



# **EXPLORATION LICENCE 32/2010 Boco**

## **SECOND ANNUAL REPORT**

For the period between 24 March 2012 and 23 March 2013

### **Abstract**

Exploration targets in the tenements are volcanogenic massive sulphide deposits similar to Rosebery, Que River, and Hellyer.

During the reporting period, a VTEM airborne geophysical survey was conducted over the tenement area, as a part of regional survey commissioned by Yunnan Tin Group over its tenement package in west coast of Tasmania.

Preliminary interpretation of VETM data over EL32/2010 has identified a number of conductors. The most significant conductor identified is located at south part of tenement near Samuel Smiths Lode prospect, with a targeted depth of 200m. Conductors close to Silver Falls Prospect located at western part will be followed up. However, conductors located at eastern and northern parts of the tenement are shallow in nature and are probably related ground water bodies within weathering zones. Other exploration work is limited to a few excursions to the area.

All exploration activities are being conducted in an environmentally sensitive manner.

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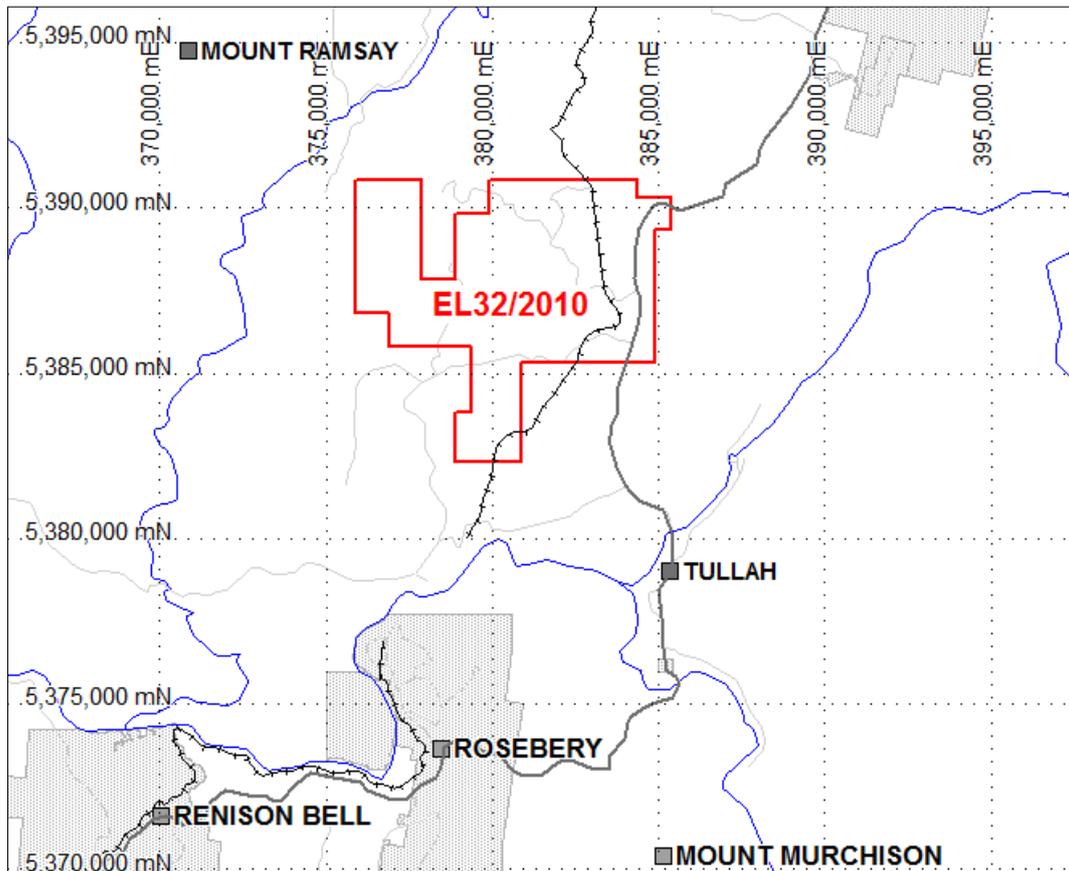
## List of Appendices

