EL 43/1992

MELBA PROJECT

ANNUAL REPORT

March 2005

Prepared For:

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CONTENTS

1. SUMMARY

During 2004 Allegiance completed 38 cored drill holes totalling 2,322 m at North Cuni-Genets.

This drilling resulted in the identification of a mineral resource estimated as:

Indicated:	83,000 t	0.7% Ni, 0.6% Cu, 0.02% Co, 1.7% S
Inferred:	12,000 t	1.2% Ni, 3.3% Cu, 0.04% Co, 4.2% S

Within this resource are zones of massive sulfide estimated to contain 1,600 t 9.2% Ni, 6.0% Cu, 0.2% Co, 29.5% S.

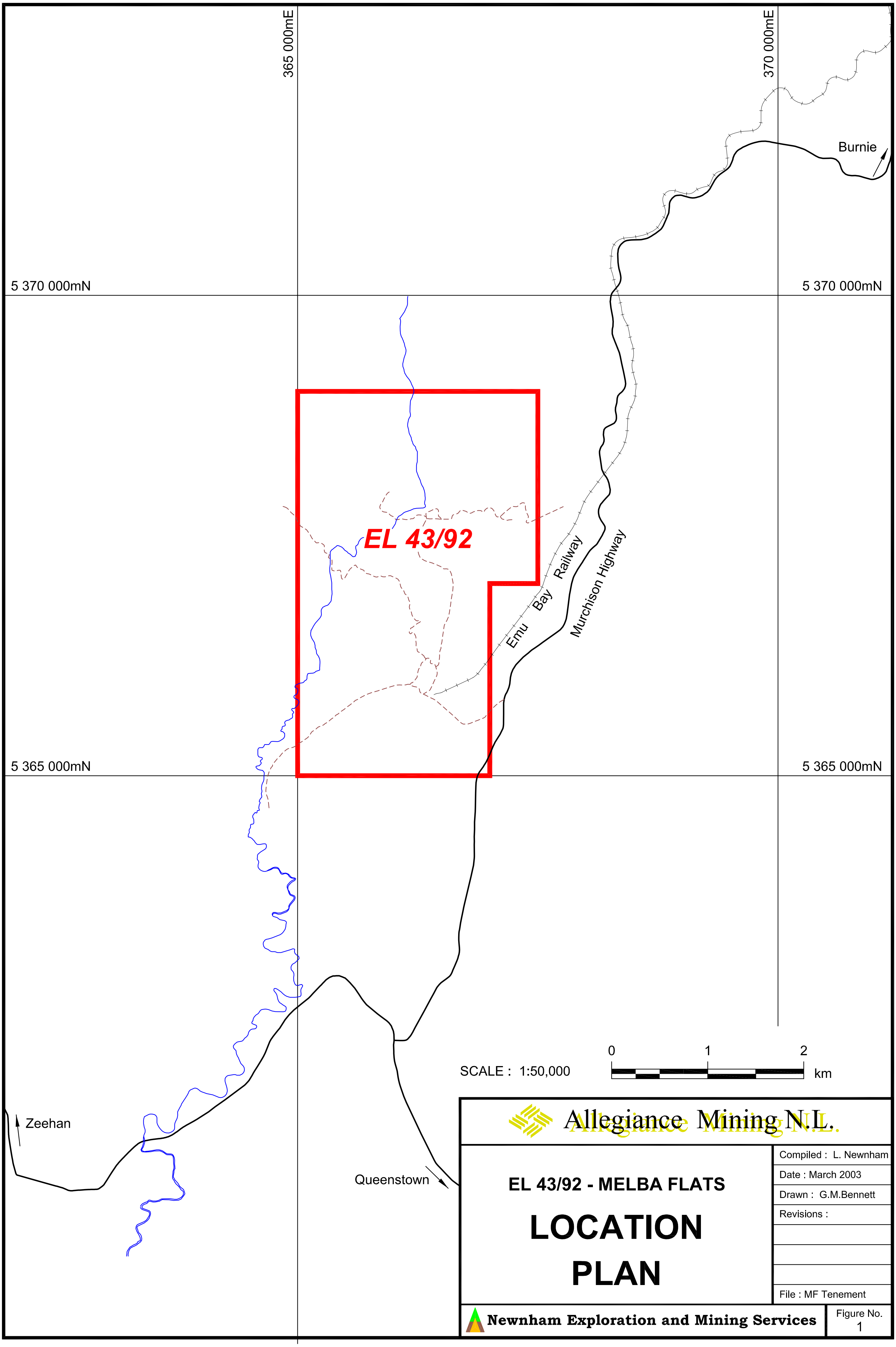
Both the North Cuni and Genets resource areas remain open along strike and down-plunge of the completed drilling program.

These resources supplement previously reported resources identified to the south at Nickel Reward, estimated to contain:

30,000 t 3% Ni.

The identified resources within EL 43/92 have the potential to support a mining operation producing small quantities of ore for treatment at an off-site mill. This opportunity is currently being assessed.

Potential exists to define additional mineralisation either as shallow small pods along strike of identified resources or at depth within the gabbro host-rock swarm as it approaches the granite.



Allegiance Mining N.L.

EL 43/92 - MELBA FLATS

LOCATION PLAN

Compiled : L. Newnham
Date : March 2003
Drawn : G.M.Bennett
Revisions :
File : MF Tenement

Newnham Exploration and Mining Services

Figure No. 1

2. OBJECTIVES and STRATEGY

The known Melba Flats Ni-Cu deposits are regarded as hydrothermal deposits introduced along structures into a gabbro dike host rock.

A series of shallow deposits are well known from historical mining and recent drilling. These deposits occur over a strike length of 3 km, and appear to be largely confined to only one gabbro dike. Mineralisation is typically disseminated throughout the dike but appears to be more concentrated (massive in places) on the footwall of the dike, which dips east at approximately 50°.

Mineralisation is principally pentlandite-millerite-chalcopyrite-pyrite. Significant cobalt, gold and PGM is associated with either (or both) nickel and copper sulfides.

The deepest historical mining was 50 vertical metres, whilst the deepest drilling to date is 70 m at Nickel Reward.

Studies completed by others indicate firstly that the gabbro dikes are derived from an ultramafic wedge which outcrops to the immediate east of Melba Flats and, secondly, that the area lies above a relatively shallow ridge of Carboniferous granite.

Given that the sulfide deposits are hyrdothermal replacement deposits, it is possible that mineralisation was sourced at depth where the intruding granites interacted with the ultramafic formations.

Melba Flats is regarded as having high prospectivity for:

- shallow hydrothermal replacement deposits in the gabbro dikes
- deeper deposits formed by hydrothermal alteration of mafic and ultramafic rocks by intruding granite (skarn deposits)

Allegiance has, therefore, put in place an exploration strategy aimed firstly at drill testing the shallow potential of the gabbro dikes and secondly deeper exploration for skarn style deposits.

The drilling program completed in 2004 was aimed at defining shallow gabbro hosted resources in the North Cuni-Genets area which would be amenable to small scale shallow open-cut mining.

Planning is underway for exploration aimed at deeper skarn deposits.

3. WORK COMPLETED - CURRENT YEAR

During 2004 a drilling program was completed at North Cuni-Genets to test for shallow resource extensions below the former workings in this area.

Thirty-eight (38) drill holes totalling 2,322 m were completed along a strike length of 300 m.

Results of this program are reported in detail in:

> ***'Allegiance Metals Pty Ltd Melba Flats Nickel Project Mineral Resource Report.*** **October 2004' by Michael V McKeown**

Resource results to date from drilling on EL 43/92 can be summarised as:

Indicated Resource:

Area	Tonnes	% Ni	% Cu	% Co	% S
North Cuni-North	38,000	0.7	0.8	0.02	1.9
Genets South	24,000	0.6	0.6	0.02	1.6
Genets North	21,000	0.9	0.4	0.02	1.3
Sub-Total	83,000	0.7	0.6	0.02	1.7

Including an Indicated Resource of massive sulfides.

North Cuni-North	400	8.7	8.1	0.2	23.7
Genets South	200	7.9	3.4	0.2	25.2
Genets North	1,000	9.7	5.6	0.2	32.6
Sub-Total	1,600	9.2	6.0	0.2	29.5

Inferred Resources:

North Cuni-South	12,000	1.2	3.3	0.04	4.2
Nickel Reward	30,000	3.0			

At North Cuni-Genets, the North Cuni-North and Genets North blocks are open down-plunge along strike to the north and north-east respectively. The North Cuni-South block is open along strike to the south.

The Nickel Reward resource is interpreted as a steeper dipping, fault bounded block which is open at depth.

4. RECOMMENDED EXPLORATION

Opportunities exist on EL 43/92 to define additional shallow resources as extensions of identified resources at North Cuni-Genets and Nickel Reward.

Drilling programs are recommended as follows:

- Beneath Nickel Reward where the deepest drill hole to date, MF 11, intersected 1.4 m 7.2% Ni, 2.1% Cu.

2 holes x 200 m = 400 m @ $100/m	40,000
Support and management 50%	20,000
Sub-Total:	$60,000

- South along strike of North Cuni where CRA drill hole MF 05 intersected 2 m 0.4% Ni, 0.6% Cu, 200 m south of North Cuni shaft

6 holes x 100 m = 600 m @ $100/m	60,000
Support and management 50%	30,000
Sub-Total:	$90,000

- North along strike and down-plunge of Genets North

4 holes x 150 m = 600 m @ $100/m	60,000
Support and management 50%	30,000
Sub-Total:	$90,000

- North along strike and down-plunge of North Cuni-North

2 holes x 150 m = 300 m @$100/m	30,000
Support and management 50%	15,000
Sub-Total:	$45,000

In addition to this shallow drilling program, it is recommended that a deep penetration ground EM survey be undertaken along cut lines between South Cuni and Genets. This would require cutting approximately 40 km of lines, followed by EM surveying:

line cutting	40,000
EM surveying	25,000
management	10,000
Sub-Total:	$75,000

The above recommended programs are estimated to cost:

drilling	285,000
EM surveying	75,000
Budget estimate:	$360,000

The drilling could be undertaken at any time of year but the EM surveying would be most efficient in summer 2004-05.

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ALLEGIANCE METALS PTY LTD

MELBA FLATS NICKEL PROJECT

MINERAL RESOURCE REPORT

OCTOBER 2004

Prepared by

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on behalf of

ALLEGIANCE METALS PTY LTD

IMPORTANT NOTES

This report has been prepared using information and data available to the author at the time of writing.

This report is not intended for use as a public document nor, in whole or in part, in a public document.

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Neither Michael V. McKeown nor McKeown Mining Pty Ltd hold shares or options in Allegiance Mining NL. An associate of Michael V. McKeown and McKeown Mining Pty Ltd holds shares in Allegiance Mining NL.

CONVENTIONS

Co-ordinates in this report are in AMG.

Longitudinal projections are drawn looking west, that is, north is to the right.

Unless otherwise stated, all dollar values are Australian dollars.

EXECUTIVE SUMMARY

Allegiance Mining NL (Allegiance) holds Exploration Licence 43/1992 at Melba Flats, east of Zeehan. The licence, of 16 square kilometres, lies over an area which was mined for nickel and copper sulphides in the past.

Allegiance has just completed a diamond drilling campaign of 38 holes, totalling 2,322 metres in length, around the North Cuni mine and Genet's winze prospect at the northern end of the line of mines at Melba Flats.

At North Cuni and Genet's, nickel and copper sulphide mineralisation occurs spatially, but not necessarily genetically, associated with Cambrian gabbro sills. Several gabbro sills occur within a sequence of volcaniclastics and siltstones of the Cambrian Crimson Creek Formation.

Where present, sulphide mineralisation occurs as disseminations in the lower part of a particular gabbro, occurring in some places as a narrow massive sulphide band on, or nearly on, the footwall of the gabbro. The gabbro strikes from north to north-east and dips to the east or south-east at 45 to 60 degrees. The mineralised gabbro is typically about 5 metres in true thickness and the massive sulphide is typically less than 1 metre in true thickness. The surface elevation at North Cuni and Genet's is about 210m above MSL and the lowest part of the mineralisation considered for this report was at 160m.

The mineralisation consists of pyrite, pentlandite and chalcopyrite. The massive sulphide carries elevated Pt, Pd and Au, totalling up to about 5g/t in some intersections. Arsenic levels are low, typically less than 500ppm, except at North Cuni south where the only drill intersection, which is in the supergene zone, averaged just over 1700ppm As.

All intersections considered for this resource report were made by diamond drilling. Core was HQ size, drilled using a triple tube on wireline and core recoveries in the gabbro, mineralised gabbro and massive sulphide were close to 100%. Only the intersections made in the recent Allegiance drilling campaign were used for this resource estimate.

