

**EXPLORATION LICENCE
EL 22/2004 – MODDER RIVER
TASMANIA**

FINAL REPORT

9 January 2007

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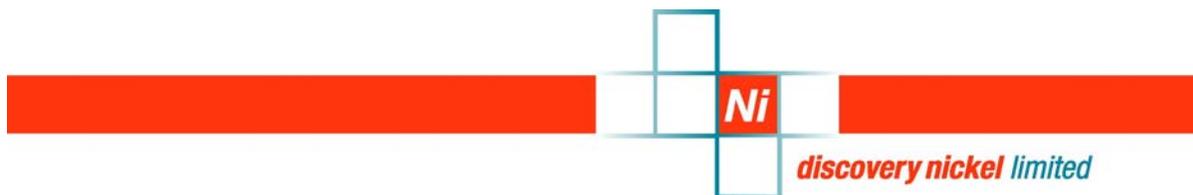
Mineral Resources Tasmania
Discovery Nickel Limited (digital)

1 EXECUTIVE SUMMARY

EL 22/2004 – Modder River is part of Discovery Nickel Limited's (DNL) Western Tasmania Nickel Project, which includes three separate tenements that lie in the west coast area of Tasmania (**Fig. 1**). All three tenements include significant occurrences of mafic-ultramafic rocks, prospective for Ni-Cu-PGE sulphide mineralisation. The recent discovery of the Avebury deposit in western Tasmania has raised interest in nickel exploration in the region and confirmed that western Tasmania is highly permissive for various styles of Ni mineralisation.

During 2004 and 2005 DNL completed due diligence and geochemical ground follow-up over distinctive magnetic features and Ni-Cu stream sediment anomalies already identified by previous explorers. The results of this investigation which pertain to EL 22/2004 – Modder River indicated that this area was not prospective for magmatic nickel-copper sulphide deposits but that there was still potential for hydrothermal nickel sulphide deposits, similar to the Avebury-Viking nickel deposits near Zeehan.

On 19 June 2006 DNL decided to relinquish 22/2004, in line with rationalization of DNL's entire Australian exploration portfolio. DNL felt adequately exploring/assessing the Modder River tenement would be high risk, costly and time intensive.



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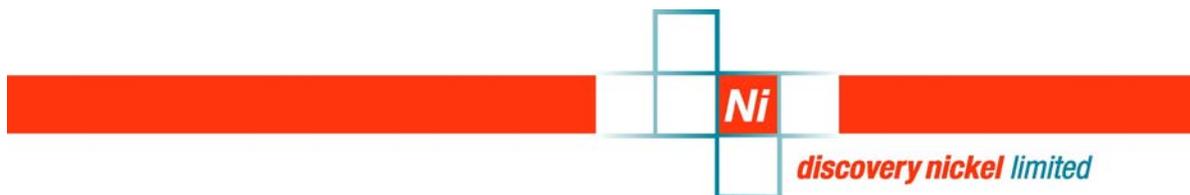
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1 INTRODUCTION

This final report summarises exploration for nickel-copper sulphide mineralisation, carried out on the EL 22-2004 Modder River for Discovery Nickel Limited, from July 30th 2004 to June 3rd 2006. Work included a due diligence investigation and surface geochemical follow-up work over distinctive magnetic features and Ni-Cu stream sediment anomalies identified from stream sediment and whole rock geochemical data obtained from Mines and Resources Tasmania (MRT).

EL 22/2004 is situated to the SW of Macquarie Harbour and comprises two discrete linear NE-trending magnetic anomalies (**Figure 1**).

2 TENURE AND EXPLORATION ACCESS

Tenement details for Discovery Nickel Limited's Western Tasmania Nickel Project are included in **Table 1**. The tenure over EL 22/2004 covers only crown land.

Table 1: Tenement Details

EL No.	Name	AKA	Size sq km	Application Date	Grant Date	Expenditure Commitment (2 yrs)
18/2004	Corinna	Pieman Area	143	3 Feb 2004	11/01/2005	\$93,750
21/2004	Dundas	Zeehan	12	3 Feb 2004	25 Jun 2004	\$10,000
22/2004	Modder River	Macquarie Area or Sorrell Peninsula	249	3 Feb 2004	13 Jul 2004	\$187,500

3 REGIONAL GEOLOGY

The mafic-ultramafic complexes present within DNL's Western Tasmania Nickel Project occur within the Cambrian Dundas Trough of western Tasmania (**Fig. 2**). The Dundas Trough wraps around the Precambrian Tyennan Region of central Tasmania, and includes stratotectonic elements such as the Dundas Group and the famous Cambrian Mount Read Volcanics (which host polymetallic VHMS deposits such as Rosebery, Hellyer and Mt Lyell). The western side of the Dundas Trough contains several mafic-ultramafic bodies such as those at Heazlewood, Serpentine Hill, Trial Harbour, Dundas and McIvors Hill (Brown 1989: **Fig. 2**).

