BONDI MINING

ANNUAL REPORT

EL 39 / 2005

Mt Owen Project

June 2011

Report Period: 14th June 2010 to 13th June 2011

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July 2011

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EXECUTIVE SUMMARY

EL39/2005 comprises a 19 km^2 tenement 3 km south-west of the Mt Lyell group of Cu – Au deposits near Queenstown in Western Tasmania. The tenement area features a muscovite-pyrophyllite (MP) alteration anomaly which is similar to that associated with the Mt Lyell group of mines. However, in contrast to the Mt Lyell system, which is hosted in the Upper to Middle Cambrian Mt Read volcanics the Mt Owen MP anomaly is hosted within the Upper Cambrian Owen Conglomerate. Mt Owen Resources is conducting an exploration program to determine if the Mt Owen MP anomaly represents hydrothermal alteration related to a concealed Cu/Au system.

This annual report describes the work carried out in EL 39/2005 up to the 14th June 2011. EL 39/2005, named 'Mt Owen' is located in the Dundas Trough approximately 3 km to the SE of Queenstown on the west coast of Tasmania. The tenement is held by Mt Owen Resources Pty Ltd, which is a wholly owned subsidiary of Bondi Mining Limited (Bondi). Mt Owen Resources was acquired from Pangean Resources Pty Ltd (Pangean) in March 2011, by payment of cash and shares.

EL 39/2005 has the potential to host a concealed Mt Lyell type Cu – Au orebody at depth and interpretation of HYMAP and ASTER hyperspectral survey data by Pangean defined several anomalous alteration zones which have similarities to those found around the Mt Lyell mineralisation to the west.

Work during this period comprised: historical data compilation and interpretation, ground reconnaissance, structural and stratigraphic mapping, rock chip sampling and approximately 9.5 line km of pole – dipole IP (induced polarisation) and approx. 1.3 line km of CSAMT (controlled source audio magneto – tellurics).

Results from exploration during the reporting period are summarised below:

- The IP and CSAMT surveys defined a number of chargeability anomalies with various strengths and interpreted depths. Some of these anomalies were partly affected by surface pipes and wires, however some are natural and require follow-up exploration.
- A total of 33 rockchips samples were collected and analysed for a suite of 48 elements including Au, Cu, Ag using four acid digest and ICPMS finish. None of the samples were anomalous for gold, copper or silver however, many are strongly silicified and contain minerals indicative of hydrothermal alteration.
- Confirmed the interpretive structural geometry and alteration zonation defined by Pangean (Nunn & Nano, 2008). The theory that the Mt. Read volcanics are closer to the surface, due to fault movement has been confirmed.
- The estimated vertical displacement on the central thrust fault is a minimum of 600m, from stratigraphy.
- The Mt. Owen Conglomerate sequence is folded into north-south to W-N-W trending, shallowly plunging folds, which are steeply overturned to the north-west.

1 INTRODUCTION

Bondi Mining Limited, through its wholly owned Australian subsidiary Mt Owen Resources Pty Ltd, is the holder of EL 39/2005. and Bondi acquired the Mt Owen Project to test for buried Mt Lyell type Cu – Au mineralisation in a highly prospective area, which has had no previous drilling and only limited surface exploration. Refer to **Figure 1** for the location map.

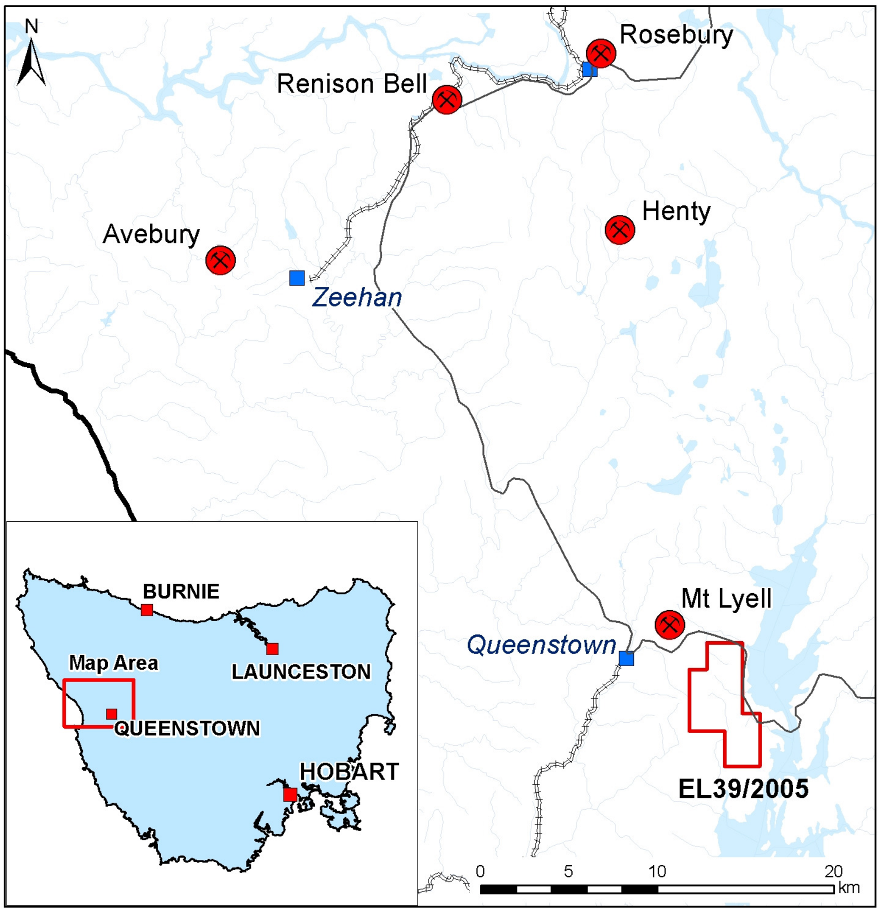

Figure 1 - Location Map showing EL 39 / 2005, ‘Mt Owen ‘

This annual report covers all the exploration work carried out within EL 39/2005 by Mt Owen Resources Pty Ltd / Bondi Mining Ltd up to 14th of June 2010. Exploration activities during the reporting period included; historical data compilation and interpretation, ground reconnaissance, structural and stratigraphic mapping, rock chip sampling and 9.5 line km of pole – dipole IP (induced polarisation) and 1.3 line km of CSAMT (controlled source audio magneto – tellurics).

2 LOCATION & ACCESS

EL 39/2005 is located approximately 3 km south-east of Queenstown on the west coast of Tasmania and access is via the sealed Lyell Highway which is approximately 260km to the north-west from Hobart, see **Figure 1**. Access on the lease is via a Telstra and Broadcast Australia service road which leads to the summit of Mt Owen, or a forestry track which leads to the south-west edge of the tenement south of Mt Owen. There is a locked gate near the entrance, which is managed by Telstra and a second locked gate nearer the top, which is managed by Broadcast Australia. Access within the lease is generally very poor with very steep and heavily vegetated slopes on the eastern side, and rugged hills in the centre of the lease. Although clear of vegetation due to logging and historic pollution from the old Mt Lyell smelter, the lease has a number of steep NW – SE and WNW – SSE trending ridges, cliffs and narrow valleys with boulder fields and scree slopes. In all areas away from the Telstra access road access is by foot, and in many areas is slow and difficult. The licence is located on the *Lyell* 1:50,000 map sheet. Refer to **Figure 2** for a detailed satellite image over the lease.