Block models of the disseminated mineralisation and massive sulphide were created using 2m*2m*2m blocks. Grades were interpolated into the block models of the disseminated mineralisation using the inverse distance squared method with a power of 2, a single interpolation point per block, and a 50m*50m*50m search. Grades were assigned to the massive sulphide blocks using length weighted mean grades of the intersections of the massive sulphide.

A bulk density of 2.8 tonnes per cubic metre was used for disseminated mineralisation and 3.5 tonnes per cubic metre for massive sulphide.

The tonnage and grade of resources estimated are such that there are reasonable prospects for eventual economic extraction and the resources described in this report are Mineral Resources but, for this report, no account has been taken of mining factors. The size, shape, attitude and shallow depth of the mineralised zones suggest that the mineralisation could be mined by open-cut.

The apparent continuity of the mineralisation and its past exposure at outcrop allowed the classification of most of the mineralisation as an Indicated Mineral Resource. However, at North Cuni, where the extent of previous mining is not definitely known the mineralisation was classified as an Inferred Mineral Resource.

No data of costs are to hand for small open-cuts in western Tasmania. For the purposes of this report, a cut-off grade of 0.3% Ni was used. Mineralisation at 0.3% Ni, at current prices, has a value of about $60 per tonne, equivalent to about 3.5 g/t Au. Given the higher realisation costs for nickel than for gold, this seems to be a reasonable cut-off grade.

The resources at North Cuni and Genet's were estimated as:

North Cuni and Genet's Mineral Resource

disseminated mineralisation + massive sulphide

0.3% Ni cut-off

Indicated

North Cuni north	38,000 tonnes	0.7% Ni	0.8% Cu	0.02% Co	1.9% S
Genet's south	24,000 tonnes	0.6% Ni	0.6% Cu	0.02% Co	1.6% S
Genet's north	21,000 tonnes	0.9% Ni	0.4% Cu	0.02% Co	1.3% S
Sub-total	83,000 tonnes	0.7% Ni	0.6% Cu	0.02% Co	1.7% S

Inferred

North Cuni south	12,000 tonnes	1.2% Ni	3.3% Cu	0.04% Co	4.2% S

North Cuni and Genet's Mineral Resource

massive sulphide

Indicated

North Cuni north	400 tonnes	8.7% Ni	8.1% Cu	0.2% Co	23.7% S
Genet's south	200 tonnes	7.9% Ni	3.4% Cu	0.2% Co	25.2% S
Genet's north	1,000 tonnes	9.7% Ni	5.6% Cu	0.2% Co	32.6% S
Sub-total	1,600 tonnes	9.2% Ni	6.0% Cu	0.2% Co	29.5% S

The North Cuni north and Genet's north blocks remain open down plunge.

Earlier in the year, an estimate of the Mineral Resource at Nickel Reward was made using a manual polygonal method:

Nickel Reward Mineral Resource

Inferred

Nickel Reward	30,000 tonnes	3% Ni

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TABLES

FIGURES

1 INTRODUCTION

Allegiance Mining NL (Allegiance) holds Exploration Licence 43/1992 (EL 43/1992) at Melba Flats, east of Zeehan (Figure 1). The licence lies over an area of 16 square kilometres which was mined for nickel and copper sulphides in the past. Prior to the nickel boom of the 1960s, all of Australia's nickel production had come from the small mines at Melba Flats.

Allegiance has just completed a diamond drilling campaign of 38 holes, totalling 2322.4m, around the North Cuni mine and Genet's winze prospect at the northern end of the line of mines at Melba Flats (Figure 2). The North Cuni mine has a vertical access shaft, an underlay shaft in ore, both shafts bottoming at a vertical depth of about 25 metres, and a level developed in nickel and copper sulphide ore over a length of about 100 metres (Figure 4). The mine is now flooded almost to the surface. At Genet's winze prospect there are several shallow shafts and one shallow stope or trench.

This report was completed in accordance with the *Australasian Code for Reporting of Mineral Resources and Ore Reserves, September 1999 (The JORC Code)* by Michael V. McKeown of McKeown Mining Pty Ltd, who is a Fellow of the Australasian Institute of Mining and Metallurgy and who has more than five years relevant experience in the estimation, assessment and evaluation of Mineral Resources of this style of mineralisation and type of deposit.

2 LOCAL GEOLOGY AT NORTH CUNI AND GENET'S

At Melba Flats, several Cambrian gabbro sills occur within a sequence of volcaniclastics and siltstones of the Cambrian Crimson Creek Formation or a coeval equivalent. Nickel and copper sulphide mineralisation occurs spatially, but not necessarily genetically, associated with the gabbro sills.

The sills range up to 15 metres or so in true thickness and are generally 8 to 10 metres thick. The sill swarm strikes more or less north-south although the sills at the known northern and southern ends of the field swing away from this strike (Figure 3); dips generally range from 30 to 60 degrees. The sills are offset by small faults, probably

Tabberabberan in origin, which are a common feature of the geological structure in the Zeehan to Renison Bell area (for example, see Figure 4).

Three sills were identified at North Cuni and Genet's during the recent drilling campaign and were numbered from the top sill, G6, to the bottom sill, G8. Significant nickel sulphide mineralisation was identified in sill G7 only. Where present, sulphide mineralisation occurs from disseminated to massive sulphide in the lower part of the G7 gabbro and the massive sulphide tends to occur on, or nearly on, the footwall of the gabbro. For example, the assays of the intersection of G7 in hole MF32 were:

		% Ni	**% Cu**	**% S**
gabbro G7	30.8m to 42.3m	0.80	0.62	2.27
including				
mineralised gabbro	37.8m to 42.3m	1.98	1.46	5.38
including				
massive sulphide	41.55m to 42.3m	9.20	4.55	24.3

3 MINERALOGY

Sulphide mineralisation is concentrated within gabbro. For example, in MF32 just referred to, assays of the sedimentary rock in the immediate footwall of the massive sulphide were:

		ppm Ni	**ppm Cu**	**ppm S**
footwall rock	42.3m to 43.3m	290	590	1600

There is only very minor sulphide mineralisation outside the gabbro. The sulphide mineral assemblage is usually relatively simple: pentlandite, chalcopyrite and pyrite. Almost everywhere, arsenopyrite is below detection levels except where associated with sphalerite and galena in quartz-dolomite veins which rarely occur transecting the gabbros. These quartz-dolomite veins are a Devonian overprint of Zeehan style mineralisation; the nearest significant occurrence of these veins was mined at the Lead Blocks, about a kilometre to the east of the North Cuni mine, just within the boundary of EL 42/1993.

Macroscopically, the sulphide mineralisation appears to replace the gabbro host and this suggestion was reinforced by recent petrological investigations (Bogie, 2004) which concluded:

> "The massive sulphides consist of pyrite, pentlandite and chalcopyrite with or without magnetite. They have complex textures at least partially inherited from their precursor lithologies. More exotic minerals, more commonly associated with metamorphic cumulate nickel deposits were not observed.
>
> The mineral assemblage and textures would suggest that a moderately oxidising, slightly acid, hot (>300°C) highly saline fluid with pressure exceeding hydrostatic leached out silicate rocks along a geological contact. The decrease in pH of the solution as it reacted with the rock resulted in deposition of the opaques."

It is probable that replacement of gabbro occurred by fluids moving along a pathway provided by the footwall contact of the G7, the stress field in place at the time determining the route of the pathway. It is possible that the massive sulphide mineralisation occurring near the footwall of the gabbro may be a vein style deposit within the pathway rather than a replacement of the gabbro.

Massive sulphide carries elevated Pt, Pd and Au, totalling up to about 5g/t in some intersections. Arsenic levels are low, typically less than 500ppm, except at North Cuni south where the only drill intersection, which is in the supergene zone, averaged just over 1700ppm As.

4 DRILLING

4.1 DRILLING PROGRAMMES

The North Cuni - Genet's area has been drilled in the past by former lease and licence holders, including EZ Exploration, Eagle Metals and CRA Exploration (CRAE), and by the Tasmania Department of Mines. Apart from the CRAE drilling, the older drilling programmes were plagued by poor core recoveries and although useful in suggesting where new drilling may be successful, the information from these programmes has not been used for this resource estimation. The collars of the CRAE holes, numbered MF01 to MF05, have been located and surveyed but full drill logs and results for these holes are not to hand and the information from these holes has not been used for this resource estimation.

Allegiance drilled holes numbered MF27 to MF64, totalling 2322.4m, during the autumn and winter of 2004, from late February to August. The holes were drilled by Almac Pty Ltd, Zeehan. The hole collar details are listed in Table 1.

hole no	east m	north m	rl m	bearing AMG	dip	length m
MF27	366,354.60	5,367,614.50	205.4	292	-47	86.5
MF28	366,466.70	5,367,811.80	208.4	325	-46	96.6
MF29	366,451.60	5,367,814.60	207.9	317	-46	61.2
MF30	366,452.50	5,367,790.40	208.8	325	-45	60.5
MF31	366,430.90	5,367,792.00	210.2	325	-45	45.4
MF32	366,426.20	5,367,768.20	208.8	328	-45	50.3
MF33	366,426.60	5,367,767.90	208.8	324	-60	76.0
MF34	366,410.30	5,367,770.90	208.7	323	-43	48.0
MF35	366,407.10	5,367,757.50	208.3	324	-44	112.5
MF36	366,386.70	5,367,763.90	207.7	328	-45	48.7
MF37	366,387.20	5,367,763.20	207.7	329	-65	36.9
MF38	366,411.50	5,367,786.50	210.2	323	-44	26.0
MF39	366,400.10	5,367,783.50	209.8	322	-45	24.0
MF40	366,367.30	5,367,765.90	207.1	327	-42	83.3
MF41	366,363.20	5,367,751.30	207.0	326	-42	37.0
MF42	366,484.80	5,367,820.70	208.5	319	-49	64.9
MF43	366,485.50	5,367,819.70	208.8	331	-68	67.5
MF44	366,470.40	5,367,824.80	208.0	322	-44	40.9
MF45	366,431.20	5,367,789.70	210.1	321	-70	54.6
MF46	366,431.60	5,367,789.40	210.2	312	-84	55.0
MF47	366,452.80	5,367,790.80	208.8	319	-62	56.5
MF48	366,453.10	5,367,790.50	208.7	317	-78	78.0
MF49	366,410.80	5,367,771.70	208.5	325	-61	46.5
MF50	366,349.70	5,367,749.30	206.6	324	-43	97.5
MF51	366,339.60	5,367,738.70	206.6	324	-43	56.0
MF52	366,371.30	5,367,666.30	211.3	297	-39	93.4
MF53	366,369.30	5,367,684.70	210.0	291	-45	58.0
MF54	366,371.20	5,367,700.50	208.6	323	-45	92.0
MF55	366,345.90	5,367,672.90	210.5	284	-43	58.0
MF56	366,334.90	5,367,684.00	210.8	282	-44	63.5
MF57	366,343.00	5,367,705.90	208.7	300	-39	72.2
MF58	366,359.90	5,367,633.50	208.5	297	-46	80.0
MF59	366,360.60	5,367,633.20	208.7	292	-59	50.5
MF60	366,361.00	5,367,633.00	208.8	293	-75	64.5
MF61	366,342.10	5,367,649.00	206.6	298	-48	32.0
MF62	366,371.90	5,367,666.20	211.7	297	-79	70.5
MF63	366,371.50	5,367,666.50	211.2	292	-65	57.0
MF64	366,332.90	5,367,630.60	204.9	-	-90	20.5

Table 1 Collar details of holes drilled at North Cuni - Genet's during 2004

4.2 DRILLING TECHNIQUES

All intersections considered for this resource report were made by diamond drilling. Core was HQ size, drilled using a triple tube on wireline. All drill core is stored at the Allegiance Metals core shed, Zeehan.

4.3 CORE LOGGING

All core was lithologically logged in sufficient detail to support this Mineral Resource estimate. Drill logs describe the rocks and mineralisation intersected and are accompanied by core recoveries, assays and some petrological descriptions by Ian Bogie of Sinclair Knight Merz Limited (Appendix 1). All core was logged by the author. Hard copies of drill logs are kept at the offices of Allegiance Metals at Zeehan; computer based copies are kept at the office of McKeown Mining Pty Ltd. Hard copies of assay data as received from analytical laboratories are kept at the offices of Allegiance Metals at Zeehan; computer based copies are kept at the office of McKeown Mining Pty Ltd at Ridgley.