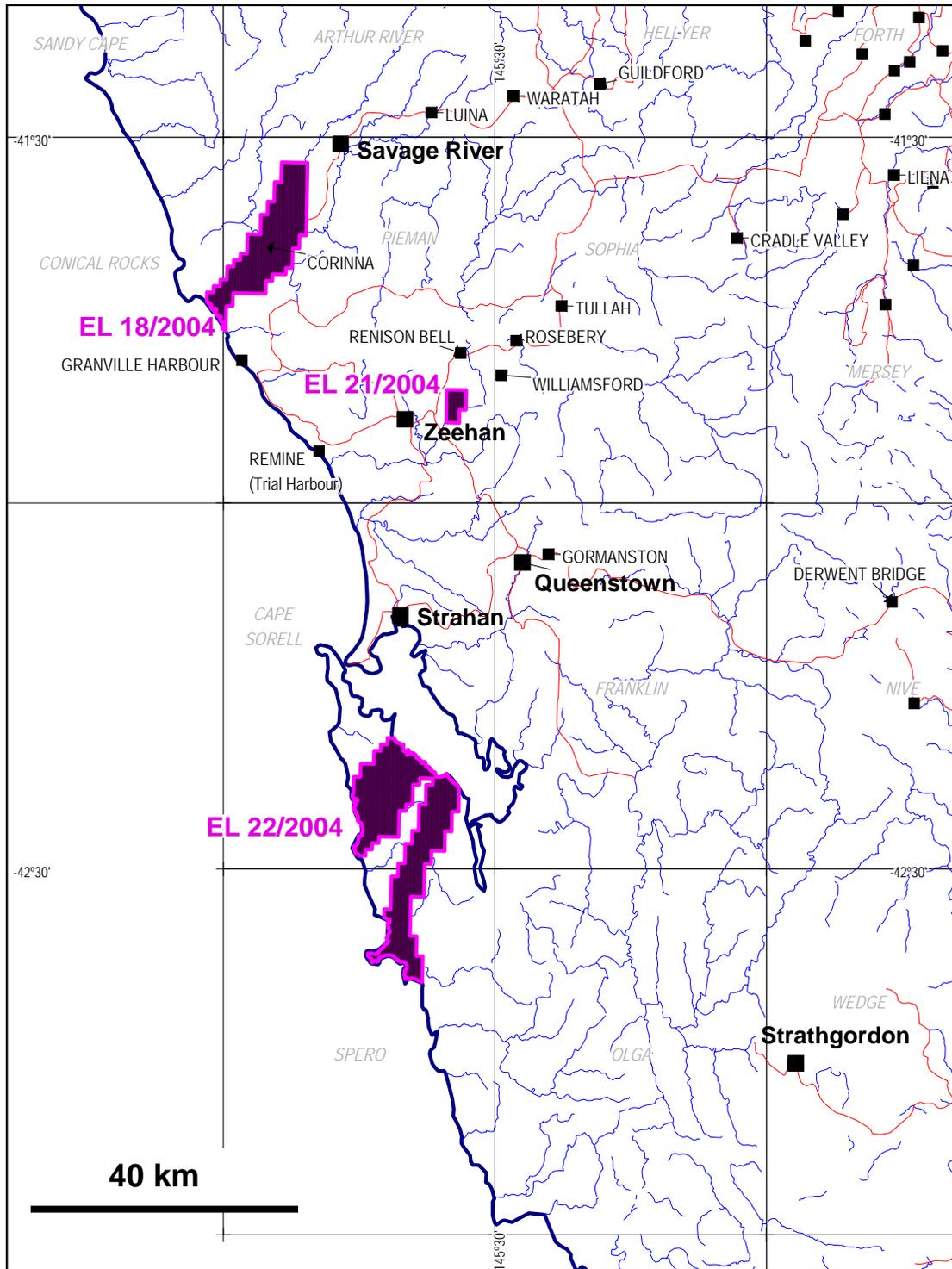


Figure 1: DNL Tenement Location Map – Western Tasmania Nickel Project

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