

**Torque Mining Ltd  
Final Report on Exploration  
EL 27/2011 – “Mt Paris”  
October 2013**

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October 2013**

## **Abstract**

An independent review of the potential for the licence for tin in particular, but with reference to other minerals, has determined that "moderate potential remains for tin bearing greisens, particularly in the south-western quarter of the granite pluton, which is still partly covered by metasedimentary rocks" (Herrmann in MacDonald 2012). This report also stressed the potential for economic kaolinite deposits in the Ruby Flat area.

Existing geophysics does not appear to correlate with known tin greisens but it certainly reflects a northwest to west-northwest grain. A potassium low characterises the Ruby Flat area in radiometrics and other areas show similar responses.

Reconnaissance soil sampling has commenced with samples collected for bedrock characterisation and XRF calibration.

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## **1.0 Introduction**

### **1.1 Exploration Rationale**

Torque Mining Ltd (nee Frontier Resources Ltd) took up the Mt Paris licence in order to explore the area for tin, tungsten, tantalum, gold, clay (kaolinite) and rare earths.

Exploration was to have 3 prongs;

- Thorough review of previous exploration;
- Acquire, enhance and interpret existing geophysics, especially magnetics and gravity;
- Broad scale multi-element soils sampling programme;

Followed by drilling.

## 1.2 Geology

The Mt Paris area is underlain by three rock types, Siluro-Devonian Mathinna Bed sediments, Devonian biotite+muscovite alkali feldspar granite (Mt Paris Granite) and Tertiary basalt with only minor alluvial cover.

Granite outcrops over most of the northeastern 2/3 of the licence with the southwestern 1/3 of the licence outcropping hornfelsed Mathinna Beds overlying the granite.

Minor Tertiary basalt covers granite or Mathinna Beds in a number of smaller areas.

Michael Solomon (1970) produced the geological map shown as figure 3.1. This geology concurs with more recent, more detailed, Mineral Resources Tasmania's mapping on the *Derby* and *Ringarooma* 1:25,000 sheets except for the lack of two tongues of granite in the southwestern part of the licence.

Known mineralisation styles have been summarized by Purvis (1988) as

- "1 Quartz-greisen veins containing coarse cassiterite with minor chalcopyrite, sphalerite, pyrite, arsenopyrite, and traces of silver, tungsten and uranium.
- 2 Steeply-dipping stanniferous greisen lodes surrounded by zones of kaolinite-altered granite. The argillic-altered facies containing up to 0.1% Sn were extensively sluiced by early miners. The generally less than 2m wide semi-vertical greisen lodes contain erratic higher grades but did not produce much tin because they required crushing.
- 3 Flat lying greisen sheets apparently restricted to the vicinities of the Rattler Hill and Mount Paris prospects."

"These deposit types are all associated with the undulating granite roof zone, located at or close to the contact with overlying Mathinna Beds, with occasional thin veins extending into the contact metamorphosed sedimentary rocks. The mineralized and greisenized zones exist in the granite within a few tens of metres of the upper contact and diminish with depth" (Herrmann in MacDonald 2012).

