

SUMMARY

This report documents exploration completed on EL 35/2000 Mt Kershaw during the period March 2001 to March 2002.

The exploration has centred on the characterisation of the alteration styles developed in the footwall of the Chester deposit. Drill core logging and chemical analysis has delineated a poorly tested zone of acid sulphate style mineralisation that is defined by the presence of pyrophyllite, kaolinite and paragonite. Potential vectors towards economic mineralisation within this zone are poorly defined and require additional examination.

Existing dipole-dipole IP data from the Chester area has been reprocessed and a series of level plan produced from the inverted IP pseudosections. A series of anomalous zones has been identified and additional ground examination and sampling is warranted.

It is recommended that future exploration in the Chester area should include 1:5000 geological mapping of the entire lease with rock chip sampling over prospective areas. Some previous drill holes in the north of the EL should be relogged.

CONTENTS

SUMMARY		i
1 INTRODUCTION		1
1.1 Location and Access		1
1.2 Topography and Vegetation		1
1.3 Tenure		1
1.4 Aims		1
1.5 Exploration Model		4
2 PREVIOUS EXPLORATION		10
3 WORK COMPLETED		12
4 RESULTS		13
4.1 Drill Core Relogging		13
4.2 Geochemistry		13
4.3 Alteration Study		
4.3.1 PIMA study		13
4.3.2 Whole Rock and NAA geochemistry		15
4.4 Geophysics		
4.4.1 Dipole-dipole Inversion		16
4.4.2 Western Tasmania Regional Minerals Program Data		19
5. DISCUSSION and RECOMMENDATIONS		20
6. REFERENCES		21

Figures

Figure 1	EL 35/2000 – Mt Kershaw Location Map
Figure 2	EL 35/2000 – Mt Kershaw Land Tenure
Figure 3	Henty Model
Figure 4	Mt Kershaw – Burns Peak Regional Geology
Figure 5	Henty Model - Northern MRV
Figure 6	Chester Alteration Study – Colour image of ALOH wavelength
Figure 7	Chester Alteration Study – Colour image of ALOH wavelength and major geological trends
Figure 8	Chester Alteration Study –Ti verses Zr
Figure 9	1999 Mt Kershaw Dipole-dipole IP Chargeability 50m depth slice
Figure 10	1999 Mt Kershaw Dipole-dipole IP Chargeability 100m depth slice
Figure 11	1999 Mt Kershaw Dipole-dipole IP Inverted Resistivity 50m depth slice
Figure 12	1999 Mt Kershaw Dipole-dipole IP Inverted Resistivity 100m depth slice

Plans

Plan 1	Cross section along 5380500mN
Plan 2	Cross section along 5380900mN
Plan 3	Depth Slice of IP Chargeability. 150m RL
Plan 4	Depth Slice of IP Chargeability. 200m RL
Plan 5	Depth Slice of IP Chargeability. 250m RL
Plan 6	Depth Slice of IP Chargeability. 300m RL
Plan 7	Depth Slice of IP Chargeability. 350m RL
Plan 8	Depth Slice of IP Chargeability. 400m RL
Plan 9	Depth Slice of IP Chargeability. 450m RL
Plan 10	Depth Slice of IP Chargeability. 500m RL
Plan 11	Depth Slice of IP Resistivity. 150m RL
Plan 12	Depth Slice of IP Resistivity. 200m RL
Plan 13	Depth Slice of IP Resistivity. 250m RL
Plan 14	Depth Slice of IP Resistivity. 300m RL
Plan 15	Depth Slice of IP Resistivity. 350m RL
Plan 16	Depth Slice of IP Resistivity. 400m RL
Plan 17	Depth Slice of IP Resistivity. 450m RL
Plan 18	Depth Slice of IP Resistivity. 500m RL

Appendices

Appendix 1	Symbols and Codes used in Drill Logs
Appendix 2	Diamond Drill Hole Logs and Summaries
Appendix 3	Regional Data Compilation Images
Appendix 4	Chester Alteration Study Geochemical and PIMA data
Appendix 5	IP inversion pseudosections

1 INTRODUCTION

EL 35/2000 – Mt Kershaw is held and explored by AurionGold Exploration Pty Ltd. It constitutes part of the relinquished area of the former EL 44/1988 and EL 21/1998 previously held by Pasminco Exploration (Figure 1). The EL has an area of 11 square kilometres and was acquired after a successful tender for ETA 523. The EL is highly prospective for Au rich high sulphidation and VHMS style mineralisation.

In late 2001, ArionGold successfully tendered for the adjacent EL 20/2001 – Burn Peak.

1.1 Location and Access

The Mt Kershaw EL is located approximately 6 kilometres north of Rosebery. The nearest town is Tullah approximately 7 kilometres to the east.

The major access to the EL from Tullah is via the Murchison Highway (A10) for 3 kilometres then west via sealed Pieman Road (C249) for about 9 kilometres. The northern end of the EL and the Burns Peak EL can be access from the Boco Road, which intersects the Murchison Highway approximately 10 kilometres north of Tullah. A series of 4 wheel drive tracks can be followed through the Mt Kershaw and Burns Peak ELs to link the Pieman and Boco Roads.

A series of grid lines provide additional feet access by within the tenement.

1.2 Topography and Vegetation

The Mt Kershaw and Burns Peak EL's are situated over a range of low hills to the north of the flooded valley of the Pieman River. Elevation varies from about 200m to 661m above sea level at Burn Peak. The major drainage system, the Marionoak River and Hollway Rivulet, occurs in the west and central parts of the ELs. The vegetation is mixture of myrtle dominated rainforest, eucalypt dominated wet sclerophyll forest and light tea tree scrub

1.3 Tenure

The EL comprises:	State / Multiple Use Forest	Mt Kershaw Forest Reserve
	Burns Peak Forest Reserve	HEC Land
	MDC Informal Reserves	

1.4 Aims

ArionGold's Tasmanian exploration program is targeted at the discovery of a Henty style gold mineralisation and polymetallic gold rich base metal mineral deposit in the Cambrian Mount Read Volcanics. The principal aim of the exploration program is to find additional Au resources to supplement production at the ArionGold owned Henty Mine or to define a resource that could be developed as a stand alone operation.

ArionGold's has been actively exploring the southern Mount Read Volcanics for several years and has developed an integrated exploration model for Henty and Mt Lyell style mineralisation. Such deposits are considered to represent the submarine equivalents to porphyry copper - high sulphidation - epithermal deposits. Henty style deposits form in the highest levels and margins of the system and have the best potential for gold mineralisation. The high sulphidation - porphyry copper deposits general form at a deeper level and although generally base metal rich can still host significant Au resources.

Mt Kershaw is located in the northern Mount Read Volcanics and has been systematically explored in the past for Rosebery style base metal deposits. Recent academic studies has highlighted the Mt Kershaw ETA has having high prospectivity for Mt Lyell style Cu - Au mineralisation, however there has been little systematic Au exploration completed to date.