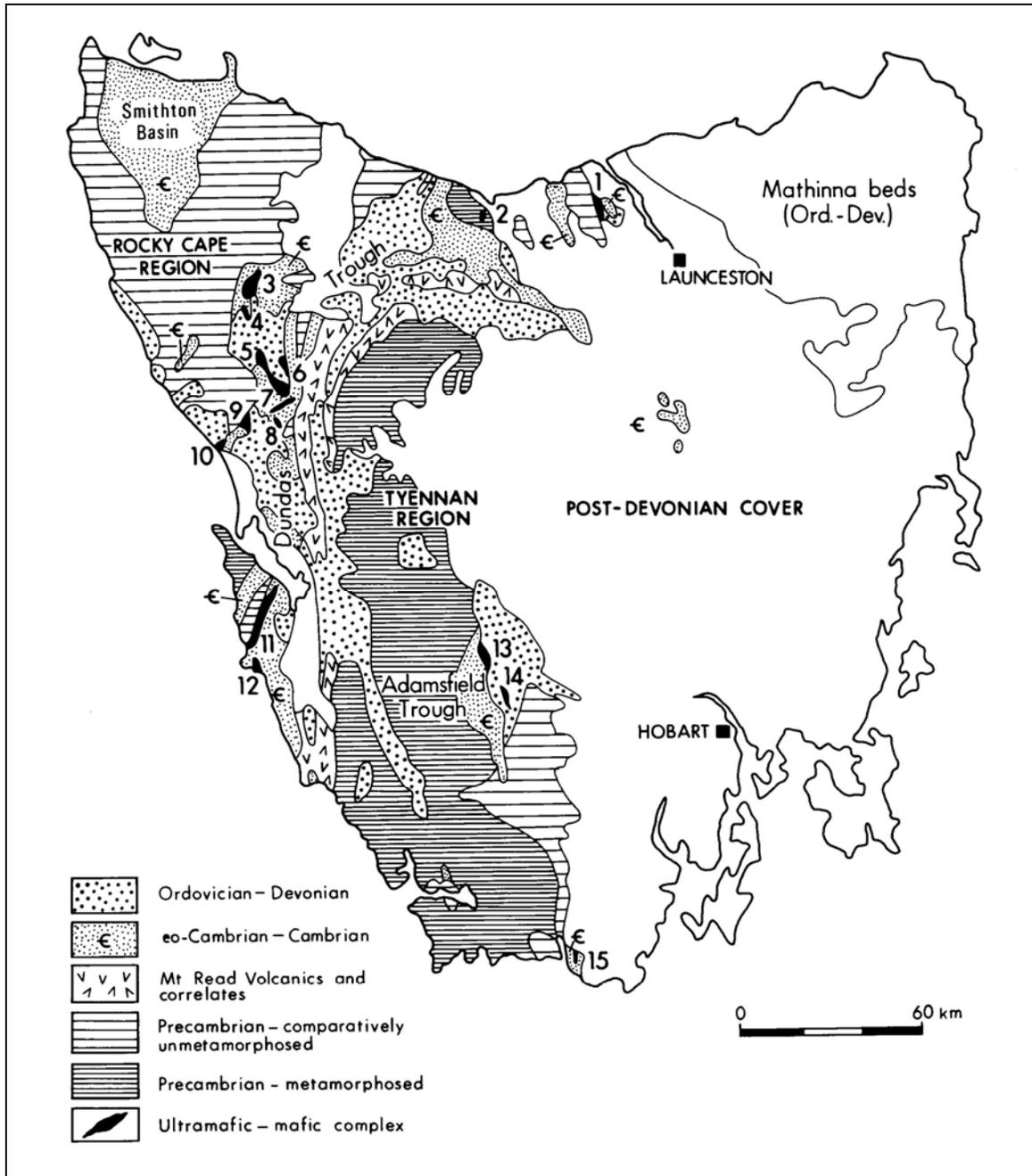
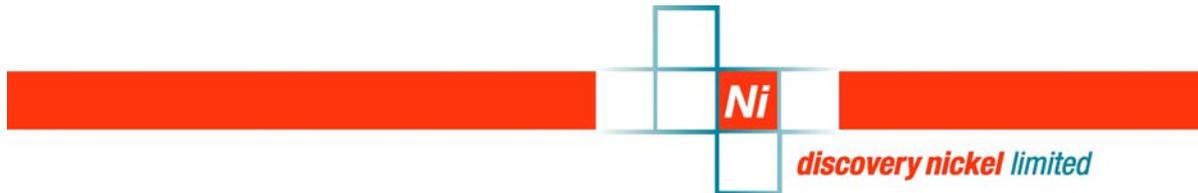


Figure 2: Regional Geology Map of Tasmania showing location of major mafic-ultramafic complexes.