*(supplied in sperate digital files)*

1. EL322010\_201305\_02\_ **Appendix I** AA1362\_Yunnan Tin Australia TDK Resources Pty Ltd\_report.pdf
2. EL322010\_201305\_03\_ **Appendix II** Survey Data Metadata\_AA1362\_readme.txt
3. EL322010\_201305\_04\_ **Appendix III** SurveyData\_ASEG-GDF format\_EL32\_2010.zip
4. EL322010\_201305\_05\_ **Appendix IV** SurveyData\_ERMapper\_EL32\_2010.zip
5. EL322010\_201305\_06\_ **Appendix V**  
SurveyData\_GeosoftFormat\_Database\_AA1362\_EL32\_2010\_final.gdb
6. EL322010\_201305\_07\_ **Appendix VI**  
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7. EL322010\_201305\_08\_ **Appendix VII**  
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9. EL322010\_201305\_10\_ **Appendix IX**  
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10. EL322010\_201305\_11\_ **Appendix X** AA1362\_10k\_EL32\_2010\_TauSF.pdf

# 1. Introduction

EL32/2010, Boco, is located about 5km NW of Tullah, on the western coast of Tasmania (Figure 1). This tenement is found on Charter, Block, Parsons and Ramsay 1:25,000 map sheets, with combined area of 48.2 sq. kms.



**Figure 1:** EL32/2010 Boco locality plan

Both Murchison Highway and Emu Bay Railway line run through eastern half of the tenement area. While accesses to the east and central areas of the tenement are via a forestry road, Boco Road and dirt tracks off Murchison Highway, west part of tenement has limited access. Boco siding and rail facility are also located in the area.

The area contains temperate rainforest, eucalypt woodland and relatively open button grass flats. Glacial sediment cover, particularly though the central and eastern sections of the licence has inhibited exploration techniques, particularly EM.

Central and western parts of the tenement area are covered by forest reserve; while eastern part by a combination of state forest, nature recreation and aurora/hydro/transcend lands.

