

# **MINERAL HOLDINGS AUSTRALIA PTY LTD**

## **RETENTION LICENCE RL10/1997 TOGARI (BRITTONS SWAMP)**

### **ANNUAL REPORT ON EXPLORATION APRIL 2015 to APRIL 2016**

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**21 March 2016**

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## **ABSTRACT**

RL10/1997 was granted to Mineral Holdings Australia Pty. Ltd. (MHA) on 8 May 1998, over an area of 5 square kilometres in Northwest Tasmania. The Licence is a flow on title from EL33/1990 and covers exploration for Category 3 construction materials and Category 5 industrial minerals and semi-precious stones. Previous work by MHA has established a large resource of high-grade dolomite suitable for blast furnace use.

The dolomite resource at Brittons Swamp/Togari has been estimated as 590 million tonnes to 20 metres depth (Appendix A). The resource is very close to Inferred category under the JORC Code.

Attempts to market dolomite from the Togari area have continued. Alcoa have shown interest in the supply of dolomite from Togari and requested MHA supply a 10 kilogram sample of calcined dolomite from the site. The material proved very satisfactory and discussions are continuing. Discussions and field visits have been arranged with other companies including Adelaide Brighton, Arrium & Grange Resources.

## **1.0 INTRODUCTION**

RL10/1997 was granted to Mineral Holdings Australia Pty. Ltd. (MHA) on 8 May 1998 over an area of 5 square kilometres in Northwest Tasmania. The Licence is a flow on title from EL33/1990 and covers exploration for Category 3 construction materials and Category 5 industrial minerals and semi-precious stones.

The property is located in recently cleared farming land, adjacent to the Montagu River drainage channel, south of the Bass Highway and about 25 kilometres south-west of Smithton. Access is via the township of Brittons Swamp on the Bass Highway, 25 kilometres west of Smithton, thence 2 kilometres south along Salmon River Rd. and then via farm tracks to the licence area.

## **2.0 PREVIOUS EXPLORATION**

There has been a long history of exploration by MHA, and a series of joint venture partners, for a wide range of carbonate products in Northwest Tasmania. By 1997, MHA had outlined a substantial inventory of high-quality dolomite at Togari and has proceeded with a number of attempts to market material from the area.

The Precambrian dolomite at Togari was mostly explored during the years 1995 to 1998. During that time, exploration consisted of:

- 41 shallow backhoe pits dug to provide depth of soil overburden and to provide samples of the dolomite (marked T 1 to T 41 on the map shown in Figure 2).
- 5 hammer drill holes were developed along existing tracks (marked TP 1 to TP 5 on the map shown in Figure 2)

Samples of Togari Dolomite were sent to Baker Dolomite (USA), who conducted tests on refractory bricks made from the dolomite. The results were apparently successful but a copy of the test results is missing from the files. Follow up samples were then sent to National Refractories and the Research and Development Centre for Refractory Materials. Both only carried out routine analysis of the samples but noted the high purity of the sample which they compared favourably with their own deposits. Unimin also carried out what appears to be a single assay of Togari dolomite

A 250 tonne bulk sample was sent to Nittetsu Shoji Co. in Japan for steelmaking furnace trials. The results were again very successful and were referred on to Nippon Steel. The fine ore ratio after firing was only 6.8%.

Comalco and APPM carried out whiteness tests for paper manufacture without any success.

### 3.0 GEOLOGY

The Togari area lies on the steeply dipping east limb of a major anticline and, with a stratigraphic thickness well in excess of 1,000 metres, a very large resource of dolomite is certainly available. However, the dolomite is generally low-lying in an extensive plain, covered by a thin black soil layer, and is only exposed in drainage trenches. Where it can be seen, the dolomite is white to pale grey in colour and is a hard massive very fine grained marble. No banding is visible but it is believed the dolomite dips at 20 to 30 degrees to the east in this area.

An average assay of the material is given in the table below along with comparison assays of Ardrossan and ACI Mt. Gambier dolomites. The grade compares more than favourably with the average grade of those existing suppliers.