(1 = Andersons Creek, 2 = Forth, 3 = Heazlewood River, 4 = Mt Stewart, 5 = Wilson River, 6 = Huskinson River, 7 = Serpentine Hill, 8 = Dundas, 9 = Mclvors Hill, 10 = Trial Harbour, 11 = Cape Sorell, 12 = Spero Bay, 13 = Boyes Bay, 14 = Adamsfield, 15 = Rocky Boat Harbour; scanned from Brown 1989).



Many of the mafic-ultramafic complexes in Tasmania are clearly evident on magnetic images and are defined as linear and elongate magnetic highs. These mafic-ultramafic complexes are probably Early Cambrian in age (eo-Cambrian). However, their exact age has not been accurately established. The origin of these complexes has been the topic of much debate and controversy over the past few decades, as they represent important indicators of the Palaeozoic evolution of western Tasmania.

Early researchers proposed a rift setting for the Dundas Trough. This model has the mafic-ultramafic complexes as remnants of cumulate magma chambers formed within a rift setting of continental crust. However, the presence of geochemically distinctive rocks such as boninites, indicates an oceanic arc setting. Similar lavas are found within the Tertiary to recent western Pacific island-arc systems between New Guinea and Japan. Authors such as Crawford and Berry (1988) suggest the western Tasmanian mafic-ultramafic complexes are allochthonous, and represent large over-thrust sheets derived from a forearc situated to the east. In summary, the present juxtaposition of rock successions in western Tasmania is considered by most authors to be the result of obduction of parts of a Cambrian island-arc system onto a continental terrane at the end of the Cambrian, followed by further deformation during a mid-Devonian Orogeny (e.g. Brown, 1992; Brown and Jenner, 1988; Berry and Crawford, 1988).

The ultramafic rocks in the Dundas Trough occur at several localities and are largely orthopyroxene rich. The ultramafic rocks show well developed primary magmatic layering in places, and have been subdivided into three separate groups (or magmatic phases) by Brown (1986, 1989):

- 1) Layered pyroxenite-dunite (LPD);
- 2) Layered dunite-hartzbergite (LDH);
- 3) Layered pyroxenite-peridotite with associated gabbro (LPG).

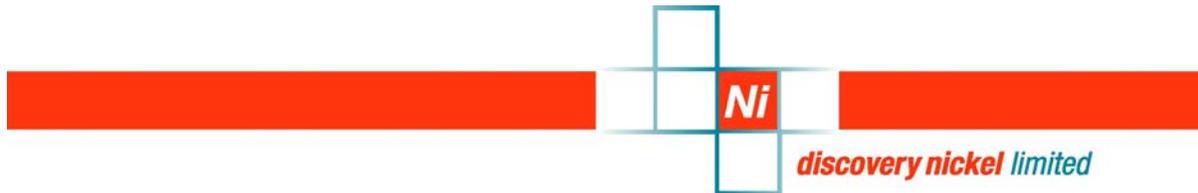
4 REGIONAL NI-CU-PGE MINERALISATION STYLES

There are four main styles of Ni-Cu-PGE mineralisation observed in Tasmania:

1) Os-Ir-Ru mineralisation has been recorded from various localities associated with ultramafic bodies, for example the Osmiridium occurrences at Adamsfield, Mount Stewart, Wilsons River and Heazlewood. Alloys of Os-Ir-Ru from alluvial and eluvial deposits are generally associated with the LDH rocks (Brown 1989).

2) Trace sulphides including pentlandite and millerite occur in ultramafic bodies (e.g. Trial Harbour and Serpentine Hill Complexes).

3) Cu-Ni-(+/-PGE) sulphide mineralisation occurs within Cambrian greenschist facies dolerite dykes and sills. In these bodies mineralisation is dominated by weak to heavy disseminated sulphides (e.g. Cuni). The primary magmatic sulphide assemblage of pentlandite-pyrrhotite and chalcopyrite is variably preserved. In the near surface environment, enhanced Ni grades are found where pentlandite is altered to violarite.



4) Avebury “style” pentlandite dominant mineralisation occurs near Trial Harbour. The principal minerals found in this deposit include magnetite, pentlandite, pyrrhotite, pyrite and nickel-bearing arsenides. There is reasonable evidence for hydrothermal alteration possibly induced or enhanced by the presence of Palaeozoic granites. The apparent absence of PGE’s and chalcopyrite may indicate this mineralisation formed in response to hydrothermal processes associated with late granite emplacement.

The adjacent Cambrian volcanic and volcanoclastic rocks in the tenement area are also prospective for polymetallic VHMS style mineralisation.

