



ACN 001 426 946

Relinquishment Report

TASMANIAN BASE METALS

ELS 102/87, 55/89 AND 12/92

*"Queenstown", "Mt Darwin" &
"Queenstown South"*

**Vol 1 of 1
Text and Appendices**

HELD BY: BHP Minerals

MANAGER & OPERATOR: RGC Exploration

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**PROSPECTS: Garfield, West Sedgwick, Beatrice, Moxon Saddle,
Mountain Maid, Penghana, Jukes Pty**

MAP SHEETS: 1:100,000: Franklin, Sophia

GEOGRAPHIC COORDS	Min East: 3750000mE	Max East: 387000mE
	Min North: 5320000mN	Max North: 5368000mN

COMMODITY(s): Cu, Pb, Zn, Au, Ag

KEY WORDS: Cu-Au Mineralization, VMS Mineralisation, Western Tasmania

Distribution:

- o **RGC Exploration Information Centre Reference:**
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- o **BHP Minerals**

SUMMARY

Exploration Licences 102/87 Queenstown, 55/89 Mt Darwin and 12/92 South Queenstown cover a 30km N-S trending exposure of Cambrian Mt Read Volcanics from Lake Margaret to Slate Spur. E.L.'s 102/87 and 55/89 are held by BHP Minerals Ltd and explored by RGC Exploration under a joint venture agreement entered into on 29th November, 1991. RGC acquired an adjoining area, E.L. 12/92 on 12th October 1992, and this was also included in the joint venture. The present area covered by these licences is 130 sq kms.

This relinquishment report reviews and summarises all exploration in EL 102/87, 55/89 and 12/92.

RGC has explored EL's 102/87, 55/89 and 12/92 for Rosebery-style VMS, Henty-style Au and Prince Lyell style Cu - Au mineralisation. The exploration model which has been applied involves detailed geological mapping in an attempt to identify possible mineralised horizons, potential growth faults and alteration zones. This mapping is supported by multi-element soil and rock geochemistry and high resolution Helimag. Any alteration zones thus identified can be tested by drilling and down-hole geophysics.

The most significant outcome of this work was the discovery of the Garfield Prospect, a Prince Lyell style of disseminated and veinlet Cu-Au mineralisation where 12 diamond drill holes totalling 2.4 kilometres have been drilled. A potential geological resource of ~12Mt @ 0.3% Cu has been defined.

Detailed exploration was also undertaken at West Sedgwick, Beatrice Prospect, Jukes Proprietary, Penghana, Mountain Maid and Moxon Saddle.

Since EL 102/87 will undergo compulsory relinquishment in April 1998 and that the review failed to highlight areas that warrant additional exploration it is recommended that the three EL's be relinquished on 12 October 1997, the renewal date for EL 12/93.

CONTENTS

	Page No
SUMMARY	i
1. INTRODUCTION	1
2. LAND TENURE	1
3. PREVIOUS EXPLORATION	4
3.1 Exploration prior to 1991	4
3.2 Post 1991 exploration	7
4. RESULTS AND DISCUSSION	11
4.1 Garfield and Clark Valley	11
4.2 Penghana	19
4.3 West Sedgwick	19
4.4 Beatrice	19
4.5 Huxley	19
4.6 Jukes Proprietary	20
4.7 Slate Spur	20
4.8 Moxon Saddle	20
5. CONCLUSION	21
6. REFERENCES	22

LIST OF FIGURES

- FIGURE 1** E.L.'s 102/87, 55/89 and 12/92 - Locality Map
- FIGURE 2** Garfield Cu - Au Prospect Location Map
- FIGURE 3** Garfield Cu - Au Prospect Regional Geology
- FIGURE 4** Garfield Prospect Geology and Drill hole Traces

LIST OF TABLES

- TABLE 1** Assay Results for Garfield Drill holes

LIST OF APPENDICES

- APPENDIX 1** Exploration History and Potential of EL's 102/87, 55/89 and 12/92
Queenstown, Mt Darwin and Queenstown South, Tasmania
- By W. Herrmann (1997)

1. INTRODUCTION

Exploration Licences 102/87 - Queenstown and 55/89 Mt Darwin are held by BHP Minerals Ltd. (BHPM) and an adjoining licence, E.L. 12/92 is held by RGC. These licences are explored by RGC Exploration Ltd under the terms and conditions of a joint venture agreement. Approval was granted allowing the joint reporting of the exploration work because the tenements form a single coherent geological block.