Element/Oxide	Dolomite		
	Togari	BHP Ardrossan	ACI Mt. Gambier
SiO <sub>2</sub>	0.44	2.00	1.0
TiO <sub>2</sub>	0.01	0.01	-
Al <sub>2</sub> O <sub>3</sub>	0.54	0.39	0.5
Fe <sub>2</sub> O <sub>3</sub>	0.24	0.80	0.21
MnO	0.005	0.14	-
MgO	19.62	21.00	18.8
CaO	32.86	29.00	33.7
Na <sub>2</sub> O	0.08	-	-
K <sub>2</sub> O	-	0.048	-
P <sub>2</sub> O <sub>5</sub>	-	0.05	-
SO <sub>3</sub>	-	0.15	-
LOI (%)	46.1	46.40	-

**TABLE 1: DOLOMITE ASSAY COMPARISON**

Mineral Resources Tasmania asked for a resource estimate for the dolomite at Togari. A copy of the resource estimate of 590 million tonnes to 20 metres depth is attached in Appendix A. The resource is very close to Inferred category under the JORC Code and, because of the very large tonnage, further drilling to better define the Inferred category is unwarranted until the steel companies decide to trial the dolomite in production trials.

### 4.0 CURRENT AND FUTURE PROGRAM

MHA has made considerable efforts to interest major Australian and overseas groups in its carbonate holdings in Northwest Tasmania and RL10/1997 is an integral part of the 'Pilbara of Carbonates' program. A major part of this program is to interest those companies in the benefits of mining high-purity materials that are cryptocrystalline in nature and therefore suitable for use in vertical kilns where it is possible to trap the CO<sub>2</sub> off-gas. There would appear to be large commercial advantages once a CO<sub>2</sub> penalty or tax is introduced.

Alcoa have shown considerable interest in the supply of dolomite from Togari and, in 2014, requested MHA supply a 10 kilogram sample of calcined dolomite from the site. The material proved very satisfactory and, although they do not use dolomite in their current process, discussions are continuing.

Apart from interest from Alcoa, MHA have made considerable efforts to interest major Australian and overseas groups in its carbonate holdings in Northwest Tasmania and RL10/1997 is an integral part of the 'Pilbara of Carbonates Program'. Discussions and information exchanges have been made with the steel companies, BlueScope and Arrium, and Adelaide Brighton. Grange Resources are considering the use of dolomite in their magnetite pellet mix.

## **5.0 ENVIRONMENT**

There are no outstanding environmental issues.

## **6.0 REFERENCES**

Dickson, T. W. 2012. Retention Licence 10/1997 Togari. Report on Exploration March 2010 to March 2012. Mineral Holdings Australia Pty Ltd

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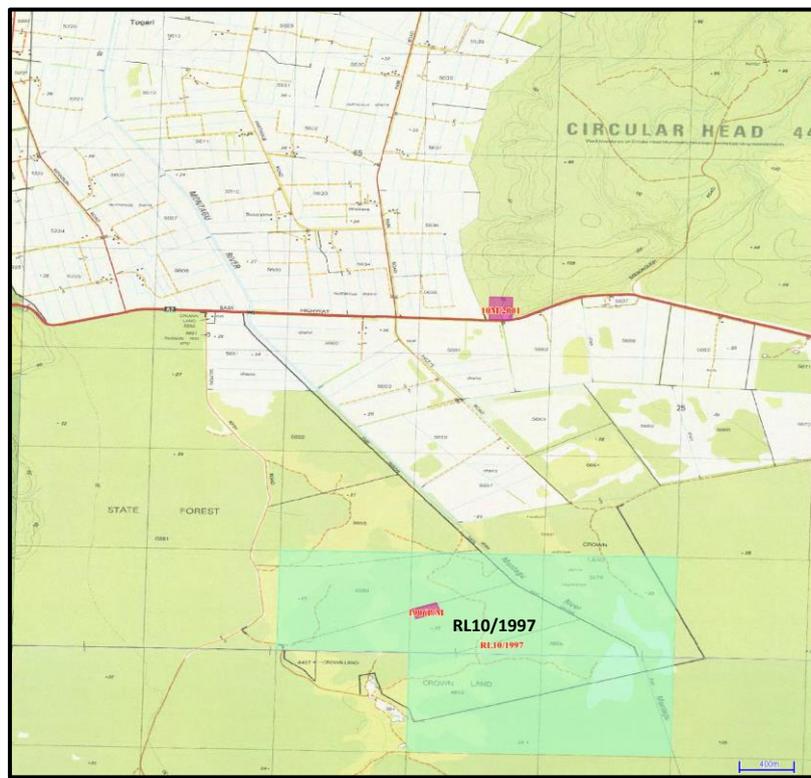
Threader, V.M. 1995. Annual Report EL31/90 Redpa, EL32/90 Montagu Plains and EL33/90 Brittons Swamp. Mineral Holdings Australia Pty Ltd. TCR 95-3735.