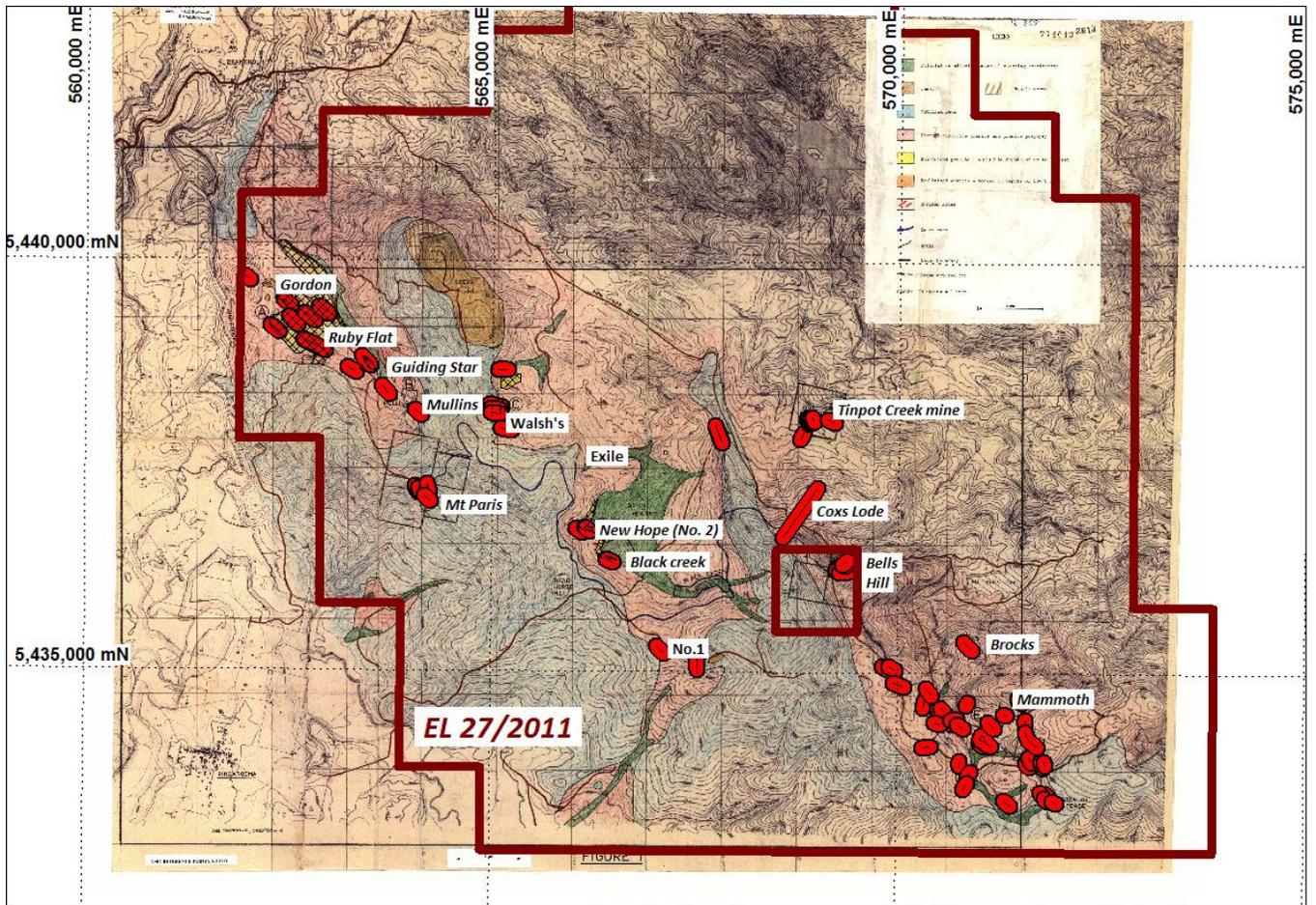


Figure 1.1: Geology after Solomon (1970). Map datum AGD66.