The tenements currently occupy a total area of 130 sq kms surrounding Queenstown extending to the north, in part, some 30 kms to Moxon Saddle and to the south some 20 kms to Slate Spur (Figure 1). They cover a significant portion of the Cambrian Mount Read Volcanics. These rocks host a variety of mineral occurrences.

Much of the previous work in this area targeted copper-gold mineralisation of the Mt Lyell style. More recently BHPM covered selected areas with blanket UTEM looking for VMS mineralisation. This was supported by some geological mapping and rock chip/stream sediment geochemistry.

RGC has also explored this area for Rosebery-style VMS mineralisation and Henty-style Au. The exploration approach which has been applied involves detailed geological mapping in an attempt to identify possible mineralised horizons and alteration zones. This mapping is supported by multi-element soil and rock geochemistry. Any alteration zones thus identified can be tested by drilling and down-hole geophysics.

The most significant outcome of this work was the discovery of the Garfield Prospect, a Prince Lyell style of disseminated and veinlet Cu-Au mineralisation.

2. LAND TENURE

E.L. 102/87 - **Queenstown** was granted to BHPM on 22nd April, 1988. The tenement initially covered 95 sq kms in three separate parts (Figure 1)

Part (i)	-	Queenstown of 74 sq kms
Part (ii)	-	Garfield of 19 sq kms
Part (iii)	-	Moxon Saddle of 2 sq kms

Part (i) totally enclosed the Mt Lyell Mine Lease, 30M/80. In 1988 Mining Lease Application areas (MLA's) were cancelled by Mt Lyell increasing the area of Part (i) to 79 sq kms. Again in early 1992 additional MLA's were relinquished further increasing Part (i) to 84 sq kms. This tenement currently covers 105 sq kms and was due for 50% reduction on or before 22nd April, 1993. A meeting with representatives of the Department of Mines Tasmania (DMT) was held on 15th April, 1992 where RGCE expressed its interest in postponing the reduction date by 12 months due to its recent entry into the Agreement with BHPM.

E.L. 55/89 - **Mt Darwin** was granted to BHPM on 5th May, 1990. This tenement covers 78 sq kms and links Parts (i) and (ii) of E.L. 102/87 (Figure 1) resulting in a continuous exposure of Mt Read Volcanics over a strike length of 14 sq kms which is explored as a single coherent block. Because of this BHPM was successful in gaining approval from the DMT to jointly report on exploration activities (15th March, 1991).

E.L. 12/92 - **South Queenstown** was granted to RGC on 12th October 1992. This tenement formed a narrow strip partly enclosing the other E.L.'s. It was divided into 3 parts:

- Part (i) - 49 sq kms on the eastern side of the West Coast Range
- Part (ii) - 15 sq kms over Mt Sorell and Mt Strahan
- Part (iii) - 2 sq kms south of Lake Margaret.

A significant portion of E.L.'s 102/87 and 55/89 was within the South-West Conservation Area (SWCA) and considered to be environmentally sensitive. Despite the revocation of Conservation Area status in areas north of Macquarie Harbour exploration activities in the Garfield / Clark Valley are still subject to approval from the Mineral Exploration Working Group.

Following the partial relinquishment in 1994 the total area covered by the three E.L.'s was reduced to 130 sq kms (Halley, 1994a). This is made up of:

- E.L. 102/87
 - Part (i) Queenstown - 56 sq kms
 - Part (ii) Garfield - 18 sq kms
 - Part (iii) Moxon Saddle - 2 sq kms
- E.L. 55/89
 - Part (i) Mt Darwin - 28 sq kms
- E.L. 12/92
 - Part (i) West Coast Range - 16 sq kms
 - Part (ii) Mount Sorell - 8 sq kms
 - Part (iii) Lake Margaret - 2 sq kms

EL 102/87 is due for compulsory relinquishment on 22 April 1998.

Following a detailed review of all the exploration within EL's 102/87, 55/89 and 12/92 during 1997, RGC Exploration considers that there is minimal exploration potential within this group of EL's. Consequently, it is recommended that EL's 102/87, 55/89 and 12/92 should be relinquished on 12 October 1997 (the renewal date for EL 12/92).

3. PREVIOUS EXPLORATION

3.1 Exploration prior to 1991

The following summary of exploration completed with EL's 102/87, 55/89 and 12/92 is taken directly from Halley (1992). A more comprehensive review of the exploration by BHP is given in Cameron and Read (1991).

