



# HELLYER GOLD MINES PTY LTD

## EL24/2010 MACKINTOSH CREEK ANNUAL REPORT

December 2013

**Reporting period:** 23 December 2012 to 22 December 2013

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### **ABSTRACT**

EL 24/2010 is currently held by Hellyer Gold Mines Pty Ltd (Hellyer; formerly Hellyer Mill Operations Pty Ltd). On-ground exploration activities within EL 24/2010 have been minimal over the past twelve months. The objective for the tenement is to determine the extent and quality of the limestone as a neutralising agent for the operations at the Hellyer mine. Exploration over the following twelve months is to map and sample the limestone to confirm the suitability of the limestone for this purpose.

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## 1. INTRODUCTION

### 1.1 TENURE

Exploration Licence (EL) 24/2010 “Mackintosh Creek” was granted to Hellyer Mill Operations Pty Ltd for a period of five years commencing on 23 December 2010 as part of the Hellyer Mine package. The table below is from the Mineral Resources Tasmania (MRT) database, of details recorded for the tenement.

**Table 1:** Tenement Information

ID	Tenement no.	Area	Holder	Product
32344	EL24/2010	38 sq km/blocks	Hellyer Gold Mines Pty Ltd	Category 3 – Construction Minerals Category 5 – Industrial Minerals, Semi/Precious Stone

This is the third annual report for the tenement, reporting from 23 December 2012 to 22 December 2013.

### 1.2 EXPLORATION RATIONALE

A limestone source is required as part of the neutralising process at the Hellyer mine operations. The tenement provides potentially a significant source of limestone within reasonably close proximity to the plant. Limestone is an alkaline agent with the ability to neutralise, or partially neutralize strong acids as part of the processing of various metals, especially iron, copper, and lead. The exploration program for the next two years is mapping and sampling of limestone to determine the extent and quality of the limestone as a neutralising agent for operations at the Hellyer mine.

### 1.3 LOCATION

The tenement consists of 2 discrete areas located 8km south-west of the Hellyer Mine and 3km east of the Murchison Highway (refer to Figures 1 and 2). Access into the area is via forestry tracks beginning on the Murchison Highway.

The licence area lies on the Charter (#3839) and Block (#3838) 1:25,000 topographic map, the Burnie (#SK55-3) 1:250,000 and the Sophia (#8014) 1:100,000 sheets.

### 1.4 GEOLOGICAL SETTING

Refer to Figure 3 for the surface geology of the tenement.

Dominating the Mackintosh Creek tenement are post-Cambrian sediments ranging from quartz-rich sandstones and quartzites of the Siluro-Devonian Eldon group, through dolomitic limestones and calcareous shales of the Gordon Group, to siliceous conglomerates and sandstones of the Denison Group. Minor outcrops of rhyolitic volcanoclastics of the Cambrian Tyandall Group were also noted (Henham, 1989).

The Gordon Limestone belongs to the Gordon Group and is conformable on the Owen Conglomerate and lies unconformably over the Precambrian rocks north of Zeehan. The limestone occurs in the Dundas and Sheffield Elements and the Florentine Synclinorium. The Ordovician Gordon Limestone is a low-paleolatitude (10°N) peritidal carbonate with a tropical chlorozoan assemblage (calcareous green algae and corals), diverse nonskeletal grains, extensive early diagenetic dolomites, and some evaporites. Geochemically it is characterized by small Mn, moderate Na, and large Sr concentrations as in Holocene tropical aragonitic carbonates. The range of Sr/Na (2.6 to 4.6) in the Gordon Limestone is related to aragonitic original mineralogy, dolomitization, and evaporite formation and to channel, prograding tidal flat, and stratigraphic reef environments.

## 2. REVIEW OF PREVIOUS WORK

### 2.1 PRIOR TO CURRENT TENEMENT

Exploration History (Henham, 1989):