Figure 1 EL 35/2000 – Mt Kershaw Location Map

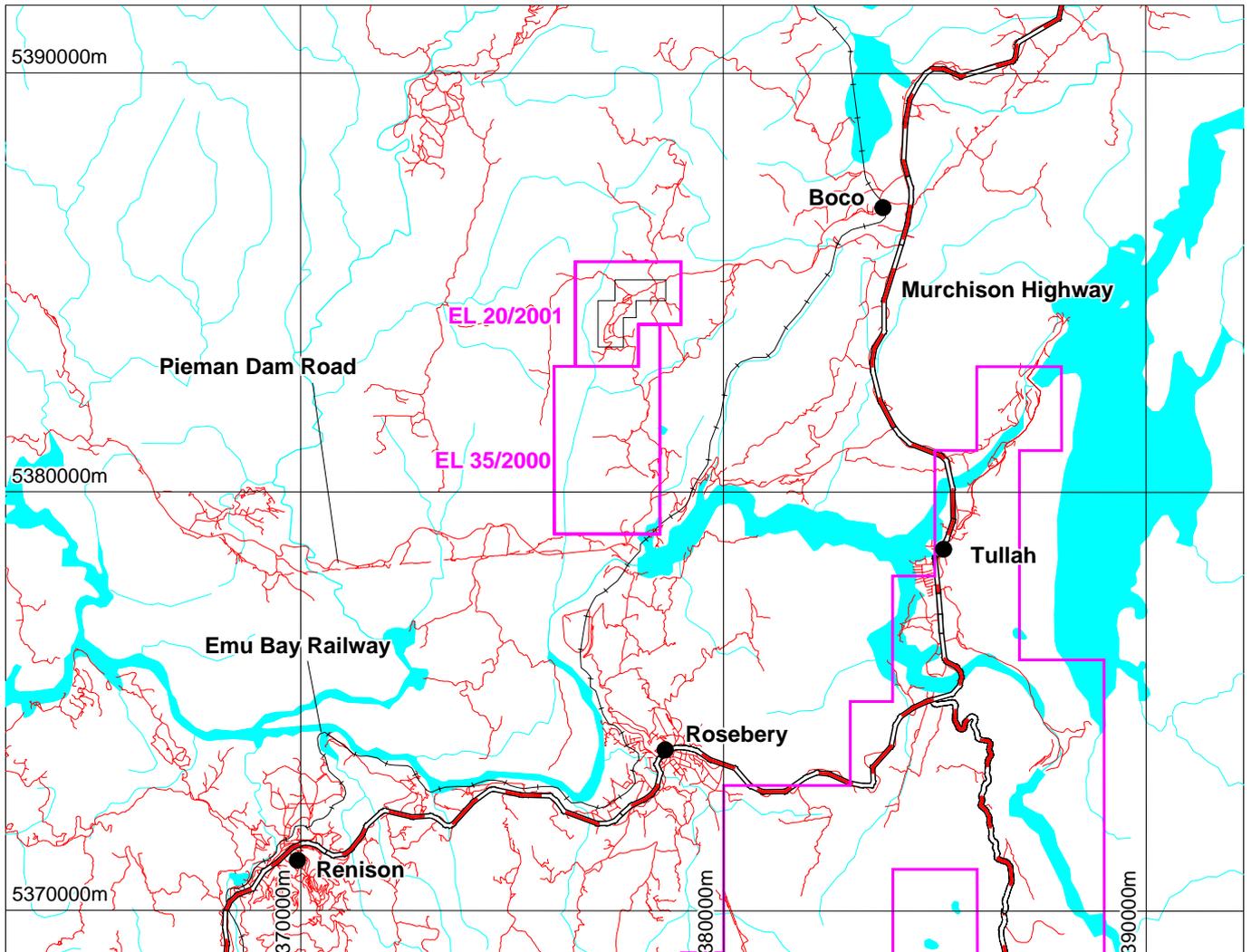
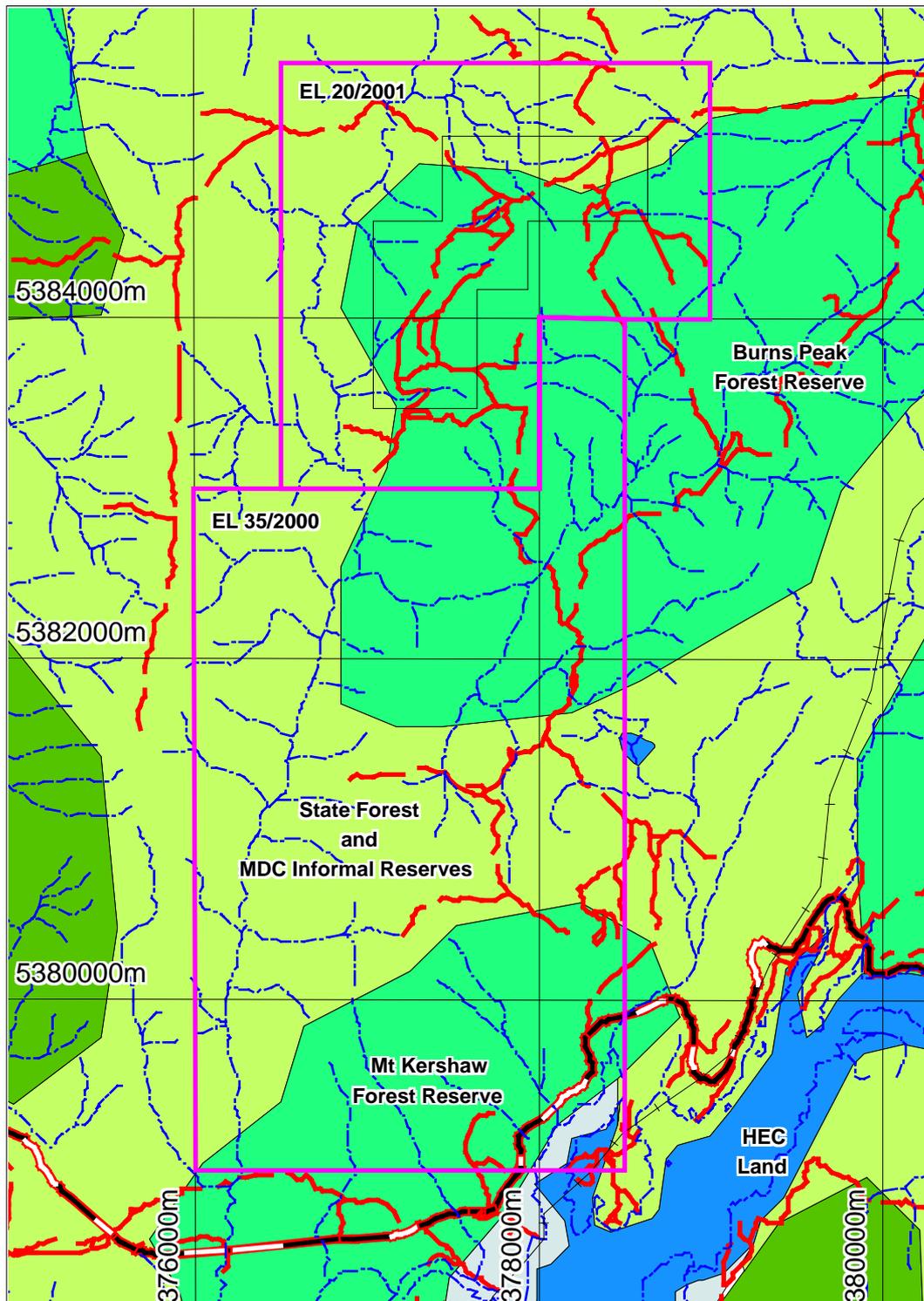


