LOYETEA PROJECT
TASMANIA
EL52/2004

ANNUAL PROGRESS REPORT
8TH AUGUST 2006 TO 7TH AUGUST 2007

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ABSTRACT  

Bass Metals Ltd (BSM) commenced management of the Loyetea exploration licence (EL52/2004) on 8 August 2005. Work conducted on this tenement for the year ended 7/08/2007 has included: 

- Compilation of historical exploration reports and data  
- Program planning for geological mapping and rock chip sampling of the identified magnetite skarns; Geoinformatics generated volcanic-hosted massive sulphide (VHMS) style targets, and Geoinformatics intrusion-related targets. 

Expenditure – Reporting period $34,490.10  

Total to date $64,638.87
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1. INTRODUCTION

This report is a summary of the exploration activities conducted on the Loyetea exploration licence (EL), EL52/2004 (Figure 1), for the period 8 August 2006 to 7 August 2007. The Loyetea licence is subject to an exploration joint venture agreement between Bass Metals Ltd (BSM) and Geoinformatics. BSM is currently managing exploration of the EL from a base at the Hellyer Mine site.

The licence is located in northern Tasmania and is dominated geologically by the Proterozoic Burnie Oonah Formation, interpreted Mt Read Volcanics (MRV), Cambro-Ordovician Owen Group sediments, the Devonian Housetop Granite and Tertiary basalts.

A diverse range of mineral deposits occur in the vicinity of the Loyetea licence and include the Kara Fe-W skarn deposit (5.2Mt @ >30% Fe, by-product WO₃), the Dial Range Cu-Ba prospect, the Penguin base metal prospect along with numerous other occurrences. The MRV belt is also known to host a number of large volcanic-hosted massive sulphide (VHMS) deposits in Tasmania, including, Hellyer (Pb-Zn-Ag-Au) and Que River (Pb-Zn). Exploration at Loyetea is likely to be for Devonian granite and hydrothermal related deposits and Cambrian VHMS deposits.

1.1 Location and Access

The Loyetea licence covers a total area of 186 km² and extends for some 30km to the southwest from Penguin to the Leven River, south of Mt Housetop (Figure 1). The tenement encompasses the localities of Loyetea, Ferndene and West Pine and is shown on the Forth & Inglis 1:100,000 scale LTIS map sheets.

The Loyetea tenement area is easily accessed from the north coast via a network of secondary roads covering largely open farmland and forest reserve. Topographically the EL is variable from undulating farmland to steep hill slopes of the Dial Range, south of Penguin, and Loongana Range, southern licence area.
Figure 1. Loyeta Exploration Licence (EL52/2004) is located in north-western Tasmania.
1.2 Geology Overview

Geologically the licence contains the Proterozoic Burnie Oonah Formation, interpreted MRV, Cambro-Ordovician Owen Group sediments, the Devonian Housetop Granite and Tertiary basalts.

Large parts of the Loyetea tenement are covered by a veneer of Tertiary basalt while the Housetop Granite occurs along the western licence boundary. The Tenth Legion Fault is interpreted to bisect the northern half of the tenement thrusting the Proterozoic Burnie and Oonah Formation over Cambrian and Ordovician sediments of the MRV and Owen Group. The northern extension of the Hellyer Fault also passes through the tenement area. Refer to the Regional Geology Map in Figure 2.

1.2.1 Burnie and Oonah Formation

The Burnie and Oonah Formation is a thick, polydeformed Proterozoic quartzwacke turbidite succession, widespread in western Tasmania. The formation comprises of two lithological associations. The dominant quartzwacke turbidite association, which includes minor alkaline dolerite intrusions and lavas, consists of interbedded quartz sandstone, quartzwacke, siltstone and pelite. The secondary lithological association is predominately pelite and/or carbonate including mafic volcanics and conglomerate in some places. Near Zeehan this association is host to a number of Devonian vein, skarn and replacement-tin deposits, and at Mt Bischoff a dolomitic unit hosted major Devonian tin lodes (Seymour et al., 2006).

1.2.2 The Mount Read Volcanics

The MRV are a belt of volcanic, volcaniclastic and sedimentary rocks of Mid- Cambrian age. The belt is famous for hosting Tasmania’s world-class polymetallic (VHMS) deposits (eg. Rosebery, Hellyer, Que River).

