

# EXPLORATION LICENCE 46/2010

## Huskisson River, Tasmania

### FIRST ANNUAL PROGRESS REPORT

for the period between 26 May 2011 and 25 May 2012



**Yunnan Tin Australia TDK Resources Pty Ltd**

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*Co-ordinate system used in maps and diagrams within this report is MGA55 (GDA94), unless otherwise specified.*

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### **Abstract**

Exploration work during first year of tenure has concentrated on previous exploration data review and identification of exploration model. This has involved compilation of available exploration reports and MRT research reports and establishment of geological and GIS database.

The tenement area has been explored for Avebury style nickel, PGM, chromite and to lesser extent for tin and gold. The most significant geological feature within the tenement is the Huskisson River Ultramafic Complex (HRUC), which is a part of similar ultramafic bodies scattered along the Dundas and Admasfield in western and northwestern Tasmania. One of such other ultramafic bodies is Wilson River Ultramafic Complex (WRUC).

Since most previous exploration has concentrated on WRUC, the HRUC has received relatively less attention. The potential to locate PGM mineralisation associated with HRUC still exists.

Tin mineralisation potential in the region associated with Gordon Limestone correlate has not been assessed. The occurrences of alluvial tin in the area suggested presence of tin mineralisation, probably associated with underlying Devonian granite intrusion.

For exploration work in Year Two of the tenure, VTEM survey has been planned, to better define HRUC body and provide potential indication of granite intrusion. Surface geochemistry of stream sediment, soil and rock chip sampling has also been proposed.

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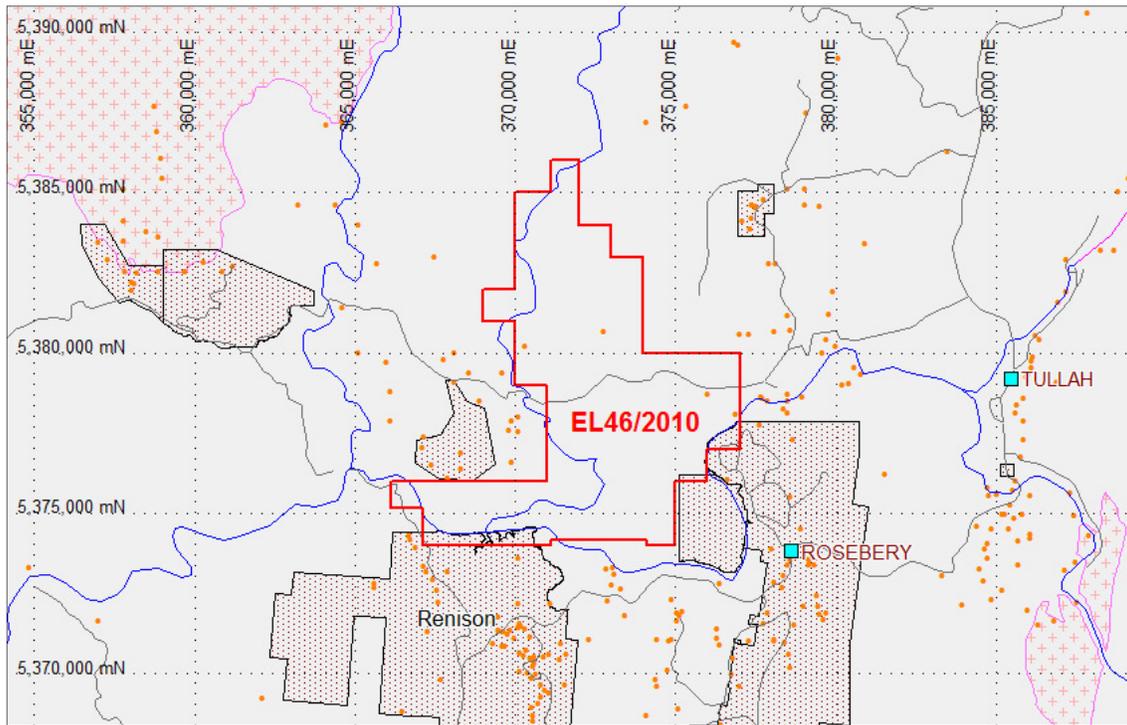
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# 1. Introduction

EL46/2010, Huskisson River, is located about 10 km west of Tullah, on the western coast of Tasmania (Figure 1). This tenement is found on Rosebery and Parsons 1:25,000 map sheets, with an area of 59 sq. kms.