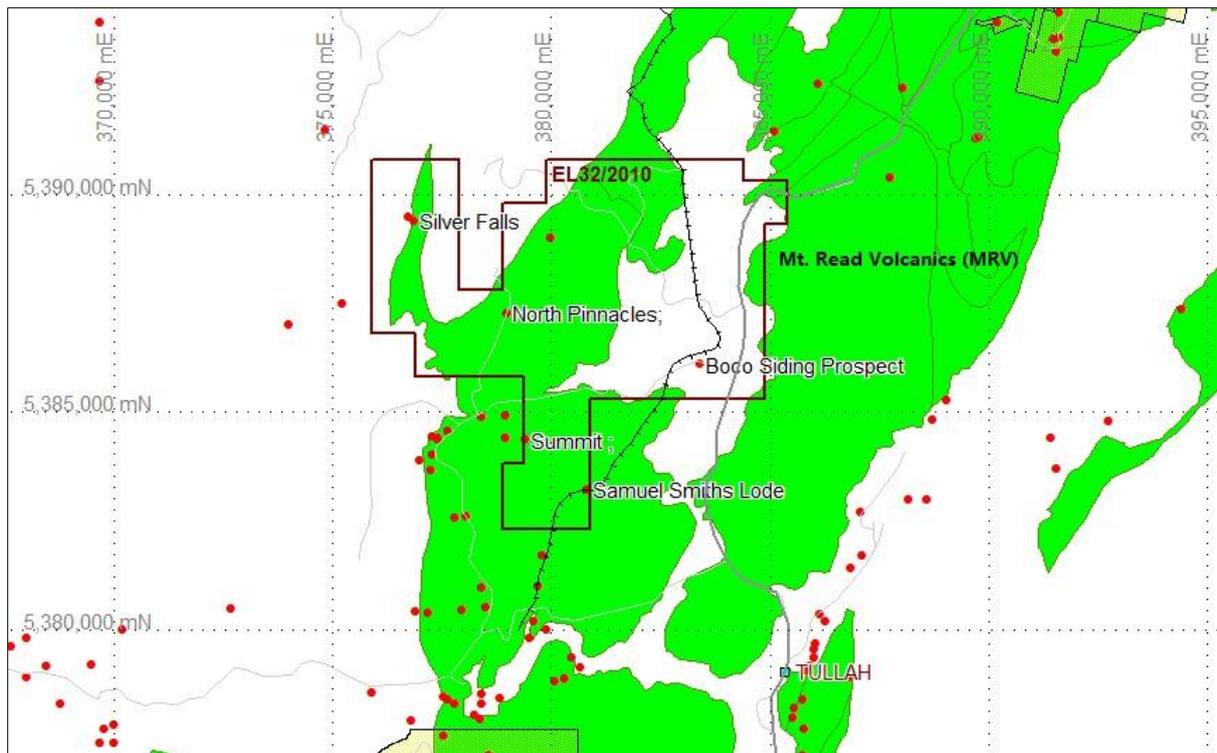
## 2. Tenement Details

Exploration Release Area 819 was offered for tender by the Tasmanian Department of Mines, as a result of relinquishment of previous EL70/2007 held by TeckCominco. Yunnan Tin Australia TDK Resources Pty Ltd was successful in the tender process for a larger area than EL70/2007. An extended area of Mt. Read Volcanics to the west of original ERA819 was included in the application, which covers Silver Falls lead-silver prospect. The title was granted as EL32/2010 on 24th March 2011 for a period of five years.

## 3. Geology and Mineralization

### 3.1 Regional Geology

EL32/2010 Boco is located in the Dundas Trough in western Tasmania. The VHMS prospective sequence forms part of the mid- to late-Cambrian Mt Read Volcanics (Fig. 2).



**Fig. 2:** Presence of Mt. Read Volcanics (MRV) in and around the tenement area

Basement in western Tasmania is Precambrian in age, comprising predominantly greenschist facies metasediments with minor basalts and dolerites, although higher grade amphibolite and eclogite facies rocks are also present (Burrett and Martin, 1989).

Cambrian volcanism and sedimentation development on the margin and within the rift can be subdivided into the Eo-Cambrian tholeiitic Crimson Creek Formation (CCF) and the mid to late Cambrian Dundas Group and predominantly calc-alkaline Mt Read Volcanics (MRV) (Skirka and McNeill, 2005).

The CCF was deposited in shallow but rapidly subsiding basins (Brown, 1986). The CCF consists of basaltic lavas and volcanoclastics, turbidites, carbonates, chert and minor evaporites. This formation is exposed west of the licence.

Ultramafic cumulates and volcanic equivalents were thrust onto the CCF in the mid Cambrian (Crawford and Berry 1991). These rocks generate strong magnetic anomalies and outcrop within the Huskisson Syncline, to the west of the licence. The ultramafics are interpreted at depth beneath the licence (Leaman, 1992).

The MRV form a 200km long by 20km wide north-south trending belt along the eastern side of the Dundas Trough, adjacent to and in some areas overlapping and intruding the Precambrian basement. The volcanics include intermediate to felsic lavas, sub-volcanic porphyries and granites, volcanoclastics and basement-derived sedimentary rocks. The MRV host six economically significant volcanic hosted massive sulphide deposits (Simpson and McNeill, 2001).

Equivalents of the MRV underlie all the EL32/2010 Boco licence except western margin, and vary from massive felsic lavas, volcanoclastics and subvolcanic intrusives of the Central Volcanic Complex (CVC) in the east and south. This package is overlain, in part, by a thin micaceous greywacke and shale sequence, correlated with the Animal Creek Greywacke, and the Hollway andesite, a package of feldspar-phyric dacitic to basaltic lavas and hyaloclastic lava breccias with a geochemical signature suggesting a correlation with the Que-Hellyer Volcanics (Coutts, 1990).