Figure 2 EL 35/2000 – Mt Kershaw Land Tenure (Boundaries Approximate)



1.5 Exploration Model

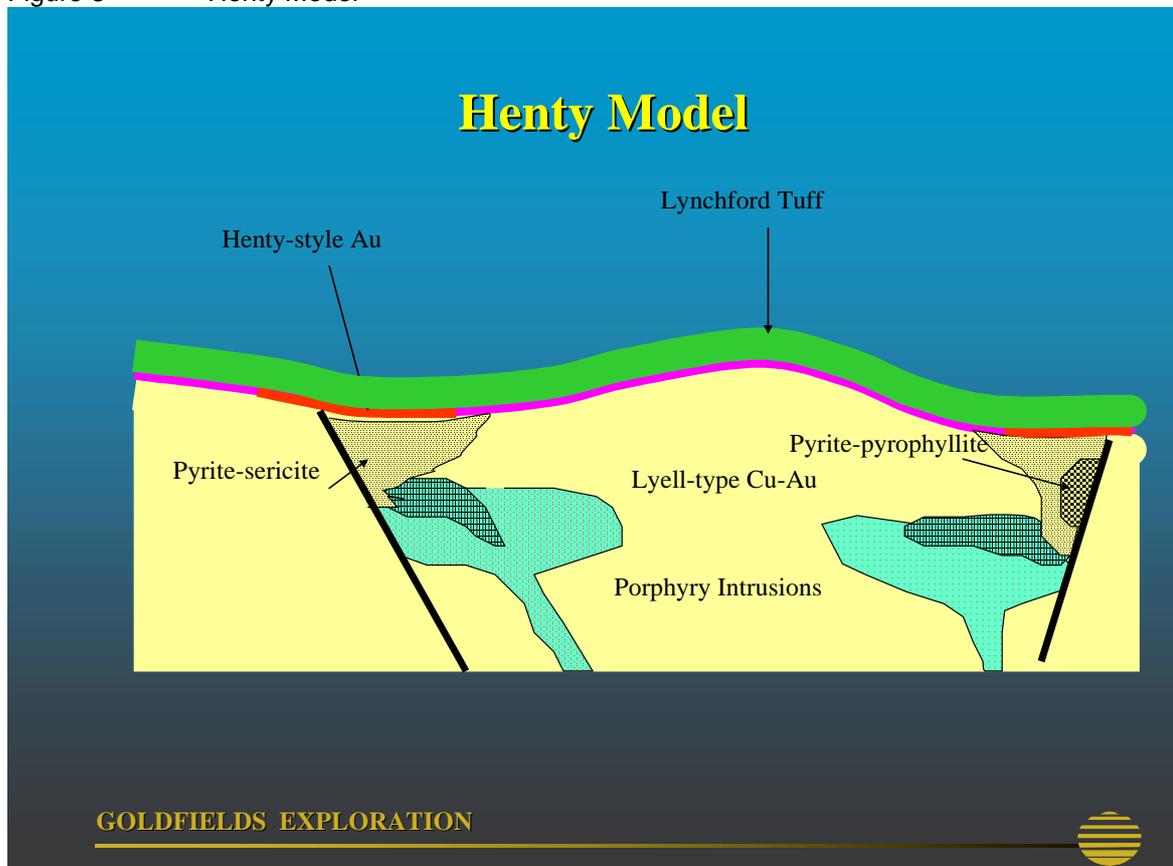
The Mount Read Volcanics are host to several world class gold rich base metal mineral deposits at Rosebery, Hellyer, Que River, Hercules, and Mount Lyell and to gold mineralisation at the Henty Mine. The Henty Mine is the only gold only producer in Western Tasmania, all the other deposits produce gold as a by-product of base metal treatment. In June 2000, the Henty Mine had an inferred Resource of 1,373,000 tonnes @ 10.3 g/t Au (452,900 ounces).

AurionGold Exploration is actively exploring the southern portion of the Mount Read Volcanics in the Henty, South Henty, Basin Lake and Red Hills areas. Exploration to date has focused on systematic drill testing the Henty Horizon, which is defined as a zone of mineralisation, alteration and carbonate developed at the contact between the basal Tyndall Group and the underlying Central Volcanic Sequence. The exploration program has been highly successful and an inferred gold resource of 731000 tonnes @ 7.6 g/t Au at Mount Julia in the south of the Henty Mine Lease has recently been delineated.

An integrated exploration model for Henty and Mt Lyell style mineralisation has been developed. Such deposits are considered to represent the submarine equivalents to porphyry copper - high sulphidation - epithermal deposits. Henty style deposits form in the highest levels and margins of the system and have the best potential for gold mineralisation. The high sulphidation - porphyry copper deposits general form at a deeper level and although generally base metal rich can still host significant Au resources.

An integrated exploration model for the genesis of Henty style Au and Mt Lyell style Cu - Au mineralisation is shown on Figure 3.

Figure 3 Henty Model



The critical components of the model are outlined below:-

A. Position underlying the Lynchford Tuff

The Lynchford Tuff (or Lynchford Formation) is the basal unit of the Tyndall Group. The dominant facies is a feldspar rich volcanoclastic sandstone with subordinate basalt, carbonate horizons and quartz feldspar phyric intrusives / lavas. It overlies and can be interbedded with dacitic pumice breccias and lavas of the Central Volcanic Sequence.

The base of the Lynchford Tuff represents a major exhalite horizon (the Henty Horizon) as indicated by mineralisation at Henty, Comstock, Lynchford, Red Hills, Howards Anomaly and Beatrice.

B. Proximity to major faults

There is a close spatial association between exhalite mineralisation at the Henty Horizons and major faults. The Henty, Howards Anomaly and Comstock deposits are located near the intersection of the Henty Horizon with the regional (N-S) Henty and Great Lyell Faults. The intersection of second order (E-W) faults with the Henty Horizon is a primary control on mineralisation at Lynchford and Comstock.

The regional (N-S) and second order (E-W) faults were active growth structures during Cambrian volcanism and mineralisation and focused the ascent of deep seated hydrothermal fluids to the inferred seafloor position at the Henty Horizon.