**Figure 1:** EL46/2010 Huskisson River locality plan

Topography is moderately rugged, and notable topographic features include Lynch Hill in the northern part of the tenement and parts of the Huskisson River catchment. The bitumen HEC Pieman Road bisects the area, providing access the central portion of the tenement. Northern part of the area can be accessed via forestry tracks connected to Boco Siding. While southern part of the area has very limited access.

Principal land uses include State Forest, Regional Reserve, and Forest Reserve.

The area contains temperate rainforest, eucalypt woodland and relatively open button grass flats.

## **2. Tenement Details**

Exploration Release Area (ERA) 837 was offered for tender by the Tasmanian Department of Mines, as a result of relinquishment of previous EL18/2002 held by Adamus Resources. Yunnan Tin Australia TDK Resources Pty Ltd was only granted eastern portion of the ERA area during the tender process. An extended area mainly to the south was added to the granted portion with the combined area being newly granted EL46/2010, Huskisson River.

The title was finally granted on 26th May 2011 for a period of five years.

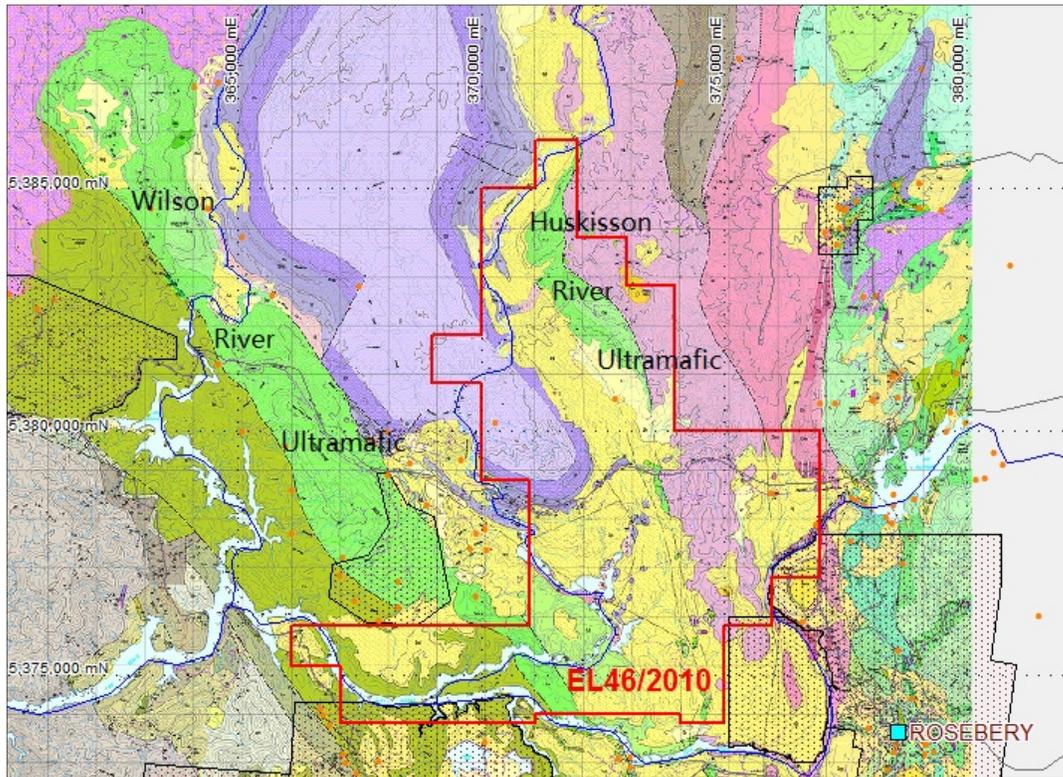
## **3. Geology and Mineralization**

### **3.1 Regional Geology**

The major geological feature within the tenement is the Huskisson River Ultramafic Complex (HRUC), which is a part of similar ultramafic bodies scattered along the Dundas and Admasfield in western and northwestern Tasmania. One of such other ultramafic body is Wilson River Ultramafic Complex (WRUC), located to the west of HRUC, which is the largest exposed ultramafic body in the Dundas Trough with an area of approximate 25 sq. kms; while the Huskisson River Ultramafic has relatively smaller exposed area, about 3.5 sq. kms (Fig. 2).

These two ultramafic bodies may be continuous with each other beneath Silurian-Devonian sedimentary rocks exposed in the core of the Huskisson Syncline (Owen, 2005).

These two complexes have been collectively studied and explored in the past.



**Fig. 2:** Geology of EL46/2010 area (base map from MRT 25K geological mapping)

Brown (1986) identified two petrogenetically distinct ultramafic successions within the WRUC and HRUC:

- 1) **Layered Dunite-Harzburgite succession (LDH)**, comprising fine to medium-grained, well-layered dunite, orthopyroxene-bearing dunite, and harzburgite composed of olivine, enstatite, chromite, and serpentine after the former silicate phases. Layering ranges from ca. 10 mm to 400 mm thick, with a primary bedding-parallel foliation defined by the primary alignment of enstatite and chromite crystals in the plane of bedding. There is also typically a later foliation defined by flattening of olivine crystals. Both olivine and orthopyroxene occur as cumulous phases, and chromite an accessory phase (1-5%) typically most abundant in the dunite layers. Discontinuous chromite laminations individually up to ca. 1-2 mm thick and 1-2 m long are locally present in the LDH.

