



**BASS METALS LTD**

**EXPLORATION LICENCE  
EL 31/2003 - HEAZLEWOOD  
TASMANIA**

**ANNUAL REPORT  
FOR THE PERIOD ENDED  
26th March 2006**

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## **EXECUTIVE SUMMARY**

Work completed on Exploration Licence EL31/2003, Nineteen Mile Creek, in the period March 2005 to March 2006 has included the compilation, validation, review and processing of existing data for the tenement area.

Processing of the geophysical and geochemical data has been conducted. The geophysical processing sought to identify any major structures, lithological units/boundaries and discontinuities at depth. Geochemical processing has highlighted some areas with anomalous Zn, Ag and Cr results.

A site visit has also been conducted to gain an understanding of the logistical challenges faced by exploration companies in the rugged north-west of Tasmania. During this visit the regolith was assessed for suitability to surface geochemical investigations.

The results from the geochemistry and geophysics will be used in the formulation of the exploration plan for the Heazlewood tenement and will provide further targets for closer ground level investigation.

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

## 1. INTRODUCTION

This report is a summary of the exploration activities conducted on the Nineteen Mile Creek exploration Tenement, EL31/2003 (Figure 1), for the period of 26<sup>th</sup> March 2005 to 26<sup>th</sup> March 2006. The 136km<sup>2</sup> project is covered by the single Exploration Licence which is current until 26<sup>th</sup> March 2009. The tenement forms part of a recent joint venture between Pioneer Nickel Limited and Bass Metals Limited. Bass Metals will act as managers of the joint venture from a base at the Hellyer Mine site. Bass Metals was previously known as Resource Finance and Investments Limited (RFI).

