



**BASS METALS LTD**

**EXPLORATION LICENCE  
EL 17/1999 - MT CRIPPS  
TASMANIA**

**ANNUAL and FINAL REPORT  
FOR THE PERIOD ENDED  
30th March 2006**

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## **1 EXECUTIVE SUMMARY**

EL17/1999 - Mt Cripps is situated approximately 3km west of the decommissioned Hellyer and Que River Mines in North-western Tasmania. The tenement was acquired by Bass Metals Ltd (formerly Resource Finance & Investments Limited) as part of the Hellyer package of tenements from Intec Hellyer Metals Pty Ltd in 2005.

The tenement comprises 12km<sup>2</sup> with Siluro-Devonian clastic sediments and calcareous rocks dominating the outcropping geology. Previous interest in this tenement focused on the potential limestone resource for use in a potential new processing facility planned for Hellyer to retreat the Hellyer tailings Mineral Resource. Comprehensive target generation for precious and base metal mineralisation styles for all of the Hellyer leases indicates low potential for EL17/1999 to yield a significant metallic resource.

The 5 year exploration tenure of EL17/1999 held by Bass Metals Ltd expired on 30th March 2006.

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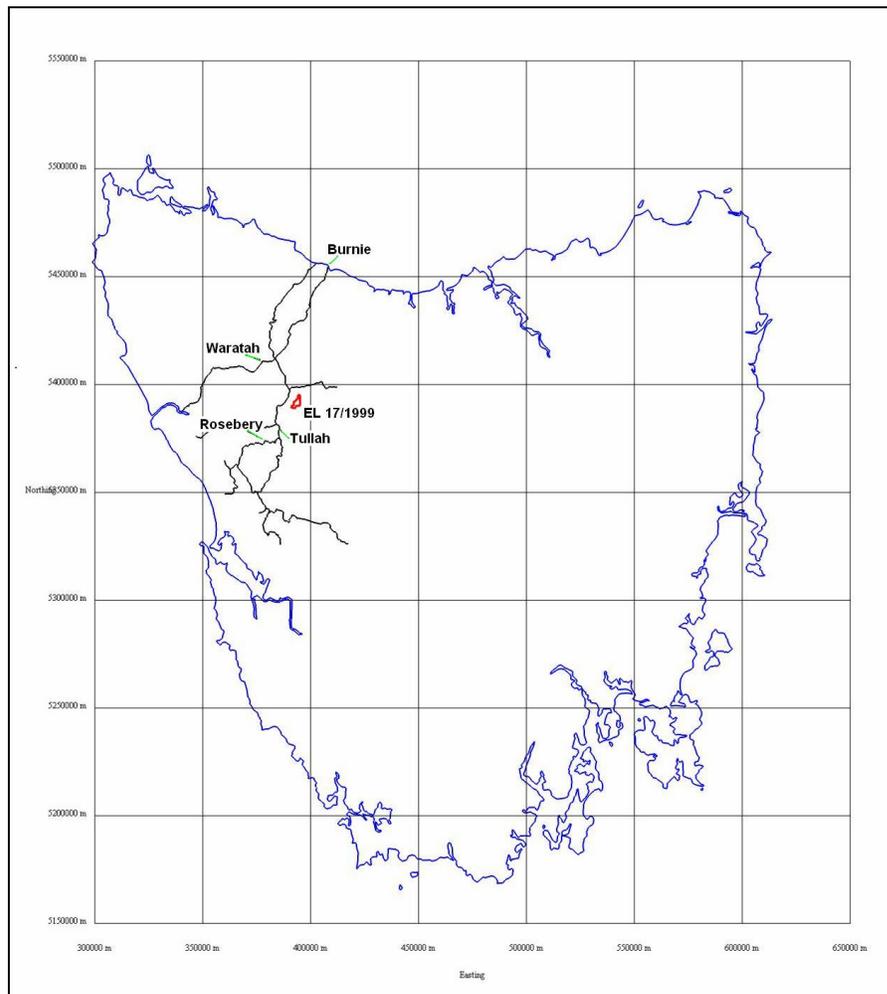
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*Note: All figures and references to grids are according to the AGD66 datum and AMG66 grid system.*

## 2 INTRODUCTION

This report summarizes exploration carried out on EL 17/199 - Mt Cripps for Bass Metals Ltd from March 30th 2005 to 2006. Exploration work focused on compilation of open-file data and evaluation of the tenement based on rigorous targeting criteria.