4.4 CORE RECOVERY

As was mentioned above, core recovery at Melba Flats has been a problem in the past. Triple tube drilling was used for the recent drilling programme and core recoveries in the gabbro and sulphide mineralisation were good. There was no systematic core loss in the mineralisation considered for this resource estimate.

There were some poor recoveries in weathered overburden but recoveries were close to 100% in gabbro and sulphide mineralisation (see drill logs).

4.5 DRILL HOLE SURVEYS

The co-ordinates of the collars and the collar bearings of all drill holes drilled by Allegiance have been determined by theodolite traverse, most of the collar dips were also determined by theodolite traverse, a few by clinometer; this survey work was undertaken by Peter Diprose, Licensed Surveyor.

All co-ordinates in this report are in AMG and RLs are actual heights above MSL.

The accuracy of the surveys is adequate for the classes of Mineral Resource estimates made for this report.

5 SAMPLING

5.1 SAMPLE PREPARATION

Core was sawn in half longitudinally, and half the core was crushed, and all the crushed material was pulverised for assay. All crushed and pulverised samples not consumed by the assay process were retrieved and are stored in Allegiance's Zeehan core shed.

5.2 ASSAY METHOD AND ASSAY LABORATORIES

All nickel assays used for this resource estimate were total nickel assays determined by ICP following an acid leach. All assays were performed by SGS, NATA registered laboratories; sample preparation was carried out in Burnie, and assays in Townsville.

5.3 ASSAY DATABASE

All assay data used for estimates of grade in this report have been checked against the original laboratory assay sheets. The nickel assay data used for these resource estimates are attached (Appendix 2).

6 RESOURCE ESTIMATES

6.1 INTRODUCTION

The tonnage and grade of resources described in this report are such that there are reasonable prospects for eventual economic extraction but, except for this assumption, the resources described in this report are Mineral Resources and, for this report, no account has been taken of mining factors.

The size, shape, attitude and shallow depth of the mineralised zones suggest that the mineralisation could be mined by open-cut.

The grade of the nickel and copper mineralisation, the relatively coarse grained nickel and copper sulphides observed in the drill core, and petrological studies which have been undertaken all suggest that the mineralisation will be metallurgically recoverable and that there are reasonable prospects for eventual economic extraction.

6.2 GEOLOGICAL INTERPRETATION

The geological interpretation of the shape and attitude of the G7 gabbro and associated mineralisation used for this resource assessment was based on a set of structural contour plans of the G7 hangingwall, G7 footwall, associated mineralisation hangingwall, associated mineralisation footwall, associated massive sulphide hangingwall, associated massive sulphide footwall, and fault intersections.

The resulting contours were used to construct wireframes of the mineralisation using DATAMINE software (Figure 4).

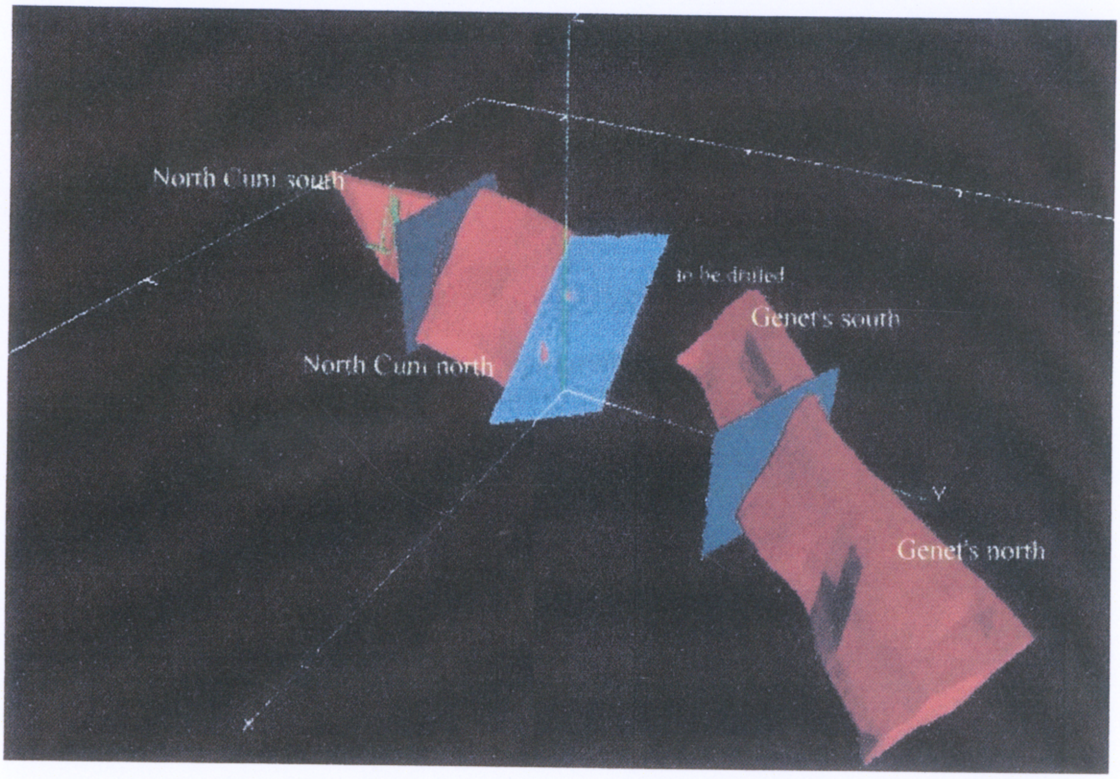


Figure 4 3D view of the mineralisation at North Cuni and Genet's (DATAMINE wireframes); Y indicates north, distance from south to north is ~400m; mineralisation wireframes are red, faults blue, workings at North Cuni green ground surface is at the top of the mineralisation

The Genet's lens plunges gently to the north and is offset by a fault; north of the fault as *Genet's North*, south of this fault the lens is referred to as *Genet's South*. Genet's lens is open to the north and to the south. The results of old drill holes suggest that the mineralisation continues into these areas which are yet to be drilled by Allegiance.

The North Cuni lens also plunges gently to the north beneath the North Cuni shaft, is offset by a fault at the northern end of the North Cuni workings and terminates at second fault; north of the fault as *North Cuni North*, south of the off-setting fault the lens is referred to as *North Cuni South*,.

The mineralisation at Genet's North is mainly disseminated sulphide with massive sulphide on the footwall near the fault at the south of the block. The top of the mineralisation for this estimate was at 205m RL, a little below the surface which is at about 210m RL and the bottom of the mineralisation was taken as 175m. The mineralisation strikes about north-west and dips to the south-east at about 50 degrees.

The mineralisation at Genet's South is mainly disseminated sulphide with a small occurrence of massive sulphide on the footwall near the fault at the north of the block. The top of the mineralisation for this estimate was at 205m RL, a little below the surface which is at about 210m RL and the bottom of the mineralisation was taken as 180m. The mineralisation strikes about north-west and dips to the south-east at about 50 degrees.

The mineralisation at North Cuni North is mainly disseminated sulphide with a small occurrence of massive sulphide on the footwall. The top of the mineralisation for this estimate was at 205m RL, a little below the surface which is at about 210m RL and the bottom of the mineralisation was taken as 160m. The mineralisation strikes about north and dips to the east at about 45 degrees.

The mineralisation at North Cuni South is disseminated sulphide with massive sulphide on the footwall. The top of the mineralisation for this estimate was at 205m RL, a little below the surface which is at about 2175m RL and the bottom of the mineralisation was taken as 160m. The mineralisation strikes about north and dips to the east at about 60 degrees. This block of ore was developed in the past, with access from the now flooded North Cuni shaft, by the driving of a level at about 185m RL and the mining of an underlay shaft in ore to the south of the North Cuni shaft (Figures 4 and 5). It is not certain whether any ore was stoped from these workings and, so, the Mineral Resource in this block was classified as Inferred for this report (6.7 MINERAL RESOURCE ESTIMATES). The mineralisation in this hole had a different tenor to the mineralisation intersected elsewhere during the recent drilling programme (3 MINERALOGY); this was probably due to the intersection being made in a true supergene zone.

6.3 MINERALISATION BOUNDARIES

The footwall of the sulphide mineralisation is usually a hard boundary, the base of the mineralisation generally terminating abruptly in each intersection at the boundary between mineralisation and underlying sedimentary rock (2 LOCAL GEOLOGY AT NORTH CUNI AND GENET'S and 3 MINERALOGY). For this resource estimate, for every intersection considered, the footwall of the mineralisation coincided with the footwall of the gabbro. This was so even though a narrow zone of less mineralised gabbro was included on the footwall in a few intersections, for example, in MF29 the interval from 26.25m to 26.90m was included:

gabbro hangingwall at 20.60m		
20.60m to 21.60m	1140 PPM Ni	mineralised gabbro
21.60m to 22.60m	3190	mineralised gabbro
22.60m to 24.10m	575	mineralised gabbro
24.10m to 24.50m	1120	mineralised gabbro
24.50m to 25.30m	6480	mineralised gabbro
25.30m to 25.60m	58500	massive sulphide
25.60m to 26.25m	5410	mineralised gabbro
26.25m to 26.90m	790	gabbro
gabbro footwall at 26.90m		

The hangingwall of the sulphide mineralisation is less definite, a soft boundary, but is usually marked by a jump in the sulphide content, for example, in MF59 the mineralisation hangingwall was determined to be at 37.1m:

	ppm Ni	**ppm Co**	**ppm S**	**ppm Cu**
34.7m to 35.7m	335	85	700	175
35.7m to 37.1m	965	115	2050	380
37.1m to 38.1m	7340	235	23500	5550
38.1m to 39.1m	11200	300	43500	8550
39.1m to 40.1m	12300	250	36000	17400
40.1m to 41.1m	12300	315	39500	35500
41.1m to 42.7m	3530	130	9150	6220
42.7m to 43.1m	124000	1760	263000	73500

6.4 ASSAY DATA SETS

Files of assays of diamond drill hole intersections were prepared for each of the four domains apparent from the geological interpretation described above (6.2 GEOLOGICAL INTERPRETATION).

Disseminated and massive sulphide mineralisation were modelled separately for this estimate. For disseminated nickel mineralisation, for each domain, except North Cuni South (see below), basic statistics were calculated for the fields from, to, length, X, Y, Z, % Ni, ppm Co, %Cu and %S in the diamond drill hole data assay files (Tables 2 to 4).

value	unit	no of samples	minimum	maximum	mean	variance
from	m	44	14.0	43.6	31.9	56.0
to	m	44	15.0	45.1	32.9	56.6
length	m	44	0.4	1.7	1.0	0.06
X	m	44	366,392.7	366,468.5	366,437.7	459.7
Y	m	44	5,367,789.0	5,367,843.5	5,367,819.9	366.0
Z	m	44	174.5	199.5	184.4	40.2
Ni	%	44	0.04	0.88	0.38	0.07
Co	ppm	44	74	290	155	3,038
Cu	%	44	0.01	1.32	0.38	0.10
S	%	44	0.08	3.05	1.23	0.87

Table 2 Genet's North- disseminated mineralisation - basic statistics of some fields in diamond drill hole data (file DMIN722)

value	unit	no of samples	minimum	maximum	mean	variance
from	m	27	10.5	34.2	20.9	59.1
to	m	27	11.7	34.8	22.0	57.8
length	m	27	0.5	2.1	1.1	0.10
X	m	27	366,341.7	366,401.6	366,365.5	377.4
Y	m	27	5,367,756.0	5,367,790.0	5,367,771.6	112.9
Z	m	27	178.0	199.2	191.5	35.1
Ni	%	27	0.11	0.97	0.49	0.06
Co	ppm	27	91	320	187	5,244
Cu	%	27	0.06	1.39	0.56	0.14
S	%	27	0.26	3.90	1.62	0.81

Table 3 Genet's South - disseminated mineralisation - basic statistics of some fields in diamond drill hole data (file DMIN721)

value	unit	no of samples	minimum	maximum	mean	variance
from	m	36	8.0	53.9	45.9	151.8
to	m	36	9.0	55.5	46.5	151.7
length	m	36	0.5	1.6	1.1	0.06
X	m	36	366,327.6	366,363.4	366,344.5	95.8
Y	m	36	5,367,637.5	5,367,691.5	5,367,661.9	322.6
Z	m	36	157.9	204.8	179.0	167.0
Ni	%	36	0.05	1.23	0.62	0.15
Co	ppm	36	30	420	204	7,146
Cu	%	36	0.02	5.28	0.87	1.03
S	%	36	0.07	5.27	1.95	2.06

Table 4 North Cuni North - disseminated mineralisation - basic statistics of some fields in diamond drill hole data (file DMIN732)

Note that the nickel grade of one sample was cut in the data set for North Cuni North. This sample was MF58 37.6m to 38.2m at 2.36% Ni. This sample did not adjoin a massive sulphide intersection and its nickel grade was twice the next highest nickel grade in the data set which was 1.23% Ni. The sample grade was cut to 1.23% Ni.