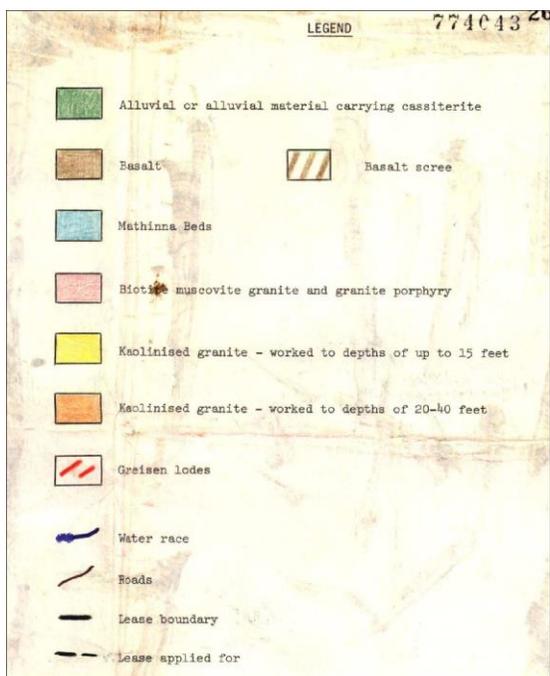
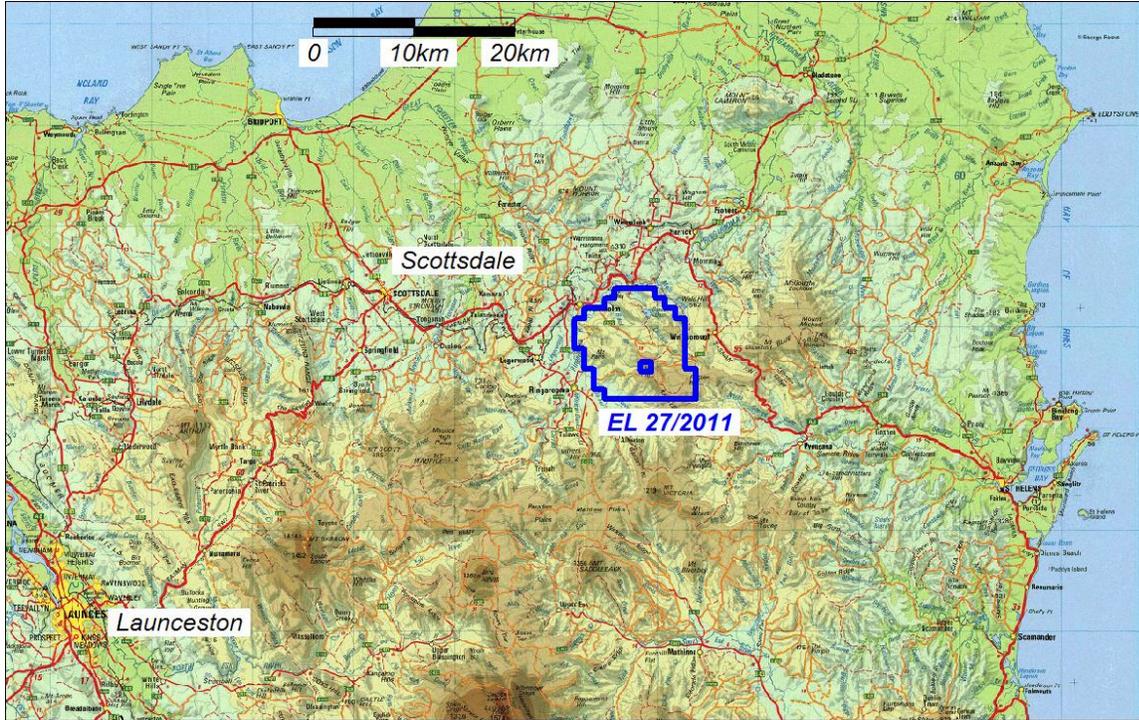


Figure 1.2: Legend for 3.1 after Solomon (1970)

### 1.3 Location and access

EL 27/2011 "Mt Paris" lies in Tasmania's northeast in a quadrangle bounded by the townships of Ringarooma (west), Derby and Branxholm (north) and Weldborough (east) (see figure 2.1).



**Figure 1.3: EL 27/2011 "Mt Paris" location in northeastern Tasmania.**

Access to the licence is by bitumen road to the towns listed above and then by gravel road into the licence area with the gravel Mt Paris Dam Road, Dead Horse Hill Road and Cascade Dam Road essentially transecting the licence area in an x pattern.

### 1.4 Land status and usage

The tenement area is hilly country rising to as high 899 metres above the ringing valleys in a series of west-northwest trending ridges. Almost all of the tenement is covered in plantation or regrowth and is used almost completely for forestry activities.

### 1.5 Tenure

The licence was granted to Frontier Resources Ltd on 23<sup>rd</sup> November, 2011. In early 2012 the licence was transferred wholly to Torque Ming Ltd, an (as yet) unlisted subsidiary of Frontier Resources Ltd.

## **2.0 Review of exploration during licence tenure**

Torque has carried out the following work over the licence tenure:

- Thorough compilation and review of previous exploration by Wally Herrmann of Walter Herrmann Geoscience
- Acquisition and enhancement of existing airborne geophysics by Phil Muir of Southern Mineral Exploration Geophysics
- Reconnaissance soil geochemical traverses across the granite-Mathinna Beds contact

This work is reported on in detail in MacDonald (2012).

### **2.1 Compilation Previous Exploration – Wally Herrmann**

Wally Herrmann was contracted to provide a report compiling and appraising all previous exploration over the tenement. He supplied a text report and an .xls spreadsheet which were included, as appendices A1 and A2 respectively, in MacDonald 2012.