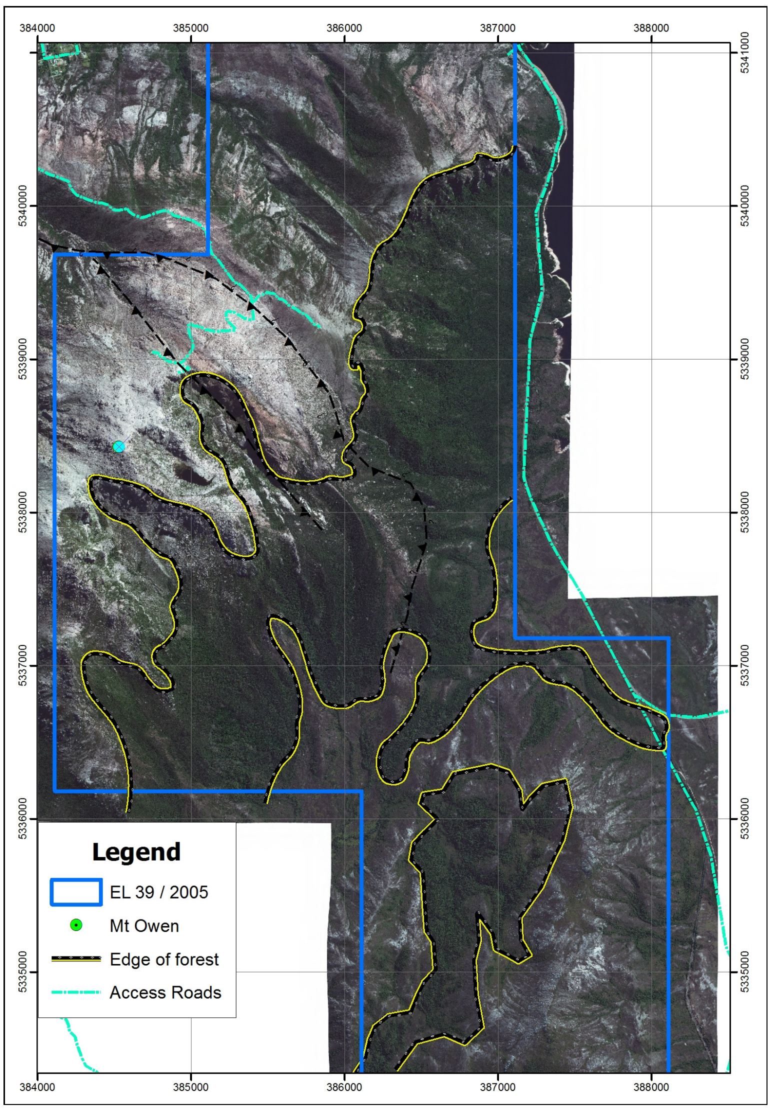

Figure 2 - EL 39/2005 with a satellite image as background

3 TENURE

Mt Owen Resources Pty Ltd, originally applied for EL 39/2005 and the tenement was acquired by the purchase of Mt Owen Resources from Pangean Resources Pty Ltd by Bondi Mining Ltd in March 2011. The tenement details are shown below in **Table 1**.

Table 1: Tenement details

Exploration Licence No.	No. Blocks	Area (km^2)	Grant Date	Expiry Date	Expenditure Commitment
EL 39/2005	19	19	15/6/2006	14/6/2011*	$ 20,000

*The tenement is due for renewal on 14th June 2011.

4 REGIONAL GEOLOGY

The Mt Lyell Cu - Au deposits are hosted in the Middle to Upper Cambrian Mt Read Volcanics in a structurally complex zone around the Great Lyell, North Lyell and Glen Lyell faults (**Figure 2**). The Mt Read Volcanics, locally referred to as the Central Volcanic Complex, are interpreted to be overlain by the Tyndall Group sediments, the Owen Group and the Gordon Group (**Figure 3**). In the EL39/2005 tenement area, Lower Owen Conglomerate, Tyndall Group and Mount Read Volcanics are exposed, with Middle and Upper Owen Group exposed in the north of the tenement (**Figure 4**).

The Mt Read Volcanics have generally been considered to pre-date the Owen Conglomerate, with deposition of the volcanics as a complex sequence of rhyolite and dacite lavas, tuffs and intrusives in a submarine setting. The volcanics are interpreted as a discrete extensional event with deposition in a narrow rift system of half grabens (Crawford and Berry, 1992).

The Owen Conglomerate is a regionally extensive unit that was sourced from a Proterozoic basement high exposed to the east of Mt Lyell. The Conglomerate units are deposited in half graben basins deposited to the east of the Great Lyell growth fault. As a result of this the units thin to the east and thicken to the west. The Owen Conglomerate is believed to young to the west in the Mt Lyell area and generally overlies the Tyndall group. Mapping in the Mt Owen area shows the conglomerate directly overlying the Mt Read volcanics, suggesting that in this area either the Tyndall group was eroded prior to deposition of the conglomerate or that the conglomerate is locally and temporally equivalent to the Tyndall group (*adapted from Nunn & Nano, 2008*).

Structure

Recent evaluation of the Owen Conglomerate by Noll and Paul (2005) suggests that the distribution in the Mt Lyell area is controlled by a series of Mid to Late Cambrian growth faults represented by the North, Great and Glen Lyell fault systems. These faults were reactivated as reverse faults during Devonian orogenesis and in the case of the Great Lyell Fault have juxtaposed the Mt Lyell mineralisation against the Owen Conglomerate.

At the project scale a large splay of the Glen Lyell fault system, the “Owen Splay” is a reverse fault, or thrust that passes through EL 39/2005. The Owen splay localises Cu-Au mineralisation at the Copper Estates on the western edge of the lease (**Figure 5)**.

Preliminary modelling shows that the Owen Splay has post-mineralisation, south block-up, reverse movement within the order of 300-400m; juxtaposing the Lower Owen conglomerate and locally the Tyndall Group against the Gordon Group and the Upper Owen Conglomerate to the north. This suggests the reverse movement on the Owen Splay has brought the Mt Read Volcanics closer to surface in the tenement. This interpretation is supported by Noll and Paul’s sections which pass through the tenement and by localized outcrops of Mt Read Volcanics mapped along parallel reverse faults within the Mt Owen EL (*adapted from Nunn & Nano, 2008*). Refer to **Figures 5 & 6** for a geological map and interpretive cross-section.