Threader, V.M. 1996. Annual Report EL31/90 Redpa and EL33/90 Togari. Mineral Holdings Australia Pty Ltd. TCR 96-3895

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## **7.0 KEYWORDS**

Togari, Dolomite, Precambrian



**Figure 1: Location Diagram - RL10/1997 Togari**  
 South of the Bass Highway and 1km south-west of Brittons Swamp

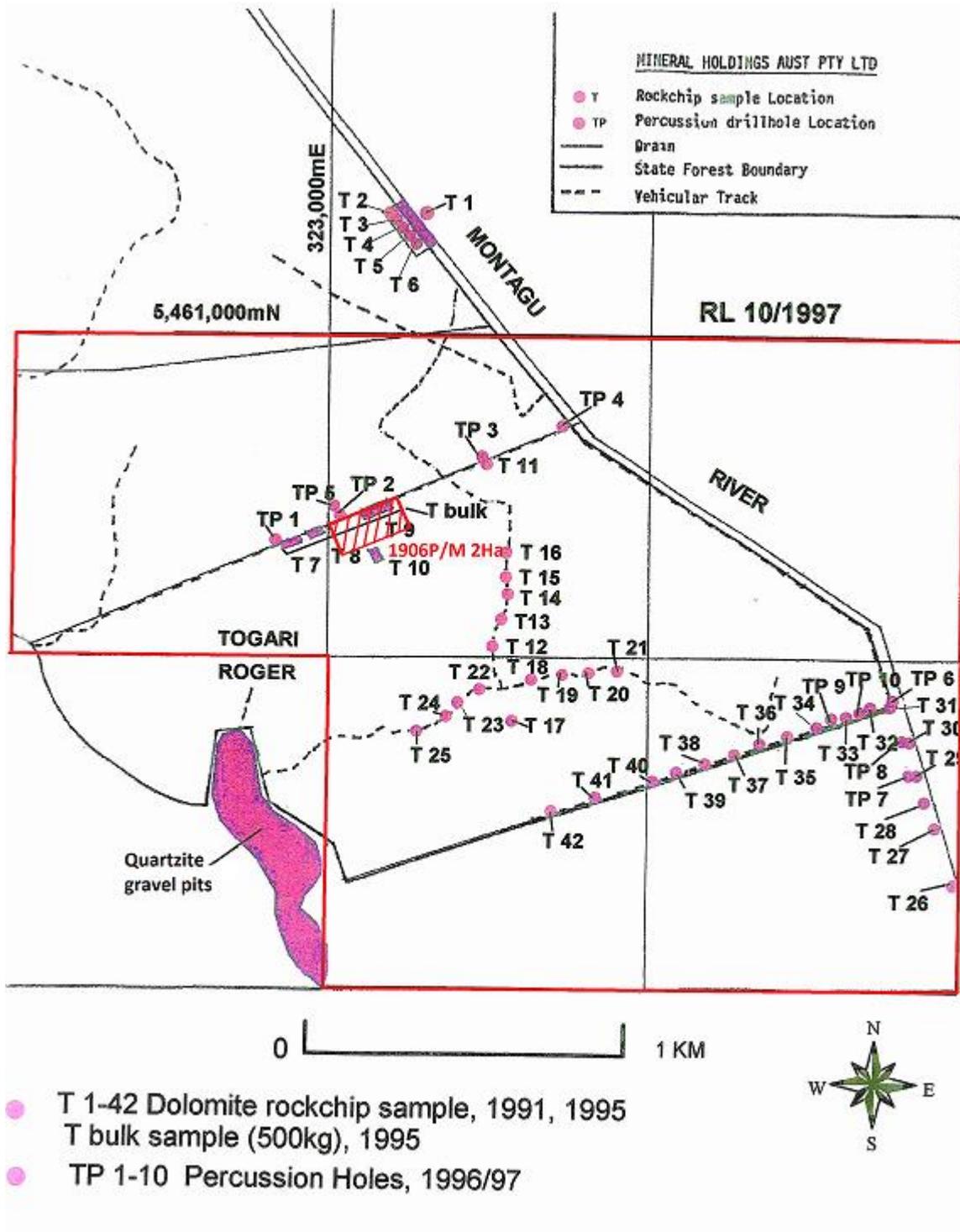
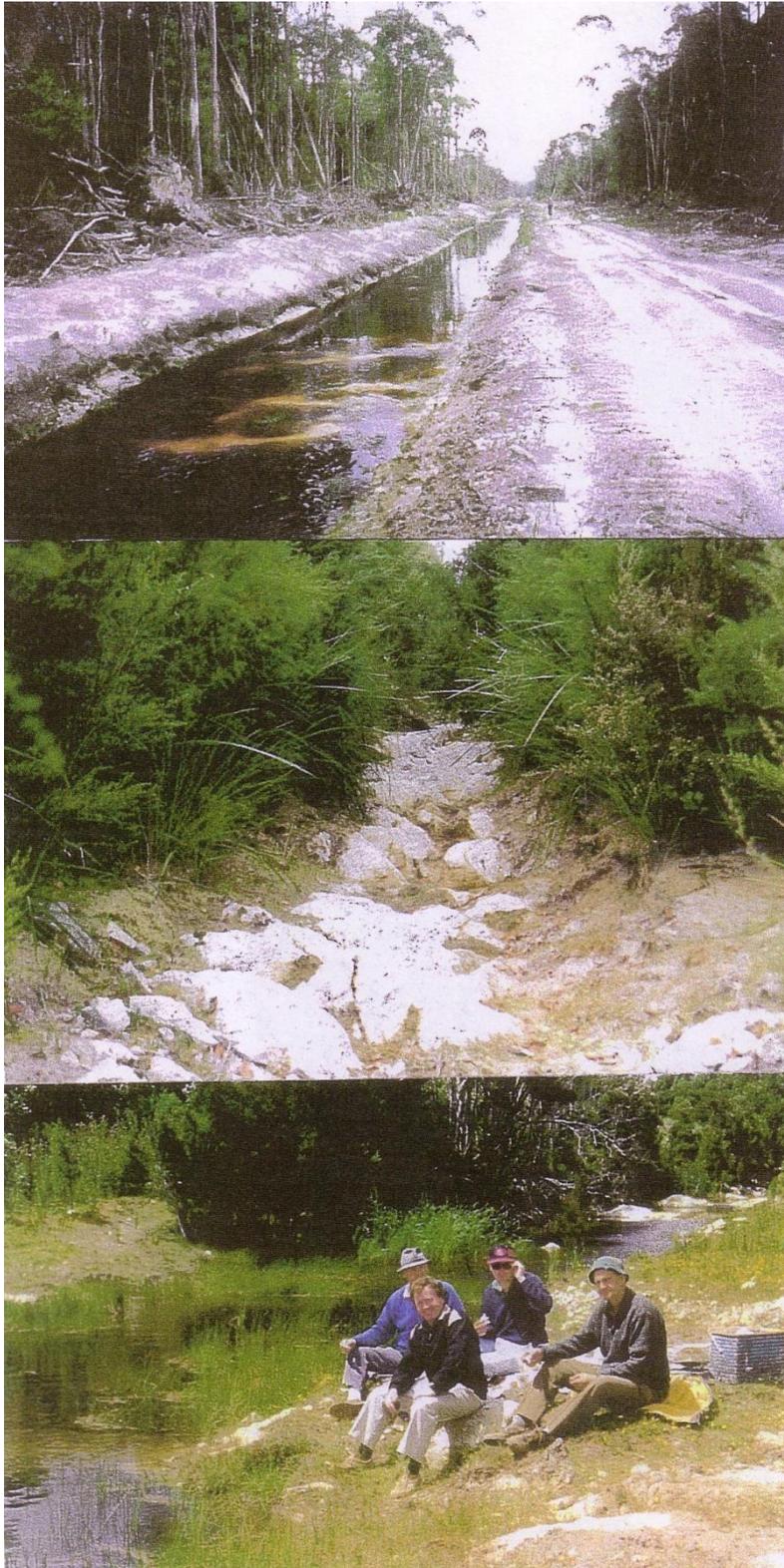