5 REGIONAL-SCALE EXPLORATION RATIONALE AND TARGETING

An investigation of western Tasmania was undertaken by DNL and its consultants, to assess the potential for conventional magmatic and hydrothermal Ni-Cu sulphide mineralisation. A large number of geological, geophysical and geochemical datasets were compiled and reviewed in the GIS environment. Much of the data was sourced from the Department of Mineral Resources Tasmania (MRT). Some published reports, open-file records and data from Geoscience Australia were also evaluated. A series of images were also generated.

From this GIS investigation, a number of areas were prioritized as having the potential to host Ni-Cu-PGE mineralisation, associated with mafic-ultramafic rocks. Areas with the following features of interest were highlighted:

- Significant magnetic anomalies suggesting the presence of magnetically active mafic-ultramafic rocks, at or near surface.
- Areas of known mafic-ultramafic occurrences;
- Areas of known mafic-ultramafic occurrences with high MgO (>12 wt%);
- Areas showing anomalous Cu-Ni stream geochemistry.

A number of priority areas were highlighted from this regional targeting stage and three tenements, including the Modder River area were applied for in early 2004.

6 TENEMENT-SCALE EXPLORATION RATIONALE AND TARGETING

The aim in applying for the EL 22/2004 – Modder River tenement was to target discrete magnetic anomalies for “Avebury-style” nickel mineralisation related to hydrothermal alteration in mafic/ultramafic phases, close to Devonian granitoids. The magnetic anomalies in this area (**Fig. 3**) are coincident with two large NNE-SSW trending bodies of serpentinite. The magnetic anomalies are interpreted to relate to serpentinisation of these ultramafic rocks. As with the Avebury nickel mineralisation, there is the possibility of nickel mineralisation associated with this hydrothermal alteration (serpentinisation) from fluids sourced from the Devonian granites.

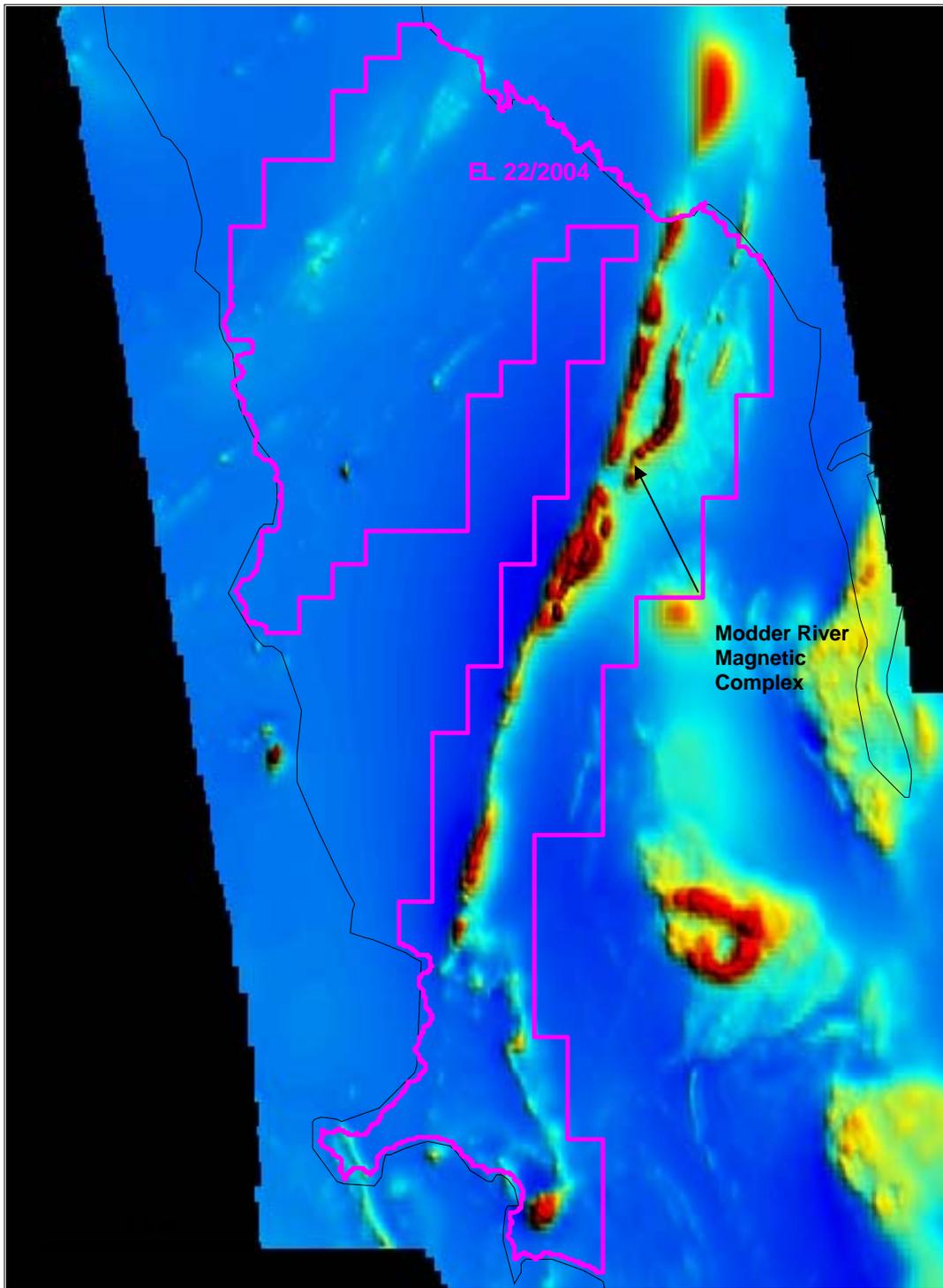
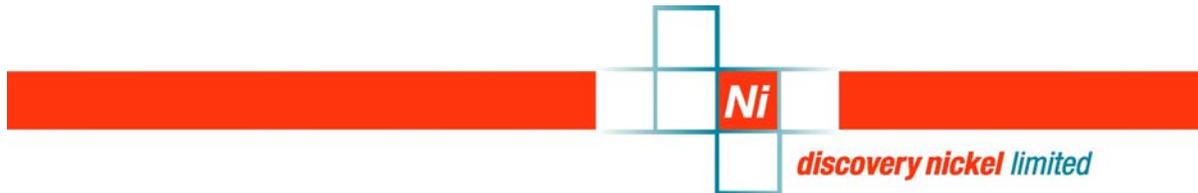