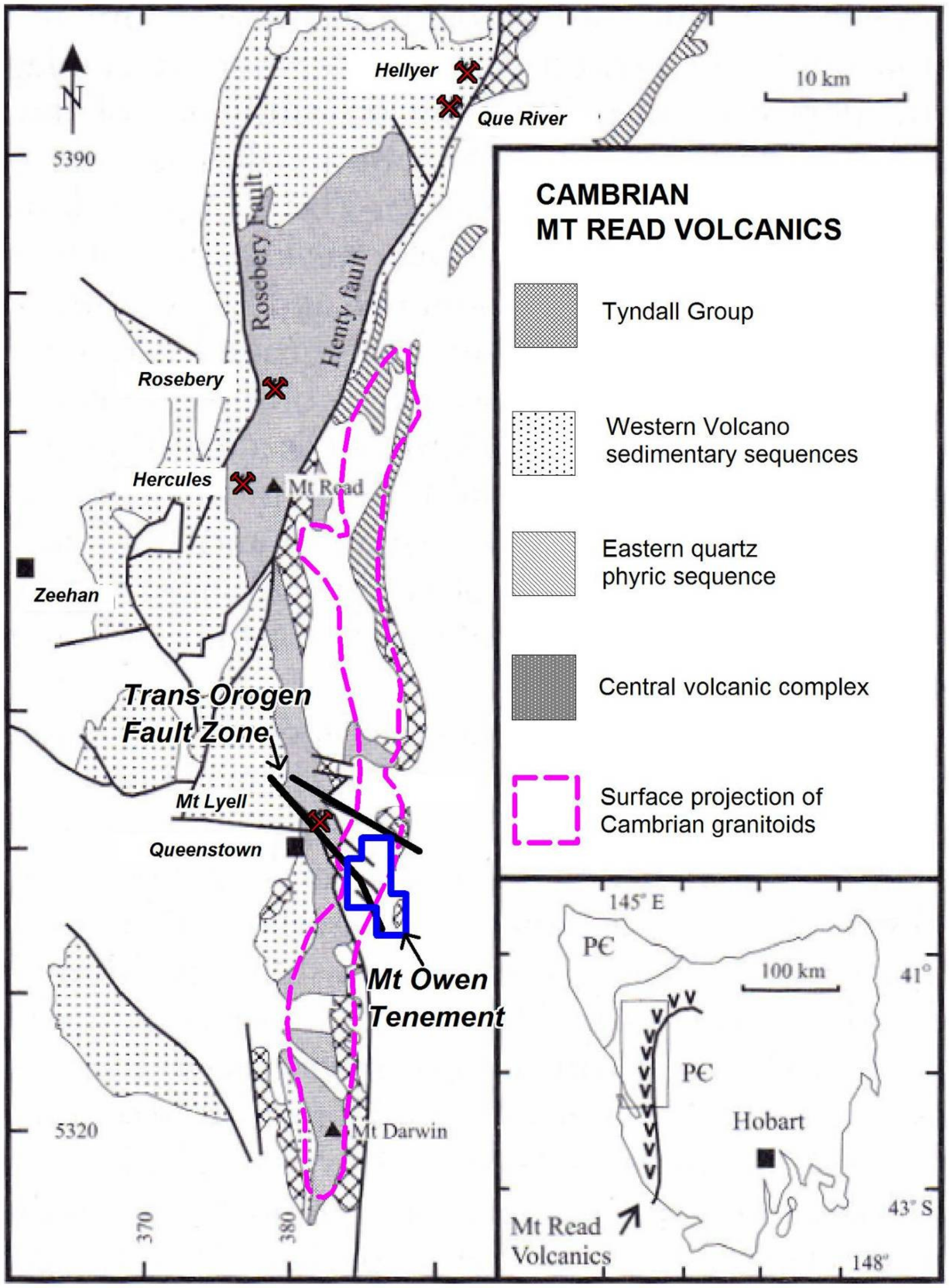

Figure 3 - Mt Lyell District Regional Geology (*from Nunn & Nano, 2008*)

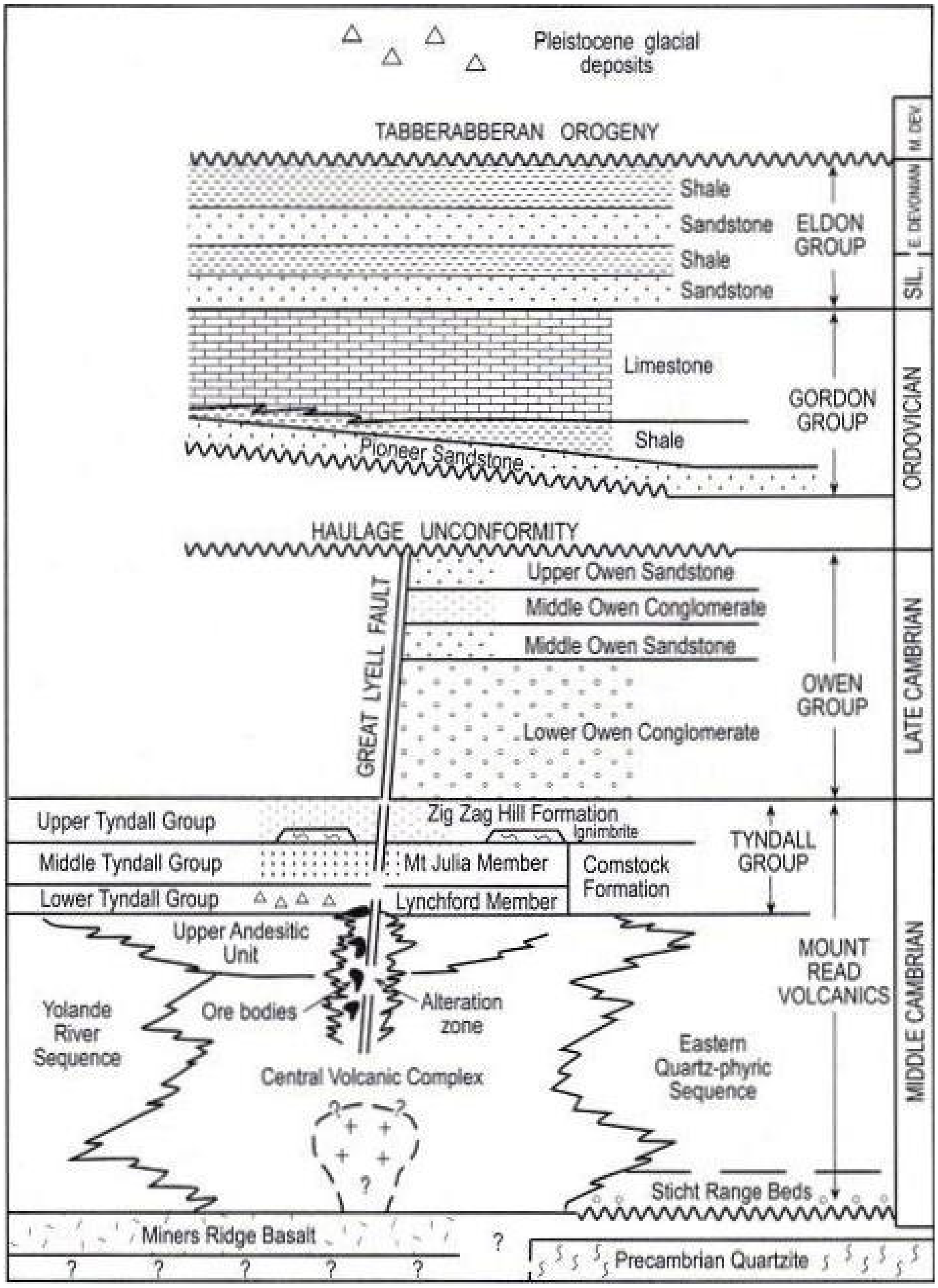

Figure 4 - Mt Lyell District Stratigraphy (*from Corbett, 2001*)

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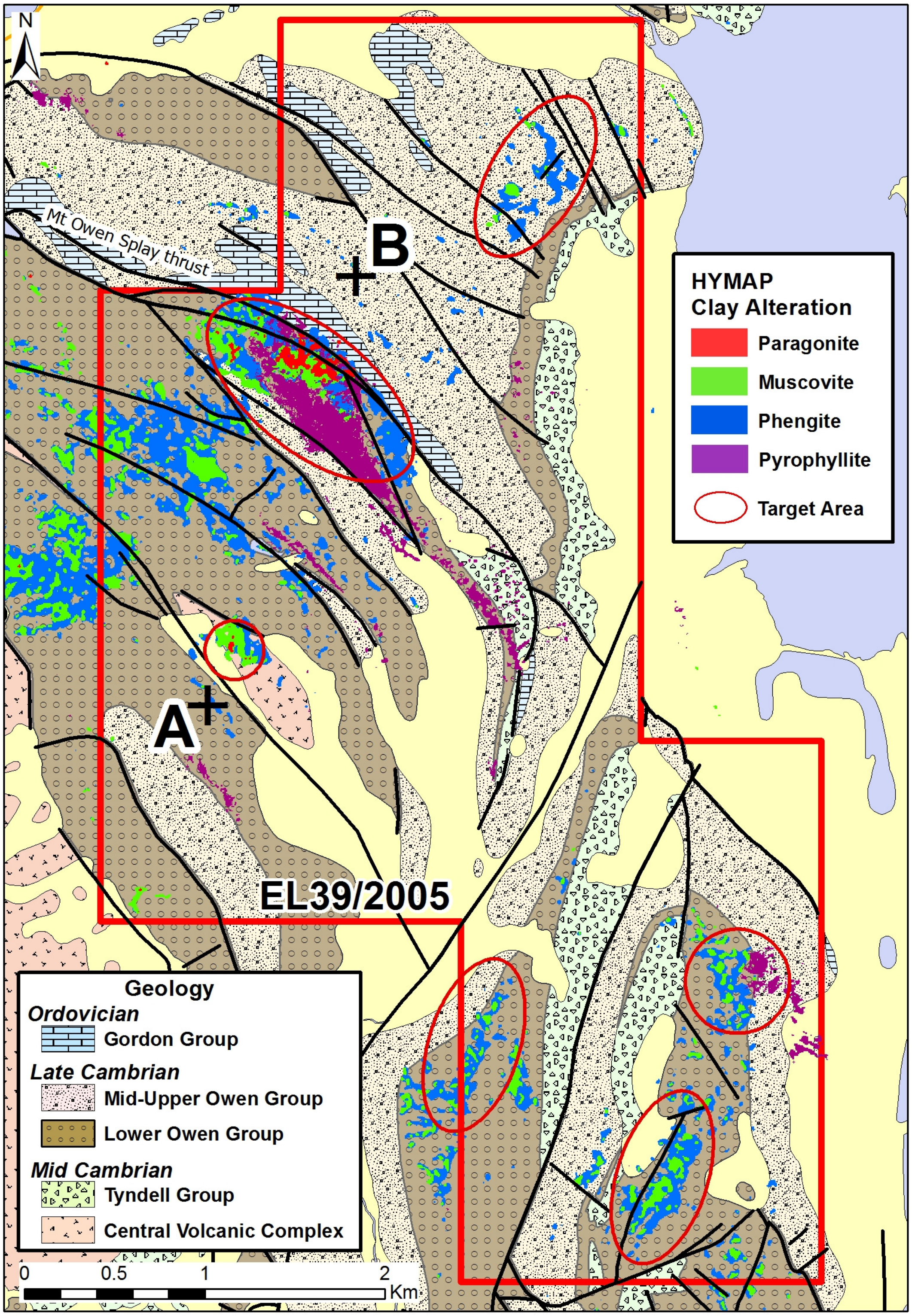