The Loyetea EL is mapped as having outcrops of Western Sequence volcaniclastics, andesites and Tyndall Group. The andesite may indicate the presence of a new or equivalent cycle of volcanism to the Hellyer-Que River Volcanics or it may be of less significance belonging to the basal beds of the Tyndall Group.

Western Volcano-Sedimentary Sequence

The northern portion of the Loyatea EL is mapped as belonging to the Western Volcano-Sedimentary Sequence. This unit is coeval with the Central Volcanic Complex of the MRV though older than the Tyndall Group. It is described as including beds of lithicwacke turbidite, mudstone (commonly rich in shards), siltstone and shale. It also contains subordinate intrusive and volcanic rocks, which are commonly andesitic (Seymour et al., 2006).

Tyndall Group

The Tyndall Group is a unit of quartz-bearing volcaniclastic sandstone and conglomerate. It also contains minor volcanic, intrusive and ignimbritic rocks of mixed felsic and andesitic provenance (Seymour et al., 2006).
1.2.3 The Owen Group

The Owen Group is Cambrian to Ordovician in age and sits unconformably on the MRV. The unit typically includes large volumes of coarse siliclastic conglomerate composed dominantly of metaquartzite clasts derived from the Tyennan Metamorphics. It also includes turbidite and shallow marine sandstone units (Seymour et al., 2006). It is not likely to host any exhalative styles of mineralisation such as Taylor and Mathison (1990) report for the younger Gordon Group. However, it could potentially host mineralisation associated with intrusion of Late Devonian–Early Carboniferous granitoids.

1.2.4 The Housetop Granite

World-class tin and tungsten ore bodies, as well as many lead, silver, gold, zinc, copper and bismuth deposits of different styles, are genetically and spatially related to the emplacement of high-level Middle Devonian to Early Carboniferous granitoids in Western Tasmania. The major bodies are the Housetop, Granite Tor, Grassy, Dolcoath, Meredith, Heemskirk and Interview granites, and these include both I and S types. Styles of mineralisation associated with the Devonian granitoids include stratabound carbonate replacement cassiterite-massive sulphide, silicate and magnetite skarns, and disseminated and vein deposits.

Economically, the stratabound carbonate-replacement cassiterite-massive sulphide mineralisation forms the most important Devonian ore type, with major deposits at Renison Bell, Mt Bischoff, Queen Hill, Montana, Cleveland and Razorback (MRT Report, 2005).

1.2.5 Tertiary Basalts

Radiometric dates from basalts across Tasmania indicate an age range of between 16.4Ma and 64.5Ma (Everard et al., 2004). These basalts cover a significant amount of the central tenement area. The thickness of these basalt units may potentially vary significantly.

1.3 Exploration Rationale

EL52/2004 contains over 40 known minor mineral occurrences including Sn, W, Fe & Cu occurrences hosted within the Housetop Granite, Fe, Cu & Mn occurrences hosted by interpreted Burnie and Oonah Formation and Pb, Zn, Cu, Fe, Ag, Mn & Ba occurrences within interpreted MRV. Large scale regional structures including the northern extension of the Hellyer Fault and also possibly the Tenth Legion Fault cross the licence area.

The Loyetea licence was originally acquired due to the interpreted extension of the Que-Hellyer corridor structures through the area. Based on the geology of the licence area, identified mineral occurrences and exploration targeting by Geoinformatics a number of intrusive-related targets and VHMS style targets have been identified.
Figure 2. Regional Geology showing Licence Area boundaries
2. REVIEW OF PREVIOUS WORK – Prior to current tenement;

2.1 Historical Mining

As well as the 40 known mineral occurrences, historic copper production of limited quantity is recorded from the Walloa Creek Mine located 15km south of Penguin (Jennings, 1979). Historic Fe production is also recorded from the Penguin Creek Iron Mine located immediately north of the tenement which were worked between 1897 and 1909 (Smith, 1960). Major mineralisation has not been identified within the actual area of the licence but significant granite-related skarn mineralisation has been identified to the west of the tenement in the Kara area (5.2Mt @ >30% Fe, by-product WO$_3$; Seymour et al., 2006).