Brown (1986) mentions the occurrence of PGE-rich chromite nodules in LDH of the Serpentine Ridge area. The western 100-150 m of the LDH in the Harman River area consists of interlayered dunite pyroxene-bearing dunite, and the eastern part layered harzburgite with minor thin dunite layers (Brown 1986).

2) **Layered Pyroxenite-Dunite succession (LPD)**, consisting of fine to medium-grained well-layered orthopyroxenite, olivine orthopyroxenite, and dunite. Layering is typically thinner than in the LHD, ranging up to 150 mm thick but mostly a few millimetres to 20 mm thick. Olivine and orthopyroxene dominate with accessory amounts of clinopyroxene (1-2%) and chromite (1-2%). Chromite is more common in the dunite layers. The layering sequence dunite-orthopyroxenite-dunite-orthopyroxenite is the most common, followed by dunite-orthopyroxenite-olivine orthopyroxenite-orthopyroxenite.

According to Brown (1986) serpentinite shears or faults separate the LDH and LPD everywhere and the original relationship of the two successions is unclear. The exposed parts of WRUC and HRUC are dominated by the LDH sequence. Two small, unfaulked blocks of LPD have been mapped by Brown (1986) at the north end of the WRUC (the Websterite Hill area), and the southern part of both complexes comprises LPD.

General interpretation is that the WRUC and HRUC are entirely fault bounded, the lower margins against Neoproterozoic and Early Cambrian volcanites and carbonates of the Crimson Creek Formation and correlatives, the upper margins against Devonian shallow-marine conglomerates, quartz arenites, siltstones and marls (Crotty Quartzite, Florence Quartzite, and Bell Shale), and locally slivers of the Cambrian Gordon Limestone. Radiometric dates are not available for the WRUC and HRUC and a broad Eocambrian to Cambrian age has been estimated according to stratigraphic constraints (e.g. Brown 1986). A major episode of folding during the Devonian formed the northwest to north trending Huskisson Syncline, and contact metamorphism indicates emplacement of the WRUC and HRUC into the current stratigraphic position prior to the intrusion of the Meredith Granite around 370 Ma. Vein and replacement-style tin and tungsten mineralization appears to be associated regionally with the intrusion of the Meredith Granite (Owen, 2005).

