 1994).

## **1.4 Local Geology**

### **1.4.1 Stratigraphy**

The stratigraphy of the Henty River lease has been well documented by previous workers through regional and more detailed local mapping. The regional geology of the tenement area is shown in Figure 2; derived from MRT 1:25,000 series (Corbett, 1986).

The North and South Henty Faults delineate the geology into several distinct assemblages. A thin sliver of quartz/feldspar-phyric tuff and terrigenous sediments of the White Spur Formation, part of the Dundas Group, occurs in the NW of the tenement against the North Henty Fault. At Hercules and Rosebery mines, north of EL13/2011, the White Spur Formation is significant as it forms the hanging wall to the massive sulphide ore bodies.

The Henty Fault Wedge sequence outcrops in the central portion of the tenement, typically on the western flank of the Henty River. This wedge sequence is allochthonous to the sequences on either side. Terrigenous sediments including interbedded mud and siltstones, minor tuff and lithic-wacke of the Halls Rivulet Track sequence occur in the north east portion. Further south is the region of the Henty Adits which have been the target of the bulk of the exploration in the Henty River. Andesitic to basaltic lava, minor ultramafics, volcanoclastic sediments and siltstones form the Henty Adits sequence; of which the sediments host the mineralisation (Poltock and Fitzgerald, 1991). In the most south western portion of the tenement (near the Zeehan Highway) the lithologies outcropping in the Henty River are gabbroic to ultramafic components of an ophiolite complex, interpreted as Cambrian in age (Poltock 1992). The western portion of the tenement is largely overlain by glacial till.

To the south east of the Henty Fault, on the eastern flank of the Henty River, lie lithologies of the Yolande River and Central Volcanic sequences. Andesitic and minor felsic pyroclastic rocks occur as part of the latter sequence. Quartz feldspar porphyry, lithic tuff, siltstone, shales, lithic-wacke and minor quartz feldspar pyroclastics form part of the Yolande River sequence as mapped on the Henty River EL.

A slightly amended stratigraphic column is suggested for the Henty River area and has been summarised in Figure 3.

### **1.4.2 Structure**

The two Henty Fault splays, North and South, are the major structural features of the Henty River EL. The South Henty Fault is a regionally significant structure that dips steeply to the west and runs for most of the length of the tenement down the centre of the Henty River. It forms the western boundary of the Yolande River Sequence, CVC and Tyndall Group rocks.

Lithologies generally trend NNW and have a well developed regional (Devonian) cleavage in the same orientation. Bed dips are steep to moderate to the west. Subsidiary fault structures such as the Howards Tramway Fault as mapped by Poltock (1992) separates the Halls Rivulet Track sequence from the ultramafic suite to the west, as mapped in the south west corner of EL 13/2011.