**Table 2:** Prospecting and Exploration pre-EL 24/2010

DATES	COMPANY	EXPLORATION CONDUCTED
Mid 60's	Picklands Mather	Stream sediment sampling. Base metal anomalies not followed up. Au not assayed.
1970 – 1976	Aberfoyle Ltd	Airborne geophysics (HEM 400) resulted in the relinquishment of an area between Southwell Rivers and the Vale. This area was then re-applied for and granted in 1974 after the discovery of mineralization at Que River. Regional stream sediment sampling and airborne EM led to the relinquishment of 45km <sup>2</sup> which then became part of EL24/84 (Mt Romulus) tenement.
1974	CRA Exploration Pty Ltd	Soil sampling and reconnaissance mapping over schists and Cambrian tuffs lead to no evidence for base metals mineralisation. Again no Au assays were undertaken.
1978 – 1980	Alcoa	A small amount of stream sediment sampling and an aeromagnetic survey was undertaken targeting Sn/W exploration related to Devonian granitoids.
1981 – 1984	Shell	Stream sediment sampling and Dighem surveys were undertaken to test the potential of base metal mineralisation of the Cambrian Volcanics. No Au assays undertaken.
1984 – 2005	Intec Hellyer Metals Pty Ltd	EL17/1997 was included in a package of tenements along with 103M/1987, ML68M/1984, 10W/1980, & RL11/1997.  1984 – 1992; Drill testing of three styles of targets was conducted over these 5 tenements as a whole. <ul style="list-style-type: none"> <li>• Drill testing of surface EM anomalies;</li> <li>• Testing of targets at the Hellyer ore position at various prospective structural locations and in some cases a slightly deeper Que River ore position; and</li> <li>• Testing of the Hellyer ore position, on top of the Hellyer footwall alteration zone, down plunge, north of the Hellyer orebody.</li> </ul>
2005 – 2006	Bass Metals Ltd	Rigorous targeting method applied to the Hellyer group of leases including the identification of crustal scale fluid

		pathways, preferential host stratigraphy/lithology, and structural/geochemical traps to mineralisation. This process did not indicate areas of potential mineralisation and was therefore let expire as of 30 March 2006. This tenement then returned to vacant ground. (Murphy, 2006).
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## 2.2 DURING CURRENT TENEMENT

During the 2010-2011 period, Bass Metals Ltd identified two sites that are suitable for limestone quarries, unfortunately they were unable to gain access to ground-truth the potential limestone resources. The following reporting period (2011-2012) no work was completed on the EL.

## 3. EXPLORATION COMPLETED DURING THE REPORT PERIOD

### 3.1 REGIONAL AND PROSPECT EXPLORATION ACTIVITIES

No regional and prospect exploration activities have been completed during the reporting period.

## 4. DISCUSSION OF RESULTS

At this stage there are no results to discuss.

## 5. CONCLUSIONS

There has been minimal exploration performed during the past 12 months. The objective for the tenement is to establish the full extent and quality of the limestone as a neutralising agent for the operations at the Hellyer mine. Future exploration over the next year includes ground-truthing the limestone to determine the suitability of the limestone for the purpose of a neutralising agent.

## 6. ENVIRONMENT

Since there has been no physical exploration, there have been no surface disturbing operations within the tenement area and therefore no rehabilitation requirements.

## 7. EXPENDITURE

There has been nil expenditure during the reporting period for EL24/2010.

## 8. REFERENCES

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Murphy, T; 2006. EL17/1999 Mt Crips Annual and Final Report for the period ended 30 March 2006. Bass Metals Exploration Report (06\_5309).

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Rao, C P; 1981. Geochemical differences between tropical (Ordovician) and Subpolar (Permian) Carbonates, Tasmania, Australia; *Geology*, May, 1981, v. 9, p. 205-209.

**9. KEYWORDS**

Gordon Group, Limestone, Mackintosh Creek, Hellyer Mine.

