EXPLORATION LICENCE 13/2008
PULBEENA

REPORT ON EXPLORATION
FEBRUARY 2009 to FEBRUARY 2011

For
Mineral Holdings Australia Pty Ltd
11 Kent Court
Toorak
Melbourne VIC 3142

Compiled by
T W Dickson
5 Crouch Court
Doncaster VIC 3108
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TABLE OF CONTENTS

ABSTRACT

EL 13/2008 was applied for on the 17th January 2008 and granted to Mineral Holdings Australia Pty Ltd on 23rd February 2009 for a period of 5 years over an area of 188 sq km in North West Tasmania. The Licence covers Category 5 Industrial Minerals and Semi Precious Gemstones.

The Licence, along with ELs 12/2008 and 14/2008, was applied to cover potential resources of dolomite, dolomitic limestone and limestone in the Smithton Dolomite and the underlying Black River Dolomite within the Smithton Basin of North-western Tasmania. The carbonate beds lie in poorly outcropping northerly trending zones over a series of broad synclines and anticlines. Strike extent of several of the fold limbs is in excess of 40Km and thickness of the horizons can be upwards of 1200 metres. However the actual outcrop is very poor. The carbonate rock is easily dissolved down to the water table and the presence of Smithton Dolomite is usually marked by a broad flat plain with a thin black soil cover lying almost at the water table.

Exploration carried out by Mineral Holdings Pty. Ltd. under EL 13/2008 over the period 2009 to 2010 has consisted of walking roads fence lines and creeks in an attempt to locate any additional carbonate outcrops and attempting to locate any drill cuttings from water bores developed within the Basin

Considerable interest has been shown by a number of potential joint venture partners and discussions are continuing with a number of international firms with a view to continued exploration of the Licence area..

1.0 INTRODUCTION

EL 13/2008 was applied for on the 17th January 2008 and granted to Mineral Holdings Australia Pty Ltd on 23rd February 2009 for a period of 5 years over an area of 188 sq km in North West Tasmania. The Licence covers Category 5 Industrial Minerals and Semi Precious Gemstones.

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The carbonate horizon is from 700 to 1200 m in thickness and is exposed in a series of broad open folds a number of times across the basin. However the actual outcrop is very poor. The carbonate rock is easily dissolved down to the water table and the presence of Smithton Dolomite is usually marked by a broad flat plain with a thin black soil cover lying almost at the water table. Most of the dolomite exposures are restricted to drains that have been cut to drain the swampy areas underlain by the carbonate rocks. Where it is exposed the Smithton dolomite is a very fine grained hard and dense marble.

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2.0 GEOLOGY

The Smithton Trough is a triangular basin of Eo-Cambrian rocks in north west Tasmania. It extends for 40 Km along the coast westwards from Circular Head and extends south for 50Km to the Arthur River. The geological sequence is

CAMBRIAN -	**Dundas Group equivalents,** Turbidites in Christmas Hills area
EO-CAMBRIAN -	**Smithton Dolomite,** Extensive banded to massive dolomite with minor dolomitic limestone and limestone at Montague.
	Crimson Ck. Correlates, Turbidites and Basaltic lavas
	Black River Dolomite, dolomite with minor mudstone and chert. Upper section contains stromatolite fossils
	Forest Conglomerate, Orthoquartzite and basal conglomerate

UNCONFORMITY WITH UNDERLYING PRE-CAMBRIAN

The Smithton Dolomite is from 700 to 1200 m in thickness and a series of broad open folds exposes the horizon a number of times across the basin. However the actual outcrop is very poor. The carbonate rock is easily dissolved down to the water table and the presence of Smithton Dolomite is usually marked by a broad flat plain with a thin black soil cover lying almost at the water table. Most of the dolomite exposures are restricted to drains that have been cut to drain the swampy areas underlain by the carbonate rocks. Where it is exposed the Smithton dolomite is a very fine grained hard and dense marble.

The Montague Plain extending south along the Montague River is typical of the large flat area with thin soil cover overlying an extensive thick fold limb of Smithton Dolomite.

3. EXPLORATION AND EVALUATION

Early in 2009 the Advantage Business Specialists Pty. Ltd. Group approached MHA with a proposal to purchase all the exploration assets of MHA. The discussions were well advanced but eventually broke down due to the Global Financial Crisis. For the first six months of 2009 during the early stages of the discussions MHA was able to negotiate a moratorium on exploration expenditure with Mineral Resources Tasmania. Exploration carried out by Mineral Holdings Pty. Ltd. only commenced late in 2009 and since then has consisted of walking roads fence lines and creeks in an attempt to locate any additional carbonate outcrops and attempting to locate any drill cuttings from water bores developed within the Basin. To date no new outcrops of carbonate materials have been located.