Although fault bounded, the prevalence of orthopyroxene over clinopyroxene, absence of protoclastic textures, and lack of stratigraphically associated sheeted dyke and pillow lava units suggests the WRUC-HRUC is not ophiolitic. Brown (1986) proposed intrusion of ultramafic bodies into the opening Dundas Trough during the Early Cambrian followed by tectonic replacement prior to the Devonian. The presence of serpentinite pebbles and abundant detrital chromite within Huskisson Group sedimentary rocks at Merton Hill and Red Lead Conglomerate of the correlative Dundas Group in the Mt Razorback area (Brown 1986) suggests exposure and partial erosion of the ultramafic complexes prior to the Middle Cambrian (Owen, 2005).

Quaternary fluvioglacial sediments and Quaternary-Recent alluvial gravels cover much of the HRUC, and minor parts of the WRUC. Osmiridium, gold, and chromite are locally concentrated in the Quaternary-Recent alluvial gravels. Patches of laterite and saprolite are locally present over the WRUC in the Serpentine Ridge area, representing relicts of a more extensive lateritic cover developed during the Tertiary. Some lateritic nickel and cobalt mineralization has been identified. Goethitic soils are widespread over Serpentine Ridge and the Websterite Hill area (Owen, 2005).

### **3.2 Mineralisation and Exploration History**

The licence area is considered prospective for nickel, Platinum Group Metals (PGMs), chromium and gold mineralization, and has also been explored for tin, lead, zinc and silver.

Owen (2005) summarised mineralisation in the Wilson River and Huskisson River ultramafic complexes area in general and it was recited below.

Osmiridium, a rare naturally occurring alloy of the PGMs osmium and iridium, was first reported in Tasmania from the Wilson River valley in the 1876 by Surveyor-General Sprent (initially identified as palladium), and the Riley, Trinder, Three Mile, Lippy Jane, Fowler, Sweeney, Osmiridium and Gold creeks were later extensively worked for detrital osmiridium. An exact osmiridium production figure for the Wilson River area is not available, but of the total 31,100 oz produced from Tasmania between 1910 and 1968 (first and last reported production) around half came from the Adamsfield area ca. 120 km to the southeast and much of the rest from the Heazlewood-Bald Hill area near Waratah approx. 30 km to the north. Riley, Trinder, Three Mile, Lippy Jane, Fowler, Sweeney, Osmiridium and Gold creeks were the most extensively worked for osmiridium in the Wilson River area. While there are some small test pits within serpentinite basement in the Riley Creek area the historic mining focussed on alluvial gravels in active creeks.

The detrital osmiridium typically occurs as flaky nuggets up to a few millimetres dimension, and petrographic work (Callina NL 1986-1990, Brown 1986) also indicates occurrence as inclusions within chromite grains from the ultramafic basement. Numerous workers have identified small chromite lenses up to 20-30 mm thick and 1-2 m long within the ultramafics, and analyses of some primary chromitites indicate highly anomalous PGM levels (Brown 1986).

There was additionally minor alluvial tin and gold production from the Wilson and Huskisson valleys and during the 1970's the area in the vicinity of the Meredith Granite was extensively explored for tin and tungsten mineralization. Tin-bearing alluvials occur in many drainages

on the northeastern side of Serpentine Ridge, including Barnes, Sweeney and Tin creeks and Alfred River. Low-grade primary tin mineralization occurs in the Harman River, Merton Hill, and Laurel Creek areas, and Reid (1932) makes reference to narrow dykes of tinstone-bearing quartz-feldspar porphyry cropping out in the vicinity of Tin Creek. Merton Hill was tested with 3 small adits by prospectors in the early 1900s, and later, 7 diamond drill holes (DDH MH1 to 7) by Renison Ltd (1980-1982). The drilling results were discouraging, the best intersection being 7.6m from 48.9m at 0.08% Sn, 0.76% Pb, 2% Zn and 36ppm Ag in MH1. The identified mineralization was associated with veins and breccias within the Devonian Eldon Group (specifically, within the Crotty Quartzite and unnamed limestone member of the Amber Shale) associated with a northeast dipping fault zone adjacent to the contact with the Wilson River ultramafic body. Narrow granitic dykes with disseminated pyrrhotite were encountered in some of the drill holes at Merton Hill. Garnet skarns were identified in the Gordon Limestone around the confluence of Little Wilson and Wilson Rivers.