1972 - 1978	EL 41/71	Mt Lyell Mining and Railway Company Limited
1972 (Sheppard, 1972)		
<u>West Sedgwick</u>		
Access:-		Gridding commenced
Geology:-		Mapping
Geophysics:-		Limited vertical field magnetics
Geochemistry:-		Limited soil
1974 (Sheppard, 1974)		
<u>West Sedgwick</u>		
Access:-		Gridding extended
Geology:-		Detailed mapping
Geophysics:-		Gradient array IP (Scintrex) - 4 major anomalies, total field magnetics
Geochemistry:-		Limited rock chip over Margaret Tram, massive pyrite
1975 (Sheppard, 1975)		
<u>West Sedgwick</u>		
Access:-		Gridding extended
Geology:-		Detailed mapping
Geophysics:-		Gradient array IP, proton magnetics (Scintrex) - 22 anomalies
Geochemistry:-		Detailed soil, limited stream sediment and rock
1976 (Brophy and Stevens-Hoare, 1976)		
<u>West Sedgwick</u>		
Geochemistry:-		Soil (grid extensions)
1977 (Meares, 1977)		
<u>West Sedgwick</u>		
Access:-		Gridding extended
Geophysics:-		Gradient array IP, pole-dipole IP (Scintrex) - 2 major anomalies
Geochemistry:-		detailed soil
Drilling:-		WS1 commenced
1978 (Meares, 1978)		
<u>West Sedgwick</u>		
Drilling:-		WS1 (92m) abandoned WS2 (224m) - only minor pyrite

WS3 (260m) - pyritic black shale, unmineralised

1978 EL 21/76 Mt Lyell Mining and Railway Company Limited

1978 (Hutton, 1978)

Snake Spur - Currie

Access:-

Geology:-

Geochemistry:-

Helipads and tracks cut, helicopter supported
Reconnaissance mapping, sampling Snake Spur
Costean, petrography
Limited stream sediments, rock chip Snake Spur
costean - 8m @ 0.96% Cu

Garfield - Flanningans

Access:-

Geology:-

Geochemistry:-

Helipads and track cut, helicopter supported
Reconnaissance mapping, petrography
Limited stream sediment and rock chip

Clark Valley

Access:-

Geology:-

Geophysics:-

Geochemistry:-

Track cutting, gridding
Mapping, petrography
Gradient array IP, proton magnetics (Scintrex)
- four major anomalies
Detailed soil, rock chip

1979 - 1987 EL 9/66 Goldfields Exploration Pty Ltd

1979 (Reid et al., 1979)

Clark Valley

Access:-

Geophysics:-

Geochemistry:-

Upgrade road, in-fill and extended gridding,
Helicopter support
Gradient array IP, proton magnetics (Scintrex) - total
six main anomalies
Detailed soil, limited rock and stream sediment

1984 (Roberts and Cartwright, 1984)

Snake Spur

Access:-

Geology:-

Geochemistry:-

Helicopter support
Mapping, sampling (Poltock)
Detailed stream sediment, limited rock chip
- moderate Au anomalies

Garfield - Flannigans

Access:-

Geology:-

Geochemistry:-

Helicopter support
Mapping, sampling (Poltock)
Detailed stream sediment, limited rock chip
- moderate Au anomalies

1985 (FitzGerald and Pease, 1985)

West Sedgwick

Geology:-

Geochemistry:-

Limited mapping, sampling (Poltock)
Detailed stream sediment - minor Au anomalies,
Restricted rock chip

Snake Spur

Access:-	Gridding, helicopter support
Geology:-	Detailed mapping
Geophysics:-	UTEM survey (Lamontagne) - no significant anomalies
Geochemistry:-	Stream sediment survey extended - confirm Au anomalies, detailed bedrock (Wacker) sampling - minor Au anomalies max 0.42 g/t Au

Garfield - Flanningans

Access:-	Limited gridding, helicopter support
Geology:-	Additional mapping, sampling (Poltock)
Geochemistry:-	Detailed stream sediment, rock chip - two main Au anomalies, bedrock (Wacker) sampling - Au anomalies, max 0.46 g/t Au

1986 (FitzGerald and Cartwright, 1986)

West Sedgwick

Access:-	Re-establish grid (Comstock), new lines (West Queen), Helicopter support
Geology:-	Limited mapping (Komyshan)
Geophysics:-	Limited Sirotem, Zig Zag Hill (Solo) - weak anomaly
Geochemistry:-	Reconnaissance bedrock (Wacker) West Queen - no anomalies, limited rock chip