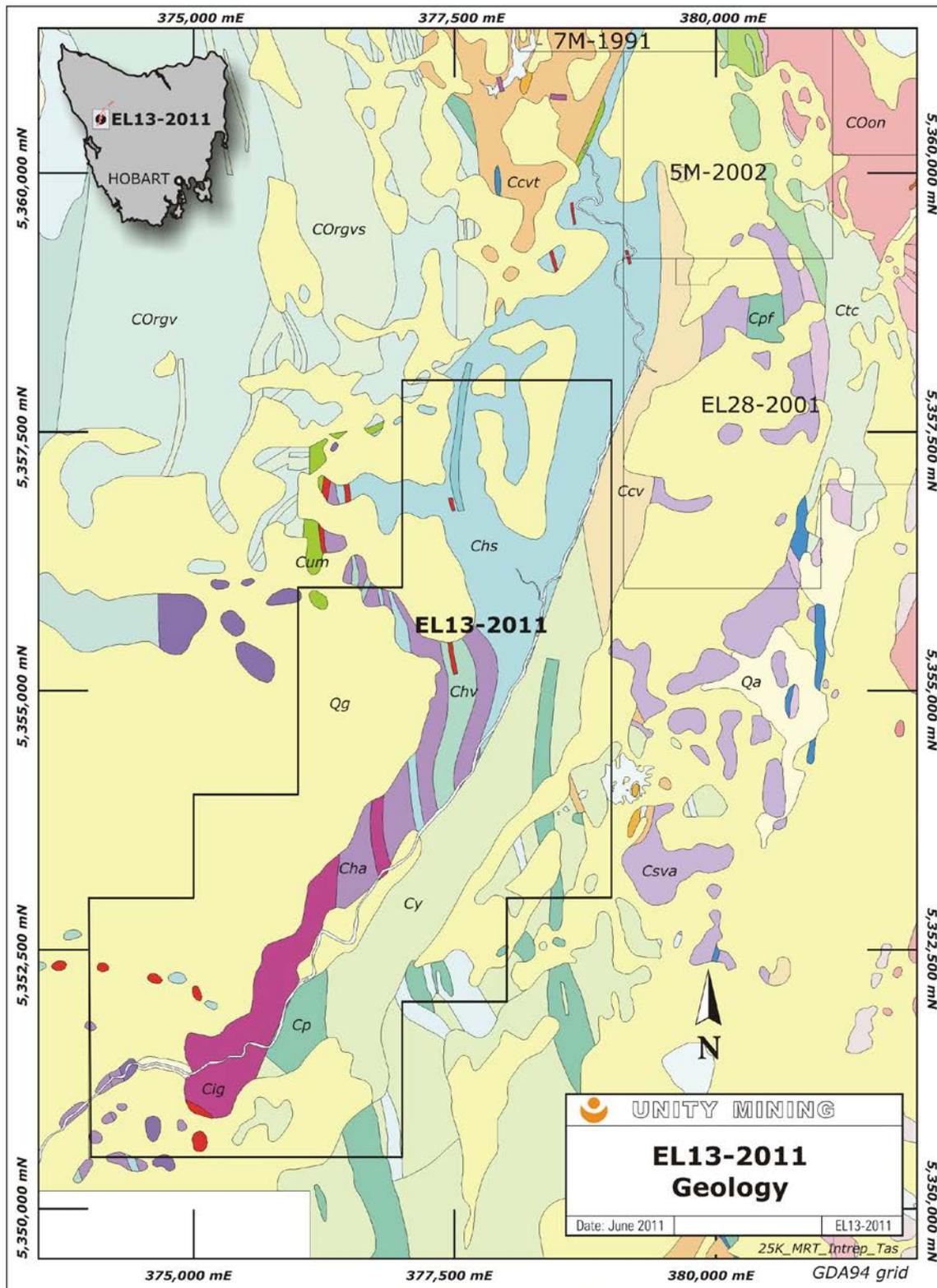


Figure 2: Geology of EL 13/2011 from the MRT 1:25,000 Map series.