2.2 Previous Exploration

Modern exploration activity in the area of Loyetea EL52/2004 commenced in the 1960’s by BHP Pty Ltd (Figure 3). Companies have variably been targeting either VHMS style base metal deposits, sediment hosted Cu-Pb-Zn deposits, iron deposits, bauxite deposits or granite-related skarn (Fe-Sn-W-F) mineralisation similar to the Kara and Moina deposits. Historic government reports indicate widespread mineral occurrences of interest including gold occurrences at the Penguin Mine and Sullocks Lode (Montgomery, 1895). A summarised version of the exploration history on the licence is given below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Exploration Philosophy</th>
<th>Work Completed</th>
<th>Results and Conclusions</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975 - 1976</td>
<td>CRA Exploration Pty Ltd</td>
<td>Originally targeting stratiform Cu-Pb-Zn mineralisation.</td>
<td>Stream sediment sampling, soil sampling, auger sampling, geological mapping, airborne EM, magnetics and IP survey and diamond drilling at Loyetea South (2 holes) and Crosby Creek (3 holes) prospects.</td>
<td>Soil anomalies defined. Loyetea South anomaly with peak 400ppm Pb. Loyetea North anomaly with peak 2,100ppm Pb &amp; 400ppm Zn. Drill holes DD76 LS1 &amp; DD76 LS2 at Loyetea South tested IP anomalies and soil anomalies. Minor chalcopyrite and sphalerite mineralisation intersected but holes not assayed. Downhole geophysics suggested the main targets were not intersected.</td>
<td>Porter, T.M., 1976</td>
</tr>
</tbody>
</table>
Date: 1977 - 1979  
Company: Comalco Ltd  
**Exploration Philosophy:** Targeting fluorite-tin-tungsten skarn deposits.  
**Work Completed:** Stream sediment geochemistry, reconnaissance mapping, rock chip sampling, geophysics and diamond drilling.  
**Results and Conclusions:** Minor stream sediment anomalies. Three diamond drill holes at Redwater Creek intersected skarn mineralisation but at low grades.  

Date: 1980 - 1984  
Company: Shell Company of Australia Ltd (some JV with Comalco)  
**Exploration Philosophy:** Targeting granite-related skarn mineralisation.  
**Work Completed:** Work included stream sediment geochemistry, gravity surveying and aeromagnetic and radiometric surveying. Diamond and percussion drill testing.  
**Results and Conclusions:** Airborne magnetics delineated numerous magnetite-skarn targets. Several low-level stream sediment W, Pb & Zn anomalies defined. Shell stated that economic mineralisation unlikely and relinquished licence.  

Date: 1974 - 1985  
Company: Geopeko (joint venture with Pennzoil)  
**Exploration Philosophy:** Initially targeting VHMS base metal deposits and later Renison-style Sn deposits.  
**Work Completed:** Significant part of work assessing potential at the historic Dial Mine south of Penguin. Geological mapping, rock chip sampling, various geophysical surveys & 10 diamond drill holes.  
**Results and Conclusions:** Soil sampling defined anomalous areas with peaks of 1,000ppm Cu, 150ppm Pb and 120ppm Zn. Drill hole Dial Range 10 intersected 20m @ 0.68% Cu from 117m.  
**Report:** Herrmann, W., 1985.

Date: 1986 - 1987  
Company: Jervois Mining NL  
**Exploration Philosophy:** Targeting granite-related skarn mineralisation.  
**Work Completed:** 4 reverse circulation drill holes completed targeting EM & gravity anomalies.  
**Results and Conclusions:** Best results from drilling were 20m @ 0.17% Zn (including 8m @ 0.29% Zn) from 52m within limestones. Variable amounts of pyrrhotite and pyrite intersected. No significant Sn or W assays returned.  
Date: 1988 - 1989
Company: Placer Exploration Limited (Purchased from CSR Pty Ltd)
Exploration Philosophy: Explore around the Housetop Granite for Sn and Au deposits.
Work Completed: Stream sediment geochemistry, rock chip sampling & geological mapping.
Results and Conclusions: Stream sediment gold anomalies defined in tributaries of Laurel Creek/Puffer Creek & Blythe River/Hollway/Creek. No Sn anomalies located.

