MALACHITE RESOURCES NL

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MT RAMSAY , TASMANIA
EL 42/2002

SECOND ANNUAL EXPLORATION REPORT
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1. INTRODUCTION

This Second Annual Report summarises the results of exploration work completed on Exploration Licence (EL) 42/2002 – Mt Ramsay, during the eleven months to 22 July 2005, one month before the expiry of the Second Year on 22 August 2005.

EL 42/2002 was originally granted to BHP Billiton Minerals Pty Ltd ("BHP Billiton") in August 2003. In June 2004, BHP Billiton farmed out an interest in EL 42/2002 in equal portions to Malachite Resources NL ("Malachite") and TasGold Limited ("TasGold"), with Malachite appointed as the Manager of the Mt Ramsay Joint Venture.

The immediate exploration targets on the tenement are two linear groups of electromagnetic ("EM") anomalies (with co-incident strong magnetic anomalies) in geological settings analogous to those of the Renison Bell and Mt Bischoff carbonate replacement tin deposits.

Exploration conducted during this period included the initial field program at Mt Ramsay to evaluate the likely sources of the airborne EM anomalies, and preparation for a drilling program which commenced on 9 July 2005. Work included (1) geological mapping, prospecting and limited rock chip sampling and pan concentrate sampling; (2) two E-W lines of ground EM surveying and soil sampling located 775m apart across the northern conductors; (3) general assessment of access and logistics of operating at Mt Ramsay, and meetings with stakeholders in the area, and (4) preparation for, and commencement, of a drilling program.

The Geodetic Datum used in this report is AGD66.

2. LOCATION, ACCESS AND TENEMENTS

The Mt Ramsay Project is centred approximately 23 km north of the Renison Bell tin mine in western Tasmania (**Figure 1**). Access to the project area is from the Waratah-Luina road, turning off this road approximately 7 km SW of Waratah and driving a further 3 km south to Wombat Flat. From here an abandoned 4WD track extends from north to south through the Mt Ramsay tenement.

The project is located on uncommitted Crown land within the Meredith Range Regional Reserve (No. 2000/241), which was declared under the National Parks and Reserves Management Act (2002). Regional reserves were established over Crown land set aside for multiple-purpose use, and importantly one of the primary purposes of regional reserves is the utilization of any mineral resources they may contain.

EL 42/2002 is located in the Ramsay River catchment, immediately east of Mt Ramsay (855m), the major topographic feature in the region. The terrain is generally steep with myrtle (*Nothofagus cunninghamii*) as the dominant cool temperate rainforest species, accompanied by sassafras (*Atherosperma moschatum*). Although the understorey is relatively open with tree ferns (*Dicksonia antarctica*) and native

laurel (*Anopterus glandulosus*) predominating, horizontal scrub (*Anodopetalum biglandulosum*) is common on the flatter areas immediately east of the abandoned 4WD track and is also common in creek gullies.

The tenement covers an area of 24 sq km and was granted on 22 August 2003 for a period of five years until 22 August 2008. The minimum expenditure commitment during the first two years is $18,000. BHP Billiton currently holds a 100% interest in EL 42/2002, and has entered into a farm-out agreement with Malachite Resources NL and TasGold Limited.

3. REGIONAL GEOLOGY

The project lies within the Dundas Element (formerly the Dundas Trough), comprising Proterozoic- to Cambrian-aged sequences of western Tasmania, located east of the Arthur Lineament (Seymour and Calver, 1995, and Bottrill et al., 1998). The regional setting of the Mt Ramsay area and the location of the major carbonate replacement tin deposits (Renison Bell, Mt Bischoff and Cleveland) are shown on **Figure 1**.

The Mt Ramsay region has been mapped by Brown (1986) and the most detailed published geological map is the 1:25,000 "Regional Geology of the Dundas – Mt Lindsay – Mt Ramsay Area" which accompanies Brown's report. The project geology included in **Figure 2** is taken from Brown's map.