Figure 5 - Regional Geology of the Mt Owen lease, with HYMAP clay alteration

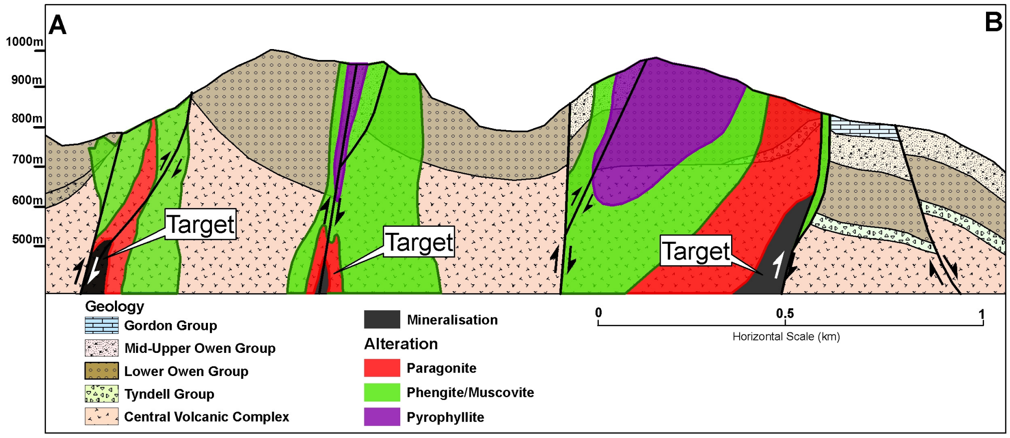

Figure 6 - Interpretive Geological cross-section with alteration zonation and targets

Mineralisation

The origin of the Mt Lyell mineralisation remains contentious with both syngenetic and epigenetic models proposed. The stratigraphic and absolute age of mineralisation is not well constrained and is considered inconclusive.

Recent investigations in Western Tasmania (Large et al., 2001) suggest the Mt Lyell district formed as massive and disseminated Cu-Au deposits in a subsea-floor setting associated with shallow porphyritic intrusives. The presence of high sulphidation minerals (pyrophyllite, topaz, zunyite and locally enargite) in parts of the Mt Lyell field suggests magmatic input, with similarities to a submarine porphyry copper system (Large et al., 2001). Corbett (2001) presents a model for alteration and mineralisation in the hanging wall of the Great Lyell Fault (**Figure 7**), showing the change from deeper chalcopyrite dominated system to upper level Pb-Zn sulphides.

The contact between the Owen Conglomerate and Mt Read Volcanics in the North Lyell region exhibits a zone of intense hematite-barite alteration (Noll and Hall, 2005). The hematite alteration zone lies adjacent to altered Mt Read Volcanics and extends into and partially replaces the Owen Conglomerate (Huston and Kamprad, 2001). Hart (1992, 1993) demonstrated that sericite, pyrophyllite, barite, hematite and pyrite extended through the Owen Conglomerate into the Pioneer Beds, with traces of bornite in the Owen Conglomerate. Huston and Kamprad prefer an Ordovician age for mineralisation (post Owen Conglomerate), based on lead isotope constraints.

Large et. al., (2001) interpret a 60 km long, north-south trending, belt of granitic sill-like intrusives 2-4 km wide occurring along the eastern margin, and near the base of, the Mt Read Volcanics underlying the Mt Owen EL. It is suggested that these granitoids, which are highly fractionated, high K, magnetite series granites in places, are coeval with the Cambrian Mt Read volcanics. Large (1996) has suggested the Mt Lyell alteration system is connected to hydrothermal alteration related to these granites (**Figure 3**).

Low grade porphyry Cu mineralisation is recognised in places associated with these granites (Large et. al., 1996). Large (2001) suggests the Mt Lyell mineralisation is a hybrid VHMS-high sulphidation deposit, connected to a low grade porphyry system at depth. Whole rock geochemistry, metal associations and ratios, oxygen isotopes and salinities all suggest magmatic input to mineralisation.