Snake Spur

Access:-	Gridding extended, helicopter support
Geology:-	Detailed mapping (Poltock), petrography SS1, 2A
Geophysics:-	Down-hole Sirotem SS1, 2A (Solo) - no anomalies
Geochemistry:-	Detailed bedrock (Wacker) - no major anomalies, max 0.26 g/t Au
Drilling:-	SS1 (152m) - no significant assays SS2/2A (207m) no significant assays, spurious Au values

Flannigans

Access:-	Gridding extended, helicopter support
Geology:-	Detailed mapping, sampling (Poltock)
Geochemistry:-	Detailed bedrock (Wacker) - no major anomalies, Limited rock sampling - max 0.26 g/t Au in Owen Conglomerate

1987 (FitzGerald, 1987)

West Sedgwick

Access:-	Cut helipad, helicopter support
Drilling:-	WS4 (230m) - Sedgwick Fault, no significant assays.

1989 - 1992

EL 102/87 and EL 55/89

BHP Minerals Ltd

1989 (Wilde and Kerr, 1989)

West Sedgwick

	Access:-	Gridding (107 line Km)
	Geophysics:-	UTEM survey (Lamontagne) - no significant anomalies
1990	(Kerr, 1990)	
	<u>West Sedgwick</u>	
	Geophysics:-	Reinterpretation of UTEM survey
1990	(Wilde and Kerr. 1990)	
	<u>Garfield</u>	
	Access:-	Gridding (70 line Km)
1991	(Cameron and Read, 1991)	
	<u>Garfield</u>	
	Access:-	gridding extended into Clark Valley
	Geology:-	1:5000 scale mapping
	Geophysics:-	UTEM survey, Lamontagne (185 line Km) - Currie anomaly
		Followed up by detailed UTEM survey
	Geochemistry:-	164 rock chip samples - low base metals
1991	(Cameron, 1991 in Halley, 1992)	
	<u>Garfield</u>	
	Geophysics:-	DHEM of TC-01
	Geochemistry:-	12 half core samples - low base metals
	Drilling:-	TC-01, (148m) tested Thomas Conductor

3.2 Post 1991 exploration

Since 1991 the exploration within EL's 102/87, 55/89 and 12/92 has been conducted by RGC Exploration Pty Ltd under a joint venture arrangement with BHP. The exploration conducted by RGC is summarised below:-

1991 -1992	(Halley, 1992)	
	<u>Garfield</u>	
	Access:-	Gridding extended into Clark Valley Old helipads recut, 4 new helipads cut 1:15000 Aerial photography and photogrammetry
	Geology:-	1:5000 scale mapping of creeks and grids
	Geophysics:-	Abandoned Ground Magnetic survey at Garfield and Clark Valley
	Geochemistry:-	261 rock chip samples - low base metals 1416 soil samples collected
	<u>West Sedgwick</u>	
	Geology:-	1:5000 Grid mapping
	Geochemistry:-	193 rock chips collected 216 soil samples collected
1992 - 93	(Halley, 1993)	
	<u>Garfield</u>	

	Geology:-	1:5000 scale mapping of creeks and grids
	Geochemistry:-	261 rock chips and 1461 assayed by AAS, XRF and NAA
	<u>West Sedgwick</u>	
	Geology:-	1:1000 mapping at Agglomerate Hill
	Drilling:-	1:5000 geological compilation WS005 and WS007
1993 - 94	(Halley, 1994a)	
	<u>Regional</u>	
	General:-	EL's 102/87, 55/89 and 12/92 under went 50% partial relinquishment.
1993 - 94	(Halley, 1994b)	
	<u>Garfield</u>	
	Access:-	Infill grid lines cut at Garfield Prospect Garfield Camp established Drill pad established for GAR001
	Geology:-	1:1000 scale mapping at Garfield Prospect
	Geochemistry:-	Follow-up soils collected over Garfield Prospect 105 split core samples from GAR001 assayed
	Geophysics:-	IP and ground magnetic survey at Garfield DHEM of GAR001 by Outer Rim
	Drilling:-	GAR001 (105 m @ 0.38% Cu)
	<u>Penghana</u>	
	Access:-	Old West Sedgwick grid re-established infill lines cut
1994 - 95	(Halley et al, 1995)	
	<u>Garfield</u>	
	Access:-	Four new drill pads constructed
	Geology:-	1:2500 scale mapping around Garfield Prospect
	Geochemistry:-	Infill soil samples at Garfield Prospect Assay of split core
	Drilling:-	Holes GAR002, 003, 004, 005 and 006 drilled
	<u>Penghana</u>	
	Geology:-	1:1000 scale mapping
	Geophysics:-	Ground magnetic survey
	Geochemistry:-	217 soil samples collected
	<u>West Sedgwick</u>	
	Geochemistry:-	38 split core samples assayed
	Drilling:-	WS008 drilled
	<u>Moxon Saddle</u>	
	Geology:-	Review of previous exploration 1:2500 mapping
	Geochemistry:-	Limited soil sampling over IP anomaly HFZ1 re-assayed for Au
	<u>Beatrice</u>	
	Geology:-	Review of previous exploration 1:5000 mapping