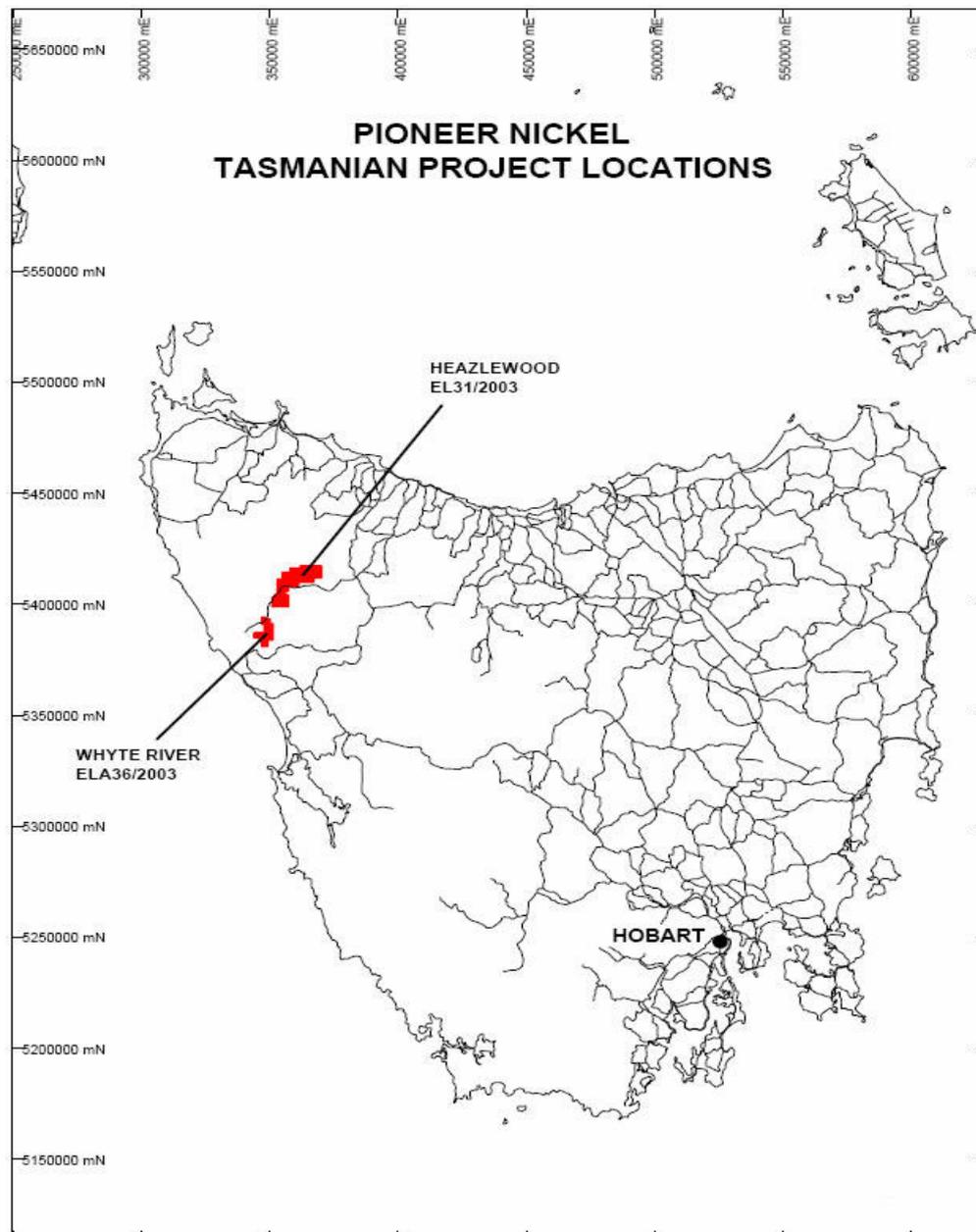


Figure 1. Heazlewood Tenement (EL31/2003). Located in North-western Tasmania.

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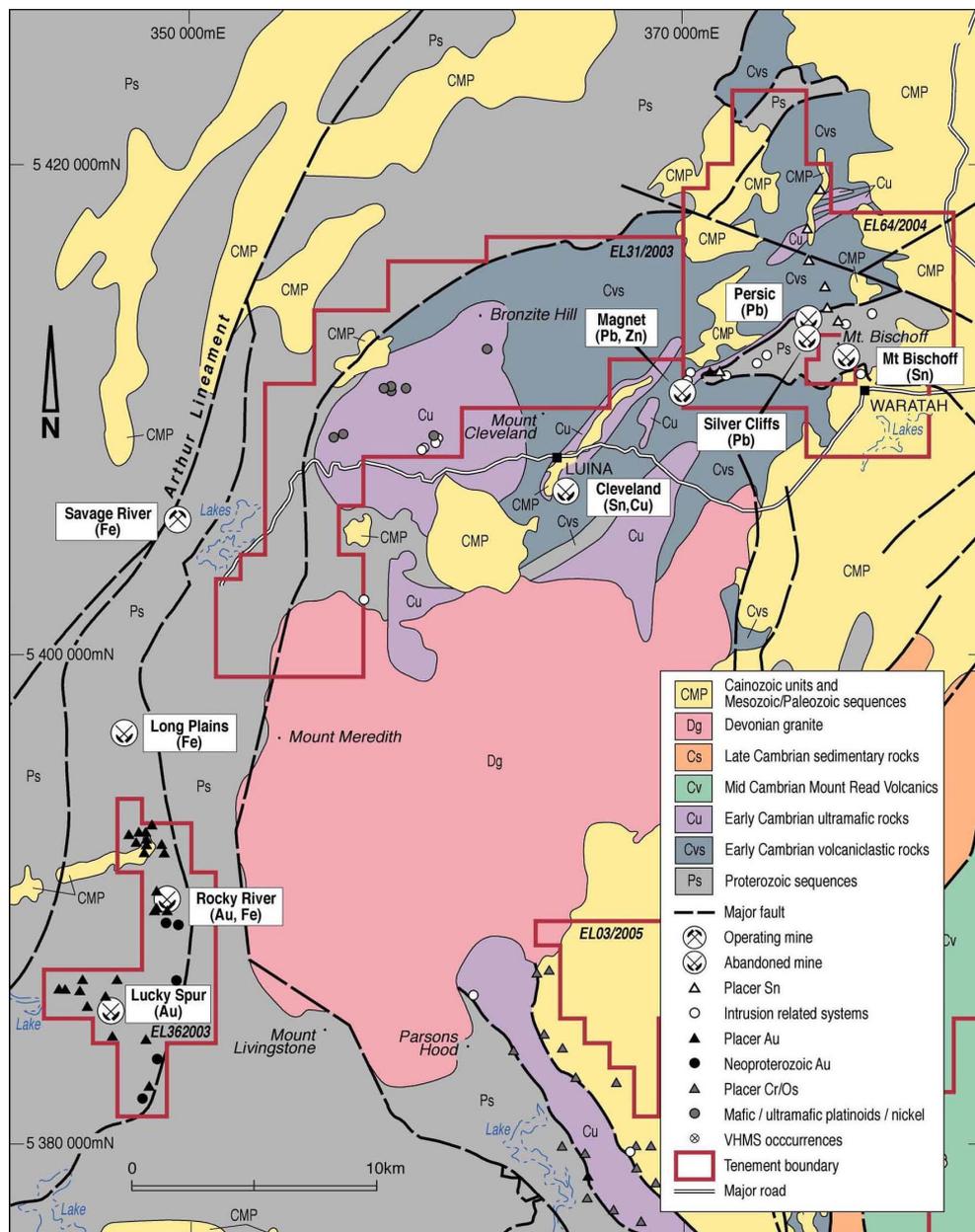
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## 1.1 Location