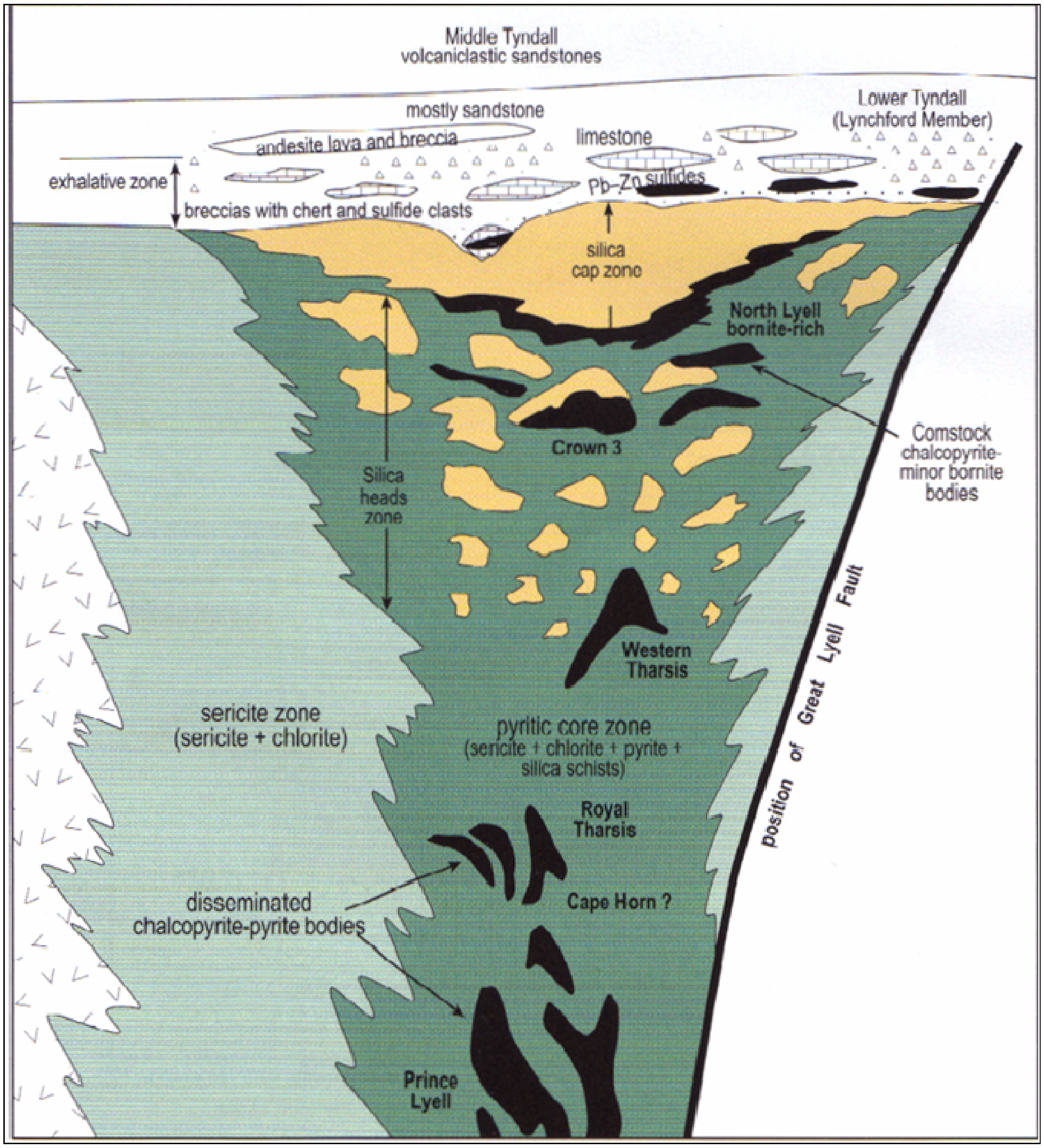

Figure 7 - Mt Lyell alteration and mineralisation (from Corbett et al. 2001)

5 EXPLORATION RATIONALE

In recent years new genetic models have been presented for the origin of mineralisation in the Mt Lyell district. This coupled with new open file information (HYMAP and magnetics) prompted Pangean Resources to evaluate ASTER alteration imagery to the south-east of Mt Lyell to determine whether it might be related to concealed Cu - Au mineralisation.

On a regional scale the Mt Lyell Cu-Au (Pb-Zn) district is localised at the intersection of the regional scale, north-south oriented, Great Lyell Fault Zone with a well-defined WNW trending, 'orogen oblique', structural corridor that includes the North Lyell and Glen Lyell fault zones. These structures are interpreted to be Cambrian age extensional structures reactivated as reverse faults during Middle Devonian shortening (Noll & Hall 2005).

HYMAP hyperspectral mineral mapping (by CSIRO and Pangean) of the Mt Lyell Cu-Au district (MLD) has defined a large zoned hydrothermal alteration system primarily hosted within the Middle to Upper Cambrian (Noll & Hall 2005) Mt Read Volcanics. The mineral mapping is characterised by a strong coherent, district scale, muscovite zone that encompasses the majority of mineralisation in the MLD. More localised centers of strong pyrophyllite within the muscovite zone show a spatial association with mineralisation at North Mt Lyell, Western Tharsis, Tharsis Consol, Glen Lyell and Glen Lyell South, on the edge of the pit to the main Mt Lyell deposit. This association suggests a genetic link between Cu-Au mineralisation and pyrophyllite alteration in the MLD.

Deposit scale alteration modeling at Western Tharsis (Hudson & Kamprad 2001) shows an outer shell of quartz-sericite-pyrophyllite-topaz capping the upper part of the Cu (Au) ore body. This suggests that the pyrophyllite bearing alteration may indicate proximity to mineralisation and could be used as a vector to guide mineral exploration in the MLD.

The mixed phyllic and high temperature advanced argillic assemblages outlined at Western Tharsis are characteristically seen in environments such as deep high sulphidation epithermal gold systems or in the transition to magmatic hydrothermal deposits. The alteration assemblage is hence considered indicative of a strong magmatic influence in the Mt Lyell hydrothermal system (Large et al, 1996). These data, coupled with improved stratigraphic and structural models for the MLD have led to new models for deposit formation, including:

1. Cambrian aged, hybrid epigenetic – syngenetic model (Corbett 2001); and
2. A Cambrian syngenetic origin for the Pb - Zn mineralisation, with an Ordovician age magmatic-related epigenetic origin for the Cu – Au mineralisation (Huston & Kamprad 2001).
3. The Mt Owen EL covers a coherent HYMAP muscovite - pyrophyllite anomaly located 3 km south-east of the Mt Lyell Mine. This anomaly lies within splays of the Great Lyell Fault Zone, and is hosted by the Upper Cambrian Owen Conglomerate sequence. This anomaly is not associated with any known Cu-Au mineralisation.

The Mt Owen Resources exploration program is designed to test:

- whether the Mt Owen muscovite – pyrophyllite anomaly represents in-situ hydrothermal alteration
- whether the anomaly represents a zone of hydrothermal up flow, channeled along splays of the Great Lyell Fault Zone into the Upper Cambrian stratigraphy
- for evidence of geochemical leakage that may indicate significant Cu-Au mineralisation concealed at depth beneath the alteration zone (*adapted from Nunn & Nano, 2008)*

Bondi Mining Ltd agree with and have adopted the exploration model developed by Pangean Resources Pty Ltd.

6 SUMMARY OF PREVIOUS WORK

6.1 Historical Exploration

For a full description of previous exploration is contained within section 3 of the Annual Report for period ending 14th June 2007 by Pangean Resources Pty Ltd (Nunn & Nano, 2007).

6.2 Previous work by Pangean Resources

6.2.1 2007 Exploration

During 2006 to 2007 reporting period Pangean Resources:

- Re-processed and interpreted the open-file HYMAP hyperspectral data over EL39/2005 to confirm the original ASTER anomaly.
- Processed and interpreted open file heli-magnetics to define the structural setting of the Mt Owen MP (muscovite – pyrophyllite) anomaly.
- Completed ground traverses across the anomaly collecting PIMA and Rockchip geochemical samples.
- Completed steam sediment samples of creeks draining the northern portion of the Mt Owen MP (muscovite – pyrophyllite) anomaly

Results:
Field observations suggests that the Mt Owen MP anomaly represents in-situ hydrothermal alteration; however Pangean is awaiting results from PIMA and petrographic studies to confirm this interpretation. No indications of Cu/Au mineralisation have been recognized in the field.

Rock chip and stream sediment results have not returned anomalous Cu values. A single rockchip sample returned 0.64g/t Au from a sample of white textureless quartz veining in a finer grained unit of the Owen Conglomerate. This sample had no associated multi-element geochemistry and is not thought to be related to Mt Lyell style Cu/Au mineralisation.

6.2.2 2008 Exploration

During the 2007-08 reporting period, Pangean Resources commissioned Global Ore Discovery to conduct additional re-processing and interpretation of the open-file HYMAP Hyperspectral data over EL39/2005, to confirm the original ASTER anomaly and focus exploration; and correlate the results of PIMA field sampling with HYMAP Hyperspectral data, to confirm and refine mineral alteration vectors to mineralisation.

Results:
The additional re-processing confirmed the ASTER pyrophyllite anomaly over Mt Owen, with the sericite anomaly far more restricted in the HYMAP data. The dominant mineral identified in the PIMA samples was muscovite, with phengite and pyrophyllite common and minor paragonite and brucite. PIMA field samples confirmed the presence of pyrophyllite in the

Owen Conglomerate. HYMAP white mica mapping and PIMA analysis of surface alteration samples from the Mt Owen MP (muscovite – pyrophyllite) anomaly shows a strong vector from distal phengite to proximal paragonite towards the Owen Splay fault system.

The Mt Owen MP anomaly is similar to the detailed alteration patterns mapped around the Western Tharsis Cu / Au orebody in the Mt Lyell District. This orebody has a pyrophyllite cap and an alteration zoning from distal phengite to proximal paragonite around the mineralisation.

Structural interpretation of the Mt Owen area suggests faulting has brought the Mt Read Volcanics closer to surface in EL39/2005. The Mt Owen MP Anomaly, in the Mt Owen conglomerate, may represent a hanging wall alteration halo to concealed Mt Lyell style Cu-Au mineralisation in the underlying Mt Read Volcanics. This represents an attractive underground mining target, close to infrastructure in an existing mining district, which requires drill testing.

7 EXPLORATION IN REPORTING PERIOD

Exploration during the reporting period consisted of field reconnaissance, structural mapping, rock chip sampling, line cutting, gridding and IP and CSAMT geophysical surveys.