	Geochemistry:-	Limited stable isotope analysis
1995 - 96	(Halley et al, 1996)	
	<u>Regional</u>	
	Geophysics:-	Extensive Helimag survey
	<u>Garfield</u>	
	Access:-	Four new drill pads constructed
	Geology:-	1:2500 scale mapping around Garfield Prospect
	Geophysics:-	DHEM surveys of GAR004, 005, 006 and 012 Additional IP Survey
	Geochemistry:-	Assay of split core
	Drilling:-	Holes GAR007, 008, 009, 010, 011 and 012 drilled
	<u>Slate Spur</u>	
	Geology:-	Mapping by B Wyman
	Geochemistry:-	Soil sampling
	<u>Mountain Maid</u>	
	Access:-	Grid recut and infill lines cut
	Geology:-	1:1000 mapping
	Geochemistry:-	Rock chip sampling
	Geophysics:-	Gradient array and Dipole-Dipole IP surveys
	<u>Jukes Pty</u>	
	Geology:-	Review of previous exploration
	Geochemistry:-	Rock chips from Jukes Road assayed
	<u>Penghana</u>	
	Access:-	Access track to drill site constructed
	Geophysics:-	DHEM survey of PEN001
	Geochemistry:-	Split core sampling of PEN001
	Drilling:-	Hole PEN001 (272.1m) drilled
1996 - 97	(Joyce et al, 1997)	
	<u>Slate Spur</u>	
	Geochemistry:-	Soil sampling program completed
	<u>Beatrice</u>	
	Geology:-	1:5000 mapping
	Geochemistry:-	Split core sampling of MS6
	Drilling:-	Hole MS6 (288.6 m) drilled
	<u>Moxon Saddle</u>	
	Drilling:-	Hole MX001 commenced
	<u>Garfield</u>	
	Geology:-	Sam Duncan commenced BSc(hons) project at University of Tasmania
1997	(Vicary et al, 1997)	
	<u>Moxon Saddle</u>	
	Geophysics:-	BHP IP survey reprocessed
	Drilling:-	Holes MX001 and 002 drilled to test IP anomaly
	<u>Garfield</u>	
	Geology:-	Sam Duncan continued his BSc(hons) Project.

4. RESULTS AND DISCUSSION

In May 1997, Consultant geologist Wally Herrmann was commissioned by RGC Exploration to thoroughly review all the previous exploration by RGC and BHP within EL's 102/87, 55/89 and 12/92. His report is included as Appendix 4. The following brief summary reviews the past exploration and concentrates on the exploration efforts at the Garfield, Penghana, West Sedgwick, Beatrice, Mountain Maid, Jukes Proprietary, Slate Spur and Moxon Saddle prospects.

4.1 Garfield and Clark Valleys

4.1.1 Introduction

This report is an overview of the Garfield Prospect and details previous work and exploration potential.

4.1.2 Summary of Exploration Potential

Potential remains for significant depth extensions to known mineralisation at the Garfield Prospect particularly beneath drill holes GAR001 & 002 and close to the NE trending fault. There is also potential for discovery of additional zones of Garfield type mineralisation on strike extensions north of the existing Garfield drill holes (based on IP and magnetic data and reported alteration).

Moderate exploration potential exists for VMS deposits at the base of the Tyndall Group, 1.5km north west of Garfield prospect, where sericite-pyrite alteration associated with weak Pb-Zn geochemical anomalies exists in the footwall zone beneath a black shale unit, and TEM coverage is poor.

4.1.3 Tenure and Access

The Garfield Prospect is located at AMG co-ordinates 5324500mN 380000mE approximately 15km SE of Queenstown in western Tasmania. (Figure 2). The prospect is located within exploration licence EL 102/87.

Access into the area is either via a 3hr 10km walk on foot tracks (tracks are marked on Figure 3) or alternative via a 10-15 minute helicopter ride from the airport in Queenstown.