At Mt Ramsay, two adjoining sequences lie to the east of the Devonian Meredith Granite. The western of these sequences, which is in contact with the Meredith Granite throughout the tenement, is the Cambrian Crimson Creek Formation which regionally consists of volcanoclastic siltstone and mudstone, minor carbonate lenses, and reportedly contains up to 25% of basaltic lava flows in the Mt Ramsay area. The eastern sequence comprises locally isoclinally folded sedimentary members of the Proterozoic Oonah Formation, regionally consisting of quartz sandstone, siltstone and mudstone, but with reportedly thinly bedded calcareous siltstone dominating in the Mt Ramsay area. The contact between the Crimson Creek Formation and the Oonah Formation sequences at Mt Ramsay has been mapped by Brown as a fault.

The Meredith Granite in the Mt Ramsay area consists of porphyritic medium grained to very coarse grained biotite granite/adamellite with phenocrysts of feldspar up to 25mm long (Brown, 1986). The granite intrudes the Crimson Creek Formation lithologies, and a broad metamorphic aureole extends for up to two kilometers east of the granite contact, affecting both the Crimson Creek Formation and Oonah Formation lithologies and resulting in conversion of the dominantly calcareous horizons to recrystallised carbonate and the mudstone, and sandstone units to hornfels.

The Meredith Granite is considered to be the source of the tin at deposits around its northern margin (eg. Mt Bischoff and Cleveland), and the presence of the Mt Ramsay skarn occurrence at the granite's eastern contact within the tenement, approximately one kilometer west of the northern group of EM conductors (**Figure 2**), is confirmation of a granite-related mineralizing system at Mt Ramsay.

The youngest lithologies mapped at Mt Ramsay are flows of Tertiary-aged basalt which occur in the northeastern and northwestern corners of the tenement.

4. PREVIOUS EXPLORATION

A review of open file reports covering previous exploration at Mt Ramsay was conducted and confirmed that only limited exploration had been undertaken on the area of EL 42/2002, principally at the Mt Ramsay skarn prospect at the Meredith Granite contact. Drilling conducted there in the early 1980's by Comstaff intersected anomalous values of tin, tungsten, copper, gold and bismuth in a sulphide-bearing skarn host rock. Comstaff's grid-based work to evaluate the skarn extended east to overlap the southern end of the northern group of airborne EM conductors (Comstaff anomaly CAF-E), and in addition they conducted grid-based geological mapping, ground EM and soil sampling over the northern section of the southern group of airborne EM conductors without locating a definitive bedrock source for these conductors (Comstaff anomaly CAJ).

5. EXPLORATION WORK COMPLETED

5.1. SUMMARY

October 2004

Following approval of the proposed work program by Mineral Resources Tasmania and liaison with environmental stakeholders in the Mt Ramsay area, an initial three day helicopter-supported reconnaissance field program was conducted in early October to evaluate the potential of two groups of airborne EM conductors. Due to ubiquitous thick rainforest over the southern conductors precluding helicopter landings, and the remoteness of this group of conductors from the abandoned 4WD track, only the northern group of conductors was assessed. These are located on a steep slope (averaging 40 degrees) forming the eastern flank of Mt Ramsay and which is covered in thick rainforest with patches of virtually inpenetrable horizontal scrub.

Two slope-corrected grid lines approximately 775m apart were flagged across the inferred position of the northern EM conductors, and a portable ground EM system (EM 34) was used to successfully locate the position of the conductors on the ground. A suite of 18 soil samples and 16 outcrop and float rock chip samples was collected over the conductors. In addition, three panned concentrate samples were collected from creeks draining the northern conductors. Several of the soil and rock samples returned anomalous tin values, suggesting that the conductors may have a mineralised source.

The conductors appear to be hosted by strongly hornfelsed siltstones and mudstones of the Crimson Creek Formation, immediately east of the contact with the Meredith Granite. Apart from minor quartz-pyrite veinlets, no mineralised source to the conductors was found in outcrop or float. Equally so, nor was evidence found to confirm a non-mineralised bedrock source to the conductors (eg. graphitic shales).