There is only a single intersection in North Cuni South, in MF64, and the length weighted average grades for this intersection are given here rather than statistics based on a very small population of samples from this one hole.

value	unit	
from	m	8.8
to	m	16.1
length	m	7.3
Ni	ppm	1.17
Co	ppm	383
Cu	ppm	3.26
S	ppm	4.21

Table 5 North Cuni South - length weighted statistics of some fields in diamond drill hole data in the whole of the mineralised intersection in MF64

6.5 TONNAGE FACTORS

No density measurements were made for this grade estimate. The total length of massive sulphide recovered was 6.55m and, although core recoveries were good (4.4 CORE RECOVERY), the core in the massive sulphide and gabbro was usually broken or very broken. Consequently, no meaningful bulk density estimates could be made, at this stage, based on specific gravity of drill core. A bulk density of 2.8 tonnes per cubic metre was used for disseminated sulphide mineralisation in gabbro and 3.5 tonnes per cubic metre for massive sulphide. These bilk density estimates were based on the author's experience in sulphide mineralisation at other places.

6.6 CUT-OFF GRADE

No data of costs to hand for small open-cut. For the purposes of this report, a cut-off grade of 0.3% Ni was used. Rock at 0.3% Ni, at current prices, has a value of about $60 per tonne.

Expressing this cut-off grade in terms of gold helps to confirm that this is a realistic cut-off. At the current nickel and gold prices of $20,000 per tonne and $550 per ounce respectively, 0.3% Ni is equivalent to about 3.5 g/t Au. Given the higher realisation costs for nickel than for gold, this seems to be reasonable.

6.7 MINERAL RESOURCE ESTIMATES

Mineral Resources were estimated using DATAMINE software. Wireframes of disseminated and massive sulphide mineralisation were formed from footwall and hangingwall plans (6.2 GEOLOGICAL INTERPRETATION). Block models of disseminated and massive sulphide were created by filling the wireframes with 2m X 2m X 2m blocks. No block splitting was allowed during the block filling, so all blocks are the same size.

The assay data set is small and, so, no variography was attempted. Samples were composited to 1m which was very close to the mean sample lengths (Tables 2 to 4).

Nickel grades were interpolated into the blocks using the inverse distance squared method with a power of 2, a single interpolation point per block, and a 50 metre X 50 metre X 50 metre search. The search ranges ensured that nearly all blocks in the models were informed although there were a few uninformed blocks at the extremities of the wireframes.

The block models were interrogated using a cut-off grade of 0.3% Ni (6.6 CUT-OFF GRADE).

North Cuni and Genet's Mineral Resource

disseminated mineralisation + massive sulphide

0.3% Ni cut-off

		Indicated			
North Cuni north	38,000 tonnes	0.68% Ni	0.79% Cu	0.02% Co	1.85% S
Genet's south	24,000 tonnes	0.56% Ni	0.59% Cu	0.02% Co	1.61% S
Genet's north	21,000 tonnes	0.87% Ni	0.38% Cu	0.02% Co	1.30% S
Sub-total	83,000 tonnes	0.69% Ni	0.63% Cu	0.02% Co	1.64% S
		Inferred			
North Cuni south	12,000 tonnes	1.17% Ni	3.26% Cu	0.04% Co	4.21% S

The block models of the massive sulphide indicated the following:

North Cuni and Genet's Mineral Resource

massive sulphide

		Indicated			
North Cuni north	400 tonnes	8.7% Ni	8.1% Cu	0.2% Co	23.7% S
Genet's south	200 tonnes	7.9% Ni	3.4% Cu	0.2% Co	25.2% S
Genet's north	1,000 tonnes	9.7% Ni	5.6% Cu	0.2% Co	32.6% S
Sub-total	1,600 tonnes	9.2% Ni	6.0% Cu	0.2% Co	29.5% S

Earlier in the year, an estimate of the Mineral Resource at Nickel Reward was made using a manual polygonal method (Appendix 3):

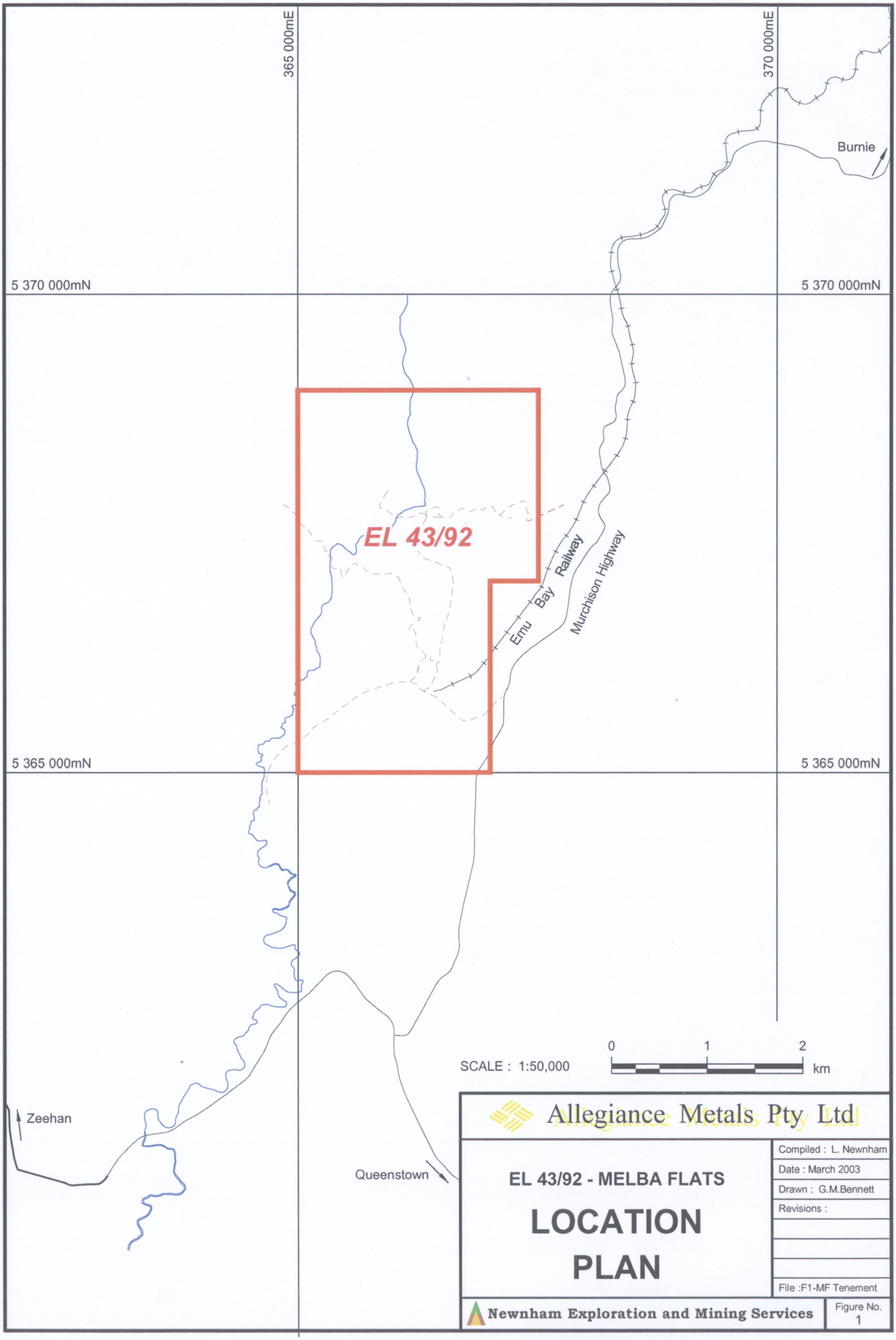
Nickel Reward Mineral Resource

Inferred

Nickel Reward	30,000 tonnes	3% Ni

REFERENCE

Bogie, I., 2004. The petrology of 12 samples from Avebury, Tasmania for Allegiance Metals Pty Limited. Sinclair Knight Merz, Auckland, 25 June 2004.



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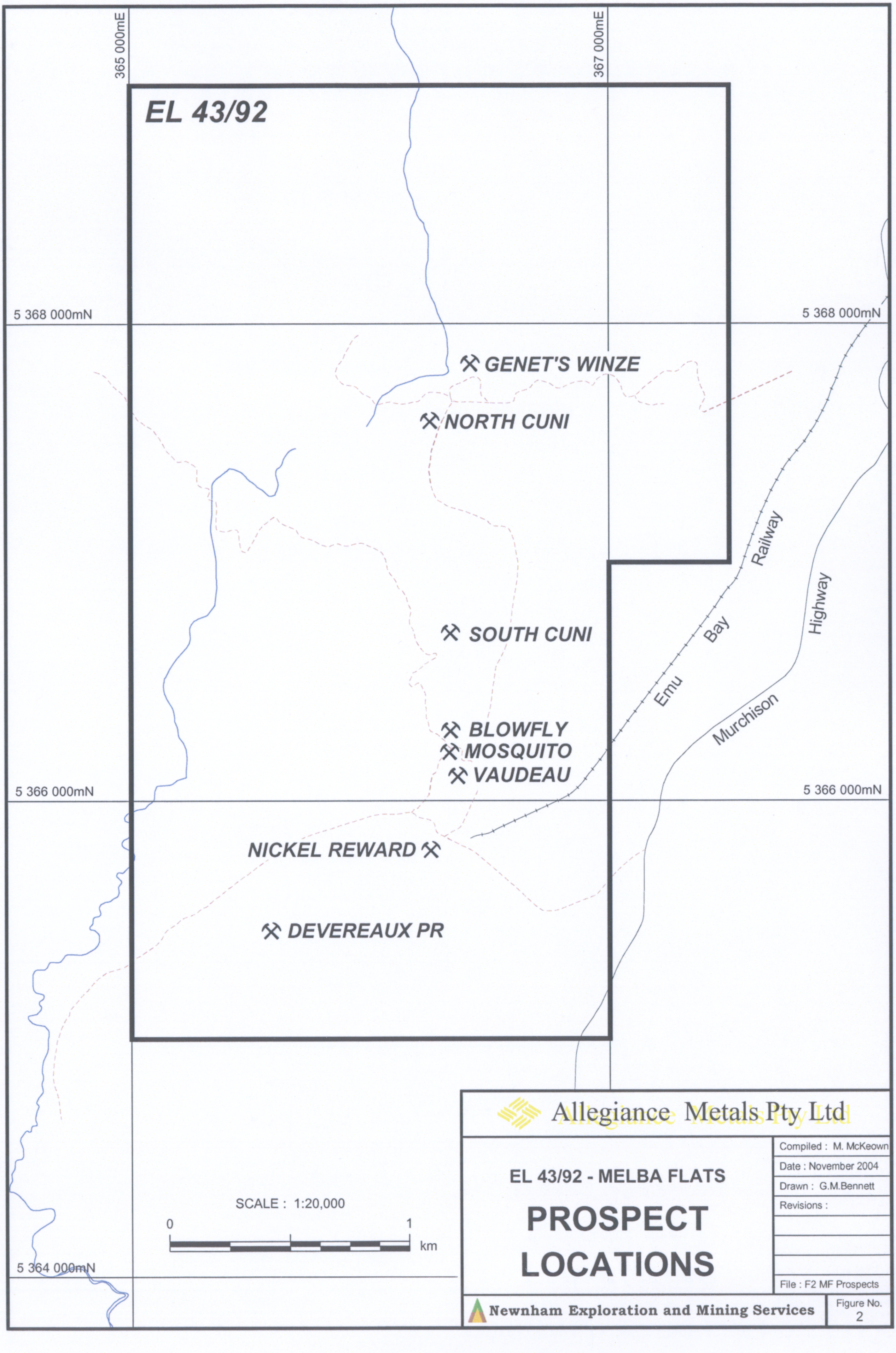
EL 43/92 - MELBA FLATS

LOCATION PLAN

Compiled : L. Newnham	
Date : March 2003	
Drawn : G.M.Bennett	
Revisions :	
File :F1-MF Tenement	