Future exploration work will consist of a series of shallow RAB drill holes along selected road traverses crossing the northerly trending fold limbs.

Limestone, dolomitic limestone, and dolomite are among the most widely used industrial materials. The raw material is used in everything from dimension stone, crushed aggregate, agricultural stone and a wide variety of fillers. In most cases it is the “look”, the colour and the toughness of the stone rather than its chemical purity that is the most important feature.

On the other hand huge quantities of carbonate materials are calcined to lime, dolomitic lime, and magnesia for a wide variety of industrial uses. During the calcination process the application of heat breaks down the carbonate to a mineral oxide and CO_2. Roughly half the weight of the raw material is driven off as CO_2 so any impurities in the rock essentially double in the burnt product and purity of the raw material is much more critical in the production of calcined products.

Lime is an essential industrial chemical, with a formidable list of uses. It is used as a flux in steel making, in alkalies, soda ash and other chemical products, in glass making in agriculture and as a neutralizing agent in many chemical and metallurgical processes. Up until fairly recently high calcium lime was the major calcined product used but the usage of dolomitic lime is increasing in some of the newer steel making processes and as a neutralizing agent and waste purifier because of its inherent higher reactivity. About the only usage which dolomitic lime cannot be substituted for high calcium lime is in cement manufacture where the magnesia content of Portland cement is critical at less than 5% and only relatively pure limestones can be used.

It is also suggested the advent of carbon trading will have a major effect on the composition and physical characteristics of the carbonates used to produce calcined products in the future. This is principally because;

- Less heat (or fuel) is required (and therefore less CO_2 is produced) to calcine dolomite rather than limestone.
- The calcined dolomite is a better and more reactive product which is also cheaper to produce.
- CO_2 released in the decomposition of the carbonate can be trapped and sequestered from a vertical kiln whereas it cannot be trapped from a horizontal kiln.
- A vertical kiln uses less heat (fuel) and has a lesser retention time (and therefore produces much less CO_2, from fuel burning, during the heating process) than does a horizontal kiln.
- The less efficient horizontal kilns are the main suppliers of lime at present simply because coarsely crystalline and shell type carbonates are the most easily accessible source of carbonate. Coarsely crystalline limestones, marbles and shell carbonates break up and powderise (or decrepitate) during calcination. They don't burn correctly, tend to clump together, and severely disrupt the air flow in the heating chamber. These types of carbonates require a much longer retention time in the furnace and can only be successfully burnt in a vertical kiln.
- The coarsely crystalline limestones, marbles and shell carbonates remain cheap source of lime while CO_2 is not taken into account but will become costly with carbon trading due to the extra heating time and especially if the released CO_2 cannot be trapped.
- Only very fine grained or cryptocrystalline carbonates can be used in vertical kilns as the heat is uniformly transferred through the rock more efficiently and this type of material is ideal to take advantage of the shorter heating time and potential to trap released CO_2 in the vertical kiln.
- It is suggested that as carbon credits are introduced the ecomonics will change drastically so that vertical kilns which are more heat efficient and allow trapping of the released CO_2 will become the norm.
- If that is the case then cryptocrystalline carbonates like MHA's limestone, dolomite and dolomitic limestones will be required in preference to normal crystalline limestones which will cost much more both in heat and CO_2 credits to process.
- Dolomites as a source material will also be preferred as they produce a more reactive product with less heat input.
- MHA's carbonates contain very little in the way of impurities which will use less waste heat in processing and a better product.
- **MHA's cryptocrystalline carbonates will become a premium product.** The use of vertical kilns will provide major processing cost savings (less fuel and less CO_2 produced in the burning of that fuel) through lower cost of heating, less retention time in the kiln as well as the ability to trap the released CO_2 from the calcination process.

4.0 ENVIRONMENT

All work has consisted of foot traversing and no environmental disturbance has been caused.

5.0 FUTURE WORK PROGRAM

As no new outcrop material has been located future work will consist of drilling a series of strategic bedrock sampling lines across the potential carbonate zones. This will provide information on the quality of the Dolomite and the position of any limestone and or dolomitic limestone beds.