C. Proximity to "Suite 2" porphyries and other related rock types.

Exploration at Mt Lyell, Garfield, Basin Lake, Anthony and South Henty has highlighted the close spatial association of "Suite 2" quartz feldspar porphyry intrusives and feldspar hornblende phyric andesites. These subvolcanic intrusives and their eruptive equivalents are considered to be the source of the magmatic dominated fluids which characterise Henty and Mt Lyell type deposits (Halley, 1996, Callaghan, 1998, Street, 1999 and Williams, 2000).

They range in composition from medium to high calc-alkaline to highly evolved shoshonitic and tholeiitic compositions (Crawford, Corbett and Everard, 1992).

There is good field evidence in the Henty - South Henty area that intrusion of the Suite 2 rock types is synchronous with the deposition of the Lynchford Tuff.

D. Associated Footwall Style Alteration.

Sub-seafloor alteration in the Central Volcanic Sequence is wide spread in the southern Mount Read Volcanics and hosts mineralisation at Mt Lyell, Basin Lake, Anthony and South Henty. There are two principal types:- pyrite-sericite and pyrite-pyrophyllite. The latter forming under more acid conditions.

These alteration zones represent the feeder zones to the overlying exhalite mineralisation at the Henty Horizons or seafloor position.

Deposits of this type commonly display features that are typically associated with High Sulphidation porphyry style mineralisation (Low $\delta^{34}\text{S}$ values, pyrophyllite-kaolinite-alunite, enargite-tennantite etc). They are usually Cu rich in contrast to mineralisation forming at the overlying seafloor position, which generally have epithermal characteristics (Au and Ag rich).

The Mt Kershaw EL is located in the northern portion of the Mount Read Volcanics about 7 kilometres north of Rosebery (Figure 4). The principal deposit, Chester is hosted in the Central Volcanic Sequence and was historically mined for the production of sulphur acid. The

apparent low base metal content and light $\delta^{34}\text{S}$ values has lead Chester to be classified as a "Barren Pyritic Deposit" (Collins, 1981, Solomon et al, 1988, Green and Taheri, 1992). They suggest that Chester formed at temperatures ($< 200^\circ\text{C}$) below those required to inorganically reduce seawater sulphate or to transport sufficient basemetals with H_2S to form an ore body. Most of the sulphur in the deposit was derived from the surrounding country rock.

Recent studies (Boda, (1991), Huston and Kamprad, (2000), Williams, (2000) and Herrmann, (2000)) have shown that many of the deposits (Chester, Boco, Basin Lake, Western Tharsis) that are characterised by light $\delta^{34}\text{S}$ values are commonly associated with advanced argillic or acid-sulphate alteration assemblages (pyrophyllite-kaolinite-alunite). These deposits also show many of the characteristics of High Sulphidation deposits.

The Burns Peak EL is located immediately to the north of the Mt Kershaw EL (Figure 4) and surrounds a mine lease at Burns Peak. There are several prospects within the ML including Browns Tunnel (104,000 tonnes @ 1.9% Pb, 6.8% Zn, 0.6% Cu, 45 g/t Ag and 1 g/t Au) and Southern Trenches (10,000 tonnes @ 17.3% Pb, 21.9% Zn, 2.0% Cu, 95 g/t Ag and 11 g/t Au).

The stratigraphic sequence in the Browns Tunnel area is considered to be broadly equivalent to the stratigraphy at the Rosebery Mine. The mineralisation at Burns Peak is hosted in the Browns Tunnel Sequence, a complex sequence of interbedded sediments, volcanoclastics and dacitic to andesitic lava / Intrusives that are correlated with the upper part of the Central Volcanics Sequence. The Pinnacles Rhyolite and the White Spur Formation overlie the Browns Tunnel Sequence. Feldspar phyric dacitic pumice breccia and dacitic lava of the Central Volcanic Sequence is interbedded with and underlies the Browns Tunnel Sequence (Kirsner, Lorrigan and Rae, 1991 and Woolford, 2000).

The mineralisation developed in a sub-seafloor submarine environment and consists of small pods of massive sulphide, sulphide breccia, stringer veins, and disseminations developed within a highly silicified alteration zone. The sulphides have $\delta^{34}\text{S}$ values ranging from 9.6 to 12.8 per mil reflecting a high input of Cambrian seawater sulphur.

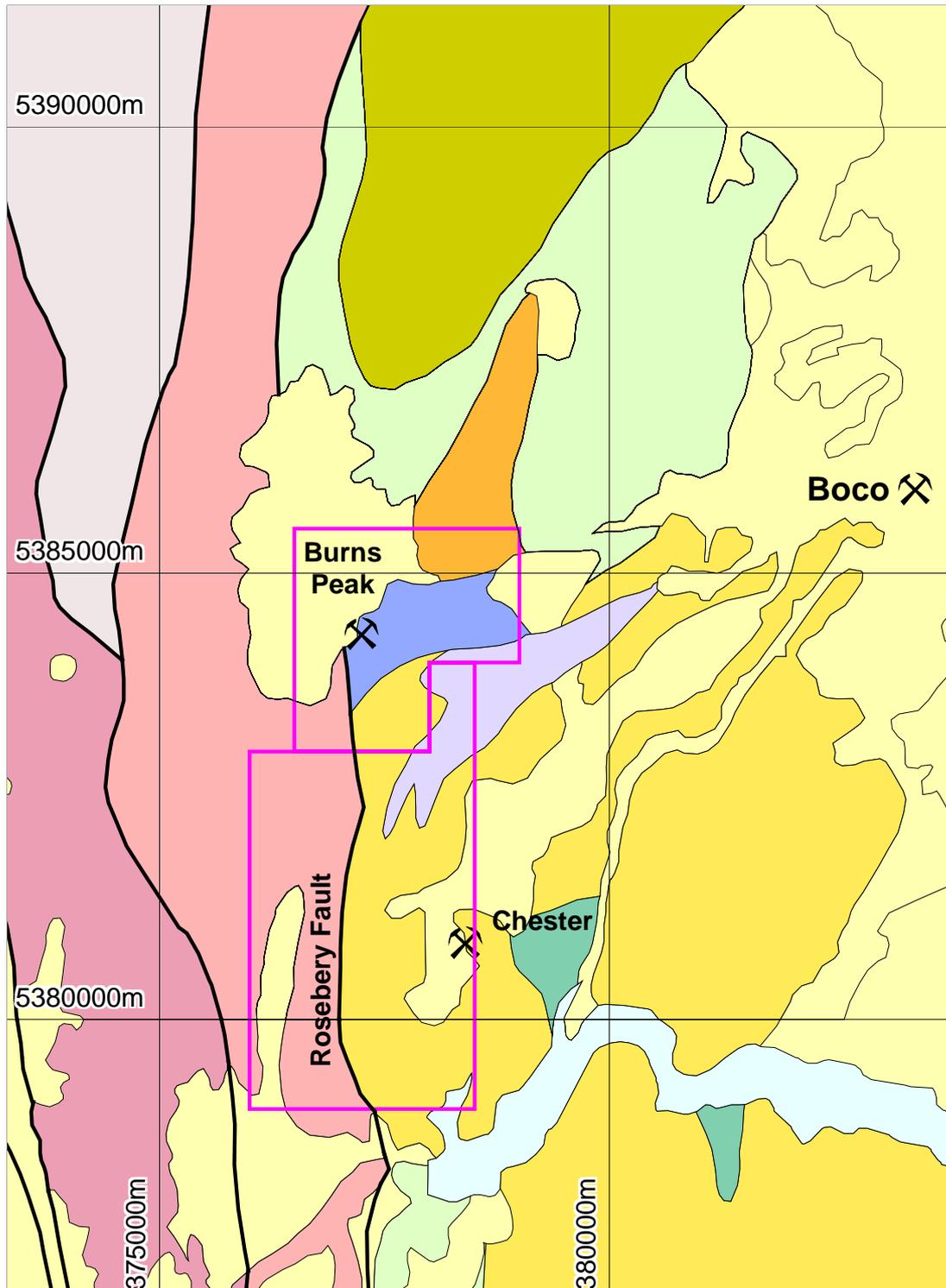
The close proximity of Chester to base metal mineralisation at Rosebery and Brown's Tunnel / Pinnacles has meant that exploration completed to date has been strongly influenced by Rosebery style models. In light of the recent High Sulphidation classification for Chester, AurionGold's exploration will be strongly influenced by the Henty model outlined above.