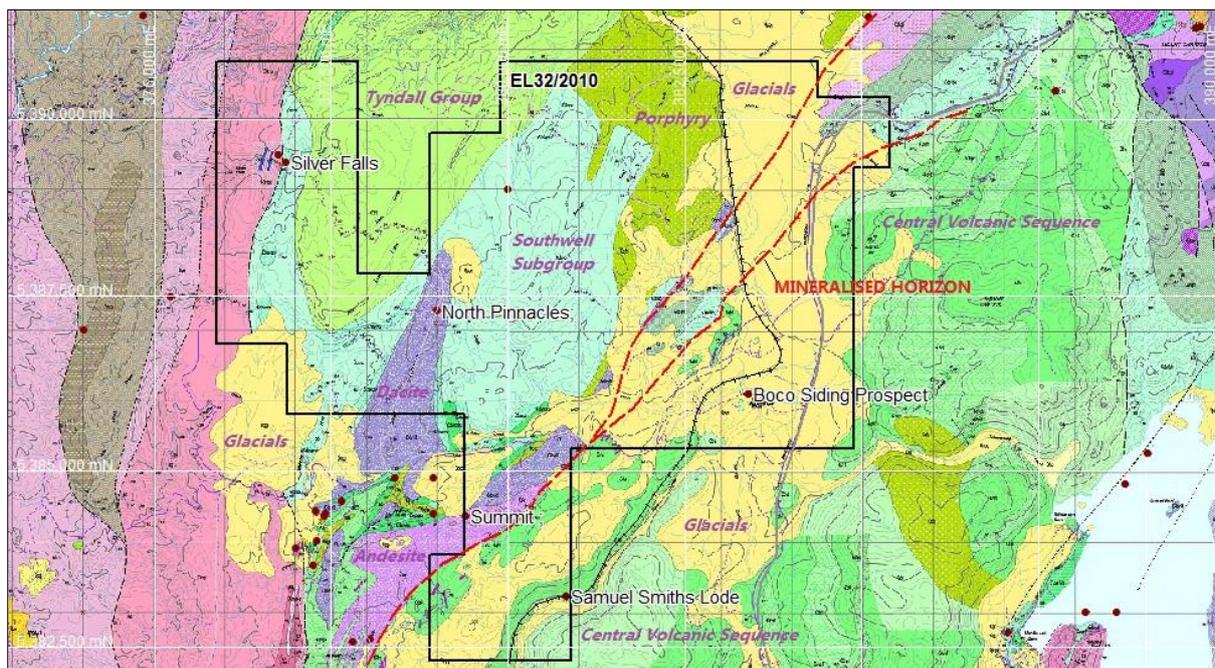
In east and south parts of the licence area, the Mt Read Volcanics are represented by massive felsic lavas, volcanoclastics and sub-volcanic intrusives of the Central Volcanic Complex (CVC). The CVC is overlain in part by a thin micaceous greywacke and shale sequence correlated with the Animal Creek Greywacke (including the Black Harry Beds) and the Hollway Andesite, a package of feldspar-phyric dacitic to basaltic lavas and hyaloclastic breccias (McNeil, 2005). The Hollway Andesite suite has been correlated with the Que-Hellyer Volcanics based on geochemistry (Coutts, 1990).

Poorly mapped mixed provenance fine to coarse grained sediments (including volcanic quartz-rich volcanoclastics) with minor quartz-feldspar porphyry intrusives and lavas, probable correlates of the Southwell Subgroup (or lower Tyndall Group) overlie the Hollway Andesite and define a synclinal structure in the north and west of the tenement (Simpson and McNeill, 2001).

Fine to coarse quartz-rich volcanoclastics, some quartz-phyric lavas and porphyry intrusives overlie the Hollway Andesite. They are correlated with the Southwall Group or Lower Tyndall Group and form a syncline in the north and west of the tenement. Some mineralisation at Pinnacles and Southern Trenches to the west of the licence is associated with these rocks.

A large glacial channel cuts through the eastern part of the licence and may be over 100m thick (Figure 3). It has inhibited exploration as geophysical techniques are ineffective through the clay-rich sequence.

Major structures that subdivide the MRV are the Rosebery Fault, west of the licence, and the Henty Fault, which is located 5km to the east of the licence.