EL17/1999 - Mt Cripps is located approximately 75km south-southwest from Burnie in the northwest of Tasmania (Figure 1). The tenement is part of a package of tenements incorporating the Hellyer/Que River/Mt Charter deposits acquired by Bass Metals Ltd (formerly Resource Finance & Investments Limited) from Intec Hellyer Metals Pty Ltd in March 2005. It comprises an area of 12km<sup>2</sup> situated 3km west and south west of the Que River Mine and prospect and 3km west of the Mt Charter prospect (Figure 2). EL17/1999 was applied for on the basis of potential limestone resources which could be utilised as a neutralising agent in a new hydrometallurgical process under evaluation to retreat the Hellyer Tailings Mineral Resource. Alternative sites for limestone sources with easier access and lower environmental impact have since been identified by Intec Heller Metals Pty Ltd.



**Figure 1. Location of EL17/1999 in NW Tasmania**

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The 2-year expenditure commitment for this tenement was \$75,000.

### **3 REGIONAL GEOLOGY**

Tenement EL17/1999 is situated immediately east of the regionally significant Henty Fault which separates the highly endowed (in Pb, Zn, Ag, Au, Cu) Cambrian Mt Read Volcanics on the western side of the fault zone from younger Siluro-Devonian clastic and calcareous rocks in the east (Figure 2). The Henty fault zone is host to the Henty gold deposit approx 30km to the SSE and numerous smaller base and precious metal deposits.

The base and precious metal deposits of the Hellyer-Que River-Mt Charter area lie above the main Central Volcanic Complex of the Mt Read Volcanics as it passes into a sequence of volcanics and sediments, which near Hellyer and Que River is called the Mt Charter Group. Within the Mt Charter Group is a volcanic package called the Que Hellyer Volcanics (QHV) comprising a group of andesitic to dacitic volcanics and sediments. Que River, Hellyer and Mt Charter are hosted by the highly variable 'Mixed Sequence', sandwiched between basaltic to andesitic volcanics. Volcanic-related and marine sediments cover the volcanics.

The QHV is up to 1000m thick near Que and Hellyer, but wedges out to less than 50m to the northwest of Hellyer. Beneath the QHV are the Animal Creek Greywacke and Black Harry Beds, a sequence of sediments defining the base of the Mt Charter Group.

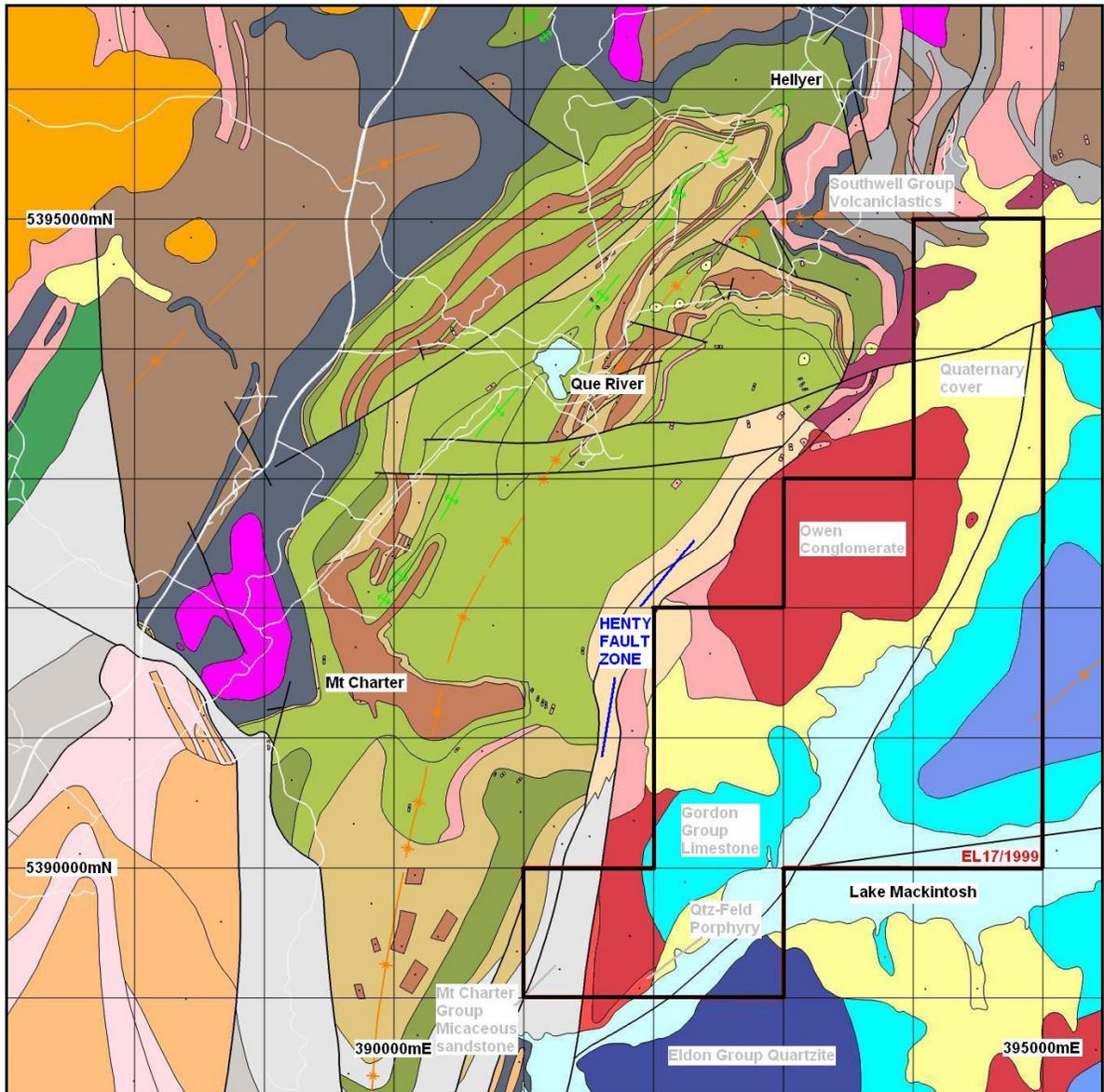
The Upper or Hellyer Basalt consisting of massive to pillowed amygdaloidal basalt lava and volcanoclastic.