Date: 1988 - 1990
Company: Pasminco Ltd & Geopeko
Exploration Philosophy: Targeting VHMS and low sulphide Au deposits
Work Completed: Geological mapping, soil sampling, rock chip sampling & Pb isotope studies.
Results and Conclusions: At Loyetea South two anomalous Pb-Zn zones (peak 680ppm Pb) identified over andesite by CRAE were rock chipped returning a peak of 2,100ppm Pb and 1,450ppm Zn. CRAE drilled diamond hole DD76LS2. Previous anomalies at Crosby Creek prospect (peak 725ppm Pb & 1,200ppm Zn) identified by CRAE and a new anomaly to the west identified this report. Previous CRAE drilling (DD75CC1, CC2 & CC3) intersected thin sphalerite-galena veins. Pb isotopes indicate Cambrian age. To east of Loyetea licence.

Date: 1995 - 1996
Company: CRA Exploration Pty Limited
Exploration Philosophy: Targeting Irish-style Pb-Zn deposits in Gordon Group limestones.
Work Completed: Literature review only.
Results and Conclusions: No field work completed.
Figure 3. Historic Exploration Activity Map showing old workings and prospect

This section reports on exploration conducted between 8 August 2005 and the 7 August 2006 by BSM and Geoinformatics. Initial work undertaken has consisted of collating previous exploration information in the area as well as acquiring datasets that may be of assistance in targeting VHMS and intrusion-related mineral deposits. The MRT topographic, geophysical and 1:100,000 scale digital geological map series were used as base maps for presenting other historical company datasets. Previous exploration company reports in PDF format were downloaded from the Mineral Resources Tasmania website.

Notwithstanding the significant GIS database that had been compiled at this time, BSM decided to investigate the use of remote sensing in mapping alteration on the Loyatea exploration licence. BSM had several meetings with Mike Hussey at the CSIRO where it was established that HyMap data was likely to provide the best data source for mapping alteration at the licence. However, after viewing some draft images supplied by Mike Hussey it was decided that vegetation at the licence negatively affected the quality of the data and the data was not purchased.

3.1 TERRA Satellite (ASTER Data)

Still interested in the idea of using a remote sensing system to map wall rock alteration on a more regional basis, BSM managed to source some ASTER data over the northwest corner of Tasmania. It was decided that the data would be used in a more regional sense than had originally been anticipated.

ASTER is an acronym for ‘Advanced Spaceborne Thermal Emission and Reflection Radiometer’ and it is an instrument that flies on the Terra Satellite. It collects a similar radiation spectrum to the HyMap instrument but at a lower resolution (4x4m pixels versus 30x30m pixels). BSM had this ASTER data forwarded to Bob Agars at Australian Geological & Remote Sensing Services. A report describing the interpretation methodology utilised was included as Appendix 1 in the report for the period (8/8/05-7/8/06).

BSM realised that because of the lower resolution of the ASTER data and the issue of vegetation shielding radiation reflected from the ground surface that the data would be more useful for targeting ‘active zones’ rather than providing the bulls-eye targets that had originally been hoped for from the HyMap data.

Areas of the Loyatea licence (EL52/2004) that are considered to have anomalous alteration types have been marked using a green ellipse outlining their extent (Figure 4).

Three broad areas of potentially significant alteration are evident on ASTER images of the Loyatea licence. Area 1 covers a 5km x 5km area around the contact zone between the Housetop Granite and interpreted Mt Read Volcanics – Owen Group. This area is marked by silica zones and phyllic (sericite) and argillic (alunite) alteration. Areas 2 & 3 occur in the northern tenement area over interpreted MRV units and are marked by
propylitic (chlorite) zones with silica and carbonate alteration over a 5km x 5km area and 5km x 3km area respectively (Figure 4).

3.2 Geoinformatics Geological Modelling & Targeting

BSM utilised Joint Venture partners, Geoinformatics to compile a 3-dimensional spatial database (GIS).

The Geoinformatics process involves the efficient capture of historical data in proprietary Geoinformatics database and software systems (eg IFS & FracSIS). Proprietary software and methods are then used to generate 3-dimensional geological models and targets (Monte Carlo Ranking). The Loyatea work is part of a larger ‘Intervention Project’ called the MRVIP (Mount Read Volcanics Intervention Project - Stage 1b). The Stage –1b Project focuses on all of BSM 13 regional exploration licences.