Figure 3: Modder River Area Magnetic Image



7 PREVIOUS WORK

Overall, a moderate amount of exploration has been carried out over EL 22/2004 – Modder River. However, this work has been directed towards discovery of VHMS polymetallic systems. No exploration targeted for nickel sulphides has been completed over the area.

8 EXPLORATION WORK COMPLETED AND RESULTS

8.1 Introduction

After completing a regional evaluation of western Tasmania using MRT data (Geology, Geochemistry, Geophysics, etc.) and previous companies exploration reports, DNL applied for three tenements containing mafic-ultramafic occurrences permissive to Ni-Cu-PGE sulphide mineralisation. Then the MRT surface geochemical data were processed (leveled by sampling technique) by DNL, and a series of images relating to the distribution of nickel and copper anomalism across western Tasmania were generated. These Ni and Cu distribution maps were then compared to aeromagnetic datasets of western Tasmania, in which mafic and ultramafic rocks appear as relatively high magnetic intensity anomalies. A brief field visit was conducted in 2004, in order to locate the mafic-ultramafic rocks on the ground and collect rock chip samples for a more focused geochemical analysis.

8.2 MRT Stream Sediment Anomalies

Approximately 15,000 stream sediment samples were acquired from MRT. These data were processed and merged with pre-existing MRT data to produce a stream-sediment geochemical coverage for western Tasmania. In addition, a small scale survey from the West Macquarie area (Amoco) was digitally captured and processed separately. Samples with Ni and Cu assays were levelled (on the basis of recorded sample mesh size) and reprocessed, and images of each element were created. Analysis of these data uncovered two prominent nickel and copper anomalies within the EL 22/2004 – Modder River tenement area (**Fig. 4**). Further exploration work is needed in order to establish the cause of this nickel-copper anomalism. The anomaly in the east portion of the tenement was associated with stream sediment values up to 0.46% Ni and is located on a distinctive magnetic feature.