6.1 Reconnaissance and gridding

A field reconnaissance visit to the Mt Owen project was completed in early March 2011 on the signing of an agreement between Bondi Mining Ltd (100% owner of Mt Owen Resources Pty Ltd) and Pangean Resources Pty Ltd. The aim of the visit was to become familiar with the area, access roads, ground conditions, field hazards and make contact with local stakeholders including MRT, Telstra, Broadcast Australia, Parks and Wildlife and Forestry Tasmania. During the visit six east-west traverses for the planned IP survey were walked and ‘pegged’ with pin markers. Originally the lines were to be 3 km wide, which is the width of the tenement, however, due to the very rugged terrain and thick vegetation on the east side the three northern lines were shortened by 1km and lines L4 and L5 were not completed across the desired target due to very rough or impassable terrain (**Figure 8**). The bottom two lines, which were planned as 3 km long, were cleared by line cutters for 1.5 km from the eastern boundary of the tenement and stopped when the crews intersected a cliff, which was impassable. Note; LQ was not gridded, but was surveyed with IP and CSAMT with the crew encountering steep and thickly vegetated slopes on the northern part.

6.2 Line Cutting

Permission was sought and granted by the MRT to cut a total of 3.4 line km of access track, approx 1m wide, to facilitate access by the IP crew in order to collect data on the two southern lines and also provide a remote Tx connection (external power) for line ‘Q’, which trends NE – SW. Originally it was thought that the four northern lines could be cut for IP access, but in discussion with MRT personnel this plan was abandoned due to the very steep and rough terrain. Lines 1, 2, 3 and Q were surveyed without having access cut (**Figure 8**).

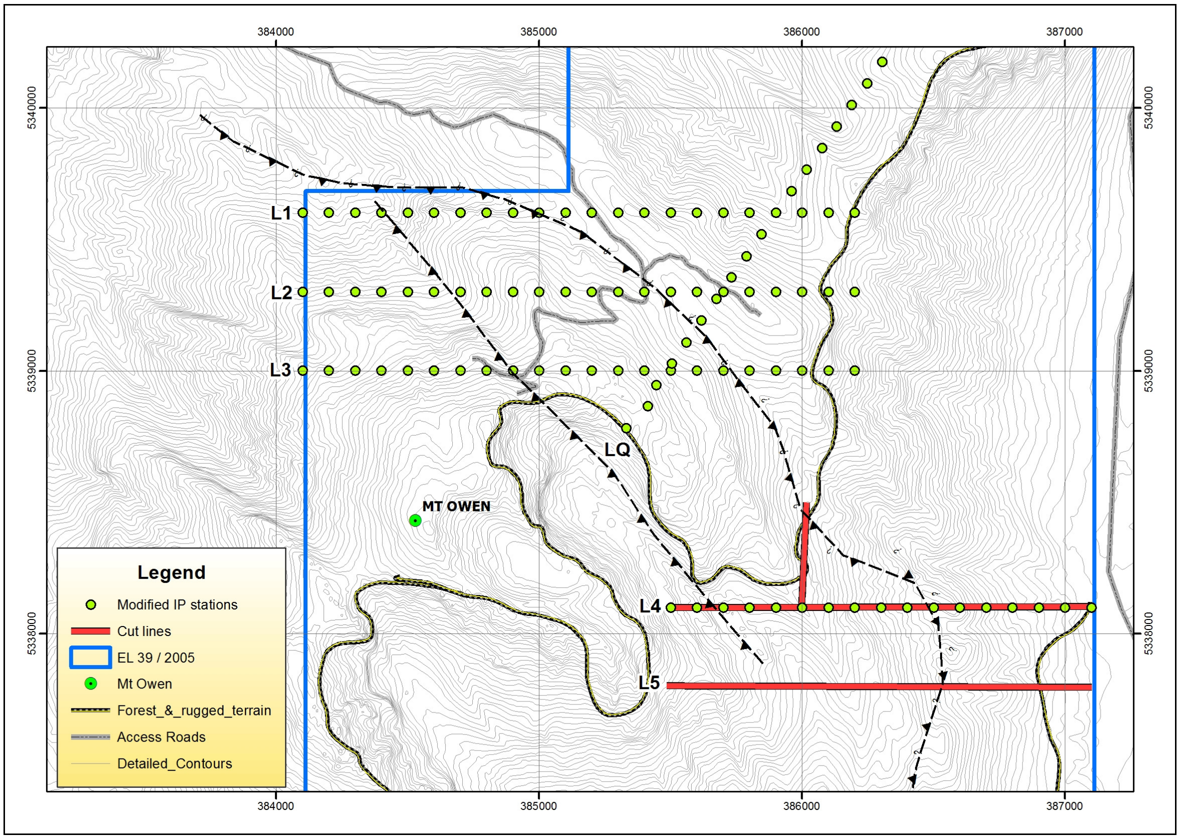

Figure 8 - Location of IP traverses modified due to terrain and vegetation.

6.3 IP and CSAMT survey

During March and April 2011, Zonge Engineering and Research Organisation (Zonge) conducted a Pole – Dipole Induced Polarisation (PDIP) and Controlled Source Audio-Frequency Magneto Telluric (CSAMT) surveys over HYMAP alteration anomalies within the Mt Owen lease EL 39/2005.

The aim of the IP and CSAMT surveys was to test for sulphides associated with buried Cu/Au mineralisation as seen at the Mt Lyell orebodies. The Prince Lyell orebody (31Mt @ 1.35% Cu, 2.88g/t Ag and 0.42g/t Au) comprises a 'pipe-like' disseminated chalcopyrite – pyrite mineralisation, which dips steeply to the south-west to a depth of approximately 1200m. The orebody is within an quartz-sericite-pyrite alteration envelope with pyrite content at approximately 5% (Corbett, 2001). This style of disseminated mineralisation with higher grade zones of chalcopyrite should be detectable as a chargeability anomaly using IP or CSAMT to a maximum depth of 400 to 500m (Simon Mann, pers comm, 2011).

The IP survey commenced on 20th March and was completed on 22nd April 2011. IP data was recorded along four east-west lines and one NE – SW line using 100m and 200m receiver dipoles and 100m station spacing resulting in 678 data points read over 9.5 line kilometres.

A single line survey using CSAMT was carried out at the Mt Owen project in April 2011. This followed completion of an induced polarisation (IP) survey. The objective of the CSAMT survey was to test the effectiveness of the method for mapping resistivity variations that could assist with identification of structures favourable for Cu / Au / Ag mineralisation. The IP survey had utilised several east-west traverse lines and one northeast trending line. Due to the difficulties in finding a suitable transmitter site for CSAMT measurements on the east-west lines the north-east trending traverse was used for the CSAMT work. Plan 1 in Appendix 5, shows the location of the northeast trending traverse line ‘Q’ used for the CSAMT survey. A 1700 m transmitter bipole was laid out parallel to the traverse and about 7.5 km to the west-northwest. CSAMT data were collected along one NE - SW line at 100m station spacings, with 1.3 line kilometres of scalar data recorded. Refer to Appendix 2 for the Zonge logistics summary report. For more details of the CSAMT survey refer to Appendix 5.

6.3.1 IP Results

Dr John Coggon of Mines Geophysical Services completed reports on the IP survey at Mt Owen. The report describes the survey, discusses the data and outlines an interpretation of the data. A copy of the report is attached in Appendix 3 and figures, including resistivity psuedo-sections, conductivity and chargeability smooth model inversions for lines; 5339600mN, 5339300mN, 5339300mN, 5338100mN and line ‘Q’ are attached in Appendix 4. It should be noted that Coggon refers to lines 1 to 7 in his report, whereas I have removed lines 4 and 5. Therefore lines 6 and 7 have become 4 and 5 (compare Plan1 in Appendix 3 with **Figure 8**, above)

Results:

This section is copied and modified from Coggon’s report. For a detailed description refer to Appendix 3 and for figures refer to Appendix 4.