The Stage 1b Project attempts to incorporate Geoinformatics understanding of the three dimensional controls on world class VHMS mineralisation to provide BSM with high-quality targets in the Loyatea tenement for rapid drill testing and other areas for follow-up field work including soil type geochemistry. Models were also developed for the targeting of intrusive related tin systems (e.g. Renison and Mt Bischoff) and intrusive related nickel skarn systems (e.g. Avebury). Targets were identified and ranked according to probabilistic Monte Carlo analysis of best-available 2D and 3D geoscientific data and allowed an assessment of exploration risk and uncertainty.

Much of the data for the project was obtained from open file reports. A data audit of 1,300 reports was completed by Dan Core, Graeme Cameron, Neville Panizza and Helen Ly. Work on the Stage 1b Project commenced in early February 2006 and was largely complete by July 2006. A target workshop with alliance personnel was held at Hellyer in July 2006 and final targets were delivered in August 2006. A summary Geoinformatics report was included in the report for the period (8/8/05-7/8/06)

At Loyetea, Geoinformatics exploration targeting generated two Rosebery-Hellyer VHMS style targets on the tenement and two intrusion-related targets (Figure 5).


4.1 Program planning for geological mapping and rock chip sampling

Program planning for geological mapping and rock chip sampling of identified magnetite skarns, Geoinformatics generated VHMS style targets and Geoinformatics intrusion-related targets. The VHMS targets occur over interpreted MRV rock units and initial geological mapping will confirm if this interpretation is correct. The interpreted positions of the Hellyer Fault and Tenth Legion Fault will also be mapped.
Figure 4. Alteration Map based on processing of ASTER satellite data.
Figure 5. Geoinformatics Generated Targets
5. PROPOSED EXPLORATION

Proposed exploration over the next year on the EL52/2004 Loyetea tenement includes the geological mapping and rock chip sampling of identified magnetite skarns, Geoinformatics generated VHMS style targets and Geoinformatics intrusion-related targets (Figure 5). The VHMS targets occur over interpreted MRV rock units and initial geological mapping will confirm if this interpretation is correct. The interpreted positions of the Hellyer Fault and Tenth Legion Fault will also be mapped. If mapping confirms the presence of MRV units in the target areas then soil geochemistry may be undertaken as a first step in evaluating the potential for VHMS style mineralisation on the licence.

Data gained by mapping and rock chip sampling intrusion-related targets will be assessed prior to soil sampling or alternative follow-up being proposed.

Other exploration includes, the co-ordination of a airborne geophysical survey, and assessing historic core displaying Cu anomalism in the North section of the tenement.

Further exploration, will include drill testing subject to positive results.

6. ENVIRONMENT

The company has environmental policies in place that minimise the impact that exploration activities have on the environment. The policies include guidelines on how to reduce the risk of spreading plant diseases and weeds as a result of day-to-day exploration tasks.

No field work has been conducted at the Loyetea exploration licence by BSM at this point in time.

The attached Environmental Activity Map (Figure 6) shows the location of the Exploration Licence relative to conservation areas. It is a condition of the Licence that the Company observe the request by the Tarkine National Coalition Inc. to adopt strict entry protocols to prevent the spread of Phytophora Cinamomi and/or Myrtle Wilt. BSM have appropriate hygiene measures in place to comply with these requests as outlined in the Mineral Exploration Code of Practice.

Land Tenure
The Loyatea Exploration Licence comprises:

- Private Property
- Crown Land
- State/Multiple Use Forest
- MDC Informal Reserves
- Dial Range Forest Reserve
- Laurel Creek Forest Reserve
- Black Creek Forest Reserve
- Proposed North Motton Private Land Reserve
Figure 6 – Environmental Activity Map

- **State Forest**
- **State Reserve**
- **EL52/2004 LOYATEA**
- **Penguin**
7. EXPENDITURE

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<td><strong>Total - Eligible</strong></td>
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Table 1. Expenditure 8 August 2005 to 7 August 2006.

Expenditure, for the twelve months 8 August 2005 to 7 August 2006, has primarily been taken up with mineral deposit targeting activities, including the planning of a soil sampling and rock chip program covering the targets identified by Geoinformatics.
8. REFERENCES