The Henty Model outlined above can be loosely applied to the Burns Peak - Chester area (Figure 5). The salient features which highlight the prospectively of the Burns Peak - Chester area based on the Henty Model are described below:-

1. The Au and basemetal rich VHMS mineralisation at Browns Tunnel and Southern Trenches developed close to sea floor position and is analogous to mineralisation developed at Comstock, Howards Anomaly and Henty. The timing of this mineralisation is uncertain however alteration in the overlying Pinnacle Rhyolite suggests that the alteration was syn to post deposition of the Browns Tunnel Sequence.
2. The overlying White Spur Formation contains a distinctive magnetic feldspar-pyroxene phyric volcanoclastic sandstone unit that can be directly correlated with the Lynchford Tuff from the Henty area. The White Spur Formation contains clasts of massive sulphide, which indicates erosion of the Central Volcanic Sequence during White Spur Formation deposition.
3. The Chester and Boco deposits developed in the subseafloor environment and possibly represent "Porphyry style" feeder systems to overlying VHMS mineralisation in the Burns Peak area. They have many similarities to several high sulphidation deposits (Western Tharsis, Basin Lake, Langdon) in the Henty area.

4. The Hollway Andesite has a Suite II to Suite III composition (Crawford in Kirsner, 1992) and may represent the high level equivalents of deep seated porphyry style intrusions that provide the mineralising hydrothermal fluids.
5. There is a strong structural control on both the mineralisation at Burns Peak and Chester with alteration coincident with zones of intense shearing that parallel the Rosebery Fault. Rapid changes in volcanic facies and thickness within the Browns Tunnel Sequence are highly indicative of syn-volcanic growth faulting.

Figure 4. Mt Kershaw – Burns Peak Regional Geology



Legend for Figure 4

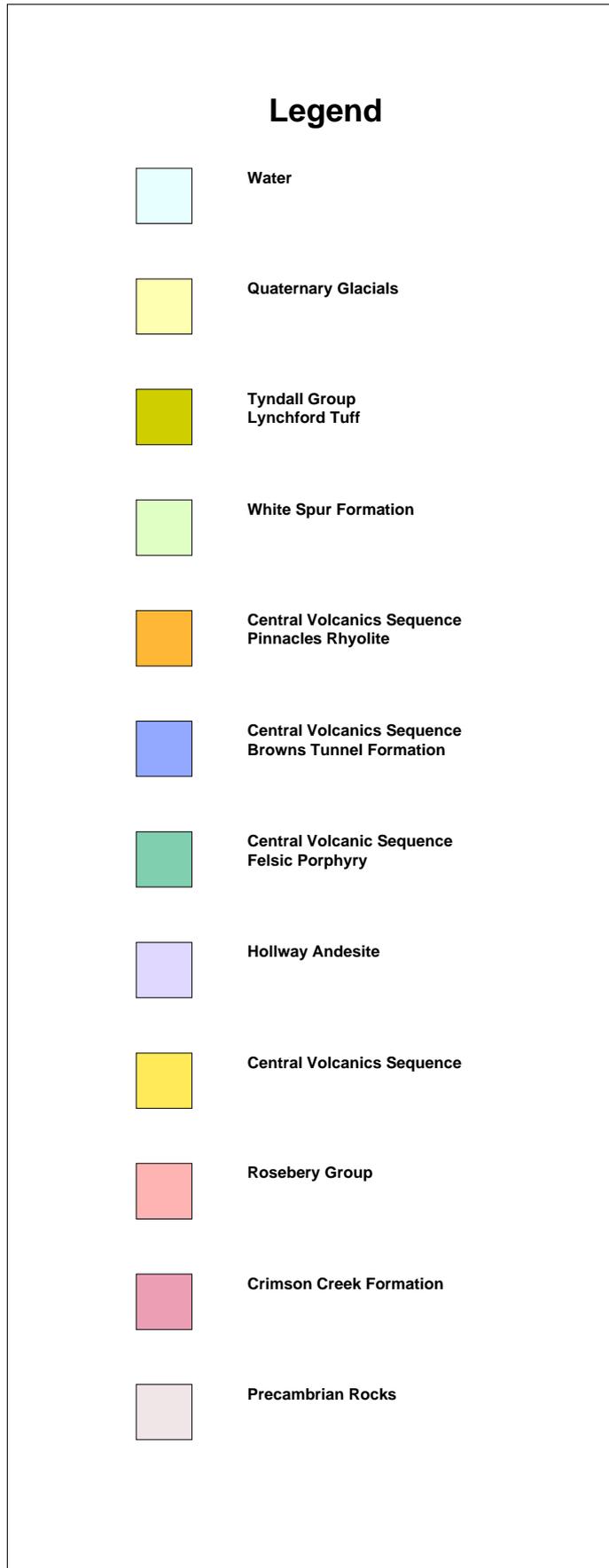
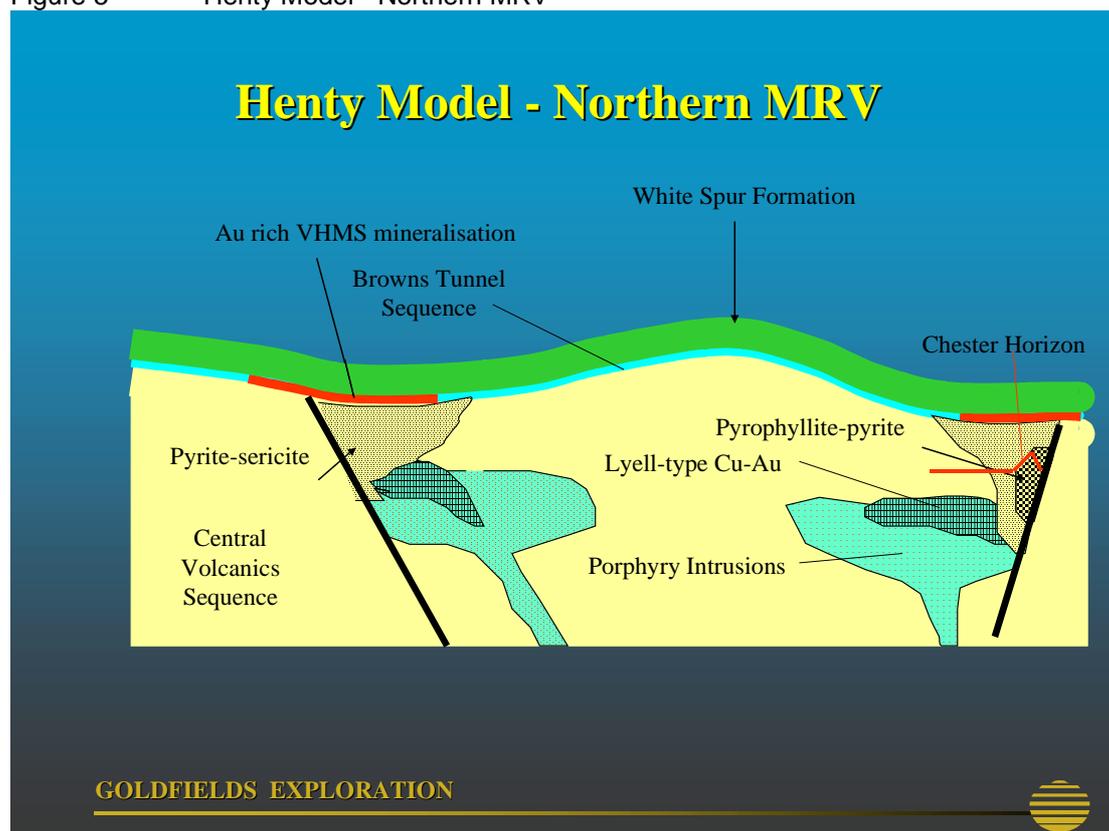