- The Mixed Sequence host to the Que River, Hellyer and Mt Charter systems is comprised of epiclastics, dacitic lavas and breccias.
- The Feldspar Phyric Andesite, a porphyritic andesite lava, which in turn is underlain by the Lower Basalt, a sequence of basaltic pillow lavas and volcanoclastics, form the immediate footwall at Que River and Hellyer.

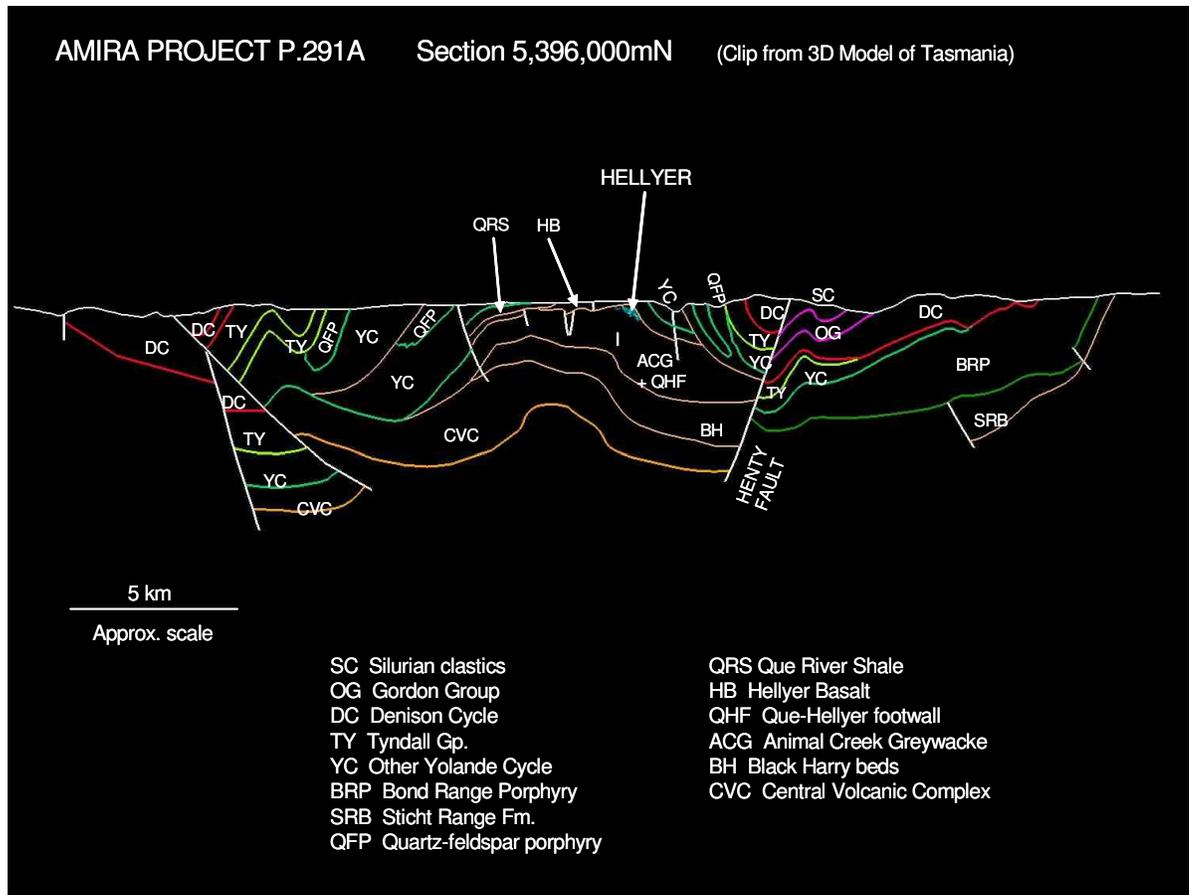
Overlying the QHV is the Que River Shale, which is in turn overlain by felsic volcanoclastics, greywacke and shale of the Southwell subgroup. The Southwell subgroup is overlain by the Mt Cripps subgroup (a correlate of the Tyndall beds at the Henty mine) which is a sequence of volcanoclastics, siltstones and conglomerates only outcropping along the eastern boundary of the tenements.