MHA is also conducting large scale furnace trials on dolomite resources at Togari in RL 10/97, on dolomitic limestone at Redpa (RL 9/97and on potential limestone horizons at Montague EL 15/2005. These tests are extremely involved and cost hundreds of thousands of Dollars but are vital to the future of the exploration programs in ELs 12,13 and 14 /2008. In reality exploration in ELs 12, 13 and 14/2008 should await the critical results of these furnace trials.

6.0 REFERENCES

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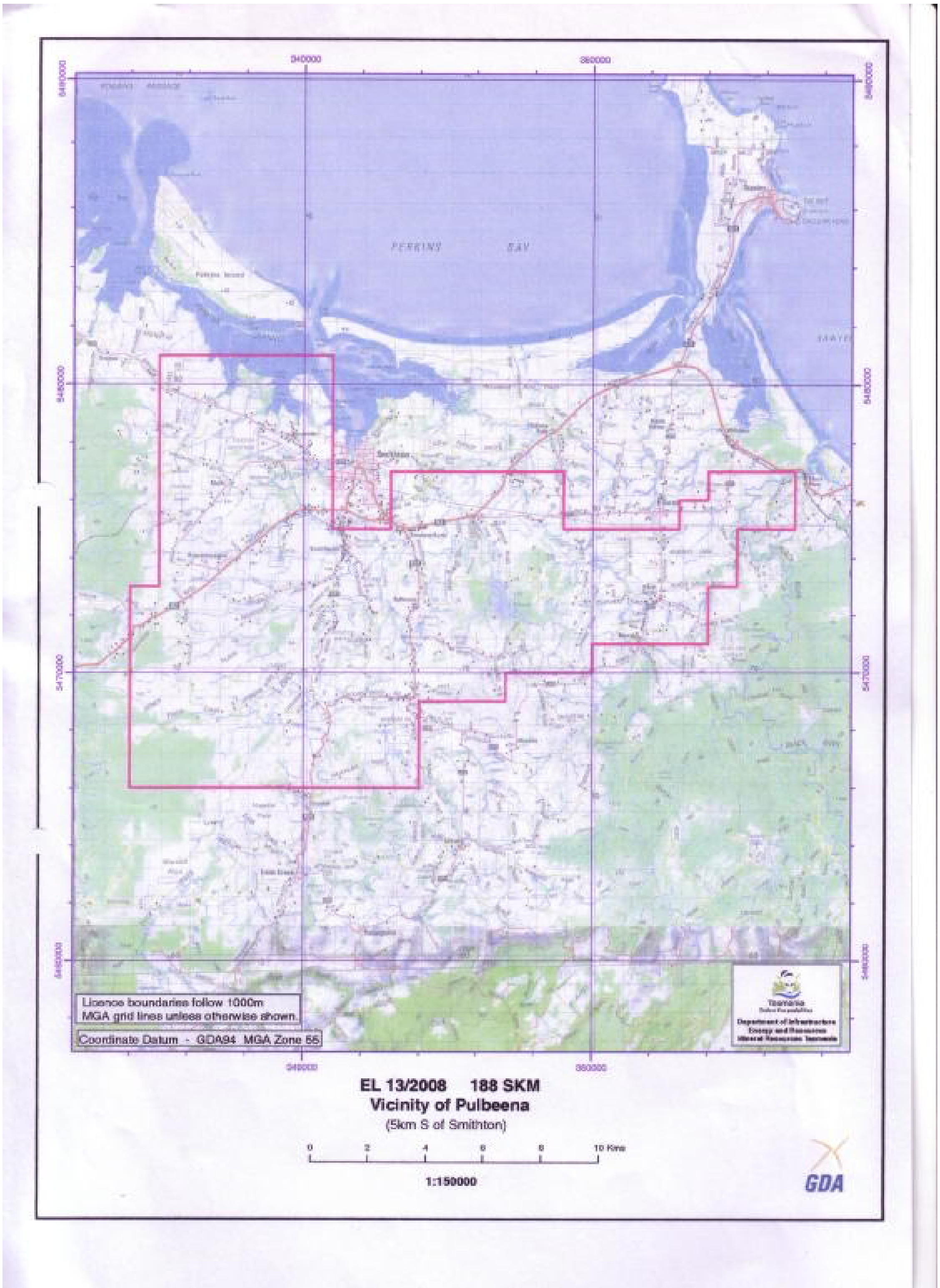
7.0 KEYWORDS

Smithton Dolomite, Black River Dolomite, Redpa, Dolomite resources.



PLAN 1. Location diagram EL 13/2008 PULBEENA