The source of the alluvial gold has not been thoroughly investigated but is in most cases probably reworked from glacial gravels. Significant gold mineralization has not been reported from any of the identified tin prospects within the area, although it was not commonly assayed. Adit samples and some of the Renison drill core from the Merton Hill tin prospect (see above) was subsequently re-assayed for Au (Black Horse Mining, 1986-1987 and Cyprus Gold Australia Corp, 1987-1989) with a best result of 2m at 0.165ppm Au obtained in a magnetite skarn.

Lateritic nickel and cobalt mineralization was identified in the southern Serpentine Ridge area by Aberfoyle in the late 1960s by a program that included hand auger drilling and man-portable coring (5 core holes) to a maximum depth of 30 ft. Grades of up to ca. 2% Ni and 1.5% Co were obtained from thin (<1-5m) patches of relict laterite and in the underlying saprolitic serpentinite assays of >0.5% Ni were commonly obtained. Sulfides were not observed. There was no systematic investigation for Ni-sulphide mineralization beyond the Serpentine Ridge – Riley Knob area (the Camp 30 area of Aberfoyle).

Callina NL (1985-1990) defined a detrital chromite resource in the Riley Creek area on the southwestern flank of Serpentine Ridge (the area that was also focus of the historic osmiridium workings). While the chromite is premium quality (>60% Cr<sub>2</sub>O<sub>3</sub>) the Callina resource was small (approx 1.7Mt at 1.9% chromite) and at the time not considered economic. The associated detrital PGM (Os and Ir, lesser Pt) and gold content were not assigned any economic value by Callina.

The last systematic exploration in the area was carried out by Adamus Resources Ltd during the period from 2003 to 2007, under EL18/2002. Work conducted during the period included

stream sediment, soil and rock chip geochemistry. A heliborne magnetic survey over Wilson River Ultramafic Complex was flown in 2005.

In 2007, Adamus carried out a substantial program of soil sampling with a 400m grid and a sample interval of 50m over the majority of the Wilson and Huskisson Ultramafic complexes. The grid was closed up to 200m line spacing over a previously identified electromagnetic anomaly on the north-western flank of Websterite Hill.

Fourteen lines were cut for approximately 267 samples over 22.5 km over the Huskisson River Ultramafic Complex, with a further 7 km of baseline also cut. Soil samples were assayed for Au, Ag, Cu, Pb, Zn, Ni, Co, Pt, Pd, Cr, Fe, Mg, Mo, Sb, Sn, W, Bi and S and pH was also determined for a number of samples. No significant results were reported (Grabham, 2007).

#### **4. Discussion and Proposed Exploration**

Although past exploration has concentrated more on WRUC, the ground over HRUC still presents potential for PGM and Sn potential.

On 22 Nov. 2011, Venture Minerals Ltd announced to ASX stock market a discovery of DSO hematite deposit at Riley Creek, adjacent to EL46/2010 (Venture, 2011). Owen (2005) also reported high iron contents and Cr anomaly associated with lateritic material along a creek in Riley Terrance within EL46/2010, south of Venture Minerals' Riley Creek project.

A significant tin intersection was reported by Venture Minerals on 2<sup>nd</sup> August 2012 to Australian Stock Exchange (ASX) (Venture, 2012). A tin mineralisation within limestobe and marble units near the contact with Meredith Granite was intersected for 17.4m @ 2% Sn, including 4m @ 5.6% Sn.

Limestone lithology defined as Ordovician Gordon Group correlate is present along ultramafic rocks in Huskisson Syncline. Its relationship with alluvial tin presence needs to be review.