EL17/1999 is dominantly comprised of stratigraphy from the Gordon group (limestone) and Owen Formation (conglomerate). Minor amounts of Southwell Group volcanoclastics and Mt Charter Group micaceous sandstone also occur.

The Tyndall Group rocks which host the Henty Gold deposit are not observed on this tenement and are interpreted to occur at significant depth as shown in the cross section from 1km north of EL17/1999 in Figure 3.



**Figure 2. Geology of the Hellyer - Mt Charter - Lake Mackintosh region**



**Figure 3. Cross section looking north at 5396000mN displaying major stratigraphic boundaries and significant structures**

#### 4 PREVIOUS WORK

The earliest known exploration in the Hellyer area was prospecting carried out around 1920 leading to the discovery of alluvial gold and boulders containing zinc and lead sulphides in a creek draining the area of Que River S lens.

Modern exploration of the Que Hellyer Volcanics (QHV) was carried out almost exclusively by Aberfoyle Resources Ltd (Aberfoyle). Only deep QHV beneath Southwell Subgroup cover, west of the Murchison Highway, have been explored by other companies (CSR, Placer, BHP, Pasminco).

Aberfoyle's involvement began in 1970 with the granting of EL 2/70 and in 1971 the prospectivity of "acid volcanic belts" in the west of the exploration licence was recognised. At this time a regional mapping and stream sediment sampling programme covering west of the Mackintosh River was carried out. In early 1972 a combined airborne electromagnetic (EM) and magnetic survey was flown and one of the six anomalies recommended for follow up was coincident with anomalous stream sediment geochemistry. A follow up ground EM and soil sampling survey in 1973 discovered the outcropping S Lens mineralisation at Que River. The first diamond drill hole (QR1) in

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April 1974 intersected 11m of massive sulphide mineralisation and was followed by 25,000m of ore resource delineation drilling, which defined the main PQ lens and the P North, QR32 and S lenses. The Que River reserve was defined as containing 3.3Mt @ 13.6% Zn, 7.4% Pb, 0.7% Cu, 3.3 g/t Au and 195 g/t Ag.

The Que River lenses were mined mainly from underground, using a shaft, with small open-cuts, from February 1981 until 1991, with 2.46Mt of material trucked to and processed at Rosebery. Following the discovery at Que River, exploration was heavily focused on testing along strike from the known mineralisation. This led to step out diamond drill testing, on approximately 100m centres, for about 1.5km north and 1km south of the orebody. These holes were relatively shallow (< 500m) and resulted in definition of the linear (footwall) alteration zone which hosts the Que River orebodies and extends north to eventually underlie the Hellyer orebody.

The period from the mid 1970's to the discovery of Hellyer in 1983 was one in which the main surface geological, geochemical and geophysical programmes were carried out over the QHV. The prospective stratigraphy was mapped at 1:2 500 scale and covered with -80# C-horizon soil sampling on 50 or 100m spaced lines.