Line 1 – 5339600mN

Inversion results for Line 1 are shown in Plans I396-C (conductivity) and I396-D (chargeability). Poorly repeating and extreme data have been excluded. Apart from local shallow variations in conductivity the broad structure appears to consist of slightly higher conductivity (ie lower resistivity) at depth in the western two thirds of the section. Very irregular chargeabilities are seen within 150 m of the surface while there appears to be a deep chargeability anomaly at the east end of the section. The sections in these plans have been plotted to 450 m below ground surface, but at each end of the line the depth of investigation is less than this and may be estimated as tapering up to the surface at about 45 degrees. The apparent deep anomaly at the east end should be considered unreliable. It is deeper than the effective depth of investigation here and probably results from an attempt to match roughly the irregular high apparent chargeabilities seen in the psudo-section (Plan I396B).

Psudo-sections for Line 1 with data from electrodes near pipes and different selections of other ‘suspect’ data discarded are shown in Plans I396A1 and I396B1 and in Plans I396A2 and I396B2. Corresponding inversion models are presented in Plans I396C1 and I396D1 and in Plans I396C2 and I396D2. The conductivity model results are all similar, with minor variations in the shallow features. The chargeability models show more variations, but an anomaly between 100 and 200 m depth near the centre of the section is present in all sections. The deep anomaly at the eastern end is also present. However, a further model based on the data shown in Plans I396A1 and I396B1 but with two more data points discarded does not retain the deep east end anomaly, as shown in Plan I396D3.

Line 2 - 5339300N
Model results for Line 2 with some data from electrodes near steel pipes discarded are illustrated in Plans I393-C and I393-D. As well as shallow variations a deep shallowly dipping more conductive zone is indicated in the central area. This is similar to that seen on Line 1, but appears to be deeper. There are numerous local shallow chargeability anomalies, and possible deep anomalies near the centre and in the eastern half near 385600E.
Some additional 'suspect' data points were identified and rejected, with the remaining points as shown in the pseudo-sections of Plans I393A1 and I393B1. Inversion models for this dataset are drawn in Plans I393C1 and I393D1. The deep conductivity structure is little changed, while the deeper chargeability anomalies remain but are weaker and more diffuse.

Line 3 - 5339000N
Inversion was only carried out for this line after discarding data clearly strongly influenced by steel pipes etc. The remaining data are shown in the pseudo-sections of Plans I390A1 and I390B1. Inversion results are given in Plans I390C1 and I390D1. A wide deep relatively conductive zone is suggested in the central area, and this is roughly consistent with the results from the lines to the north but appears more conductive. The chargeability anomalies are comparatively weak, and while there is a shallow zone of irregular features (as on other lines) there is also a weak deep anomaly in the central area. With a few additional data removed another model was obtained, as shown in Plans I390C2 and I390D2. The chargeability features are stronger in this result. However, before taking too much notice of the deep chargeable zone near 385100E it is important to see that there is a large gap in the data in this area, and visually the psudo-section (Plan I390B1) does not support the presence of this zone. The weaker mid-depth chargeable zone at 385700-800E in Plan I390D2 is supported by data in the psudo-section.

Line 6: 5338100N
This line is not near and does not cross any steel pipe and only one dataset appears suspect – that for the transmitter at 386700E. Inversion results with these data discarded are shown in Plans I381-C and I381-D. The models indicate relatively conductive material in the upper hundred metres or so in the eastern two thirds of the line. As expected from the psudo-section (Plan I381-B) the chargeabilities are low and show no anomalies at depth.

Line 'Q'
All data were used for the inversion model shown in Plans IQ-C and IQ-D. The broad tendency for conductivity to increase at depth is consistent with the results from Lines 1, 2 and 3. The chargeability patterns show irregular shallow variations, also similar to those seen on the northern east-west lines. A weak deep anomaly at the north-eastern (right hand) end is probably below the effective depth of investigation.

Line 'Q' crosses a pipe near 1630 and data from electrodes near this were discarded for the next inversion. Observed psudo-sections with the data used for modelling are given in Plans IQ-A1 and IQ-B1 and the model sections are shown in Plans IQ-C1 and IQ-D1. The differences between the inversion models are mainly for shallow features near 1600-1700.

6.3.2 CSAMT Results

Dr John Coggon completed a report on the CSAMT survey along line ‘Q’ at Mt Owen. The report describes the survey, discusses the data and outlines an interpretation of the data. A copy of the report with figures is attached in Appendix 5.

Results:

This section is copied and modified from Coggon’s report:

A buried relatively conductive zone is suggested at 1500-1600. This does not have a corresponding feature in the IP model shown in Plan CQ-D. As mentioned above, there is a pipe crossing the traverse at 1630, and the IP model is based on data excluding that from electrodes near the pipe. When all data are used, the IP also suggests a buried conductive zone. In addition there is a pipe about 200 m away to the northwest and running roughly parallel to the traverse (see Plan 1). These pipes probably influenced the CSAMT measurements. Rejection of the measurements from 1650 led to a model with a weaker zone at 1500-1600, but did not remove the feature entirely. Another buried (>200 m) weakly conductive region is indicated at 2300-2500. This does correspond to a mildly conductive zone in the IP inversion model.

Another two-dimensional model inverted from the CSAMT has been provided by Zonge. This shows buried conductive zones near 1700 and 2250, at a depth of 100-150 m. The zone at 2250 appears as the top of deeper, broader and weaker zone at around 2350. The main features correspond to those seen in Plan CQ-C although the locations and depths of the peak responses do show differences.

6.4 Rock chip Sampling

During the reconnaissance and mapping conducted in March to April 2011 a total of 33 rock chip samples of Mt Owen group sediments were collected from east – west IP traverses and also road cuttings. The purpose of the sampling was to determine whether any subtle geochemical anomalies occur in this part of EL 39/ 2005 and also to add to the hyperspectral data from rock chip samples already collected by Pangean Resources (Nunn & Nano, 2008). The samples were submitted to ALS in Brisbane to be analysed for Au by fire assay and ICP-AES finish and a suite of 48 elements including Cu, Ag and Pb by four acid digest and ICPMS finish. Refer to **Plan 1** for the rock chip locations, **Appendix 6** for a list of rock chip samples with description and location coordinates and assays and **Appendix 7** for the assay results from ALS. Note – two gold and copper standards, BOM07153 and BOM07154 and ‘ore halo’ sample from near Mt Lyell (BOM07155) were submitted with the batch.

The rock chip samples did not return any anomalous Cu or Au values and no other elements appeared particularly anomalous. However, further multi-element statistics will be completed on the data in the next quarter, and the sample pulps will be submitted for hyperspectral analysis with *Global Ore Discovery*.

6.5 Structural Mapping

During the gridding and IP / CSAMT surveys structural and stratigraphic mapping was conducted along the east – west IP traverses, NE – SW traverses perpendicular to the strike of stratigraphy and road cuttings leading up to the summit of Mt Owen (access for Telstra and Broadcast Australia to their infrastructure). The aim of the mapping was to produce relatively accurate geological cross-sections which will aid in the interpretation of the IP / CSAMT data and help in future targeting of potential mineralisation at depth.

The mapping involved walking a traverse or road and stopping at regular intervals to mark the location on a GPS, briefly describe the rock type(s) and structures present, and measure the structures using a *Frieberg* structural compass. The structures measured include; bedding (So), foliation (S1, S2), fold axes (F1, F2, F3), quartz veins (VQ), joints (J1, J2). The convention is dip and dip direction. All original measurements were 'magnetic' then a correction was made for local magnetic declination (14.3 degrees). Refer to Appendix 6 for a description of the geology at each location, which includes; coordinates in GDA 94 – MGA Zone 55, colour, grainsize, texture, alteration, rock type codes (major and minor), dip, strike, dip direction of structures, and photos. It should be noted that many of the codes are broad, field based descriptions and might not match strict academic conventions.

Although the mapping was not extensive enough to produce a good quality geological map the bedding symbols and waypoints are plotted onto the 1:25,000 mapping completed by the Tasmanian Geological survey. Refer to **Plan 2** for a map of the structural measurements and **Plan 3** for a map of the waypoints with lithology codes plotted.