4.1.4 Geology

The Garfield prospect occurs in an andesite unit within the Yolande River sequence (Figure 3). It is a hornblende-phyric andesite texturally and compositionally similar to the Crown Hill and Anthony Road andesites. The andesite is conformable with the stratigraphy and may be either a lava or a sill. Its sharp contacts with the enclosing rocks would favour an intrusive origin. The southern end of the andesite is offset to the west by a SW-NE trending fault.

The andesite sits within a package of rhyolitic volcanics. The rhyolites are all pervasively sericitised and strongly foliated, making it difficult to recognise the volcanic facies. It appears to be a lava dominated sequence. The most abundant rock type contains about 10% quartz phenocrysts up to 4mm uniformly distributed through a fine grained sericitic groundmass. In places, it contains irregular domains of stronger sericitic alteration that give the rock a vague clastic appearance. The uniform fine grained groundmass and the phenocryst distribution suggests that this is a lava. The apparent clastic texture is probably a result of heterogeneous alteration of an autobreccia or hyaloclastite. However, there are parts of the rhyolite sequence that are clearly volcanic sandstones, grading into siltstones.

In the sequence above the andesite there is a massive lava with sparse feldspar phenocrysts. Chemically and texturally it is similar to the CVC. It is intruded by a number of andesite dykes that are quite distinct from the main andesite unit. They are characterised by a high content of feldspar and chloritised ferro-magnesium mineral phenocrysts. The top of the Yolande River Sequence is dominated by volcanoclastics rather than coherent facies, with mappable sandstone-siltstone units, crystal rich volcanoclastics, and both intrusive and extrusive quartz-feldspar-biotite phyric rhyolites. The contact between the YRS and the Tyndall Group locally appears to be conformable.

4.1.5 Mineralisation

The mineralisation at Garfield is largely confined to the main andesite unit. The style of mineralisation is very similar to Prince Lyell, occurring as a stockwork of fine pyrite-chalcopyrite-calcite veins along with disseminated pyrite and chalcopyrite. Copper values to 3% have been encountered in core however Cu values usually range from 0.1% - 1%. Pb and Zn values are typically low. Pervasive chlorite-sericite alteration is associated with the mineralisation. Chlorite is generally dominant over sericite in the best mineralised zones. Parts of the mineralisation are associated with an earlier magnetite-apatite event (eg., in GAR001). Most of the magnetite-apatite occurs in veins or as an alteration around fractures, but some is also disseminated. The magnetite is commonly partly retrogressed to hematite. The mineralised zone is cut by late veins of calcite and purple fluorite. Disseminated sulphides do not extend more than 20 or 30m into the rhyolites enclosing the andesite.

The mineralisation becomes more significant with depth. The levels of copper recorded in the drill holes (to 0.89% Cu) is significantly higher than values obtained in soils (typically 300ppm Cu) sampled at surface above the hole. This may be due to leaching of copper in the weathering profile or it may represent a primary copper distribution, analogous to Western Tharsis, where ore grade copper was not intersected until 300m below surface.

4.1.6 Genesis

The genesis of the Garfield Prospect is summarised below from Halley 1995 (see Halley, Vicary, Corlett and Wyman, 1996).

The mineralisation at the Garfield Prospect is spatially related to an andesite sill complex which is petrologically and geochemically similar to andesites on the Mount

Lyell field. Comparison of isotopic, mineralogical and geochemical characteristics of Cu-Au occurrences in the southern MRV show that Prince Lyell and Garfield are virtually identical, but they are quite distinct from the Cu-Au occurrences that are spatially related to the Darwin Granite. Furthermore, Nd and Sr isotope analyses from hydrothermal apatites at Garfield demonstrate a direct genetic link between the Suite 2 andesites (Crawford et al., 1992) and Prince Lyell-type mineralisation. This association provides a simple recognition of potential Prince Lyell-type targets; magnetic anomalies spatially associated with Suite 2 andesites. However, Garfield and Prince Lyell are the only deposits of this type that contain magnetite, the other ore bodies on the Mount Lyell field being non-magnetic.

The Garfield mineralisation is interpreted to have been deposited sub-seafloor in a submarine environment. If it was possible to recognise the original seafloor position at the time the Cu-Au mineralisation was forming, it would be a prime VMS target horizon. Although Prince Lyell - Garfield style mineralisation may involve a component of magmatic hydrothermal fluid, they are still seawater-dominated hydrothermal systems that were presumably depositing exhalative mineralisation where the fluids discharged onto the seafloor.

4.1.7 Work Completed

The following is a summary of the work completed at the Garfield Prospect. A more detailed summary is included as Appendix 4.