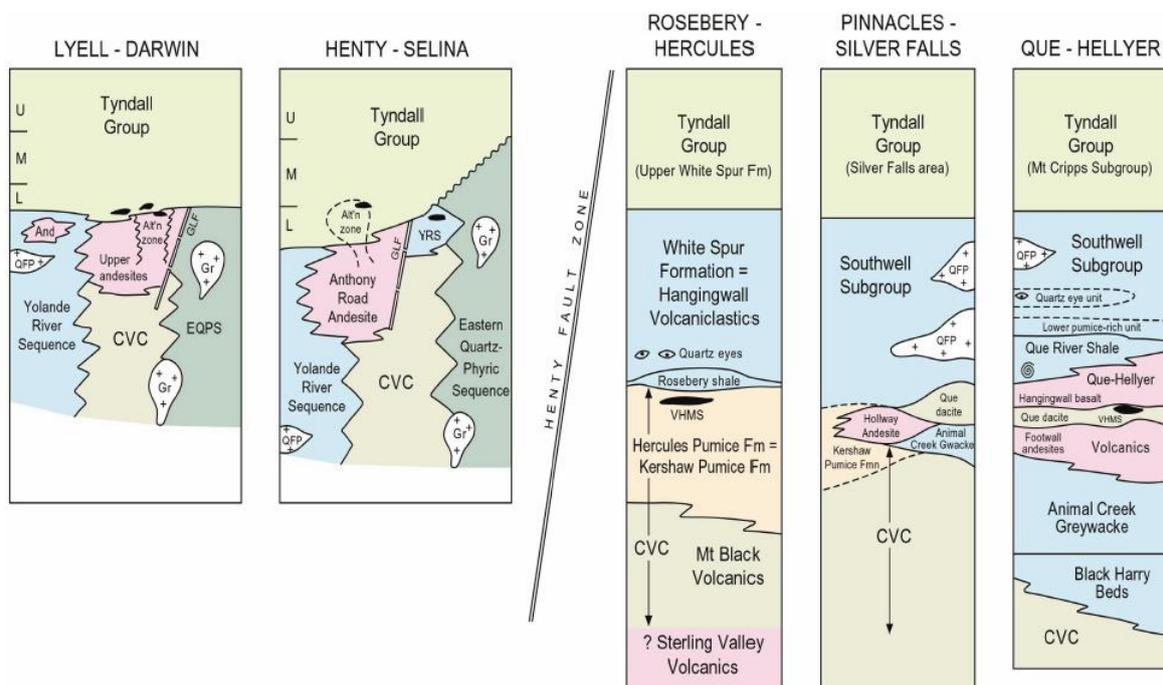
**Fig. 3:** Tenement geology (base geological data from MRT 25K geological mapping data; mineralised horizons interpretation adopted from Zinifex).

### 3.2 Mineralisation

Six volcanogenic massive sulphide deposits of economic interest are known in the belt with Rosebery the most significant. Hellyer and Que River were previously mined. Rosebery sits

at the top of the CVC in what is locally termed the Hercules Pumice Formation, a pumice-rich breccia derived from acid lavas. An equivalent to this, termed the Kershaw Pumice Formation, extends to the Hollway Andesite area and then lenses out. Que River and Hellyer massive sulphide deposits sit in dacitic to andesitic rocks of the Que-Hellyer Volcanics that equate with the Hollway Andesite position, though Corbett (2002) suggests that this may be more time equivalent with the Kershaw Pumice Fm and shows the Que Dacite in which Que River sits overlying the Hollway Andesite. (Figure 4) (Gregory, 2009).

No economically significant mineralisation is known in the licence. The Boco sericite-pyrite alteration has been intensively explored and a significant amount of work has gone into the higher stratigraphic position at the Hollway Andesite where pyrite occurs in altered andesite. Drilling below this into the CVC has found some alteration and veins of massive sulphides, but of very limited extent (e.g. Skirka and McNeill, 2006). Pasmenco/Zeinifex has carried out systematic assessment over Silver Falls prospect without significant results.



**Fig. 4:** Regional stratigraphic correlations (Adopted from Corbett, 2002)

## **4. Exploration During Second Year of Tenure**

Current exploration has included VTEM airborne geophysical survey and a number of field geological reconnaissance trips into the area.

### **4.1 Airborne VTEM Geophysical Survey**

Yunnan Tin Australia commissioned a regional VTEM airborne geophysical survey over all its tenements in the west coast of Tasmania. The principal objective of this survey is to further define prospective areas within those areas where ground access to most parts is difficult mainly due to thick vegetation.