Newnham Exploration and Mining Services

Figure No. 1



Allegiance Metals Pty Ltd

EL 43/92 - MELBA FLATS

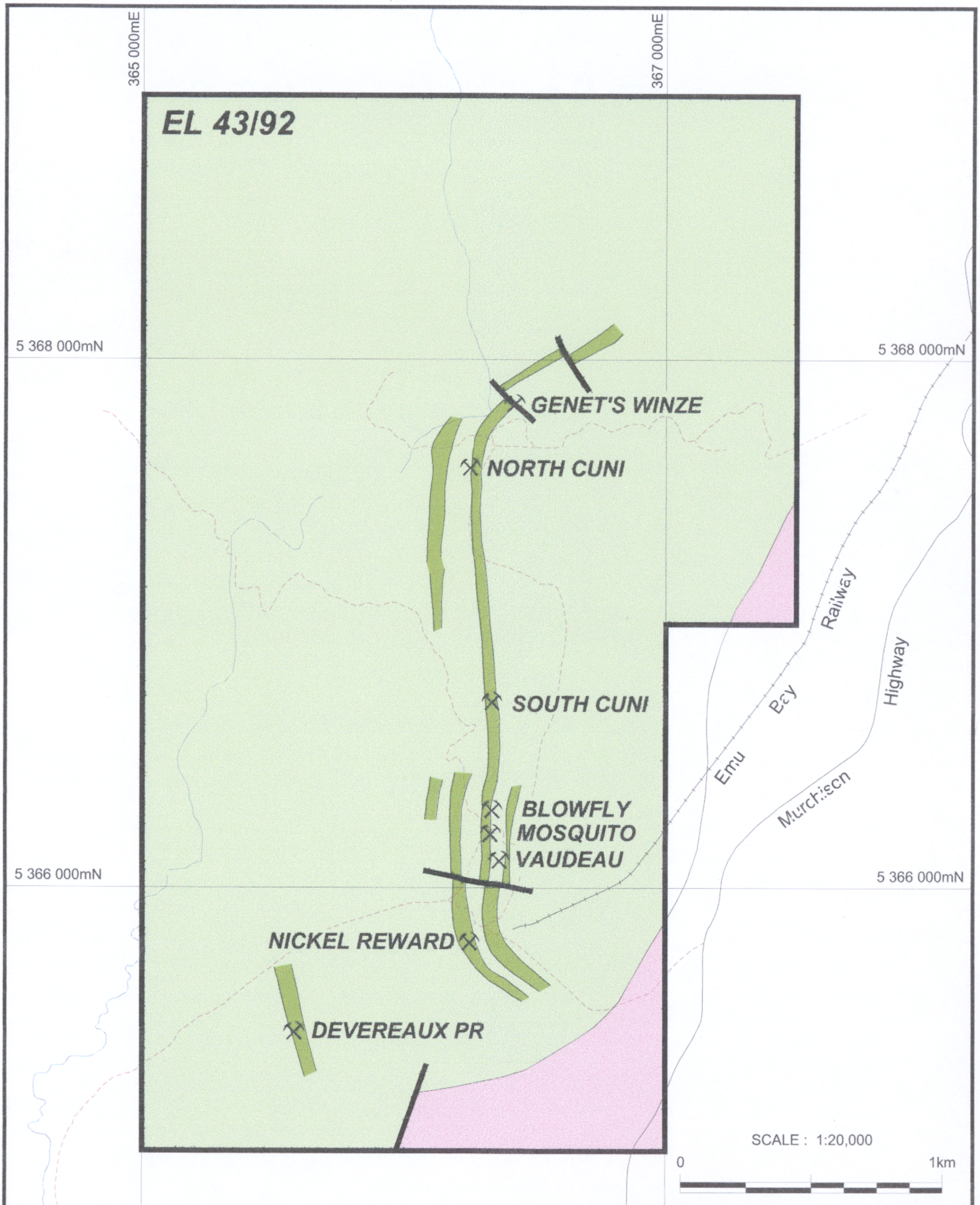
PROSPECT LOCATIONS

Compiled : M. McKeown
Date : November 2004
Drawn : G.M.Bennett
Revisions :

File : F2 MF Prospects

Newnham Exploration and Mining Services

Figure No. 2



LEGEND

- Cambrian Sediments
- Gabbro Sills
- Ultramafic (Serpentinite)

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EL 43/92 - MELBA FLATS

DISTRICT GEOLOGY

Compiled : M. McKeown
Date : November 2004
Drawn : G.M.Bennett
Revisions :

File : F3-MF Geology

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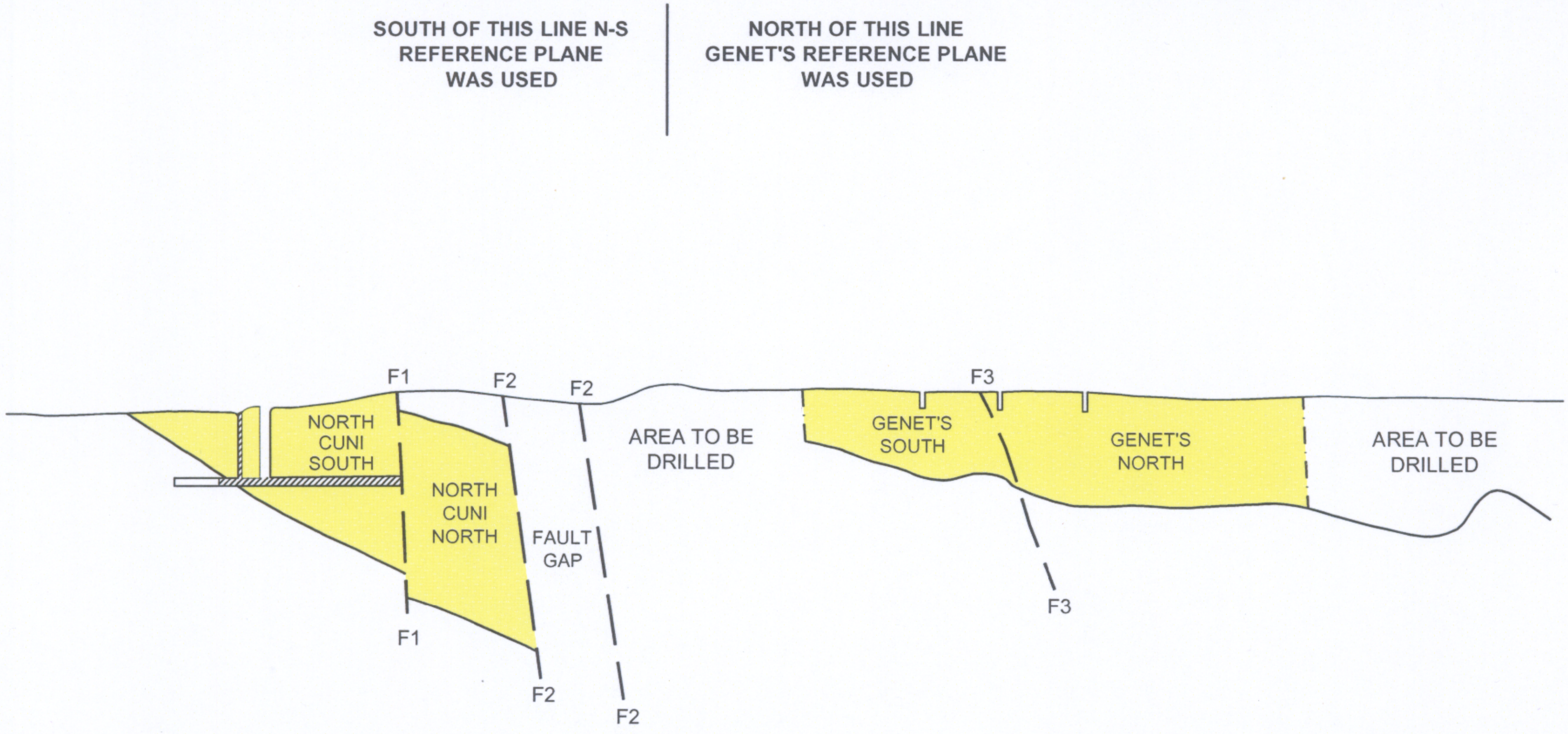
Figure No. 3



NORTH CUNI SOUTH
INFERRED
12,000 tonnes @ 1.2% Ni

NORTH CUNI NORTH
INDICATED
38,000 tonnes @ 0.7% Ni

GENET'S SOUTH
INDICATED
24,000 tonnes @ 0.6% Ni

GENET'S NORTH
INDICATED
21,000 tonnes @ 0.9% Ni

LEGEND

- Mineralisation boundary (solid line)
- Fault contact (dashed line)
- Limit of estimate (dash-dot line)

Allegiance Metals Pty Ltd

EL 43/92 - MELBA FLATS
NORTH CUNI - GENET'S
LONGITUDINAL PROJECTION

Compiled : M.McKeown
Date : November 2004
Drawn : G.M.Bennett
Revisions :
File : F4-MF Long Proj

Newnham Exploration and Mining Services

Figure No. 4

Appendix 1

The petrology of 12 samples from Melba Flats, Tasmania for Allegiance Metals Pty Limited

SKM

The Petrology of 12 Samples from ~~Avebury~~ Melba Flats, Tasmania for Allegiance Metals Pty Limited

- Final M1149
- 24/02/2004

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Contents

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SKM

Summary

A suite of 12 rock samples from Avebury, Tasmania was examined in transmitted and reflected light.

The original lithologies comprise quartz-biotite(?) schist, gabbro and massive sulphides that have replaced schist and gabbro.

The gabbro is altered to chlorite, albite, antigorite, and opaques with or without actinolite, titanite, biotite, quartz and sericite. The reactive portion of the schist is altered to chlorite, opaques and sphalerite, but much of the rock is preserved as metamorphic quartz. Quartz and biotite gangue in the massive sulphides may have been inherited from the precursor lithologies, but chlorite and dolomite are of hydrothermal origin along with the opaques.

The schist has been hydraulically fractured with quartz infilling the fractures. Siderite, quartz, chlorite and sphalerite occur in veins in the gabbros. The massive sulphides are cut by at least two generations of thin dolomite veins.

The massive sulphides consist of pyrite, pentlandite and chalcopyrite with or without magnetite. They have complex textures at least partially inherited from their precursor lithologies. More exotic minerals, more commonly associated with metamorphic cumulate nickel deposits were not observed.

The mineral assemblage and textures would suggest that a moderately oxidising, slightly acid, hot (>300°C) highly saline fluid with pressures exceeding hydrostatic leached out silicate rocks along a geological contact. The decrease in pH of the solution as it reacted with the rock resulted in deposition of the opaques.

The combination of distinct geological criteria for the localisation of the deposit along a contact and a potentially strong magnetic and electromagnetic geophysical signature provide the means for further exploration.

Providing that the samples in the suite are representative and that similar material occurs over a significant extent with a geometry allowing cost effective mining, these samples represent significant encouragement for the existence of an economic nickel deposit with a significant copper by-product.

1. Introduction

A suite of 12 samples from Avebury, Tasmania was submitted in May 2004 with a request for petrological analysis under a covering letter.

Of these samples, four were prepared as standard thin sections and eight as polished thin sections, and examined in transmitted and reflected light as appropriate.

SKM

2. Lithologies

Lithologies, alteration and vein mineralogy of the samples are summarised in Table 1. Full petrographic descriptions are given in Section 7.

Three groups of rocks are represented in the sample suite. There is a group of highly altered rocks that have indications of originally consisting of augite, olivine and plagioclase. The amount of plagioclase is more than would be excepted in an ultramafic and less than would be expected in a gabbro. However, the original abundance of plagioclase is difficult to judge due to the alteration, as generally the more altered the sample the less apparent the amount of original plagioclase, but on balance these rocks are likely to be gabbros. The original composition of the plagioclase can not be established in order to formally differentiate a diorite from a gabbro, but the nature of the mafics and their alteration products is strongly suggestive of a gabbro.

The second type of sample is a schist. Its original features have been obscured by alteration but it may have been a quartz-biotite schist. It contains prominent quartz segregations that are developing into boudins.