#### **5. Work Planning for Year 2**

Following program has been proposed for following up work in Year 2:

1. A VTEM survey is scheduled for this summer, with a contractor secured. This work will be used to further define HRUC distribution and detect conductors which may be associated with sulphide bodies.
2. Surface geochemical surveys, with combination of Niton XRF and soil/stream sediment sampling in the northern part of the tenement. This work is designed to evaluate replacement type of Sn mineralisation, similar to the recent Sn discovery by Venture Minerals.
3. Glacial sediments at Riley Terrance along Holland Creek and Fowler Creek at southern end of the tenement for PGM, Cr, lateritic iron ore and Sn.

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

<b>Item</b>	<b>Details</b>	<b>Expenditure (\$)</b>
Geochemistry	Stream sediment, soil and rock chip sampling in northern half of the tenement, as well as Riley Terrance.	20,000
VTEM Survey	Proposed survey details: 100m line-spacing; total line-km: 704 kms  Contractor: GeoTech Airborne Pty Ltd	150,000
<b>Total</b>		<b>A\$170,000</b>

## **6. 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.

## 7. Expenditure Statement

Expenditures for the period 26/05/2011 to 25/05/2012 are:

<b>Expenditure</b>	<b>\$</b>
Geology	2,000
Geochemistry	
Geophysics	
Remote Sensing	
Gridding	
Drilling	
Land Access Costs	
Rehabilitation Costs	
Feasibility Study Cost	
Other Cost	1,500
Administration Cost	170
<b>TOTAL</b>	<b>\$3,670</b>

**Table 2:** EL46/2010 Expenditure for first year

## References

- Black Horse Mining NL. Annual report to the Tasmanian Mines Department. Jordan, M., 1969. Camp 30 Report. EL2/1963. Aberfoyle Tin NL. Annual report for the Tasmanian Mines Dept.
- Brown, A. V., 1986. Geology of the Dundas – Mt Lindsay – Mt Youngbuck Region. Tasmania Department of Mines. Geological Survey Bulletin 62.
- Callina NL 1986 Technical Report, Wilson River, NW Tasmania 1986. Annual report to the Tasmanian Mines Department 87-2633.
- Callina NL 1987 Annual Report 1/12/86 – 1/12/87 Wilson River Exploration Licence 24/85. Annual report to the Tasmanian Mines Department 87-2744.
- Callina NL 1990. Annual Report 1/12/1989 – 1/12/1990, Exploration Licence 24/85, Wilson River. Callina NL. Annual report to the Tasmanian Mines Dept.
- Creasy, M. G., 1990. John Lynch Creek Annual Report 1988/89. Annual report to the Tasmanian Mines Dept.
- Davis, N., 1987. Annual Report EL14/86 Huskisson River Area Western Tasmania 1986-1987.
- Davis, N., 1988. Interim Report EL24/85 Wilson Annual Report EL14/86 Huskisson River Area Western Tasmania 1986-1987. Black Horse Mining NL. Annual report to the Tasmanian Mines Department 88-2879.
- Glasson, K. R., 1969. Report on the Trinder/Camp 30 area, Exploration Licence 2/63. Aberfoyle. Annual report to the Tasmanian Mines Dept.
- Grabham, G. 2007. Exploration report 2007 EL18/2002 Serpentine Ridge, NW Tasmania. Adamus Resources Ltd.
- Jessup, A., & Chenhall, B., 1968. Interim report on the Camp 30 merton Area, Tasmania. Aberfoyle Tin Development Partnership. Annual report to the Tasmanian Mines Dept.
- Owen, S. 2005. 2005 Annual exploration report EL18/2002, Serpentine Ridge, NW Tasmanian. Adamus Resources Ltd
- Reid, A. M., 1932. Osmiridium in Tasmania. Tasmania Department of Mines, Geological Survey ulletin 32.
- Venture Minerals Ltd. (2011): Venture doscovers second DSO hematite prospect at Mt Lindsay, Tasmania. VMS ASX Announcement on 22<sup>nd</sup> Nov. 2011.
- Venture Minerals Ltd. (2012): Major high grade tin discovery, Tasmania. VMS ASX Announcement on 8th Aug. 2012.