The tenement is located approximately 10 km west of the township of Waratah, on the west coast of Tasmania (Figure 2). Access to the area is via the sealed Savage River Mine / Corinna Road. Access within the tenement is via a limited number of 4wd tracks, which tend to be dry weather access only and generally degrade rapidly when not maintained or during wet weather. Access to the majority of the tenement is on foot, and walking tracks and cleared gridlines are required in order to conduct the most basic field work.

The northern edge of the tenement impinges on the Savage River National Park and is not available for exploration. The park is relatively new and its exact location requires confirmation.



**Figure 2. Regional Geology showing tenement boundaries, roads and towns.**

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## 1.2 Geology Overview

EL31/2003 lies to the east of the Arthur Lineament (Figure 2) which consists of a north east trending belt of highly deformed and metamorphosed sediments and basic volcanics of Proterozoic age.

The Oonah Formation is located to the immediate east of the Arthur Lineament, it is Late Proterozoic in age, and is dominated by a sequence of turbiditic wackes, quartzites and siltstones.

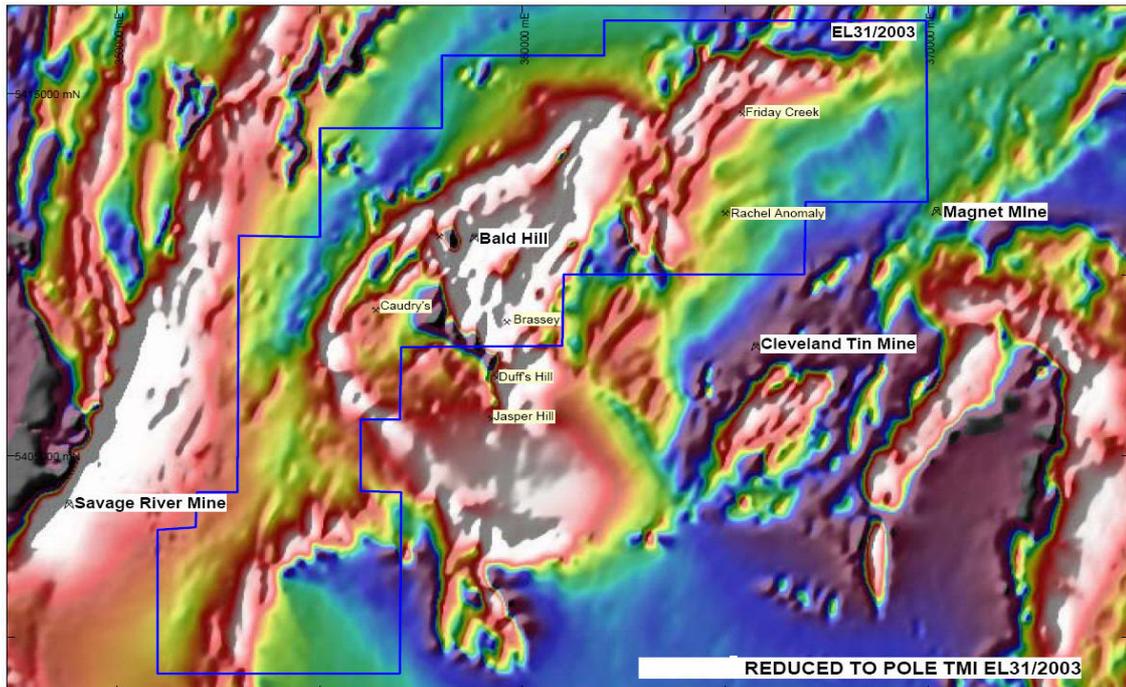
An angular unconformity separates the Oonah Formation from early Cambrian rocks of the Dundas Trough Group. Within EL31/2003 these consist of a package of spilitic basalts, volcanoclastic sediments, sandstones, shales, cherts and minor carbonates known as the Crimson Creek Formation. These rocks are host to the nearby Cleveland and Mt Bischoff tin deposits.