During the period from December 10<sup>th</sup> 2012 to February 7<sup>th</sup>, 2013, a helicopter-borne geophysical VTEM survey was carried out by Geotech Airborne Pty Ltd over the EL32/2010, EL46/2010, EL22/2010, EL50/2008N and EL50/2008S blocks located approximately 7 kilometres north, 9 kilometres west, 16 kilometres southwest, 12 kilometres south and 31 kilometres south of Tullah respectively. EL32/2010 Boco is the most northern tenement in the group. Refer to Fig 5 for the locations of survey areas.

Within EL32/2010, a total of 56 sq km was covered by the survey with a total 633 line-km flights.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM<sub>plus</sub>) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 2291 line-kilometres of geophysical data were acquired during the survey. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

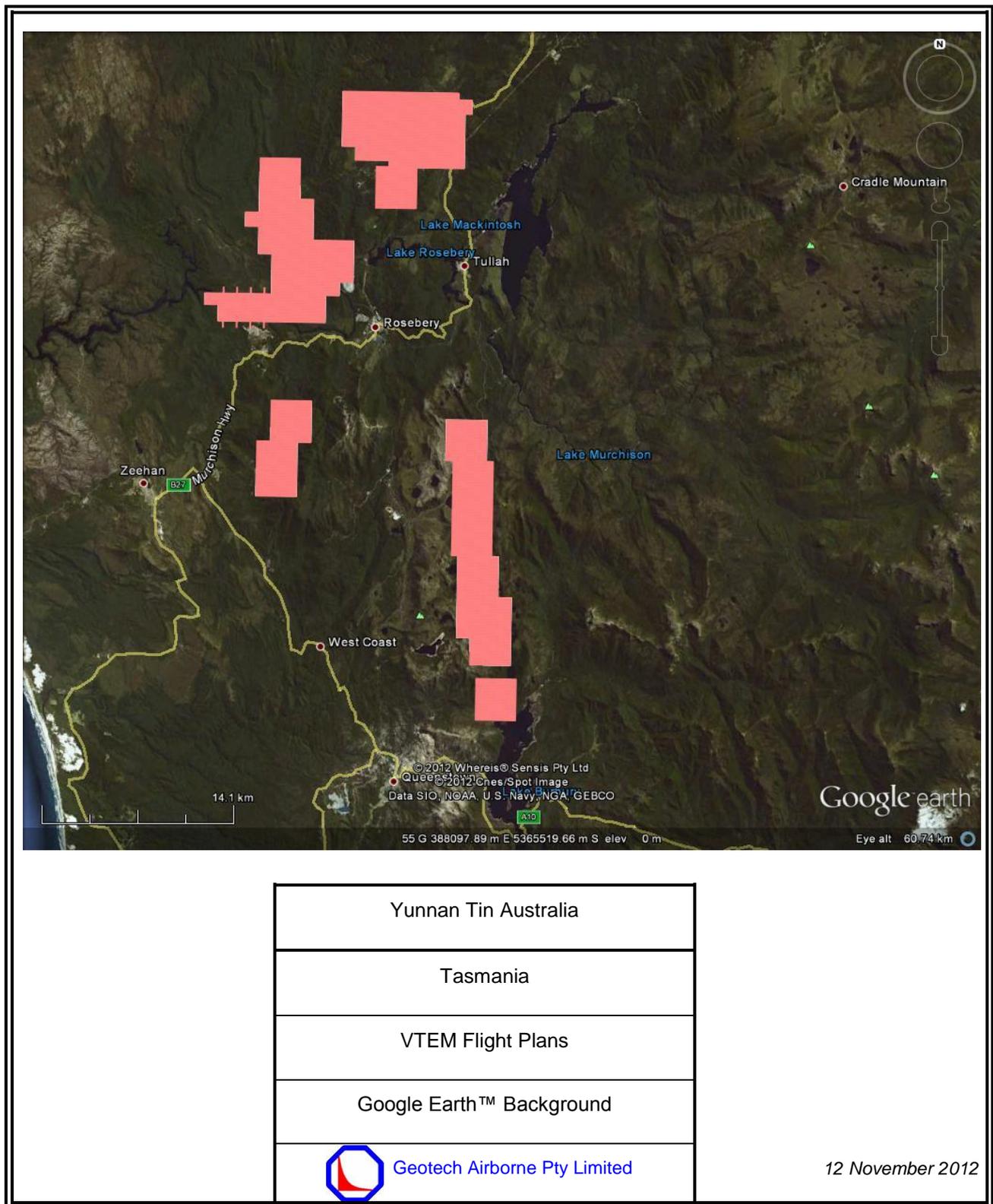