Wally read and summarized 95 reports dating from 1884 to the present day.

Wally's summary is reproduced here.

"Cassiterite-bearing greisens in the roof zone of the Mount Paris granite pluton were the primary source of alluvial tin deposits in the Ringarooma River valley, which accounted for nearly two thirds of north eastern Tasmania's total recorded tin production (~70,000 t). There was minor historical production from eluvial deposits on weathered greisen zones, but only negligible production from mining of the numerous 'hardrock' greisen lodes that exist in an apparently structurally controlled west-north-west corridor extending across the exposed pluton.

Results of prospecting ventures in the first half of the 20th century, and relatively superficial exploration and drilling programs in the fifteen years preceding the collapse of the tin price in 1985, indicate that the mineralized greisen zones are small, restricted to a few tens of metres vertical thickness, and generally low grade, averaging less than 0.2% tin.

Modern exploration of the Mount Paris tinfield has not been exhaustive, and there has been no effective exploration of it during the past quarter century. Moderate potential remains for tin bearing greisens, particularly in the south-western quarter of the granite pluton, which is still partly covered by metasedimentary rocks. Such deposits have a low to moderate discoverability factor because of their lack of response to electrical and magnetic geophysical survey techniques. Gravity surveying may assist in delineating favourable cupolas in the covered granite roof zone, and a combination of systematic multi element geochemical and short wavelength infrared spectral analysis could map extremely fractionated and/or altered intrusive phases of the granite."

Wally also reinforces the clay potential in altered granite, particularly around Ruby Flat.

A list of plans and sections warranting digital capture was also included.

### **2.2 Acquisition and Enhancement of Existing Airborne Geophysics – Phil Muir (SMEG)**

Phil Muir of Southern Mineral Exploration Geophysics was contracted to acquire, process and enhance the best available airborne geophysics covering the tenement. Phil determined that the best data was the Mineral Resources Tasmania NE Tasmania 2007 magnetics and radiometrics at 200m line spacing.

Phil processed the data and generated the following magnetics images; Total Magnetic Intensity, Reduced to Pole, Total Magnetic Intensity-1VD and Total Magnetic Intensity-2VD: and the following radiometrics images; Potassium, Thorium, Uranium, Total Count and Ternary. Details were reported in MacDonald 2012.

Whilst the aeromagnetism shows a distinct northwest to west-northwest grain there is no consistent spatial relationship with any magnetic features.

The radiometrics represents the Ruby Flats clay as a potassium low. It also suggests some potential in the area between the New Hope and Tinpot Creek mines.

### **2.3 Reconnaissance Soil Geochemical Traverses**

Four reconnaissance soil traverses were carried out by geologist Bob McNeil with field assistance in order to determine background levels and allow better calibration of the desktop XRF analyzer in preparation for a larger scale survey planned for early 2013. All details are provided in MacDonald 2012.

### **3.0 Exploration completed during the report period**

There has been no fieldwork completed since the 2011/2012 reporting year.

#### **4.0 Conclusions**

In his thorough review of previous exploration, Wally Herrmann concludes that there is moderate potential for small greisen-style tin deposits in the SE corner of the licence but with low to moderate findability.

As a consequence of the above report Torque Mining Ltd has been unable to justify apportioning the resources on the Mt Paris project that Torque had originally intended.

Whilst untested potential remains, Torque no longer wishes to explore the Mt Paris area.

## **5.0 Environment**

The only work of any possible environmental impact is the soil sampling which was done along road sides and on a traverse through open bush. Samples were collected with a small spade and holes filled in.

**6.0 Expenditure**

Geology	\$21,929
Other costs/inc rental	\$2,613
Administration	\$ 747
Total	\$25,289

## 7.0 References

- MacDonald, G (2012) Annual Report on Exploration "Mt Paris" November 2011 to November 2012, Torque Mining Ltd., 272011\_201211
- Purvis, J.G. (1988) Tasmanian Tin Prospects, Part 2, NE Tasmanian Tin Province: Consultant's Report, J.G. Purvis & Associates for: Aberfoyle Resources Ltd., 60 p., TCR 06\_5259
- Solomon, M. (1971) Reconnaissance Geological Survey of Exploration Licence 15/68 near Branxholm, North East Tasmania, Ringarooma Prospecting Company, 16 p., TCR 71\_0733