1993-1994: Soil sampling with a maximum value of 0.48% Cu and 0.12 ppm Au.
1:1000 scale mapping.
Drilling of GAR001 to 388m.
Ground magnetics survey
IP survey.
Downhole EM in GAR001. (Halley, 1994b)

1994-1995: Drilling of GAR002, GAR003, GAR004, GAR005, GAR006.
Infill soil sampling. (Halley, 1995)

1995-1996: Drilling of GAR007, GAR008, GAR009, GAR010, GAR011 and GAR012.
Four holes (GAR004, GAR005, GAR006 and GAR012) tested with
Downhole EM.
Further IP survey. (Halley et al, 1996)

4.1.8 Drilling

A total of twelve drill holes for 2784m have been completed. 5 shallow holes to 45m and 7 deeper holes between 235 and 482 metres have been completed. Drill hole locations are shown in Figure 4.

Hole depths and assay results are tabulated in Table 1.

Downhole EM has been completed on drill holes GAR001-006 and GAR012. No off hole conductors were recognised.

Table 1: Assay Results for Garfield Drill holes:

Hole #	Depth	Assay interval	Assay Result
GAR001	388m	175-280m	105m @ 0.38% Cu 26m @ 0.11 ppm Au
GAR002	334.5m	154-264m	110m @ 0.25% Cu
GAR003	250.3m	77-184m 142-163m	107m @ 0.24 % Cu 21m @ 0.89% Cu, 0.29% Au.
GAR004	264.9m	157-165m 173-183m 207-214m	NSM NSM NSM
GAR005	235.2m	180-200m	NSM
GAR006	259.2m	44-50m 176-193m	NSM NSM
GAR007	40.15m	1-40.15m	39.2m @ 337ppm Cu
GAR008	39.8m	1-39.8m	39.8m @ 2030 ppm Cu
GAR009	40.9m	3-40.9m	38.9m @ 667 ppm Cu
GAR010	41.0m	1-41.0m	40m @ 1683 ppm Cu
GAR011	40.0m	0-40.0m	39m @ 1458ppm Cu
GAR012	482.0m	410-455m	45m @ 730 ppm Cu

NSM: No significant mineralisation.

4.1.9 Exploration Potential

The Garfield Prospect appears to have been adequately drilled to ~200m below surface and the rough indications are that grades ~0.2 to 0.4% Cu exist over widths of ~70-100m for ~250m strike length (ie: a geological resource of ~12Mt @ 0.3% Cu). Drill hole GAR012 supports the notion that mineralisation locally decreases to the north. This hole is some 200m north of the best intercepts in GAR001 & 002 which are closest to the NE trending fault. The zonation of mineralisation and alteration in existing holes is unknown.

If the fault was an important control and grade increases with depth then GAR012 was not well placed to test the proximal depth extent and grade. Another deep drill hole ~150m south of GAR012 and ~200m below the intercepts in GAR001 & 002 would better test this zone.

Mapping has recognised alteration in several small areas around andesites (subsequently explored at Garfield) and also near Flannigan's Flat. The soil geochemical response there is not impressive however soil results were also low over Garfield. Gradient array IP survey (to ~5325500N) showed a semi continuous chargeable zone trending north from Garfield into this area.

It is thought that the most chargeable zones had been tested at Garfield but, in view of the apparent stratabound nature of mineralisation, its association with andesite which is known to pinch and swell, and the extension of chargeability and alteration to the north, it is possible that there are additional foci of Garfield-Prince Lyell type mineralisation which could warrant testing. Modelling of the aeromagnetic data and further IP surveying to cover the northern area could be used to define drill targets but are limited in that the most magnetic zones are not necessarily those of highest Cu grade and IP may not detect deep mineralisation.

The following exploration programme would further test the Garfield Prospect and surrounds.

1. Extending IP coverage, magnetic interpretation and mapping to the north to identify possible targets associated with observed pyritic alteration which may be connected with the Garfield mineralisation.
2. More detailed examination of zonation of alteration & mineralisation in existing drill core, probably including major element analysis, in an attempt to identify controls on and vectors to high grade mineralisation.
3. Drilling an additional hole of ~500m to test beneath GAR001 & 002.

The other under tested target in this area is the base of the Tyndall group which host basemetal mineralisation at Comstock and gold mineralisation at the Henty Mine. The contact was tested in GAR005 close to a potential syndepositional fault and found to be unfavourable.