December 2004

A follow-up suite of 32 float and outcrop rock chip samples was collected between the two slope-corrected grid lines.

May-June 2005

Following approval of the proposed drilling program by Mineral Resources Tasmania and liaison with environmental stakeholders in the Mt Ramsay area, work commenced to repair sections of the abandoned 4WD track, to establish a camp, and to clear two drill sites and a helipad.

The first of two 400m long diamond drill holes testing the EM conductors on the southern grid line commenced on 9 July 2005, and drilling details and results will be reported in the next Annual Report.

5.2 LOGISTICS/ENVIRONMENT

Discussions prior to each of the field programs were held with Mineral Resources Tasmania, the Tasmanian Conservation Trust, and with Tiger Trails (an ecotourism group who take bushwalkers through the Mt Ramsay area) to brief each group on our activities and to seek their comments.

In order to prevent any possible spread of *Phytophthera* ("root rot" or "dieback") into the Mt Ramsay area, prior to the departure of personnel and equipment for Mt Ramsay, field boots and all field equipment were washed down. No existing *Phytophthera* infection was observed in the areas visited at Mt Ramsay.

Survey control for the field work was limited to the use of GPS in the few "open" areas available to establish "absolute" survey control, from which local tape/hipchain-and-compass surveys were conducted. The surveying was done using the AMG grid system, the current standard in Tasmania.

5.3 GROUND EM SURVEY

Due to the steep terrain and thick vegetation in the area, it was decided to establish two slope-corrected E-W access lines across the northern conductors commencing at the abandoned 4WD track and extending each line eastwards. Partly due to access considerations, these lines were put in approximately 775m apart. The northern line ("Line 1") was located at 5395900N, while the southern line ("Line 2") was located at 5395125N, with both lines crossing 10-15m high cliffs in their up-slope sections.

The location of the airborne EM conductors is shown on **Figure 2** and **Plate 1**, while their positions along Lines 1 and 2 are shown on **Figures 3** and **4**.

In order to confirm the position of the bedrock sources of the airborne conductors, a portable ground EM survey was conducted along each line using an EM 34 system with a 20m coil spacing and a 10m station spacing, recording both the vertical and horizontal components of the electromagnetic field generated by the system.

This survey successfully located the position of the conductors on both lines (**Figures 3** and **4**). On Line 1 two discrete conductors were located, while on Line 2 a series of adjoining conductors occur. See report from consultants Mitre Geophysics Pty Ltd included in **Appendix 1** for survey details, line profiles and interpretation of the results**.**

5.4 GEOCHEMICAL SAMPLING

An initial suite of 37 geochemical samples was collected in the area of the northern conductors, comprising 18 soil samples collected along the two lines, 16 rock chip outcrop and float samples (11 from along the two lines) and three pan concentrate samples from creeks draining the area of the northern conductors. A second suite of 32 float and outcrop rock chip samples was collected by traversing the slope between the two lines (**Plate 1**, **Figures 3** and **4**, and **Appendices 2** and **3**).

The initial suite of soil and rock chip samples was sent to SGS Laboratories in Burnie for analysis, while the pan concentrate samples were analysed by the ALS Chemex Brisbane laboratory. SGS dried and pulverized the soil and rock samples to a nominal 90% passing 75um, before analyzing them for Cu, Pb, Zn, Ag, Bi, As and Mn by acid digestion/AAS, and Au by 30g fire assay. Sample pulps were sent to their Perth laboratory for analysis for Sn, W and Sb by the pressed powder XRF method. ALS Chemex pulverized the pan concentrate samples and analysed them for Sn by the same XRF method.