The structural and lithological mapping was used to create three interpretive geological cross-sections on IP lines 5339600N, 5339300N and 5339000N which were plotted onto the smooth model chargeability inversions (**Plan 4**). In summary the sections are oblique to strike (25 – 45^0) and define a moderately south-west dipping sedimentary sequence with steeply overturned NNW to NW trending, shallowly plunging F2* folds and associated NNW to NW trending, steeply to moderately dipping reverse faults or thrusts. The style of folding and deformation varies with lithology; the thick bedded cobble conglomerates deform into large open folds, whilst the thin bedded sandstone and siltstone form tight to isoclinal folds. The NW – SE trending folds and associated faults are accepted as being formed during the Mid Devonian Tabberabberan orogeny and are therefore referred to as F2 and the axial planar foliation is referred to as S2. Gentle to open north – south trending folds are observed at the northern part of the lease near the Telstra tower, however no fold plunges were measured.

Deformation along the western-most thrust fault (384400mE on 5339600mN) is intense with a zone ~10 – 20m wide with large sheared blocks of mudstone surrounded by fault breccia. This fault is exposed in the road cutting at 384900mE on 5339000mN. The central fault located at 385450mE on 5339300mN is not exposed due to scree and alluvial cover, however it is inferred by stratigraphic change across it (**Plan 2**). No attempt has been made to determine the vertical displacement on the thrust faults, however, it must be in excess of 600m on the central fault, based on observed lithology. One of the main reasons for exploring the Mt Owen area is the theory that the favourable host volcanics of the Central Volcanic Complex (Corbett, 2001) will be shallower in this area due to thrust displacement. We believe that the structural mapping conducted has confirmed this theory (**Plan 4**).

7 CONCLUSIONS

IP survey: *Adapted from Appendix 3*

- The IP survey at Mt Owen covered roughly half of the original planned area, with proposed traverses in the southern section abandoned due to the dangerous terrain and thick vegetation.

- The highly resistive ground meant that good signal strengths were achieved, but the rocky ground conditions resulted in unreliable chargeability readings in some places.

- A major problem was interference from grounded steel pipes and cables which caused both distortion of current and induced polarisation effects. By discarding data from electrodes suspect because of ground conditions or proximity to pipes and cables it was hoped that inversions would lead to 'uncontaminated' ground models. Some model results were not very well defined and did not provide reliable information down to the depths desired, due to rejected data.

- The conductivity sections for lines 5339600N, 5339300N and 5339000N (Plans I396-E, I393-E and I393-E) all show three features: shallow irregular variations above about 100 m depth, a relatively resistive region in the eastern quarter of the traverse, and a deep (generally >200 m) zone of increased conductivity covering the central third to half of the traverse extent. The shallow anomalies probably come from variations in conductivity related to fracturing, joints and oxidation as well as local geometric effects from the irregular terrain – not defined by the terrain model or the IP model. The broad deep zone appears to approach the surface in the west and is more conductive and shallower on the southernmost line. The western ends of the lines vary: 5339600N appears resistive, 5339300N is more conductive near the surface and 5339000N is more conductive at depth.

- Chargeability sections for these lines (Plans I396-F, I393-F and I393-F) display irregular patterns above 200 m. These shallow variations in chargeability may reflect partly the effects of pipes etc. adjacent to the traverses and partly polarisation due to local hematite occurrence and perhaps incipient clay alteration. Deeper variations in chargeability are much more subdued. On line 5339600N the rocks in the eastern third of the traverse appear to be about twice as polarisable those in the west, below about 200 m. On line 5339300N the eastern five eighths below 200 m is relatively polarisable, while line 5339000N generally appears less polarisable at depth apart from a 400 m wide zone west of centre. This anomaly on 5339000N is the only discrete zone extending below 200 m on this set of sections, but whether or not it reflects a real feature in the ground is uncertain. It may be due to pipes and other infrastructure adjacent to the traverse. The broad eastern deep more polarisable zones on 5339300N and 5339600N look more like background variations than signs of localised mineralisation.

- Results from the oblique line 'Q' (Plans IQ-C2 and IQ-D2) that runs across the eastern parts of the three northern east-west lines are consistent with models for these lines in showing noisy shallow variations in conductivity and chargeability. As on these lines there is also increased conductivity below about 200 m, particularly in the southwest and northeast sections. Broad weak deep variations in chargeability are also evident.

- The survey on line 5338100N was the most satisfactory in terms of obtaining good data free of the effects of pipes and cables. The conductivity model section shown in Plan I381-C shows a clear change in character from shallow resistive ground in the western third of the traverse to shallow conductive ground in the eastern two thirds. This conductivity is probably caused by weathering (facilitated by plant roots). The chargeabilities at depth are low compared with most of the models for the northern traverse lines, with no anomalies of interest.

CSAMT survey: *Adapted from Appendix 5*

- Some of the data collected in the CSAMT survey along line 'Q' was noisy and had to be rejected, but most measurements could be used for modelling.

- The ground is clearly highly resistive, with localised patches of lower resistivity very near the surface. The CSAMT and IP surveys both show these resistivity features.

- The CSAMT model results show two zones of reduced resistivity (increased conductivity) deeper than 100-200 m below the surface:
  - The zone near 1600 on line 'Q' is in the vicinity of steel pipes at the surface, and therefore cannot be considered reliable as an indication of the real ground structure.
  - The measurements supporting the deep zone at 2300-2500 should not be affected by surface culture. This rather weak and deep zone is also evident from the IP/resistivity survey, where it appears to be weakly polarisable as well as relatively conductive.

Rock chip sampling

No significant anomalies were defined from the 33 rockchip samples collected during reconnaissance mapping in March and April 2011. Further statistical analysis of the geochemistry will be completed on the assay data and the samples have been submitted to Global Ore Discovery for hyperspectral analysis.

Structural mapping

Structural and stratigraphic mapping was conducted along the east – west IP traverses, NE – SW traverses perpendicular to the strike of stratigraphy and road cuttings leading up to the summit of Mt Owen. The aim of the mapping was produce accurate geological cross-sections which will aid in the interpretation of the IP / CSAMT data, help target potential mineralisation at depth, and confirm proposed geological models by Nunn & Nano (2008).
The mapping defined a moderately south-west dipping sedimentary sequence with steeply overturned NNW to NW trending, shallowly plunging F2 folds and associated NNW to NW trending, steeply to moderately dipping reverse faults or thrusts. Deformation along the western-most thrust fault (384400mE on 5339600mN) is intense with a zone ~10 – 20m wide with large sheared blocks of mudstone surrounded by fault breccia.

Vertical displacement on the central thrust fault, must be in excess of 600m based on observed lithology. We believe that the structural mapping conducted has confirmed the theory that the favourable host unit of the Central Volcanic Complex (Corbett, 2001) will be shallower in this area due to thrust displacement (**Plan 4**).

8 FUTURE WORK

- Complete hyperspectral analysis (PSM 3500 spectrometer) on rock chip samples collected in March and April 2011
- Further detailed mapping at Mt Owen to extend the understanding of the 3D structural geometry of the Central Volcanic Complex and overlying Mt Owen Conglomerate (October – November)
- Modify target model and exploration program to suit the revised 3D geology of the Mt Owen tenement
- Plan and conduct a staged diamond drilling program to test deep chargeability anomalies defined by the IP and CSAMT surveys (October – November rig availability pending)

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PLANS

Plan 1: Mt Owen rock chip sample locations

Plan 2: Mt Owen geological map with structural symbols

Plan 3: Mt Owen geological map with waypoints and lithologies

Plan 4: Mt Owen interpretive cross sections on smooth model inversion of chargeability

APPENDICES

Appendix 1: Expenditure statement (Word doc) – Separate attachment

Appendix 2: Logistic Summary Report; Mt Owen CSAMT and PDIP surveys, by Simon Mann of Zonge Engineering and Research Organisation (Aust) Pty Ltd

Appendix 3: Report on the Mt Owen IP survey by Dr. J. Coggon

Appendix 4: Figures from the Mt Owen IP survey report by Dr J. Coggon

Appendix 5: Report on the Mt Owen CSAMT survey by Dr. J. Coggon

Appendix 6: Rock chip sample locations and descriptions

Appendix 7: Rock chip sample assay results from ALS