4.2 Penghana

A small area of Suite II andesite crops out at Penghana. It has a north - south magnetic anomaly that is coincident with the outcrop of the andesite and was considered to be analogous to the geological setting at the Garfield prospect. Another factor that was considered favourable was proximity of barite veins at Madam Howards Plains.

A brief period of exploration was conducted at Penghana in 1994 - 95 (Halley et al, 1995) and included mapping, soil geochemistry and a ground magnetic survey. Drill hole PEN001 was drilled to test the peak magnetic anomaly associated with weak soil geochemistry. The hole was essentially unmineralised. A subsequent DHEM survey did not detect any off hole conductors.

4.3 West Sedgwick

RGC's exploration at West Sedgwick was aimed at testing the contact between the Agglomerate Hill andesite and the overlying Tyndall Group, the stratigraphic position of the Comstock mineralisation which occurs about 2 kilometres to the south east. A major east - west cross fault offsets the andesite - Tyndall Group contact across the Comstock Valley between West Sedgwick and Comstock and is considered to be a synsedimentary growth fault (Halley, 1992, Halley, 1993 and Halley et al, 1995).

4.4 Beatrice

The Beatrice Prospect occurs on the southern flanks of Mount Sedgwick where a major Pb - Zn anomaly is present in a unit of black siltstone that overlies feldspar phyric lavas and volcanoclastic sediments of the Central Volcanic Sequence. To the west of the siltstone is a thick sequence of rhyolite. This unit is characterised by large quartz phenocrysts and is similar to rhyolite lavas / intrusives that are common within the Tyndall Group. The preferred correlation places the anomalous black siltstone with the Lynchford Member.

Recent exploration by RGC included a review of previous work and mapping. One 288.6 metre drill hole tested the black siltstone horizon 500 metre south of the previous drilling near an east - west cross fault interpreted as a synvolcanic growth fault (Halley et al, 1995 and Joyce et al, 1997).

4.5 Huxley

The Mountain maid prospect is situated on the northern slopes of Mount Huxley. A limited exploration program was conducted there in 1995 - 96 (Halley et al, 1996). The prospect occurs within a 200 by 300 metre zone of silica - pyrophyllite (sericite?) - pyrite alteration within in Central Volcanic Sequence dacite lavas and sediments. Rock chip samples returned assays up to 0.31 g/t Au. An IP survey was performed.

4.6 Jukes Proprietary

A review of the Jukes Proprietary Prospect (Halley et al, 1996) indicated that the centre of the magnetic and IP anomalies related to the mineralisation has not been drilled. However, the adjacent drill holes, adit sampling, road-side sampling and the location of the King River Tunnel constrain the size of the untested target. It was not considered worthwhile proceeding with further drilling at this prospect.

4.7 Slate Spur

A soil sampling was completed at Slate Spur where the target is the possible seafloor position equivalent to the top of the Garfield Cu-system. The survey failed to produce any anomalies worthy of additional follow-up (Halley et al, 1996 and Joyce et al, 1997)

4.8 Moxon Saddle

At Moxon Saddle, two shallow diamond drill holes targeted an IP anomaly within a sequence dominated by Tyndall Group rhyolites. The source of the IP anomaly was confirmed by the intersection of a thin unit of black siltstone and volcanoclastic sediment with visible galena and sphalerite microveins in MX001. It assayed 14.1 metres at 0.26% Pb (Halley et al, 1995 and Vicary et al, 1997).

5. CONCLUSION

Exploration Licences 102/87, 55/89 and 12/92 have been systematically explored by BHPM and RGC Exploration for the last ten years.

This exploration has used four different techniques including:

1. Blanket coverage using EM.
2. Regional mapping and sampling, which led to the discovery of the Garfield Prospect.
3. Testing models.
 - The Henty model was tested at West Sedgwick and the Beatrice Prospects.
 - The Garfield model was tested at Penghana.
4. Testing existing and known mineralisation at the Mountain Maid and Jukes Proprietary Prospects.

It is proposed to relinquish Exploration Licences (EL's 102/87, 55/89 and 12/92) which form the Queenstown EL's. These tenements have been well explored and the potential for discovery of economic mineralisation is low.

A significant amount of exploration has been completed on these tenements by both RGC Exploration and BHP with a total expenditure of about \$4,500,000. Reviews of the exploration work completed and exploration potential, have been completed internally and by an external Mt Read volcanics expert (Wally Herrmann). These reviews failed to highlight areas that warrant additional exploration.

Using our current exploration models the exploration potential is regarded as being low and the tenements should be relinquished.

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