Soil samples were collected over the positions of the ground EM conductors on both lines at horizontal spacings of 25m (Line 1) and 20m (Line 2). Samples were collected using a 10cm diameter hand auger from an average depth of 55cm from the A or B horizon. Due to the steepness of the slope all the soils were transported, hence the bedrock source(s) of any soil anomalies are most likely to be located some distance up-slope of any anomaly detected. The results of the soil sampling in relation to the position of the ground EM conductors are shown on **Figures 3** and **4**, and indicate a background of around 4 ppm Sn on Line 2 with no anomalous values, while values up to 28 ppm Sn were present on Line 1 immediately up-slope of the westernmost of the two ground EM conductors.

The follow-up suite of 32 float and outcrop rock chip samples was collected between the two slope-corrected grid lines and was analysed by SGS laboratory in Burnie for Au, As, Cu, Pb, Zn, Ag, Mn and Bi. The suite was also assayed at the ALS Chemex Brisbane laboratory for Sn, Sb and W by XRF.

All the rock chip samples were uniformly low in tin (<3 to 16 ppm Sn) with the exception of the following samples. Sample 82074 in the initial batch assayed 63 ppm Sn and was also anomalous in Cu (220 ppm), Pb (240 ppm) and As (166 ppm). This sample consists of oxidized siltstone located approximately 100m south (along strike from ?) the eastern conductor on Line 1. In the follow-up batch, 82087 assayed 0.40% Cu, while 82089 and 82090 respectively assayed 106 ppm Sn and 46 ppm Sn.

Pan concentrate samples were collected from silt in three tributaries to the Ramsay River, down-slope from the northern EM conductors (**Plate 1**). No cassiterite was

observed in the minor heavy mineral fraction in each of these samples, with correspondingly low tin assays in the range <5 to 14 ppm Sn.

5.5 GEOLOGY

Due to the steep terrain and the rainforest vegetation cover, only rare outcrops were observed down the steep slope forming Lines 1 and 2. These consisted of very strongly hornfelsed mudstone and siltstone, locally with minor disseminated and blebby pyrite, with rare quartz veinlets. No surface expression of any form of mineralization was located, nor was there evidence of unmineralised lithologies or structures in outcrop which could explain the bedrock source of the EM conductors (eg. graphitic shales or faults). No bedding or bedding orientations were observed in the outcrops located, and none of the rock chip samples contained carbonate (as tested with weak HCl).

5.6 DRILLING PREPARATION

Following approval of the proposed drilling program by Mineral Resources Tasmania and liaison with environmental stakeholders in the Mt Ramsay area, work commenced in May to repair sections of the abandoned 4WD track, to establish a camp, and to clear two drill sites and a helipad. Drilling of the first hole (MRDD 01) commenced on 9 July on the southern line ("Line 2") with the collar located at 372442E-5395125N.

6. CONCLUSIONS

This program successfully located the position of the airborne conductors on the ground along two E-W lines across the northern group of conductors, and confirmed anomalous tin (and copper) in soils and rocks associated with several of the ground conductors. As no outcropping non-mineralised bedrock source for the EM conductors was located, due to the poor outcrop the possibility exists that they are caused by a non-outcropping mineralised source, as evidenced by the anomalous metals in the geochemical samples.

Consequently a drilling program is justified, and one 400m long diamond hole is planned to test the conductors along each of the two grid lines, collaring in the vicinity of the abandoned 4WD track.

7. EXPENDITURE

Expenditure on the EL 42/2002 for the period from 22 July 2004 to 18 July 2005 totals $178,935 as detailed below:

Expenditure Category	**$**
Salaries and Wages	43,650
Consultants	7,488
Contractors	28,967
Motor Vehicles	7,277
Accom & Transport (incl camp, helicopter)	47,087

Assaying	2,680
Camp Food	1,845
Report Preparation & Drafting	1,144
Tenement Costs	451
Field and Technical Supplies	9,927
Maps & Technical Literature	705
Geophysics	1,000
Earthmoving (excavator hire)	8,315
Environment	187
Freight	1,106
Telephone	837
Administrative Overhead (10%)	16,267
TOTAL	**$178,935**

8. REFERENCES

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