Table 2-1 Summary of Lithologies and Alteration

Sample Numbers SKM	Client	Lithology (and primary minerals)	Alteration and veining	
12854	MF28 35.2	Gabbro (Aug)	Strong:	Chl, Act, Ab, Atg, Opq, Tt, Bt
			Vein:	Q, Chl, Sp
12855	MF29 25.6	Massive Sulphide	Total:	Py, Cpy, Q, Pen, Chl, Dol, Bt
			Vein:	Dol
12856	MF32 40.7	Gabbro (Aug)	Strong:	Ab, Chl, Act, Atg, Sid, Tt, Ser
			Vein:	Sid, Q
12857	MF32 41.6	Massive Sulphide	Total:	Py, Cpy, Pen, Chl, Dol, Mt, Q, Bt
			Vein:	Dol
12858	MF32 42.2	Massive Sulphide	Total:	Py, Cpy, Pen, Mt, Dol, Q
			Vein:	Dol
12859	MF34 35.6	Massive Sulphide	Total:	Py, Cpy, Pen, Dol, Chl, Q, Mt
			Vein:	Dol
12860	MF34 36.3	Massive Sulphide	Total:	Py, Pent, Cpy, Dol, Mt, Q
			Vein:	Dol, Py, Cpy
12861	MF35 36.1	Quartz-Mica Schist (Q)	Strong:	Chl, Q, Py, Sp, Dol, Clay
			Vein:	Q
12862	MF36 28.7	Massive Sulphide	Total:	Py, Pen, Dol, Q, Cpy, Chl, Mt
			Vein:	Dol
12863	MF38 19.1	Massive Sulphide	Total:	Py, Pen, Cpy, Q, Bt, Chl
12864	MF39 14.8	Gabbro	Intense:	Chl, Ab, Atg, Opq, Q, Ser
12865	MF39 16.1	Massive Sulphide	Total:	Py, Pen, Cpy, Q

Mineral Abbreviations

Ab	Albite
Act	Actinolite
Atg	Antigorite
Aug	Augite
Bt	Biotite
Chl	Chlorite
Chl-Sm	Interlayered chlorite-smectite
Clay	Clay not specifically identified by XRD
Cpy	Chalcopyrite
Dol	Dolomite
Mt	Magnetite
Opq	Unidentified opaque
Pen	Pentlandite
Py	Pyrite
Q	Quartz
Ser	Sericite
Sid	Siderite
Sp	Sphalerite
Tt	Titanite

The third group of samples are massive sulphides that have remnant textures similar to that of the schist and the gabbro and thus are likely to be replacement products of them. Some of the gangue quartz in the massive sulphides may be inherited from the schist and these samples have layered textures. Schistose textures predominant and only samples MF38 19.1 and MF39 16.1 have ghost textures similar to the gabbro.

SKM

3. Alteration and Vein Mineralogy

The gabbros that have not been largely replaced by sulphides are altered to an assemblage of chlorite, albite, antigorite, and opaques with or without actinolite, titanite, biotite, quartz and sericite. They are cut by veins of quartz, chlorite and sphalerite or by siderite veins.

The schist retains much of its original texture because of its high quartz content, but primary phyllosilicates that may have been biotite has been replaced by chlorite and rare interlayered clay, possibly interlayered chlorite-vermiculite after the biotite. The schist is veined by later hydrothermal quartz.

Sphalerite is found in veins in one of the gabbros and as a replacement mineral in the altered schist. This may represent a lower temperature sulphide facies away from the main Ni-Cu mineralisation. As the sphalerite is sufficiently transparent to identify in thin section and is light in colour it will be iron poor although some grains have some darker more iron-rich zones.

In the massive sulphides there is rare biotite, possibly inherited from the schist that is partially to totally replaced by chlorite. There is quartz and dolomite filling cavities. There is also dolomite veining of which there is at least two generations. The coarser grained dolomite exhibits a good rhombic form. Finer material is less obviously dolomite, but has been described as dolomite on the basis of the presence of the coarser grained material.

The presence of hydrothermal actinolite and biotite in the altered gabbros would suggest that alteration initially took place at temperatures over 300°C. The replacement of much of the biotite by chlorite would suggest that there has been some retrograde alteration. The siderite veining in one of the gabbros may be associated with the retrograde alteration. However the dolomite has a close association with the mineralisation and may have formed at high temperatures. For this to be the case would suggest that the deposit also formed at higher than hydrostatic pressures, because dolomite is usually limited to temperatures below 200° C in hydrostatic hydrothermal deposits, but can be found at much higher temperatures in hydrothermal ore deposits formed at higher pressures.

In terms of the chemistry of the mineralising fluids, consideration must be made of the opaque mineral assemblage as well and this is discussed in section 5.

4. Brecciation and Veining

The various veins are infillings of fractures, which in some of the samples are cross cutting indicating at least two fracturing events. In the schist there is stronger fracturing with a style suggestive of hydraulic fracturing that is cross cutting earlier quartz segregations. . So in addition to the deformation the rock underwent during metamorphism it has been subsequently fractured with quartz infilling the fractures.

5. Mineragraphy

The massive sulphides that make up the majority of the samples have an assemblage of pyrite, chalcopyrite, and pentlandite with or without magnetite. Only one sample (MF39 16.1) doesn't contain magnetite. No gold, platinum group minerals, pyrrhotite, cobalt bearing minerals or arsenides that can be associated with nickel sulphides were observed, although a microprobe scan would be needed to be completely certain this is the case. This is possibly because the nickel sulphide in this instance is of hydrothermal origin, rather than occurring as a magmatic cumulate.

The samples have complex textures, some of which are inherited from their replaced precursor lithologies. This has lead to varying proportions of the different opaques in different parts of the samples such that estimates of their overall abundance is difficult. Generally pyrite is the most abundant mineral and it mainly has a massive habit. It can contain fine grains of pentlandite or medium grained aggregates of fine grains of pentlandite along with intergrown chalcopyrite. Chalcopyrite can be intergrown with pentlandite where there is less pyrite, but there is significant variability in the abundance of chalcopyrite and pentlandite from sample to sample.

Magnetite occurs mainly, but not exclusively, in pyrite rich bands where it occurs as subhedral, fine grains. It can have some intergrown chalcopyrite or be found intergrown with gangue minerals with pyrite.

The occurrence of these opaques with a gangue of hydrothermal dolomite and chlorite (quartz and biotite gangue, maybe remnants of the precursor lithologies) indicates that they are of hydrothermal origin. The presence of magnetite with pyrite would suggest a solution of moderate oxidation state and therefore the nickel would have been divalent in solution. Such a solution may not have been sufficiently oxidised to transport much gold as a chloride and may not have been sufficiently reduced to transport it as a bisulphide complex.

To transport significant iron, nickel and copper in hydrothermal solutions requires that they be carried in solution as complex species. As hydrothermal nickel deposits are uncommon there is little available information on the speciation of nickel complexes in hydrothermal solutions. However, general considerations would suggest that nickel should not behave too differently from iron and copper with an increase in stability of complexes from iron to cobalt to nickel to copper (Seward and Barnes, 1997). The more stable the complex the further it may be found from the source of the mineralising fluids. Thus this order may reflect a possible zonation of metals in relationship to the source. Since the samples examined are copper bearing they are less likely to contain cobalt, but there may be parts of the deposit closer to the source that does contain cobalt and less copper. Iron also has potential to travel as an ionic species and may be found throughout the deposit.

The most likely complexing ligand is likely to be chloride and as in general complex formation is favoured by elevated salinities and temperatures, the mineralising fluid should have been hot and saline. Such solutions can be slightly acid due to silicate buffering and this may have been necessary to leach out the precursor silicates to replace them by the opaques. The neutralisation of the solution as it leached the silicates would have promoted the deposition of the dolomite and increased the dissociation of hydrogen sulphide in solution to produce the sulphide necessary to form the majority of the opaque assemblage. As this is a process generally seen affecting more reactive rocks (ie limestones) it is likely that temperatures were significantly elevated in order to produce sufficient rates of reaction to form a deposit of any size.

SKM

6. Discussion

Hydrothermal nickel sulphide deposits are uncommon. A deposit described as an epithermal nickel sulphide deposit is found in the Philippines on the island of Leyte, but it consists of quartz and marcasite veins with bravoite as inclusions in the marcasite and hence it is significantly different to that at Avebury. Pentlandite is however found as a minor mineral in some high temperature hydrothermal environments, particularly where there is a close magmatic association. This mineral has been found in active geothermal systems in the Philippines at temperatures between 200 and 500°C. Hydrothermal nickel cobalt arsenide veins with significant silver are more common, and apart from the different type of ore minerals have some similarities to Avebury in that they have dolomite gangue and associated chloritic alteration.

In this case the association of the deposit with a mafic intrusion would suggest that the nickel and copper have been hydrothermally remobilised from the intrusive or possibly associated ultramafics at greater depth. As there are two replaced lithologies it is likely that the hydrothermal fluids have been channelled up the contact between them. More information than is available is required to establish the nature of the contact although the lack of any post metamorphic deformation textures would not strongly support tectonic features active during and after mineralisation. There is considerable importance in establishing the nature of the contact because if a stratigraphic or structural control could be established it could be strongly predictive of the location of further mineralisation.

The presence of magnetite associated with possible copper-nickel ore and the possible destruction of magnetite in the surrounding country rock also means that magnetic surveys may be a useful exploration tool. However, it must be noted that not all of the mineralisation has associated magnetite and hence there may not be a one to one relationship between magnetic highs and ore bodies, although they may have a more constant electromagnetic signature. Thus an approach combining a geological model of the contact with geophysical surveys may be the best approach in further exploration.

Providing that the samples in the suite are representative of the ore body as a whole, and it has significant extent and is of a geometry allowing cost effective mining, these samples represent significant encouragement for the existence of an economic nickel deposit with a significant copper by-product.

7. Petrographic Descriptions

Sample Numbers:	**AMPL**	**:**	**MF28 35.2**
	Sinclair Knight Merz	**:**	**12854**
Rock Name:	**Altered Gabbro**		

Petrographic Description

Lithology: In hand specimen, the rock has a mottled appearance imparted by the smearing out of an original granular texture by alteration. It is dark green in colour.

In thin section, there are outlines of plagioclase and pyroxene remaining. The latter contains some remnant cores of augite. This mineralogy plus antigorite possibly after olivine suggest that the rock was a mafic intrusive, possibly a gabbro.

Alteration: The rock is strongly altered. Plagioclase is altered to cloudy albite. Pyroxene is altered to actinolite, chlorite and antigorite. The chlorite has anomalous blue birefringence. Most of the rock is a chaotic intergrowth of antigorite, actinolite and chlorite with patches of cloudy titanite after original opaques and disseminated opaques of less certain identity and origin. There is minor quartz associated with chlorite. There are rare remnants of biotite within some chlorite patches.

Veining: The rock is cut by sinuous veins of quartz and chlorite that have centres of sphalerite that ranges from opaque to brown to dark yellow in colour and has a well developed cleavage.

Proportions (%): Primary: Augite (8)
Secondary: Chlorite (35), actinolite (18), albite (14), antigorite (8), opaques (5), sphalerite (5), quartz (5), titanite (2), biotite (<1)

SKM

Sample Numbers:	AMPL	:	MF29 25.6
	Sinclair Knight Merz	:	12855
Rock Name:	Massive Sulphide		

Petrographic Description

Lithology: In hand specimen, this sample is dense, with a brassy metallic lustre and contains intergrown green-gray gangue material.

In thin section, the sample consists predominantly of massive sulphide. Biotite originally occurred in lamellae in pyrite grains. Anhedral fine grained quartz is enclosed in the sulphides.

Alteration: Much of the original biotite has altered to chlorite.

Veining: Zones of fracture mesh networks run through the sample that are infilled by dolomite.

Mineragraphy: The sample consists of a complex mixture of pyrite, chalcopyrite and pentlandite. The pyrite occurs either as coarse massive grains or as folded, layered grains with gangue between the layers. The massive pyrite contains inclusions of chalcopyrite and pentlandite; the later is however more common in the layered pyrite. Pyrite also occurs as blebs within chalcopyrite that occurs as anhedral grains interstitially to the pyrite. It contains inclusions of pentlandite along with the blebs of pyrite, but much of it is present in complex intergrowths with pyrite and pentlandite. Pyrite and chalcopyrite are found as very fine anhedral inclusions in quartz gangue.

Brecciation: There has been some possible deformation of the rock to produce the curved layering in some of the pyrite. There has been subsequent fracturing to form the fracture networks infilled by dolomite.

Proportions (%): Secondary: Pyrite (45), chalcopyrite (25), quartz (13), pentlandite (8), chlorite (6), dolomite (3), biotite (<1)

SKM

Sample Numbers:	AMPL	:	MF32 40.7
	Sinclair Knight Merz	:	12856
Rock Name:	Altered Gabbro		

Petrographic Description

Lithology: In hand specimen, this is a dark green rock with an equigranular texture. It is cut by sinuous brown coloured veins.

In thin section, the rock originally consisted of interlocking grains of fine to medium grained, subhedral plagioclase that encloses subhedral, medium grains of augite and possibly olivine. Although original plagioclase compositions can not be determined it is likely that the rock is a gabbro.