The Heazlewood Ultramafic complex is interpreted to represent a high level intrusion which was emplaced into the rocks of the Dundas Trough during the Middle Cambrian. It may have been subsequently re-emplaced during Devonian compressional deformation. It consists of a 5km thick sequence of layered ultramafic cumulates and cross cutting gabbroic rocks, overlain by up to 3km of low-Ti tholeiitic basalts and boninites. It is variably serpentinised and cut by a number of faults and shear zones (Figure 2).

The Late Devonian Meredith Granite outcrops to the south of EL31/2003.

All of these rocks are in places overlain by Permian fluvio-glacial sediments and Tertiary basalts and Quaternary glacial sediments.

Interpretation of regional magnetic data suggests that the Heazlewood Ultramafic Complex underlies much of the North Eastern portion of the tenement, and that this is in turn underlain by the Meredith Granite at depth (Figure 3).



**Figure 3. Magnetics showing Heazlewood Ultramafic Complex.**

### 1.3 Exploration Rationale

The relatively intense nature and quality of surface exploration over the outcropping portions of the Heazlewood Complex suggests that the potential to locate outcropping nickel mineralisation or sub-economic surface expressions of significant mineralised systems is limited.

The amount of historical, systematic drainage geochemistry and geophysics carried out over the Crimson Creek Formation (albeit poorly reported) also suggests that the potential to locate outcropping mineralisation in this area is low.

Blind targets that might be pursued in the area include;

- PGE's in sulphide lodes within the Heazlewood Complex.
- Remobilized base metal and/or PGE's (analogous to the Avebury Ni deposit).
- Chromite is commonly recorded in the Heazlewood complex in % values and any potential value in exploiting chromite should be investigated.
- Carbonate Replacement or sulphide replacement Tin Deposits, in the Crimson Creek Formation.
- Structurally hosted Gold mineralisation.

The nature of bedrock mineralisation in the area suggests that remobilization of metals during the intrusion of the Meredith Granite has occurred.

The Crimson Creek Formation contains a number of stratigraphic horizons that may act as chemical hosts (both oxidizing and reducing) including dolomites and black shales.

### *“Avebury” Remobilized Deposits:*

Little information about the nature of the Avebury deposit has been released into the public domain. Some key features appear to include:

- The deposit is re-mobilized, probably during the intrusion of Devonian Granites.
- It seems to require organic Carbon or Fe rich rocks as a chemical (reducing) host.
- Requires fluid pathways (faults) and a structural trap site within the appropriate host rock.
- It has a significant magnetic signature.
- It appears that the source rocks for the metals are Cambrian Ultramafic rocks, which have been intruded by the Heemskirk granite.
- It is hosted in correlates of the Crimson Creek Formation.
- It occurs within the thermal aureole of the granite.