Figure 5 Henty Model - Northern MRV



2 PREVIOUS EXPLORATION

Exploration prior to June 2001 is discussed in detail in Murphy and Denver 1998, Parfrey and Simpson, 1999 and McNeill 2001. The following summary is taken directly from McNeill, 2001.

Table 1 Summary of Exploration completed on EL44/88

Year	Work Completed
1899	Discovery of alluvial gold in Marionoak River by Tom Strong. (Strong's Alluvial Workings)
1896	Discovery of Pinnacles Lodes by McGuiness Bros.
1899	Discovery of Chester by F Kershaw and H Sanderson (Kershaw's Iron Blow)
1899	Brown's Tunnel driven (Brown's Tunnel) est. production 300t @ 2%Zn, 2g/t Au, 44g/tAg.
1899	Southern Trenches est. Production 55t @ +10%Zn, +8%Pb, 8g/t Au, 38g/t Ag.
1899	Thomas' Tunnel driven (Thomas' workings) est. production 50t @ 4%Zn, 7%Pb, 1g/t, Au, 240g/t Ag.
1908	Mt Lyell Mining and Railway Co Ltd secured Chester Leases
1908-1913	Intensive exploration and mining development at Chester. Production 36 000t @ 37% S.
1918-1929	Minor production from Chester by Cuming Smith & Co. Production 700t @ +25% S.
1947-1959	Electrolytic Zinc Company created foot and vehicle access to the Pinnacles area. 14 small diameter diamond drill holes (PP31, 34, 36, 39, 40, 41, 42, 45, 46, 48, 50, 51, 52, 59) completed and workings and topography surveyed. Geophysical test surveys at the Pinnacles (SP, ground magnetics and resistivity)
1959-1960	Geochemical, geological and geophysical surveys over Pinnacles and Chester. Techniques included Sharp vertical loop EM, Turam, ground

	magnetics (vertical field), gravity. "The significant feature of this coverage is that Pinnacles Mine Mineralisation is non-conducting".
1968-1972	Initial phase of gridding, geochemical sampling, geophysics (IP and EM), mapping and 3DDH at Chester (CH1-3) by Comstaff
1973-1976	Second phase of gridding, geochemical sampling, etc. 10 DDH drilled (plus CP2 redrilled) at Pinnacles and 13 DDH at Chester (CP1-23). (New metric grid, new soil sampling, new IP). Airborne EM
1976-1979	Preussag entered into Joint Venture with Comstaff. Detailed mapping and structural synthesis completed. C horizon soil geochemistry, 2 DDH, (PIM1 & 2) trial PEM and IP over Leo's Find
1980-1983	Exploration of East Chester area. New grid, grid extensions, C horizon soil geochemistry, ground magnetics, IP, DIGHEM. DDH (EAB1-4) drilled at East Chester
1984-1985	New grid at Pinnacles (EAF) mapped, C horizon soil sampling, ground magnetics and UTEM. 19 DDH (ESB1 & EAF 1-18) with the discovery of small lenses of massive sulphides and patchy gold mineralisation. New geological interpretation
1986-1988	BHP entered Joint Venture. Reinterpretation and compilation of exploration results."Blanket" UTEM and downhole SIROTEM. New geological interpretation. Petrological studies. Wacker sampling
1988-1991	Pasminco-Noranda-Plutonic Joint Venture on new EL 44/88. Extensive geological mapping, re-appraisal of previous data, Wacker sampling, geochemistry, petrology, DHEM, CSAMT, DH-SIROTEM, Mise-a-la-Masse, aeromagnetic survey, regional and local gravity surveys, drilling of 12 DDH (BPD62-73). Rehabilitation of old tracks, costeans and workings
1991-1992	Pasminco-Noranda-Plutonic JV, exploration was managed by Pasminco and included drilling BPD74, 75, 76 geological mapping and re-logging drill core at Holloway and Summit, gravity infill and interpretation, ore/pathfinder/whole rock geochemistry, down hole EM in BPD69,71,75 and compilation/computerisation of historic geochemical data
1992-1993	Pasminco-Noranda-Plutonic JV, exploration was managed by Pasminco and included drilling holes BPD77-79 geological mapping and gridding at South Kershaw-Holloway, review and compilation of previous exploration, Dipole-dipole IP at South Kershaw-Holloway, soil geochemistry at South Kershaw and ore/pathfinder/whole rock geochemistry
1993-1994	Pasminco-Noranda-Plutonic JV, exploration was managed by Pasminco and included drill holes BPD80, BPD81 and EAF2, gridding, soil/rock geochemistry, DHEM, Mise-a-la-masse, ground magnetics and mapping
1994-1995	Pasminco-Noranda-Plutonic JV, exploration was managed by Pasminco and included drill holes BPD82 to 86 and extension of CP7, DHEM, gridding and geological mapping in the Holloway area
1995-1996	Pasminco-Noranda-Plutonic JV, exploration was managed by Pasminco and included diamond drill holes BPD 87 at East Holloway, BT1-4 at Browns Tunnel and RC holes STRC1-7 at Southern Trenches (reported in 1997 report); DHEM, geological mapping, ground magnetics and IP in the Holloway area; gridding, ground magnetics, soil sampling and trenching in Browns Tunnel-Southern Trenches area.
1996-1997	Compilation of previous work and entry of data into GIS format as part of the Western Tasmania prospectivity review.
1997-1998	MMI soil sampling and IP surveys at North Kershaw - Chester, resource definition drilling at Browns Tunnel and Southern Trenches followed by preliminary mining and metallurgical studies.
1998-1999	Mining and metallurgical studies on the known resources at Browns Tunnel and Southern Trenches.
1999-2000	MMI soil sampling, one exploration diamond drill hole and 5 resource infill holes (for 305.5m). Completion of BSc(Hons.) project on isotopic systematics of alteration at Southern Trenches.
2000-2001	Collection of 163 B Horizon partial leach soil samples and 6 rock-chip samples from Summit Prospect. Rehabilitation of 3.775 line km of grid. EL relinquished.