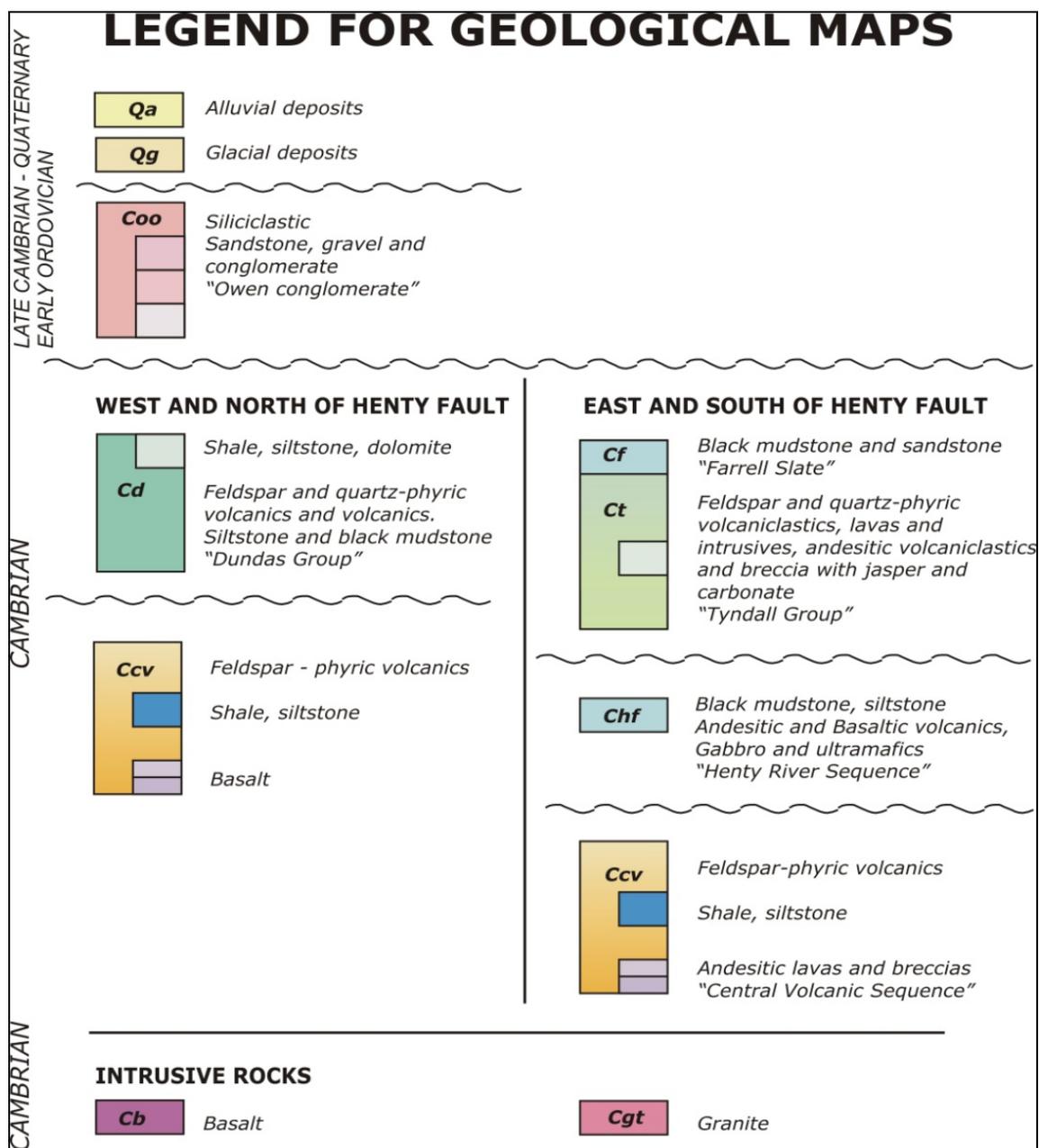


Figure 3: Geological Legend

## 1.5 Alteration and Mineralisation

The alteration in the licence area ranges from regional prehnite-pumpellyite to greenschist facies. Associated with the Pb/Zn mineralisation at the Henty Adits is sericite/calcite/pyrite ± fuchsite alteration hosted in basaltic-dacitic volcanics.

### 1.5.1 Henty Adits Prospect

Disseminated and vein galena-sphalerite mineralisation, hosted in andesitic-basaltic volcaniclastics, was mined in the Henty River at the turn of the 19<sup>th</sup> Century. More recent exploration activity has focused around this area. In the late 70's the Mt Lyell Mining and

Railway Company hit mineralisation in several drill holes with the best intersection returning 6m @ 2.88% Pb, 1.61% Zn and 15 g/t Ag (Meares, 1978).

## **1.6 Previous Exploration**

The area of the tenement has been explored intensively, mostly for VHMS-style and Henty Au-style mineralisation during the last forty years (summarised in Appendix 1). Most recently Zinifex drilled DDH HGW1 to test Ag-As/Cu/Pb/Zn soil and ground EM anomalies (McNeill et al, 2007).

Rock chip, stream and soil sampling over the Henty Adits and the Halls Rivulet Track sequence has been the focus of exploration activities over the past thirty years. Down hole EM was proposed for holes HR1-5 but was unsuccessful due to blockages (Poltock and Fitzgerald, 1991).

## **2. Previous Work Completed by Unity Mining**

Field work during the 2012-2013 summer season was hindered by asynchronous weather windows and availability of personnel. However, several days were spent checking the access along Howards Road and subsidiary tracks in the northwest margin of the lease and walking down into the gorge itself. Also access into Bradshaws Road was checked on foot; this area would require minimal work with a dozer to allow access from the southwest margin on the lease.

## **3. Work Completed During the Reporting Period 2013 to 2014**

Further attempts were made to access the Henty River adits, but a combination of regrown tracks and thick bush retarded these efforts before reaching the area. A subsequent reduction in personnel at Henty precluded more work being done.

## **4. Conclusion**

The tenement remains prospective for Henty and VHMS-style mineralisation, but the logistics of exploration work are hampered by thick bush, overgrown tracks, very steep terrain, difficult access and the unpredictability of the weather.

## **5. Expenditure 2013/14 Reporting Period**

Total Expenditure for the 2013/14 Reporting Period is set out in the table below.