Alteration: The rock is strongly altered. All the plagioclase is albitised and some has flecks of sericite. The augite is partially altered to actinolite and anomalously blue birefringent chlorite. There are also patches of chlorite, siderite and actinolite with no obvious precursor. Antigorite is found as partial replacement product of some augite and as patches, possibly after olivine. There are irregular shaped grains of cloudy titanite after original opaques, some of which are better crystallised and less cloudy and allowing the clear identification of titanite.

Veining: The rock is cut by sinuous veins of siderite with minor quartz. There are two cross cutting sets.

Brecciation: The rock has undergone two fracturing events to form the siderite veining.

Proportions (%): Primary: Augite (16)
Secondary: Albite (31), chlorite (23), actinolite (9), antigorite (9), siderite (9), titanite (2), sericite (<1)

SKM

Sample Numbers:	AMPL	:	MF32 41.6
	Sinclair Knight Merz	:	12857
Rock Name:	Massive Sulphide		

Petrographic Description

Lithology: In hand specimen, this sample is dense and contains brassy lustred layers. Elongate, pitted zones are also found. The sample has developed a light green efflorescence.

In thin section, the sample is mainly massive sulphide with layers of gangue. This layering may be inherited from a replaced precursor lithology.

Alteration: The gangue consists mainly of chlorite, some of which is intergrown with very fine grained carbonate, possibly dolomite. In thicker gangue bands there is coarser grained carbonate that is more obviously dolomite. These also contain very rare biotite and a stepwise transition from biotite, to an interlayered clay, possibly chlorite-vermiculite can be observed. Anhedral, fine grained quartz is enclosed in the opaques and there are some remnants of quartz in the pits seen in hand specimen.

Veining: The rock is cut by veins and fracture meshes infilled by dolomite.

Mineragraphy: The sample consists of massive pyrite that occurs as aggregates of fine anhedral grains. It is intergrown with anhedral chalcopyrite and subhedral pentlandite with the proportion of sulphides varying between bands with the pentlandite becoming coarser grained in the bands that it is most abundant. In addition to gangue the sulphides also enclose fine subhedral grains of magnetite that itself contains gangue inclusions.

Brecciation: The rock has been fractured to form the dolomite veining.

Proportions (%): Secondary: Pyrite (30), chalcopyrite (20), pentlandite (18), chlorite (16), dolomite (10), magnetite (4), quartz (2), biotite (<1)

Sample Numbers:	**AMPL**	**:**	**MF32 42.2**
	Sinclair Knight Merz	**:**	**12858**
Rock Name:	**Massive Sulphide**		

Petrographic Description

Lithology: In hand specimen, this sample is moderately denser and has a layered appearance with elongate pits running sub-parallel to the layering.

In thin section, the sample consists of massive sulphide, but may have inherited its layered texture from a replaced precursor lithology.

Alteration: Minor anhedral fine grains of quartz are enclosed in the opaques along with smaller patches of fine grained dolomite.

Veining: There is a ne twork of very thin discontinuous dolomite veins.

Mineragraphy: Pyrite is the predominant opaque. It occurs as massive bands that contain inclusions of chalcopyrite, which is interbanded with pyrite intergrown with fine grained anhedral chalcopyrite and subhedral pentlandite and bands of subhedral fine to medium grained pentlandite and fine grained subhedral magnetite. The magnetite contains numerous inclusions of gangue and chalcopyrite.

Brecciation: The rock has been fractured to form the fine grained network of dolomite veins.

Proportions (%): Secondary: Pyrite (48), chalcopyrite (25), pentlandite (15), magnetite (8), dolomite (3), quartz (1)

SKM

Sample Numbers:	AMPL	:	MF34 35.6
	Sinclair Knight Merz	:	12859
Rock Name:	Massive Sulphide		

Petrographic Description

Lithology: In hand specimen, this sample is dense, magnetic and has a dull brassy lustre with a granular texture.

In thin section, the sample offers few clues about its original nature.

Alteration: Enclosed in opaques are fine anhedral grains of quartz and larger patches of dolomite. Some of the larger patches have the dolomite intergrown with chlorite and opaques.

Veining: Thin sinuous veins of fine grained dolomite cut the sample.

Mineragraphy: The specimen consists mainly of massive pyrite enclosing fine anhedral chalcopyrite and fine anhedral grains and aggregates of pentlandite. Very fine anhedral magnetite and subhedral pyrite occur in the larger patches of gangue.

Brecciation: The sample has been fractured to form the dolomite veins.

Proportions (%): Secondary: Pyrite (52), chalcopyrite (15), pentlandite (13), dolomite (12), chlorite (5), quartz (3), magnetite (2)

SKM

Sample Numbers:	**AMPL**	**:**	**MF34 36.3**
	Sinclair Knight Merz	**:**	**12860**
Rock Name:	**Massive Sulphide**		

Petrographic Description

Lithology: In hand specimen, this sample is dense, magnetic and has a brassy lustre with a pitted granular texture. It has developed a light green efflorescence.

In thin section, the sample shows little sign of a precursor other than some layering in places.

Alteration: Gangue enclosed in the opaques includes minor fine grained, angular quartz. There is dolomite infilling cavities.

Veining: The rock is cut by sinuous cross cutting veins of dolomite that contain very fine grained opaques.

Mineragraphy: Pyrite is the predominant opaque. It occurs massively as well as in aggregates with pentlandite, chalcopyrite and magnetite. In places there is a layered texture defined by aligned elongate grains of gangue or chalcopyrite with folding of the layers. Pyrite occurs as discrete fine subhedral grains along with magnetite intergrown with dolomite. The pentlandite occurs as medium sized aggregates of fine anhedral grains, in comparison to the finer grained anhedral chalcopyrite and fine grained subhedral magnetite. The texture and proportions of the minerals vary widely of the sample. Very fine anhedral pyrite and chalcopyrite grains are found in the dolomite veins.

Brecciation: The sample has undergone at least two fracturing events to form the dolomite veining.

Proportions (%): Secondary: Pyrite (46), pentlandite (18), chalcopyrite (15), dolomite (13), magnetite (7), quartz (1)

SKM

Sample Numbers:	**AMPL**	**:**	**MF35 36.1**
	Sinclair Knight Merz	**:**	**12861**
Rock Name:	**Altered Quartz-Mica Schist**		

Petrographic Description

Lithology: In hand specimen, this sample consists of a schistose, grey fine grained rock that has quartz veins/segregations semi-parallel to the schistosity. There is strong deformation of the segregation with a limited development of boudins.

In thin section, the sample is dominated by the quartz segregation and veining, but there are deformed, elongate areas of phyllosilicates, opaques and dusty material between the quartz which imparts the schistosity. The phyllosilicates have altered, but there are rare fine grained patches with higher birefringence and weak pleochroism to suggest the original presence of biotite.

Alteration: The rock is strongly altered. Primary metamorphic quartz remains, but what was likely to have originally been metamorphic biotite has been replaced by an interlayered species, possibly chlorite-vermiculite, which has very largely altered to very fine grained chlorite with no preferred orientation. This is intergrown with opaques with outlines suggestive of pyrite and transparent sphalerite. The sphalerite is for the most part pale, but there are grains with some darker zonations.

Veining: The rock contains segregations of medium to coarse grained anhedral quartz exhibiting undulose extinction. This has been fractured in parts of the sample, with the fractures infilled by more euhedral, fine grained quartz to form later veining. There are also narrow zones of recrystallised quartz cutting the larger grains.

Brecciation: The rock has been strongly deformed during metamorphism with some further fracturing during hydrothermal alteration.

Proportions (%):

Metamorphic:	Quartz (55)
Hydrothermal:	Chlorite (22), quartz (15), pyrite (5), sphalerite (3), dolomite (<1), interlayered clay (<1)

SKM

Sample Numbers:	AMPL	:	MF236 28.7
	Sinclair Knight Merz	:	12862
Rock Name:	Massive Sulphide		

Petrographic Description

Lithology: In hand specimen, this sample is dense and has a layered appearance with pitted brassy lustred layers.

In thin section, the sample consists mainly of massive sulphide and appears to have inherited a layered texture from its precursor.

Alteration: Enclosed in the opaques are grains and layers of fine grained anhedral quartz and dolomite. Some layers consist of chlorite and there is some dolomite with dusty ghosts of the chlorite's texture suggesting that the dolomite has replaced the chlorite.

Veining: Thin veins of dolomite cut the rock.

Mineragraphy: Massive pyrite predominates, but there are also euhedral fine grains intergrown with dolomite and areas of very fine anhedral grains intergrown with quartz and chlorite. In places there is fine grained anhedral chalcopyrite intergrown with the pyrite. Pentlandite occurs as medium sized aggregates of fine anhedral grains with concentrations in some bands with only scattered grains in others. There is minor subhedral fine grained magnetite.

Brecciation: The rock has been fractured to produce the dolomite veining.

Proportions (%): Secondary: Pyrite (50), pentlandite (15), dolomite (13), quartz (8), chalcopyrite (8), chlorite (6), magnetite (<1)

SKM

Sample Numbers:	AMPL	:	MF38 19.1
	Sinclair Knight Merz	:	12863
Rock Name:	**Massive Sulphide**		

Petrographic Description

Lithology: In hand specimen, this sample has a brassy lustre and is dense and has elongate grains with a preferred orientation.

In thin section, the sample has a layered appearance, which is strongest where there are ribbons of quartz, there are also numerous pits, but these may be the result of gangue being plucked from the section during preparation.

Alteration: In addition to ribbons of quartz there are fine anhedral grains of quartz in the opaques and many of the pits have similar shapes to the quartz grains. More rarely there are patches of fine grained biotite. It is partially altered to chlorite.

Mineragraphy: Massive pyrite encloses fine to medium aggregates of grains of pentlandite, with the proportion of pentlandite varying through the rock. There is also fine grained anhedral chalcopyrite in patches, particularly in the vicinity of pits.

Proportions (%): Secondary: Pyrite (55), pentlandite (31), chalcopyrite (9), quartz (4), biotite (<1) chlorite (<1)

SKM

Sample Numbers:	**AMPL**	**:**	**MF39 14.8**
	Sinclair Knight Merz	**:**	**12864**
Rock Name:	**Serpentinised Mafic/Ultramafic Intrusive**		

Petrographic Description

Lithology: In hand specimen, this sample contains a light coloured prismatic mineral with darker interstitial material.

In thin section, there are vague outlines of replaced olivine and plagioclase, but otherwise the rocks original features have been obscured. Determining the original proportion of plagioclase is difficult, but there appears to be more than would be expected in an ultramafic and less than would be expected in a gabbro so a clear identification of the original rock is impossible.

Alteration: The rock is intensely altered. Chlorite with anomalous blue birefringence occurs in sheaves with dusty opaques. Antigorite with its distinctive mesh texture has a brown stain and replaces olivine. The plagioclase has been albitised and flecked with sericite. There are also fine anhedral grains and ribbons of quartz scattered through the rock. In addition to the dusty opaques there are fine grains of opaques in concentrated patches through the rock associated with the quartz.

Proportions (%): Secondary: Chlorite (50), albite (25), antigorite (12), opaques (8), quartz (5), sericite (<1)

SKM

Sample Numbers:	**AMPL**	**:**	**MF39 16.1**
	Sinclair Knight Merz	**:**	**12865**
Rock Name:	**Massive Sulphide**		

Petrographic Description

Lithology: In hand specimen, this sample is dense and has a brassy lustre. Pits are found. The sample has developed a light green efflorescence.

In thin section, the sample is mainly massive sulphide with grains of gangue. There is a complex texture reminiscent of the serpentinised samples in the suite.

Alteration: The gangue consists of quartz as irregular shaped fine grains, some of which are similar to the shape of pits in the sample.

Mineragraphy: The sample consists mainly of massive pyrite that encloses gangue and pits along with fine to medium grained aggregates of fine, anhedral pentlandite. Fine anhedral chalcopyrite occurs within some of the pentlandite aggregates and chalcopyrite also occurs as fine grains in some of the quartz gangue and is patchily intergrown with the pyrite.