Geophysical programmes during this period were heavily influenced by the fact that surface EM testing at Que River failed to detect the main PQ lens, which came close to surface at the southern end of the orebody. This ultimately would be shown to be due to lack of electrical connectivity owing to the disrupted nature of the southern end of the orebody. At the time, this feature was taken to indicate that surface EM was not the best geophysical technique for application to the surrounding volcanics.

Induced Polarisation (IP) however did provide a strong anomalous response at Que River and IP was chosen as a drill targeting tool and widely applied throughout the QHV. However, IP was responding to the strongly pyritic footwall alteration zone enclosing the Que River orebodies rather than the ore itself. During this period, many drill holes were targeted at coincident soil geochemical and IP anomalies, only to intersect geochemically anomalous alteration.

Failure of IP to discover new deposits led to trialling of a new fixed loop time domain EM system - UTEM, at Que River mine in 1983. This time UTEM detected PQ Lens and it was therefore decided to completely cover all prospective volcanics with this system. Only one conductor as strong as Que River was detected; on the most northern line of the survey. The survey was extended to the north and indicated a deep moderately conductive body over a strike length of 400m, open to the north, where it plunged under conductive Que River Shale. The UTEM anomaly was coincident with weakly anomalous soil geochemistry, barite veining and fuchsite alteration.

In August 1983 the first hole intersected 24m of massive sulphide in the Hellyer orebody. By November 1984 approximately 22,000m of delineation drilling had been completed and in June 1986 a 1.3km adit was driven to intersect the orebody. The Hellyer reserve was defined as 16.9Mt @ 13.8% Zn, 7.2% Pb, 0.4% Cu, 167 g/t Ag and 2.5 g/t Au. Production commenced in December 1986, using underground methods, with production peaking at around 1.3mt pa until the orebody was mined out in June 2000. Material was

processed at the newly constructed 1.3Mtpa Hellyer mill, purpose built to accommodate the fine grinding necessary to liberate the sulphides via flotation.

Knowledge gained from the Hellyer drill-out showed that a clear relationship exists between the orebody and the stratigraphic contact between footwall andesite and hangingwall basalt. This horizon, the Mixed Sequence, became a key target throughout the QHV. Comparison with Que River indicated the similar stratigraphic position of the Que River orebodies within a thicker Mixed Sequence.

From 1984 to around 1992 exploration focussed on drill testing three styles of target:

1. continued drill testing of surface EM anomalies
2. 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
3. testing of the Hellyer ore position, on top of the Hellyer footwall alteration zone, down plunge, north of the Hellyer orebody.

Generally, targets of the first and second categories intersected barren ore positions with no significant alteration. All holes were surveyed with downhole EM. North of Hellyer, a barren ore position underlain by strong footwall alteration and overlain by thick strongly fuchsite-carbonate altered basalt was followed north to 11400N in step-outs of up to 200m.

By 1992 it became clear that surface EM had effectively sterilised the QHV down to 200m for a Que River sized target and 400m for a Hellyer sized target. Exceptions to this were unusually oriented targets (eg steeply plunging) that could still remain undetected by the largely out-of-loop surveys that had been conducted. Any future discovery would be deep and a new method of target generation was required.

In 1992 Etheridge and Henley (now SRK) were approached and a regional structural model was devised to generate conceptual, deep, structural/stratigraphic targets. The aim was to integrate geological, geophysical and geochemical data to develop a three-dimensional structural model of the entire QHV basin and to delineate the synvolcanic fault network within the basin.

The structural study proposed a syndepositional fault network of linked NE trending normal faults and NW trending transfer faults. In addition, important NNE trending structures such as the Que - Hellyer structure (reflected by the Que River to Hellyer footwall alteration zone) were recognised and seen as reactivated basement faults, which had undergone oblique extension.

Localised dilation and subsidence, at or near structural intersections, were thought to allow focussed hydrothermal fluid flow, which could lead to orebody formation. Prospective stratigraphy, adjacent to these structures, below surface EM range, was seen as a valid deep drill target. A total of 26 target areas were defined and these were prioritised for drilling using geophysical, alteration, geochemistry and stratigraphic indicators.

During the period 1992 to 1994 supporting data was gathered, such as close spaced aeromagnetics and additional gravity data. The structural / stratigraphic targets began to be tested from 1993 as the structural model evolved and targets became evident.