<b>Expenditure EL 13/2011 October 2013-October 2014</b>	<b>\$</b>
Geology	3200
Administration	300
Subtotal (inc. GST)	3500

Table 1: EL13/2011 'Henty River Exploration Expenditure 2013/14'.

## **6. References**

**Barrick (Henty) Ltd, 2009. EL 28/2001 Annual Report and Application for Extension April 2009.**

**Corbett, K. D., 1986. Geology of the Henty River – Mt Read area. Mount Read Volcanics Project Map 3. Minerals Resources Tasmania, Hobart.**

**McNeill, A. W., Skirka, M. & Turner, B., 2007. Henty River EL 7/2001, Annual report for the period ending 27<sup>th</sup> June 2007. Unpublished Zinifex Exploration Report.**

**Meares, R. M. D., 1978. EL 41/71 Henty-Yolande Annual Report 1977/78. Unpublished Getty Oil Development Company Limited and Mt Lyell Mining and Railway Company Limited Report.**

**Poltock, R. A., & Fitzgerald, F. G., 1991. EI 11/85 Yolande JV Annual Report for 12 months to July 1991. Unpublished Pasminco Exploration Report.**

**Poltock, R. A., 1992. EL 11/85 & EL 25/91 Yolande JV Annual Report to June 1992. Unpublished Pasminco Exploration Report.**

## 7. Appendix 1: Historical Exploration

Henty River Historical Exploration									
Reporting Date	Company	Author/s	Historical Tenement	Geology	Geochemistry	Geophysics	Drilling	Further Work Recommended	Comments
27 June 2005 - 27 July 2007	Zinifex Rosebery Mine	McNeill, AW, Skirka, M, Turner, B	EL7/2001	Mapping	Partial Leach Soil sampling	Fixed Loop EM DHEM on HGW1	DDH HGW1	No	Weak to moderate Ag-As+/-Cu/Pb/Zn anomalies across Henty Adits Sequence
2004 - 2005	Zinifex Rosebery Mine	McNeill, AW	EL7/2001		Partial Leach Soil sampling	EM		1 The EM anomaly located west of Loop 3 be followed up by a further loop of ground EM (loop 8). 2 Remainder of 1997 Aberfoyle grid be reopened and extended and ground EM (loops 4-7) and partial leach soil sampling be completed to cover the prospective Henty Adits sequence. Carried over from 2001 report	Minor Pb/Zn anomaly on southern two lines of survey, EM anomaly to west of survey area
2003 - 2004	Zinifex Rosebery Mine	McNeill, AW	EL7/2001						No exploration fieldwork conducted.
2002 - 2003	Zinifex Rosebery Mine	McNeill, AW	EL7/2001	Mapping	B horizon soil sampling			No	Soil sampling to follow up anomaly on line 5357800mN. No significant anomaly
2001 - 2002	Zinifex Rosebery Mine	McNeill, AW	EL7/2001		B horizon soil sampling			1985 ground EM survey be assessed for effectiveness and subtle (eg. current channelling) targets. Partial leach soil sampling to follow up spiky anomalies. (it is likely that this was done by Aberfoyle but no record). Restated in 2005 report.	Significant multi-element anomaly found
2000	Western Metals Resources Ltd	Henry RL, Hesse, AM, 2000	EL4/96					Ground EM surveys recommended due to uncertainty of effectiveness of newly developed TMI technique	Tenement surrendered in June 2000. TMI no significant anomalies
1998 - 2001	Western Metals Resources	Hesse, AM, 1999, Henry, RL, 2000	EL4/96						No exploration fieldwork conducted. Review of Au potential indicated further sampling/re-assaying required but not completed. Partial relinquishment April, 1999
1997 - 1998	Aberfoyle Resources Ltd	Richardson, SM, 1996	EL4/96		Partial Leach and total digest B horizon soil sampling				No significant anomalies
1996 - 1997	Aberfoyle Resources Ltd	Hicks, DJ, 1997	EL4/96		Stream sediment survey (incomplete)				Pb Isotopes studied, gave Cambrian "Rosebery" signature
1994 - 1995	Pasminco Exploration	Quayle, PM, 1995	EL11/85				DDH YHV2 (163.5m)		YHV2 testing beneath massive Py and IP anomaly. No significant mineralisation intersected
1993 - 1994	Pasminco Exploration	Quayle, PM, 1994	EL11/85			Pole Dipole IP		Drilling to test IP anomaly	Pole-dipole IP conducted to test extent of massive Py. Results indicate mineralisation continues to the N and S