Fig. 5: Coverage of VTEM geophysical survey

The processed survey results are presented as the following:

- Electromagnetic stacked profiles of the B-field Z Component,
- Electromagnetic stacked profiles of dB/dt Z Components,
- Colour grid of a B-Field Z Component Channel,
- Colour grid of a dB/dt X Component Fraser Filter Channel,
- Reduced to Pole of Total Magnetic Intensity (RTP), and
- Calculated Time-constant dB/dt Z Component (Tau), are presented.

The final survey report by GeoTech Ltd appended to this report as Appendix I, entitled “AA1362\_Yunnan Tin Australia TDK Resources Pty Ltd\_report”. This report covers the whole group of EL’s and includes significant plans.

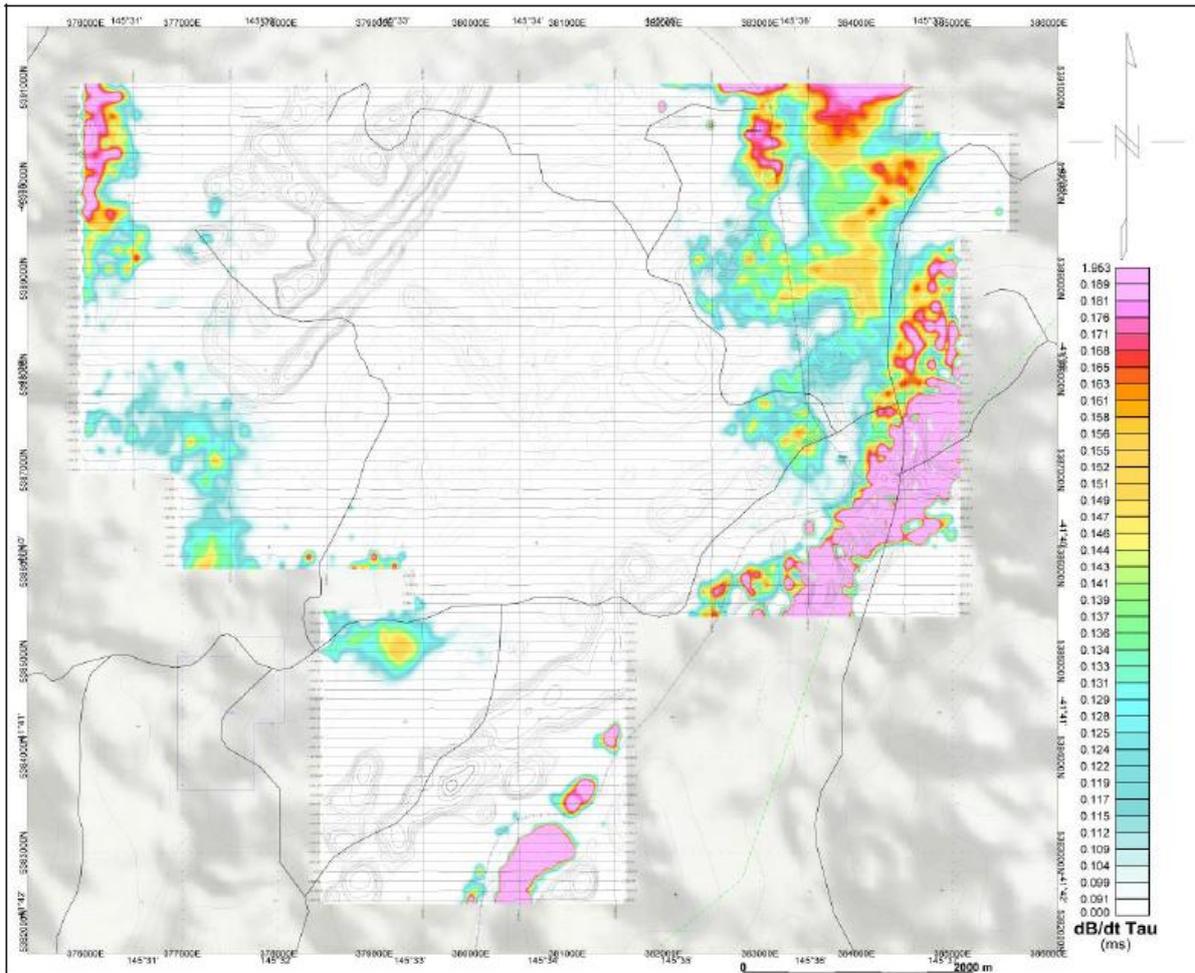
Digital data including all electromagnetic and magnetic products, plus ancillary data including the waveform are appended to this report as Appendix II to Appendix IX.