3 WORK COMPLETED

The exploration completed by Goldfields on EL 35/2000 to date is summarised below:-

Geology	Relogging of old holes from the Chester area Compilation of drill hole data (Collar location, surveys etc)
Geochemistry	Compilation of previous soil, rock chip and drill core assay data PIMA study of drill core from the Chester area Lithogeochemical (XRF + NAA) analysis of drill core (57 samples) XRD analysis (23 samples)
Geophysics	Reprocessing of three old IP surveys (Inversion of data and production of level plans) Reprocessing of WTRMP helimag and radiometric data

4. RESULTS

4.1 DRILL CORE RELOGGING

Twenty diamond drill holes from the immediate area of the Chester Mine were relogged to gain an understanding of the common rocktypes and alteration styles. The drill holes are:- BPD67, BPD68, BPD73, BPD74, BPD86, CH1, CH2, CH3, CP3, CP4, CP5, CP6, CP11, CP16, CP18, CP19, CP20, CP21, CP22 and CP23. The core is held by Mineral Resources Tasmania in the Mornington Core Shed. The core for drill hole CP17 could not be located.

Codes and symbols used in the logging are documented in Appendix 1. Drill logs and summary sheets are presented in Appendix 2.

A collection of thin sections provided by Mineral Resources Tasmania were examined.

4.2 GEOCHEMISTRY

A database of historical soil and rock chip analyses from the Mt Kershaw – Burns Peak area was obtained in digital form from Pasminco Exploration. The elements analysed for include Cu, Pb, Zn and Ba with minor data for Au, Mn, and others. Images of the Cu, Pb, Zn and Ba were produced using Interdex and are presented in Appendix 3. There were insufficient Au analyses to create a meaningful image.

4.3 ALTERATION STUDY

ArionGold Exploration is a co-sponsor of the CODES/ARC Project “Stable and radiogenic isotope applications to ranking prospects in volcanic and volcanosedimentary terrains: Mt Read Volcanics Study”. The Chester area has been examined by Dave Green of MRT as part of this project. PIMA analysis and sampling of several drill holes from the Chester area was performed in mid 2001 in association with the drill core logging described above. Samples have also been sent to the University of Tasmania for sulphur and oxygen isotope analysis. The results of these analyses are currently unavailable.

4.3.1 PIMA study

PIMA spectra were collected at a nominal spacing of 10m from several holes from the Chester area. The holes surveyed include:- CH1, CH2, CH3, CP3, CP4, CP6, CP16, CP19, CP20, CP21, CP22, BPD67, BPD68, BPD73, BPD74 and BPD86.

The AIOH wavelength ranged from 2218 to 2183 nm and as shown on Figures 6 and 7 displays a systematic variation across the prospect. This is consistent with a change in mineralogy with pyrophyllite – kaolinite - paragonite (low AIOH) occurring in a central zone and more phengitic micas (higher AIOH) in the distal areas.

The PIMA data has been presented on two cross-sections:-

- a) 5380500mN Through the main pyrophyllite zone in CP3 (Plan 1), and
- b) 5380900mN Down dip of the Chester Mine (Plan 2).

23 rock chip samples were collected and analysed by XRD at Mineral Resources Tasmania to confirm the results of the PIMA study.

The results of the PIMA study and XRD analysis are presented in Appendix 4.