The North East end of EL31/2003 is the most likely target area for this style of deposit where the ultramafics overlie the Meredith Granite. The Ultramafic Complex is terminated by a major structure to the South West.

All of the elements listed above occur, or have the potential to occur within the NE portion of EL31/2003.

## **2. PREVIOUS WORK**

### **2.1 Prior to Current Tenement**

Mineralisation was first discovered in the area in the late 1800's with the discovery and working of the Lord Brassey Ni Mine, the Jasper Hill Cu/Au mineralisation and a number of minor Pb-Zn occurrences as well as the Osmiridium workings.

The Heazlewood Complex was the world's largest supplier of osmiridium won from minor alluvial and bedrock workings. Total recorded production from the entire field was of the order of 15,526oz of osmiridium alloy.

Small scale nickel mining comprising approximately 300m of underground development was undertaken at the Lord Brassey Mine within EL31/2003. Nickel mineralisation consists of Heazlewoodite and Pentlandite. The mineralisation is hosted in three shear zones striking northeast.

Cu and Au were mined from the Jasper Hill and Duffs Hill Mines to the south of the Tenement, where mineralisation is associated with a quartz and jasper gangue hosting stringer-style chalcopyrite veins. Gold and Ag tellurides occur as isolated inclusions within the chalcopyrite. The lodes are thought to represent Cambrian hydrothermal mineralisation that was remobilized during Devonian deformation and the intrusion of the Meredith Granite.

The area has been the focus of a number of exploration companies in the past, the most notable work being carried out by the following companies:

**Pioneer Nickel Ltd – 2003 to 2004 (EL31/2003)**

Target – Bedrock Ni and Cu/Au mineralisation.

- In preparation for field work, all available digital data was collated in MapInfo format and reprocessed. The geophysical data was then used to complete new interpretations for target identification.

**Allegiance Mining NL – 2001 to 2002 (EL14/2001)**

Target – Avebury Style Ni Sulphides

- Interpreted regional magnetics/gravity data, did not conduct any field work.
- Concluded that the Heazlewood complex underlies much of the EL at relatively shallow depths.
- The interpretation suggested that the Meredith granite was of the order of 6km deep under the Heazlewood Complex.
- Concluded that the southern portion of the EL better fitted their exploration model.
- Relinquished the northern portion of the EL containing the outcropping Heazlewood complex which was subsequently picked up by Pioneer.

Allegiance's EL did not cover the area which now comprises the NE portion of EL31/2003 (Rachel and Friday Creek area), containing the Crimson Creek rocks.

**CRA – 1992 to 1996 (EL36/1992)**

Target – Bedrock Ni and Cu/Au mineralisation.

- Compiled previous work, noted problems with Comstaff data.
- Carried out a regional sediment sampling program.
- Followed up several anomalous areas with infill sediment sampling and rock chip sampling.
- Reviewed the Cu/Au mineralisation at Duffs Hill.
- Determined Ni mineralisation to be consistent with silicate Ni sources.
- Cu/Au mineralisation to be confined to remobilized, low tonnage deposits hosted in faults of Devonian Age.

**Geopeko – 1990 to 1993 (EL45/1989)**

Target - VMS Base Metals and Gold Mineralisation.

- Carried out a regional water sampling program utilizing new CSIRO techniques to define geochemically anomalous areas.
- Delineated some anomalous areas, in the Crimson Creek Formation but found the results difficult to repeat, the work may have been of limited value.
- Followed up some anomalous areas with ridge and spur auger sampling and rock chip sampling.

- The project was considered to be a low priority and the work was not pursued to completion.

### ***Metals Exploration – 1985 to 1989 (EL21/1985)***

Target – Pt and Ni Bedrock mineralisation within the Heazlewood Complex.