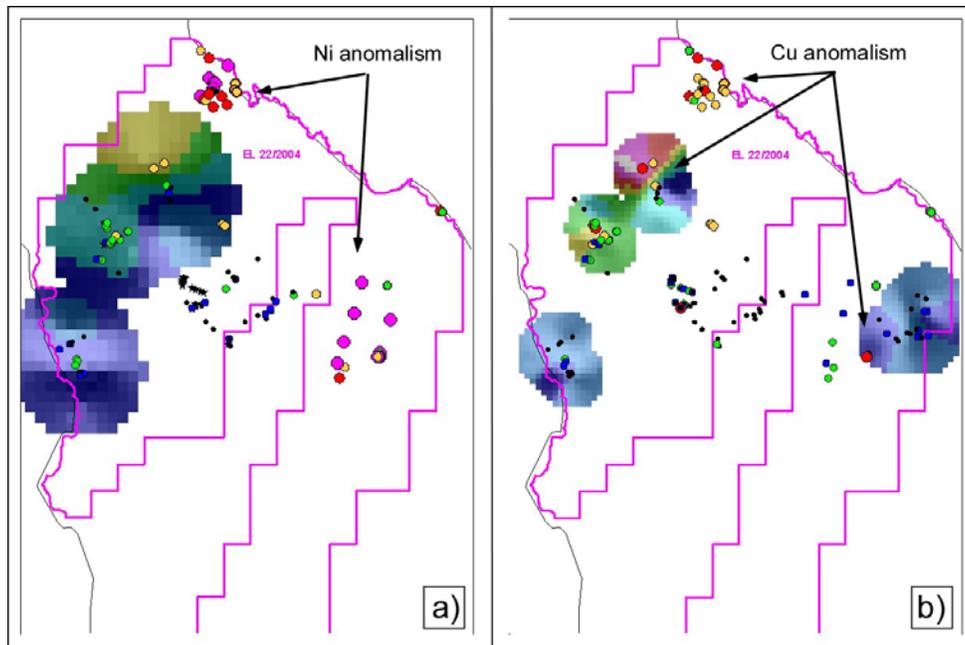
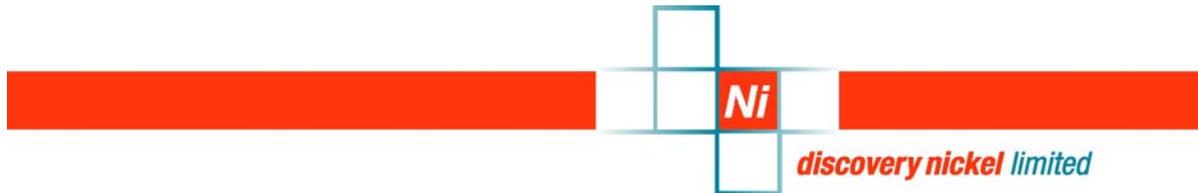


Figure 4: Modder River Area a) Ni and b) Cu levelled images.

8.3 Geochemical Sampling

A reconnaissance field trip was made to the three tenements in 2004 by DNL, for the purpose of taking fresh rock samples for geochemical analysis. A total of 46 samples were collected from the three areas. The samples were assayed by ALS for a suite of major, minor and trace elements and interpreted by Nickel Specialist Jeff Foster. There were some minor problems evident with some of the recorded element levels (as compared with the standard submitted), but overall, the data are largely within acceptable ranges (**Appendix 1**).

Eighteen samples from the Modder River area were collected (M1-S, M2-S, M5-S, M12-S, M13-S, M15-S, M16-S-a, M16-S-b, M16-S-c, M21-S, M22-S, M25-S, M26-S-a, M26-S-b, M27-S, M30-S, M31-S and M33-S). Geochemical analysis of these samples reflected a diverse range of magma types of broadly basaltic composition (picrites through to gabbros). Four broad groups were recognised on the basis of chondrite normalised REE patterns:



Group 1- basalts are characterised by depletion in the mid-REE's and enrichment in La, Ce and Pr. These patterns are similar to those described for some of the Low-Ti tholeiites found near Heazlewood River. The MgO contents of this group range from 10 wt% to 15 wt%.

Group 2- basalts are characterised by moderate enrichment of the LREE's and moderate depletion of the HREE's. These patterns are broadly similar to those of the Group-2 basalts found in the Pieman East area.

Group 3- basalts are characterised by enrichment in the LREE's with flat HREE profiles.

Group 4- basalts are characterised by enrichment in the LREE's with flat HREE profiles. Group-4 basalts can be distinguished from Group-3 basalts by the presence of a distinct negative Nb anomaly, relative to Th and La that likely reflects the presence of a crustal component.

The chalcophile element distribution in Groups 1-4 is highly variable particularly in respect to Cu and Pd. This may reflect variations in weathering as well as variations in primary source characteristics coupled with differing degrees of melting and complex chamber processing. Notwithstanding this observation Cr/Ni ratios for all groups are near constant at ~ 1.5.