# FIGURES

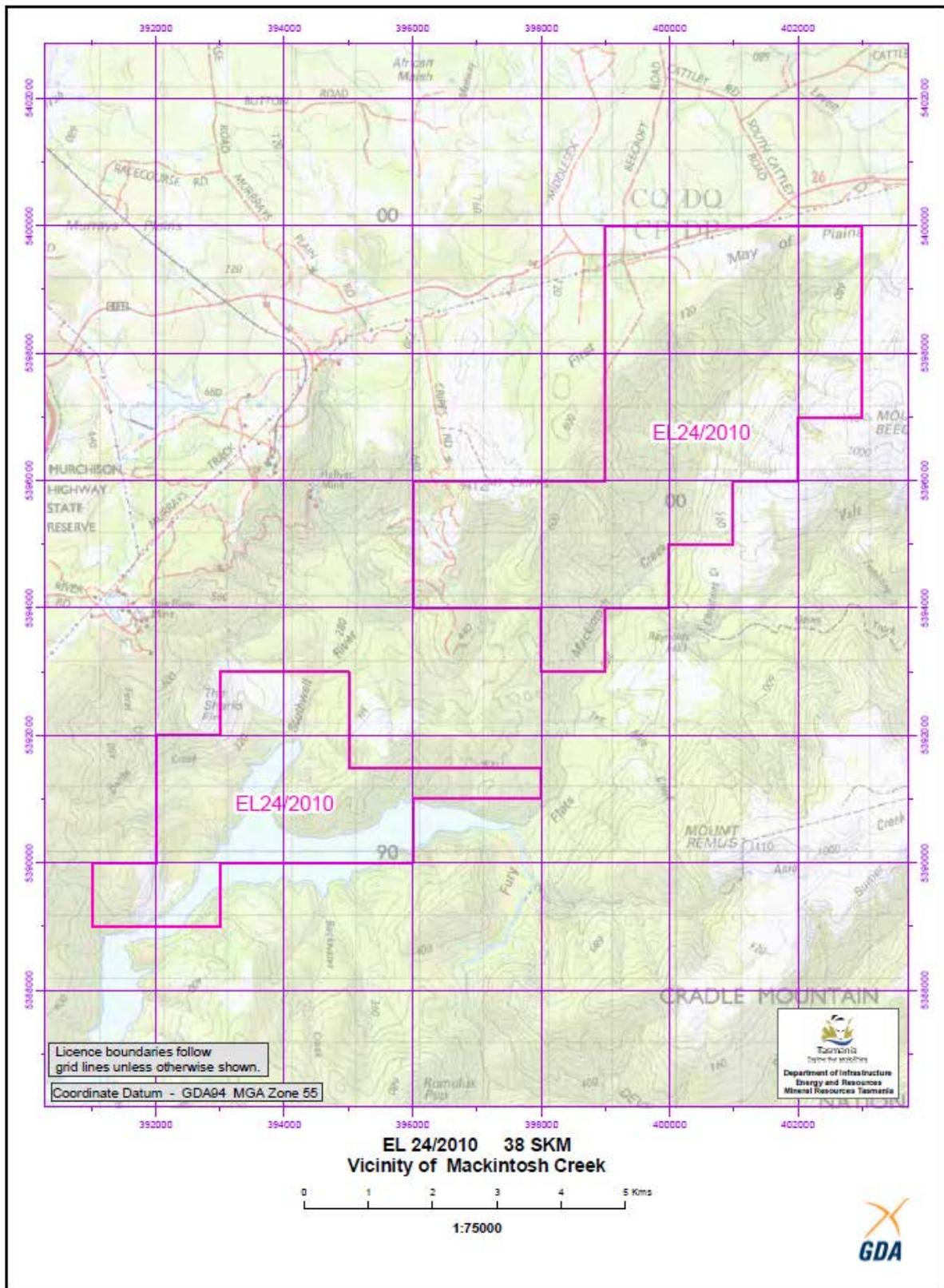


Figure 1: Topographic Location Map of EL24/2010

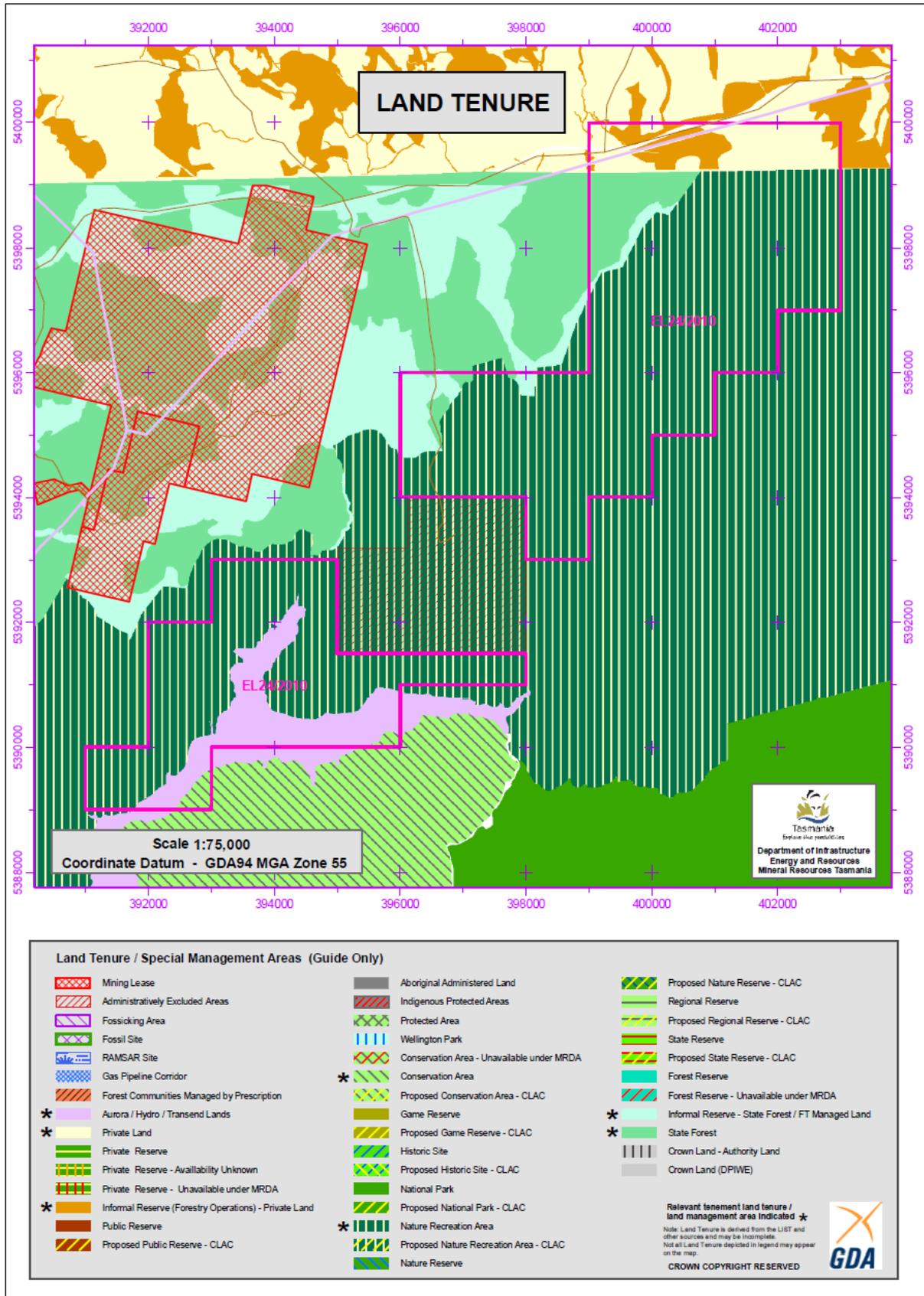