- Compiled previous work, noted problems with Comstaff data.
- Conducted significant mapping and sampling programs over known mineralisation and some EM and ground magnetics surveys.
- Best results at Fenton's from costean sampling were; 4m @ 1.03ppm Pt, 6m @ 6.7ppm Pt, 9m @ 4.0 ppm Pt, 6m @ 5.8ppm Pt. They tended to repeat poorly and were ascribed to surface weathering related nugget effects.
- Best rock chips collected at Brassy Hill;
  - 2.5% Cu, 4.3g/t Au.
  - 8.0% Cu, 18.3 g/t Au
  - 15%Pb, 3.9% Zn
  - 4.7% Ni.
- Made stratigraphic correlations for mineralisation.
- Os, Ir, Ru, Pt - associated with chromite rich dunites (Fentons).
- Pt, Ru, Rh – associated with inter-layered dunite/peridotite.
- NiS, Pt, Au, Pd – epigenetic mineralisation crosscut by recent structures (Lord Brassey).
- Drilling at Caudry's and Lord Brassey failed to locate economic mineralisation.

Drilling of the NiS breccia at Fenton's failed to intersect mineralisation at depth.

### ***Monier – 1988(EL33/1985)***

Target – Dimension Stone

- Sampled a number of rock types from the Ultramafics, with a focus on the darker units.
- Conducted polishing tests.
- Found the ultramafic rocks to be generally unsuitable due to clay veinlets and plucking of minerals, basaltic rocks showed some promise.

### ***Billiton – 1987 (EL20/1985)***

Target – Sulphide replacement Tin deposits and vein hosted tin/tungsten deposits.

- The Comstaff DIGHEM data was reviewed, and follow up work recommended at the Rachel Anomaly.
- Two lines of Ground magnetics and auger sampling were carried out.
- No significant anomalism was discovered.
- None of the remaining DIGHEM anomalies were considered to be related to a bedrock pyrrhotite source.
- No further work was carried out.

### **Comstaff – 1968 to 1983 (EL1/1968, EL5/1963)**

Target – Osmiridium, Tin, VMS and Gold.

- Conducted a large volume of work over the 20 year period, however very little hard data was reported and little factual information can be derived from the reports.
- Assessed all Os workings with gridding, mapping sampling and trenching.
- No new Os mineralisation was discovered.
- Completed regional drainage sampling over most of the area underlain by the Crimson Creek Formation.
- Followed up anomalous areas with gridded soil sampling, most notably in the Friday Creek area (anomalous Cu, Zn, Ni, Ag, and Sn).
- No geochemical anomalism was located on the follow up grids, or ridge and spur sampling.
- Completed an aerial DIGHEM survey, 13 potential targets defined. Data from the survey is unavailable. An interpretation of the DIGHEM was included in a report, without a grid by which to locate it.
- A number of the DIGHEM anomalies were followed up with soil geochemistry, ground EM.
- 2x EM conductors were drilled (both outside EL31/2003), with the target response being explained by the presence of black shales.
- No mineralisation of any form was located in the course of the work.
- The quality of the work is difficult to assess as the details were not reported; it is possible that further follow up might be worthwhile in the Friday Creek area.

### **2.2 During Current Tenement Pre March 2005**

- Open file reports have been downloaded from the Tasmanian Government web site. Where possible sample locations have been extracted from the report text, or digitized from plans included in the reports.
- If available, geochemical analyses have been extracted from the text or hand entered from the plans. Other information pertaining to the analytical methods and detection limits has also been compiled where it was made available. The information has been referenced to its source report by open file reference number.
- Significant problems were encountered with most of the Comstaff data, as neither the raw data nor sample locations are available in the open file reports, only interpretive plans were submitted.
- Geological maps from open file reports have been geo-referenced into Mapinfo® where possible.
- The location of previous ground geophysics surveys has been digitized and survey specifications and source of data entered into a Mapinfo® Table. The surveys are of limited extent and generally comprised of ground magnetics and EM conducted over local grids of limited extent. Most

surveys are confined to the outcropping area of the Ultramafic and are probably of limited value. Comstaff conducted ground based magnetics and EM surveys over a number of local grids in the area, many of which are not referenced to a regional grid system. They also failed to present much of the raw data and also conducted an aerial DIGHEM survey for which the data is unavailable.

- The 100m line spacing Tasmanian Government Helicopter magnetics has been re-leveled and reprocessed by Southern Geoscience Consultants in order to facilitate interpretation. Relevant Images have been supplied in a Mapinfo® compatible format and are held with other relevant Mapinfo® data.