9 DISCUSSION

9.1 Interpretation of Whole Rock Analysis

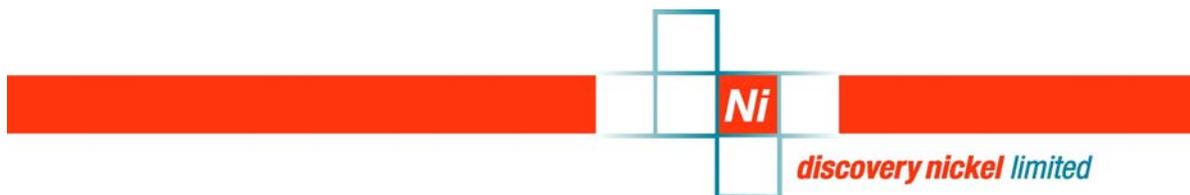
From the analysis of the whole rock it was interpreted that the geochemical characteristics of the mafic rocks found throughout the survey areas it is interpreted that:

1. The ultramafic rocks have geochemical characteristics similar to cumulates formed from boninitic like melts.
2. There is no significant evidence for concurrent crustal contamination and chalcophile element depletion.
3. There is no evidence of any significant chalcophile element enrichment associated with the presence of primary magmatic sulphides.
4. The rocks analysed are consistent with formation in a volcanic arc environment.

9.2 Tectonic Setting

The geochemical data described above are broadly consistent with a series of lavas formed within an arc environment. Similar lavas are found within the Tertiary to recent Western Pacific island-arc system between New Guinea and Japan.

The present juxtaposition of rock successions in Western Tasmania is considered to be the result of obduction of parts of a Cambrian island-arc system onto a continental terrane at the



end of the Cambrian, followed by further deformation during a mid-Devonian Orogeny (e.g. Brown, 1992; Brown and Jenner, 1988; Berry and Crawford, 1988).

Tectonic settings of this type are not favorable to the formation of giant magmatic Ni-Cu+/-PGE systems. However, this tectonic setting (overprinting mid-Devonian Orogeny and associated granite suite development) is favorable to the formation of hydrothermal related "Avebury-style" nickel sulphide mineralisation. Therefore, further exploration in this area should be concentrated on this style of mineralisation and not magmatic Ni-Cu+/-PGE sulphide mineralisation.

10 EXPENDITURE

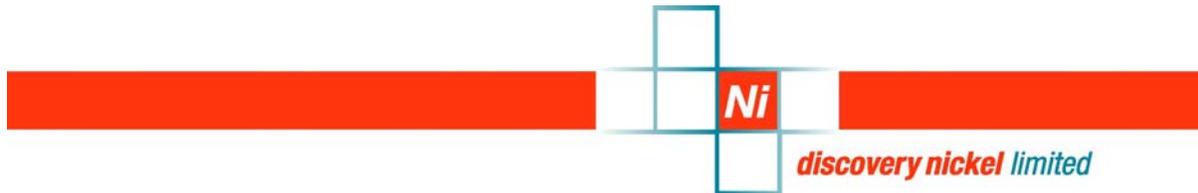
Expenditure on DNL's EL 22/2004 – Modder River tenement for the period starting 13th July 2005 ending on the 30th of June 06 totaled \$ 10,576.14 (**Table 2**).

Table 2: EL 22/2004 – Modder River expenditure for the year ending 30th of June 2006.

Details	Expenditure for year 1 (\$)
Land Fees	58.50
Geological Consulting	8418.41
DNL Salaries	1069.1
Travel Costs	68.36
	Sub Total
	9614.68
Administration costs (15%)	961.46
	Total
	10576.14

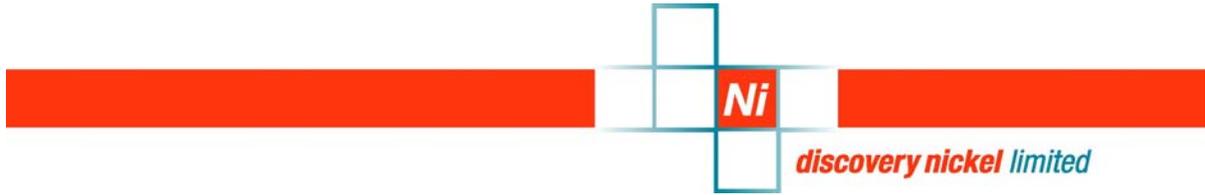
11 CONCLUSION

Failure to identify permissive geology for the formation of magmatic nickel sulphides and a change in focus of DNL away from Australia to Africa has led DNL to relinquish the Modder River Tenement 22/2004. The area still holds potential for an Avebury Styles Nickel occurrences, however any exploration for this mineralization style will be expensive, time intensive and high risk. DML also considers the area to have very high environmental risk in terms of future mine development.



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