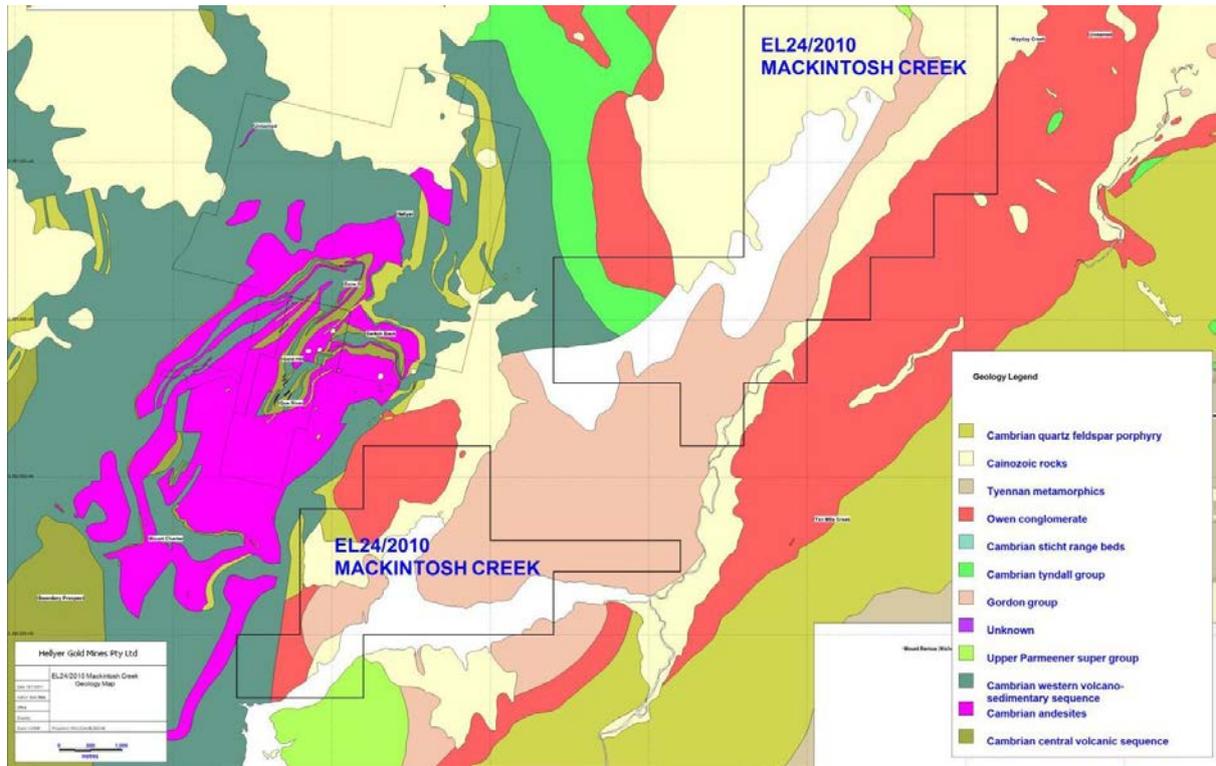


Figure 2: Tenure Location Map of EL24/2010



**Figure 3: Local Geology of EL24/2010**