#### **4.2 Survey Results**

Based on the geophysical results obtained, several TEM anomalous zones are identified by Geotech across the block EL32/2010. They can be seen overlapping the dB/dt Calculated Time Constant (TAU) decay parameter image presented with the calculated vertical magnetic gradient (CVG) contours (Fig. 6). A higher resolution version of this plan is included as Appendix X.

The broad comparatively weak anomalous zone is located in the north-eastern part of the tenement. It is orientated in North-South direction and associated with magnetic gradient feature. According to corresponded apparent resistivity depth sections, it is considered as a near surface layer similar conductors which are possibly conductive overburden or near surface conductive rocks.

The weak conductive zone in the eastern part of the property is orientated in northeast direction and interfered with cultural. The estimated depth of the anomalous zone is about 20 metres.



**Fig. 6:** dB/dt Calculated Time Constant (Tau) with contours of anomaly areas of the Calculated Vertical Derivative of RTP

The weak conductive zone near Samuel Smiths Lode in the southern part of the property is orientated in northeast direction and surrounded by higher magnetic gradient. The estimated depth of the potential targets is about 200 meters. This may present as a significant target to warrant further investigation.

In addition, a couple of small weak anomalous zones are detected in the western part of the property, which are lose to Silver Falls prospect

## 5. Discussion

Preliminary interpretation of VTEM survey data has provided some valuable information for further exploration. However, detailed reprocessing and interpretation of the survey data is required.

The VTEM results have indicated that those conductors in the east and northern parts of tenement are due to shallow sources, probably shallow groundwater bodies within weathering zone.

The deep conductor located at southern part will be the focus of further exploration. Proposed initial exploration includes ground geological and Niton X-ray geochemical reconnaissances.

Silver Falls prospect will also be ground checked where some conductors were identified by current VTEM survey.

## 6. Work Planning for Year 3

The exploration work for Year 3 will include re-interpretation of VTEM survey data and ground checking of southern portion of the tenement as well as Silver Falls area.

**Table 1:** Planned Exploration for Year Three

Item	Details	Expenditure (\$)
VTEM Data Interpretation	Reinterpretation of VTEM survey data for the tenement	20,000
Southern Area	Ground geological and geochemical reconnaissance of southern VTEM anomaly	50,000
Silver Falls Prospect	Ground reconnaissance	5,000
<b>Total</b>		<b>A\$75,000</b>

## 7. Environment

Yunnan Tin Australia TDK Resource Pty Ltd has environmental policies in place to always ensure minimisation of the impact that exploration activities have on the environment. All vehicular travel within the tenement has been on the existing tracks.

## 8. Expenditure Statement

Expenditures for the period 17/03/2012 to 16/03/2013 are:

Expenditure	\$
Geology	2,500
Geochemistry	
Geophysics	138,237
Remote Sensing	
Gridding	
Drilling	
Land Access Costs	
Rehabilitation Costs	
Feasibility Study Cost	
Other Cost	2,818
Administration Cost	13,356
<b>TOTAL</b>	<b>\$157,911</b>

**Table 2:** EL32/2010 Expenditure for second year

## References

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