At this time reinterpretation of Mount Read Volcanics raised the possibility that the Rosebery orebody may be younger than Hellyer (rather than older as previously thought) and hosted by correlates of the Southwell Subgroup. Prospectivity of felsic volcanic sequences north of Hellyer was increased and these rocks were surveyed with surface EM. Only one anomaly worthy of follow up was located and drill tested. It was found to be due to Tertiary sediment.

The main period of drill testing from 1995 to 1996 identified structural / stratigraphic targets, with nine of the highest ranked areas being tested by at least one hole. Some targets provided sufficient encouragement for further drilling which was also carried out during this period. Of note was the “rediscovery” of the Hellyer alteration system down-plunge from the orebody on section 12000N, where from earlier drilling it was thought to have died out. Although deep, the system remains open to the north.

Partial digest or Mobile Metal Ion (MMI) geochemistry was used in the Hellyer area in 1996. In-house research showed that partial digest soil geochemistry detected an anomalous response 300m above the Hellyer orebody. Given this potential it was decided to survey approximately 10km along strike north from Hellyer mine to the exploration licence boundary. The aim of the survey was to detect a body of massive sulphide buried beneath barren cover rocks. The target body could be hosted by deep QHV or overlying felsic sequences.

The survey only detected one coherent anomaly, which coincided with the highly ranked Mayday structural target, 4km north of Hellyer which was drilltested in 1997 with a 1500m vertical diamond hole but it failed to intersect the QHV or a source for the anomalous soil geochemistry.

Western Metals took ownership in late 1998 and drilled four holes prior to the completion of mining at Hellyer. The Tasmanian Government (MRT), together with AMIRA completed a regional seismic traverse in 1996, with data available in 1998, across the Hellyer area to improve regional understanding. This was complemented in 2002-03 when the MRT flew close spaced airborne magnetics, radiometrics and EM across the entire Mt Read Volcanics belt.

During the processing of Hellyer ore, considerable volumes of metal were not recouped and reported to the tailings. Western Metals assessed various pyro- and hydro-metallurgical processes for recouping these metals. IHM is currently conducting a pre-feasibility study using Intec’s proprietary hydrometallurgical technology to extract the Zn, Pb, Cu, Ag & Au in the tailings.

In 2005 the Hellyer group of tenements including EL17/1999 were acquired by Bass Metals Ltd.

## **5 EXPLORATION RATIONALE AND WORK COMPLETED**

EL17/1999 forms part of the group of tenements operated under the Hellyer Exploration Alliance. This alliance is between Bass Metals Ltd and Zinifex Limited and involves collaboration with Geoinformatics Exploration Inc. It brings together a variety of geoscientists with skills in both field research and data processing and analysis as well as Zinifex personnel with a significant history of exploration in the area.

Geoinformatics Exploration has applied a rigorous targeting methodology to the Hellyer group of leases through compilation of all available geological, geochemical, and geophysical data and applying target generation criteria based upon fundamental interpretations of controls on the main mineralisation styles which occur in the region. Field visits to validate the interpreted geology were also conducted.

Key components of the analysis by Geoinformatics Exploration included the identification of crustal scale fluid pathways, preferential host stratigraphy/lithology, and structural/geochemical traps to mineralisation.

EL17/1999 was retained by the previous owners due to its potential to supply limestone for use in the proposed hydrometallurgical processing facility. This tenement lacks significant exposure of the preferential host to mineralisation, the Mt Read Volcanics, and as a result, the target generation process did not indicate areas of potential mineralisation worthy of testing by the alliance and Bass Metals Ltd.

## **6 EXPENDITURE**

The following table summarizes expenditure on the EL17/1999 tenement from 30 March 2005 to 30th March 2006.

<b>Activity</b>	<b>Cost</b>
Geology	\$9099
Field Costs	\$2,121
Data processing	\$95
Rent	\$8,346
Legal costs	\$6,374
Tenement acquisition	\$211,967
<b>Total</b>	<b>\$238,002</b>

**Table 1. Expenditure on EL17/1999 for the period of 30 March 2005 to 30th March 2006.**

## **7 CONCLUSIONS**

EL17/1999, due to the absence of the prospective stratigraphy of the Mt Read and Tyndall volcanic Groups, has been interpreted as having low probability of yielding a significant metallic resource. The potential limestone resource on this tenement is not aligned with the exploration strategy of Bass Metals Ltd and the Hellyer Exploration Alliance.

## **8 FUTURE EXPLORATION PROGRAM**

Tenure of the EL17/1999 lease has expired as of the 30th March 2006.