Henty River Historical Exploration									
Reporting Date	Company	Author/s	Historical Tenement	Geology	Geochemistry	Geophysics	Drilling	Further Work Recommended	Comments
1992-1993	Pasminco Exploration	Quayle, PM, 1993	EL11/85	Mapping			DDH YHV1		YHV1 drilled to test geochemically anomalous gossan associated with andesitic lavas at Henty Valley
1991 - 1992	Pasminco Exploration	Poltock, RA, 1992	EL11/85	Mapping	Soil and rock chip sampling	UTEM			Geological mapping, soil and rock chip sampling and UTEM of Henty Valley Prospect. No significant anomalies found
1990 - 1991	Pasminco Exploration	Poltock, RA, and Fitzgerald, FG 1991	EL11/85	Mapping	Stream sediment and rock chip sampling				Mapping located massive Py at Henty Valley Prospect (to 0.7% Zn, 1.2%Pb). Drillholes HR1-5 are blocked preventing recommended DHEM
1989 - 1990	Pasminco Exploration	Jenkins, GW, 1990	EL11/85	Mapping	Rock chip and wacker sampling	High resolution airborne magnetic/radiometric survey			
1987 - 1988	Cyprus	Poltock, RA, 1988	EL11/85	Mapping	Stream sediment sampling				Stream sediment sampling (-80#) at Henty Valley reveals no significant anomalies
1986-1987	Cyprus	Mathison, IJ, Ferguson, N	EL11/85	Mapping	Rock chip and "C" horizon soil sampling	Trial VLF-EM and ground magnetics			
1985-1986	EZ	Mathison, IJ, 1986	EL11/85	Mapping	Stream sediment and rock chip sampling				
1985	Cyprus	Jones, PA, 1985	EL11/85			EM 37			No significant targets
1983 - 1984	Getty Oil Development Company Ltd	Fitzgerald, FG, McNaught, IS, 1984	EL9/66 (Tyndall)	Mapping	Rock chip and soil sampling	Ground magnetics one line airborne EM			No significant Sn or base metal anomalies
1980 - 1981	Consolidated Goldfields Australia Ltd and Getty Oil Development Company	Hutton, MJ, Komyshan, P, Meares, RMD, 1981	EL 9/66	Mapping	Rock chip sampling	IP			West Tyndall IP and minor soil sampling following up 1968 IP anomaly indicate Sn potential
1979 - 1980	Consolidated Goldfields Australia Ltd and Getty Oil Development Company	Hutton, MJ, Meares, RMD, and Walter, JC, 1980	EL9/66 (Tyndall)	Mapping	Rock chip and soil sampling	IP and magnetics	DDH HR3		No significant anomaly found with IP and magnetics. DDH HR3 intersects minor mineralisation
1978 - 1979	Getty Oil Development Company Ltd and Mt Lyell Mining and Railway Company Ltd	Drake, G, Hutton, MJ, Meares, RMD, Reid, KO, Walter, AC, 1979	EL9/66 (Tyndall)	Mapping	Soil and rock chip sampling	IP and magnetics downhole IP on DDH HR1	DDH HR1 and HR2		Detailed soil and rock chip sampling defined major Ag-Pb-Zn anomalies. DDH HR1 and HR 2 intersect Pb>Zn

Henty River Historical Exploration									
Reporting Date	Company	Author/s	Historical Tenement	Geology	Geochemistry	Geophysics	Drilling	Further Work Recommended	Comments
1977 - 1978	Getty Oil Development Company Ltd and Mt Lyell Mining and Railway Company Ltd	Meares, RMD, 1978	EL41/71	Mapping	Soil sampling				Soil sampling reveals major Cu-Pb-Zn-Ag anomaly
1971 - 1972	Mount Lyell Mining and Railway Company	McKibben, 1972	EL9/66 (Tyndall)	Mapping	Rock chip sampling			No further work recommended	Ni found max 1140ppm.
1968 - 1969	Mount Lyell Mining and Railway Company	Newnham, LA, 1969	EL9/66 (Tyndall)	Mapping	Soil sampling	Ground magnetics		Follow-up Ni potential	Ultramafic bodies with Ni soil anomalies found
1967 - 1968	Mount Lyell Mining and Railway Company	Newnham, LA, 1969	EL9/66 (Tyndall)	Mapping	Soil and rock chip sampling	IP surveys		Extended mapping and soil coverage	