### **3. EXPLORATION COMPLETED MARCH 05 TO MARCH 06**

- Establish exploration base at Hellyer.
- Complete compilation of historical exploration data and target evaluation.
- Review all reports relevant to the Heazlewood tenement.
- Completed QA/QC on all data and recode geology.
- Conduct site visit to tenement to assess access to tenement and suitability of regolith for surface geochemical sampling.
- Download magnetic survey data for the area covering north-western Tasmania. The grids were smoothed to remove noise as the surveys were not leveled properly.
- Gravity data was downloaded for the relevant area covering the tenement from the Geoscience Australia website.
- All data along with appropriate metadata, original and processed, was uploaded into the Geoinformatics IFS database and also into a FracSIS database.
- Worming was conducted on gravity and magnetic data. Worming is an edge detection method used on data to detect boundaries between long wavelength features not initially apparent in the original data. These boundaries often correspond with deep level structures and therefore potential fluid pathways.
- Inversion modeling of the Heazlewood magnetic data was completed to gain a better understanding of the distribution of units in 3-dimensions. Inversion modeling of the gravity data was unsuccessful due to the coarse nature of the data.
- Filtering of aeromagnetic and ground gravity data was completed. This process manipulates the frequency domains to highlight features such as lithological boundaries, structures and discontinuities at differing depths. This filtering will assist in the interpretive process.
- Filtering of topographic data was also conducted with the same goal of highlighting features of interest, discontinuities and pertinent structures.
- Processing of geochemical data from stream sediment sampling was completed. Even though data distribution was observed to be irregular some areas anomalous in Zn, Ag and Cr became evident in the Heazlewood

tenement. Processing of the stream sediment data was conducted by IO Geochemistry.

- Planning for the future “grassroots” exploration program was initiated but not finalized.

#### **4. PROPOSED WORK PROGRAM**

- Exploration of the project should be initiated, with a focus on the NE portion of the tenement where there is potential for several styles of blind mineralisation.
- The SE portion of the tenement (dominantly underlain by Oonah Formation Quartzites and Meredith Granite) is perceived to have a low prospectively for metallic mineralisation. However this view is strongly biased by the lack of data located (to date) for the area. Some attention should be paid to further investigation in this area, with the longer term view that it represents the most likely area for relinquishment in the future.
- Specific targets/projects need to be highlighted and prioritized within the tenement.
- Airborne EM (preferably HOISTEM or VTEM) should be flown over the NE portion of the project area and the Heazlewood Complex (Figure 4). DIGEM is not recommended as this has been unsuccessfully applied in the past.
- EM targets generated by this survey should be checked against previous work, and then investigated in the field if found to be untested.
- Field work is likely to involve ground based EM, auger soil geochemistry and mapping to define low order bedrock anomalism that may be associated with an alteration system in the hanging wall of blind mineralisation.
- Drill testing of strong EM targets will be required in order to progress the project past this point.
- Conducting this type of work in this area will usually require either the development of vehicular access, or use of a helicopter to mobilize personnel and equipment to site and cutting of grid lines and walking tracks to facilitate detailed access to each anomaly.
- Drilling in this terrain can be prohibitively expensive, hence the prioritization and rationalization of targets by other means is considered worthwhile.