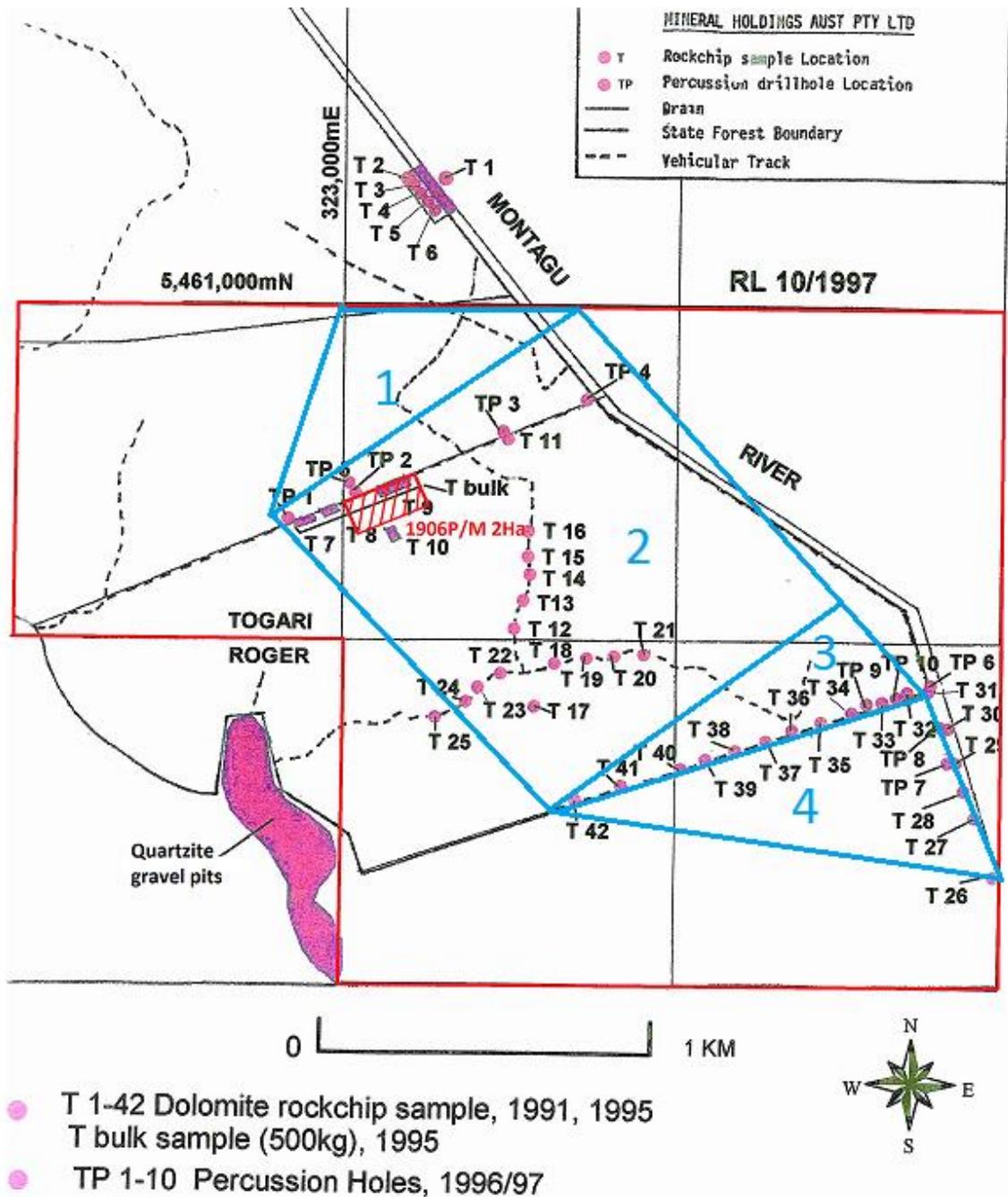
Figure 2: MHA Dolomite Sampling & Drilling - RL10/1997



**Figure 3: Surface Outcrops of Dolomite – RL10/1997 Togari**

*APPENDIX A*

**TOGARI DOLOMITE ORE RESERVE CALCULATIONS**



Note: All areas in resource match or exceed Ardrossan specifications. Pits 1 to 6 outside title.

**TOTAL AREA: 12,925,000 m<sup>2</sup>**

[AREA 1: 230,000 m<sup>2</sup>, AREA 2: 12,100,000 m<sup>2</sup>, AREA 3: 196,999 m<sup>2</sup>, AREA 4: 397,999 m<sup>2</sup>]

**COVER (2m depth): 47 million tonnes**

[mass = volume x density = (12,925,000 x 2) x 1.8 = 46,530,000 t]

**DOLOMITE (to 20m depth): 595 million tonnes**

[mass = volume x density = (12,925,000 x (20 - 2)) x 2.56 = 595,584,000 t]