Proportions (%): Secondary: Pyrite (61), pentlandite (22), chalcopyrite (12), quartz (5)

Appendix 2

Assays used for the resource estimates

bhid	from m	to m	Ni %	Co ppm	Cu ppm	S ppm	As ppm	Ag ppm	Pt ppb	Pd ppb	Au ppb
MF28	32.80	33.80	0.26	160	1960	7550	-25				
MF28	33.80	34.80	0.60	220	5050	20500	-25				
MF28	34.80	35.80	0.56	200	4830	21000	-25				
MF28	35.80	36.80	0.18	140	1150	6010	-25				
MF28	36.80	37.80	0.05	90	270	1660	-25				
MF28	37.80	38.80	0.04	84	190	2520	-25				
MF28	38.80	39.60	0.04	74	145	1440	-25				
MF29	20.60	21.60	0.11	105	715	2350	-50	-1	16.1	19.2	12
MF29	21.60	22.60	0.32	145	2230	6900	-50	-1	44.6	61.6	14
MF29	22.60	24.10	0.06	87	145	800	-50	-1	3	3	10
MF29	24.10	24.50	0.11	95	530	1450	-50	-1	17.6	23.5	24
MF29	24.50	25.30	0.65	195	5720	17800	-50	2	141	199	113
MF29	25.30	25.60	5.85	1670	91500	257000	135	20	1255	1791	695
MF29	25.60	26.25	0.54	180	4490	16600	-50	1	132	155	59
MF29	26.25	26.90	0.08	89	690	2000	-50	-1	11.6	14.8	13
MF30	43.15	43.55	0.34	140	3020	7900	-50				
MF30	43.55	45.10	0.16	96	1140	4400	-50				
MF31	26.40	27.40	0.30	145	3350	10300	-50				
MF31	27.40	28.40	0.43	150	4040	18900	-50				
MF31	28.40	29.30	0.32	135	2840	12100	-50				
MF32	36.80	37.80	0.14	94	1790	5400	-50	-5	30.9	42.7	27
MF32	37.80	38.80	0.55	155	6660	19300	-50	-5	148	200	124
MF32	38.80	39.80	0.77	185	13200	24000	-50	-5	304	367	263
MF32	39.80	40.80	0.45	135	6920	10400	-50	-5	108	145	93
MF32	40.80	41.55	0.32	125	6310	8150	-50	-5	593	548	270
MF32	41.55	42.30	9.20	1710	45500	243000	-50	7	904	1550	915
MF34	31.30	32.80	0.65	170	13100	17700	150	10	367	434	375
MF34	32.80	33.80	0.43	125	6490	12300	1240	232	164	178	173
MF34	33.80	34.60	0.71	175	5370	19900	1860	21	110	142	94
MF34	34.60	35.20	3.60	730	30000	129000	4440	83	283	550	237
MF34	35.20	36.60	9.55	1830	39000	300000	1760	34	322	443	245
MF36	24.60	25.60	0.17	110	1850	4700	-50	-5	38	47	32
MF36	25.60	26.60	0.58	150	13900	20000	-50	-5	385	432	513
MF36	26.60	27.60	0.58	145	13400	18600	-50	-5	374	428	451
MF36	27.60	28.60	0.37	140	4710	10000	-50	-5	122	146	135

bhid	from	to	Ni	Co	Cu	S	As	Ag	Pt	Pd	Au
	m	m	%	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb
MF36	28.60	28.80	9.15	1710	10200	285000	-50	-5	626	1001	200
MF37	26.50	27.80	0.82	220	11800	24000	955				
MF38	18.90	19.70	11.50	1760	43500	404000	-50	6	949	3196	1228
MF39	14.00	15.00	0.52	165	10700	16600	1640	43	354	424	370
MF39	15.00	15.80	0.56	170	5040	20500	55	-5	116	162	124
MF39	15.80	16.10	9.75	1450	77500	398000	-50	14	504	372	451
MF39	16.10	16.90	0.57	195	10900	22500	-50	-5	91	125	85
MF40	10.50	11.70	0.11	91	550	2600	-50				
MF40	11.70	12.50	0.17	105	1040	4250	-50				
MF40	12.50	13.50	0.49	165	3620	16300	-50				
MF40	13.50	14.50	0.39	160	2560	11500	-50				
MF40	14.50	16.00	0.43	150	5130	12600	-50				
MF40	16.00	16.50	0.24	320	1960	26000	-50				
MF41	20.00	21.00	0.19	125	800	5300	-50				
MF41	21.00	22.00	0.49	155	4890	12800	-50				
MF41	22.00	23.00	0.97	275	8820	39000	-50				
MF41	23.00	23.70	0.95	285	7840	34500	-50				
MF42	36.60	37.90	0.21	155	1280	5100	-50				
MF42	37.90	38.90	0.88	270	6450	30500	-50				
MF42	38.90	39.90	0.71	290	5800	24500	-50				
MF42	39.90	40.90	0.81	265	5900	30500	-50				
MF42	40.90	41.80	0.79	245	6030	25500	-50				
MF44	26.30	27.30	0.10	120	455	1050	-50				
MF44	27.30	28.30	0.68	225	5360	25500	-50				
MF44	28.30	29.30	0.65	210	5320	22500	-50				
MF44	29.30	31.00	0.80	235	6370	28000	-50				
MF44	31.00	32.00	0.14	115	950	3550	-50				
MF44	32.00	33.00	0.06	89	270	1200	-50				
MF44	33.00	34.30	0.04	91	490	750	-50				
MF45	33.30	34.30	0.13	130	1000	4750	-50				
MF45	34.30	35.30	0.41	160	4290	13300	-50				
MF45	35.30	36.30	0.60	205	4380	21000	-50				
MF45	36.30	37.30	0.17	120	2950	5200	-50				
MF45	37.30	38.80	0.37	140	7380	11400	-50				
MF49	33.30	34.20	0.44	135	7550	13200	375				

bhid	from m	to m	Ni %	Co ppm	Cu ppm	S ppm	As ppm	Ag ppm	Pt ppb	Pd ppb	Au ppb
MF49	34.20	34.80	0.23	110	2340	6010	205				
MF50	10.50	12.00	0.42	185	2360	11600	-50	-5	73	101	42
MF50	12.00	13.80	0.69	305	4950	20000	2800	26	121	169	63
MF50	13.80	14.40	0.59	315	4000	21000	340	-10	106	154	72
MF50	14.40	16.50	0.58	270	6510	16400	-25	-10	162	209	178
MF50	16.50	17.60	0.81	320	4630	31500	28	-10	123	142	151
MF50	17.60	18.60	0.51	140	3920	8580	-25	-10	902	636	662
MF50	18.60	19.10	0.17	215	7320	16100	62	-10	120	115	169
MF52	36.20	37.20	1.17	330	9410	38500	-50				
MF52	37.20	38.20	0.93	275	7820	31500	-50				
MF52	38.20	39.20	0.26	115	5810	9300	-50				
MF52	39.20	40.20	0.06	91	260	1400	-50				
MF52	40.20	40.90	0.13	69	545	750	-50				
MF53	26.50	27.50	0.39	220	6060	11200	875	-10	117	138	102
MF53	27.50	28.80	0.12	60	1600	730	235	-10	56	63	75
MF55	18.40	19.40	0.20	120	1330	3000	-50				
MF55	19.40	20.80	0.86	220	24000	26500	-50				
MF56	8.00	9.00	0.32	205	6380	8000	-50				
MF56	9.00	10.00	0.30	285	6540	7450	-50				
MF56	10.00	11.20	0.42	150	10400	12600	-50				
MF58	36.30	37.60	0.27	124	3730	7400	-50	-5	69	87	58
MF58	37.60	38.20	2.36	420	52800	52700	-50	17	1399	1968	1075
MF58	38.20	39.00	0.83	220	15000	22200	-50	-5	170	203	198
MF58	39.00	39.80	10.50	2023	46000	257000	-50	8	1311	1446	637
MF59	37.10	38.10	0.73	235	5550	23500	-50	-5	106	126	50
MF59	38.10	39.10	1.12	300	8550	43500	95	-5	162	209	82
MF59	39.10	40.10	1.23	250	17400	36000	-50	7	557	661	381
MF59	40.10	41.10	1.23	315	35500	39500	-50	13	1744	970	752
MF59	41.10	42.70	0.35	130	6220	9150	-50	-5	132	161	74
MF59	42.70	43.10	12.40	1760	73500	263000	-50	27	-2	-2	4
MF60	45.00	46.00	0.25	125	1640	4700	-50				
MF60	46.00	47.00	0.97	286	7870	29500	-50				
MF60	47.00	48.00	1.14	290	10300	34500	-50				
MF60	48.00	49.00	0.74	220	6800	22500	-50				
MF60	49.00	50.40	0.08	89	645	1900	-50				

bhid	from m	to m	Ni %	Co ppm	Cu ppm	S ppm	As ppm	Ag ppm	Pt ppb	Pd ppb	Au ppb
MF61	18.60	19.60	0.96	205	13800	30000	265	6	15	16	8
MF61	19.60	20.60	0.83	235	7260	27000	-50	-5	351	445	235
MF61	20.60	21.90	0.93	235	8980	24500	-50	-5	122	161	73
MF61	21.90	22.30	1.37	460	158000	170000	-50	58	282	381	192
MF62	53.40	53.90	0.33	170	2150	8690	185	-10	43	58.6	14
MF62	53.90	55.50	0.75	235	5490	31000	-25	-10	104	137	45
MF63	41.30	42.30	0.49	215	3560	14600	525	-10	77	92	77
MF63	42.30	43.30	0.98	280	7510	34500	720	-10	170	225	152
MF63	43.30	44.30	0.95	280	6810	33500	-25	-10	127	180	195
MF63	44.30	45.40	0.51	165	5230	17000	-25	-10	120	135	120
MF63	45.40	46.40	0.09	98	505	1810	-25	-10	11.4	8	11
MF63	46.40	48.00	0.05	86	230	670	-25	-10	2.2	2.5	5
MF64	8.80	10.60	1.04	305	54000	28500	5530	385	380	727	192
MF64	10.60	11.80	0.64	210	37000	23500	1890	120	340	647	225
MF64	11.80	13.10	1.01	485	37500	56000	145	22	967	1210	977
MF64	13.10	14.10	1.06	300	16500	33000	-25	-10	470	595	430
MF64	14.10	14.70	1.16	350	13300	30500	-25	-10	207	350	130
MF64	14.70	15.50	1.27	345	9420	31000	-25	-10	177	247	140
MF64	15.50	16.10	3.05	970	26000	131000	300	21	447	812	362

Appendix 3

Nickel Reward resource estimate

ALLEGIANCE MINING - MELBA FLATS

TO **Lindsay Newnham**

FROM **Mick McKeown**

DATE **29 February 2004**

SUBJECT **NICKEL REWARD - MINERAL RESOURCE ESTIMATE**

An estimate has been made of the Inferred Mineral Resource at Nickel Reward. The estimate was based on Allegiance Mining's drill holes MF11, MF12, MF13, MF19, MF22, MF23 and MF25. The extent of the resource is shown on a 1:250 scale longitudinal projection, the original of which comes from Newnham (2003). The limits to the resource were taken to be the faults shown on the original longitudinal projection, an upper limit at 2190m RL (10 metres below the surface), and a lower limit at 2110m RL (just below the intersection in MF13).

After study of the drill logs and of sketch cross sections for each hole, it appears that there are four zones in which gabbro dykes can occur. Within each of these zones, gabbro may occur as a single dyke or as a series of anastamosing dykes. Nickel sulphide mineralisation may occur within any of the upper three gabbros and at any position within these gabbros, that is from hangingwall to footwall. The resource which was estimated is based on the mineralisation occurrence in the third gabbro only.

Every hole which passed through the anticipated position of the third gabbro appears to have hit it and also to have intersected nickel sulphide mineralisation at about the same position in the gabbro. These intersections were used in the resource estimate and the intersections as defined in Newnham (2003) were used for the estimate.

A density of 3.5 tonnes per cubic metre was used for the estimate. This seems reasonable given the high nickel grade of several of the intersections.

The estimate was made using a polygonal method on a vertical longitudinal projection. The thickness of each intersection used was adjusted to a horizontal thickness measured perpendicular to the longitudinal projection.

The resource estimate was:

INFERRED MINERAL RESOURCE 30,000 tonnes 3% Ni

The resource was classified as a Mineral Resource because, given the relatively high nickel grade, there would appear to be "reasonable prospects for eventual economic extraction" (JORC Code). No estimate was made of the copper, PGE or gold contents which would further value to the resource.

The classification as an Inferred Mineral Resource accords with the definition:

> "An Inferred Mineral Resource is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity." (JORC Code)

Although intersections in older holes drilled by other operators were not used for the resource estimate, the intersections in older holes support and do not contradict the intersections in the Allegiance holes (refer to the longitudinal projection). Also note that it is possible that MF18 may have stopped short of the third gabbro.

An increase in resource category would require the drilling of a pattern of closely spaced drill holes and this would be economically feasible given the in-ground value of the resource. At the same time, a plan for mining the resource could be developed.

It is recommended that the correlation between intersections be further examined by the use of cross-sections and structure contours; some re-examination of drill core may be necessary first.