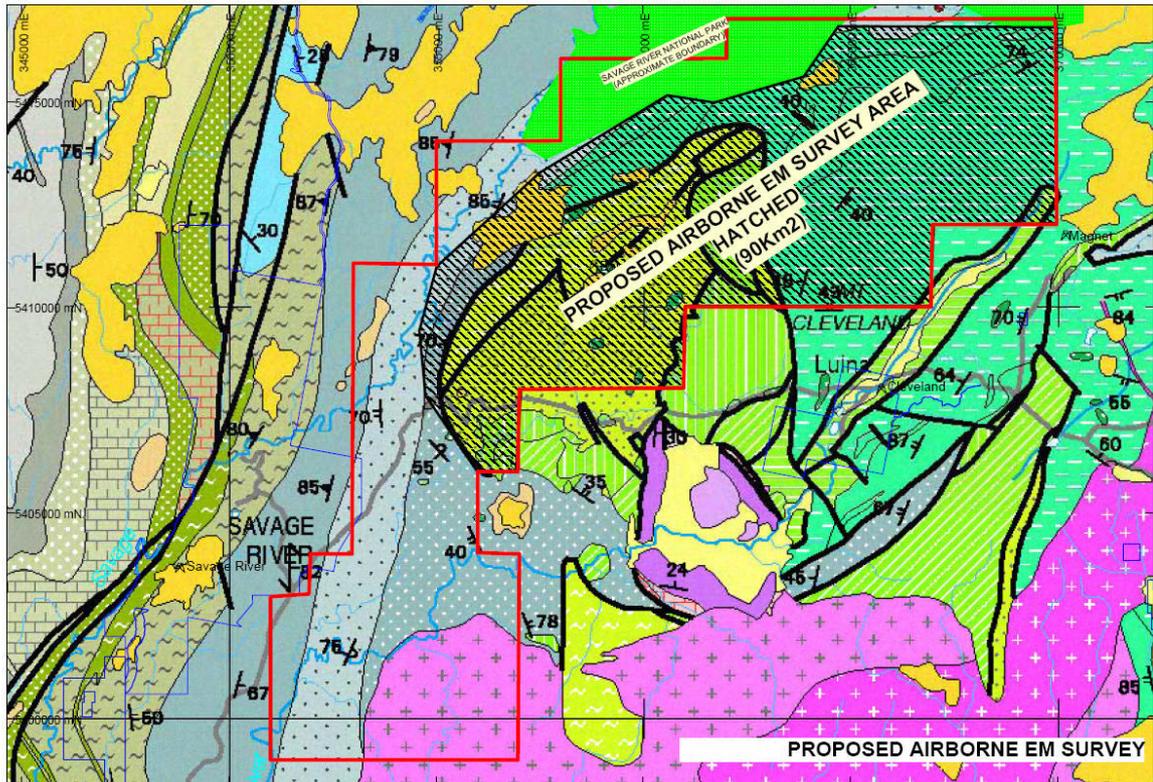


Figure 4. Proposed airborne EM survey coverage.

## 5. ENVIRONMENTAL CONSIDERATIONS

No surface-disturbing activities have been carried out on the Heazlewood tenement to date. A site visit was conducted to assess conditions of tracks for potential future access. The tracks were found to be very overgrown and in a very poor state making access to the majority of the tenement very difficult by vehicular means.

Any future surface activities will either require the tracks to be reconditioned, further tracks to be cut or the use of helicopter access.

## 6. EXPENDITURE

Quarter Ending	Jun-05	Sep-05	Dec-05	Mar-06
Geology	2,474.00	2,713.57	1,604.67	1,642.26
Geochemistry			1,383.02	
Geophysics - air	1,652.00			12,072.18
Geophysics - ground				
Administration		392.72	1,173.75	
Other*	3,777.00		7,576.02	596.44
<b>Total for Quarter</b>	<b>7,903.00</b>	<b>3,106.29</b>	<b>11,737.46</b>	<b>14,310.88</b>
Cumulative from Previous	6,241.00	14,144.00	17,250.29	28,987.75
<b>Total to Date</b>	<b>14,144.00</b>	<b>17,250.29</b>	<b>28,987.75</b>	<b>43,298.63</b>

**Table 1. Expenditure 26 March 2005 to 25 March 2006.**

[\*Other consists predominantly of rental, rates, government charges and option payments to Pioneer Nickel Ltd.]

Expenditure, for the twelve months 26<sup>th</sup> March 2005 to 25<sup>th</sup> March 2006, has primarily been associated with collation and processing of existing available data. The required processing and modelling of this data has been conducted by specialist consultants.

Site visits to assess the tenement have also been carried out to better evaluate options for access any ground-based exploration activities to be conducted.

The other major area of expenditure, "Other", was comprised primarily of rental payments, rates, government charges and option payments to Pioneer Nickel Ltd.