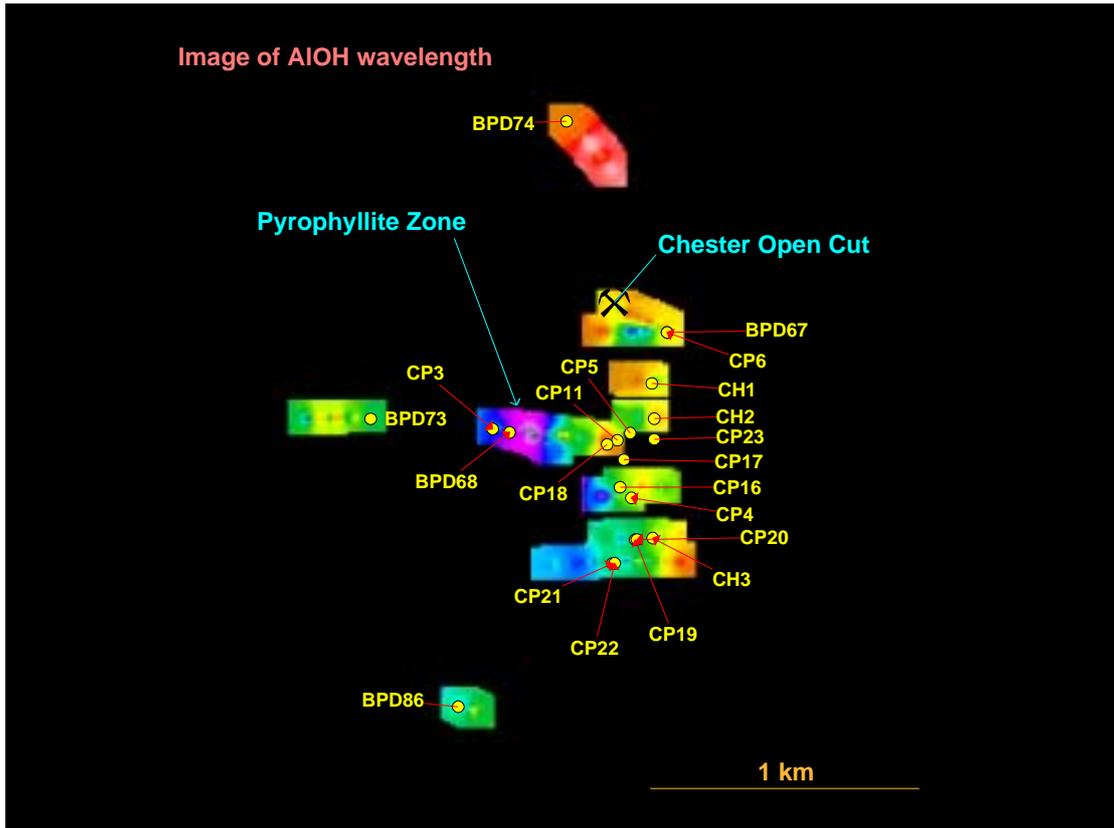


Figure 6. Chester Alteration study - Colour image of AIOH wavelength

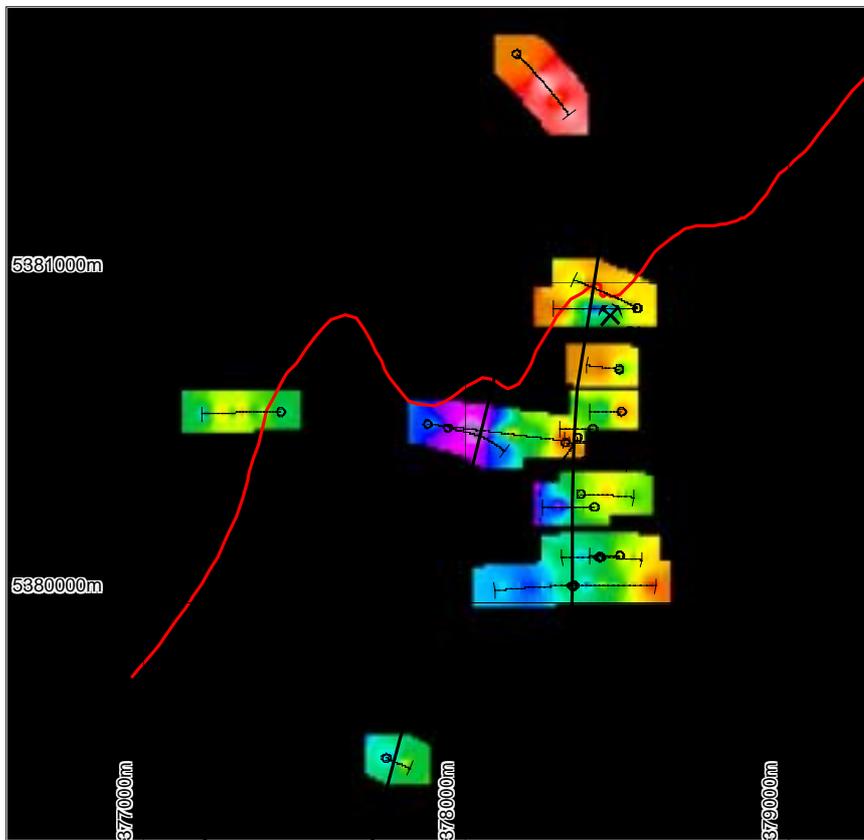


Figure 7. Chester Alteration study - Colour image of AIOH wavelength and major geological trends

4.3.2 Whole Rock and NAA Geochemistry

57 drill core and rock chip samples were analysed by XRF for whole rock and a suite of trace elements by Mineral Resources Tasmania. Goldfields also analysed for the same pulps for Au and a suite of additional elements by NAA. The results are tabulated in Appendix 4.

Figure 8 is a plot of Ti versus Zr for the 57 samples from the Chester area. There are two distinct subgroups:-

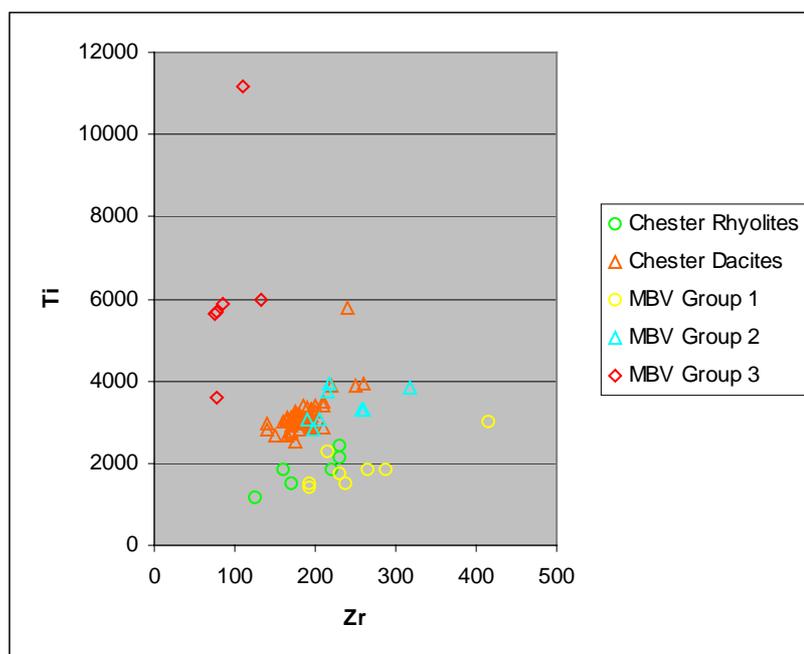
Low Ti/Zr 8.5-11.6 (Av = 9.7) and
High Ti/Zr 13.6-24.1 (Av = 17.1).

The majority of samples have the higher Ti/Zr values and indicate a dacitic to andesitic composition. They occur in the footwall rocks of the Chester Mines. The tight cluster of analyses on Figure 8 suggests that the feldspar phyric lavas and pumice breccias that comprise the footwall rocks are probably co-magmatic. The low Ti/Zr subgroup is more felsic in composition and generally belongs to the hangingwall sequence.

Recent work by Grifkins and Allen, 2001 has subdivided on the Mount Black Volcanics into three lithogeochemical groups. The low Ti/Zr subgroup from the Chester area corresponds to Group 1 (Ti/Zr 4 to 12) and the higher Ti/Zr subgroup corresponds to Group 2 (Ti/Zr 12 to 19) (Figure 8). Both Group 1 and Group 2 belong to Suite I (calc-alkaline) of Crawford, Corbett and Everard, 1992. There is a general lithogeochemical stratigraphy within the Mount Black Volcanics with Group 1 rhyolite overlying Group 2 dacite. This observation seems directly applicable to the Chester area and may help define the stratigraphic position of the Chester mineralisation in other parts of the Mount Black Volcanics.

The data from the Chester area is in contrast to the that from the Rosebery area where the Rosebery footwall sequence has Ti/Zr ~8 and the hanging wall sequence (upper pumice breccias) has Ti/Zr ~ 13 (Large et al, 2001). This suggests that the Chester and Rosebery mineralisation occurs at different stratigraphic level.

The abundant mafic dykes present in the Chester area, although not sampled in this study probably correspond to Group 3 (Grifkins and Allen, 2001) and Suite IV (Henty Dyke Swarm) of Crawford, Corbett and Everard, 1992. They have a tholeiitic composition.



4.4 GEOPHYSICS

4.4.1 IP Inversions

Three IP surveys covering the Mt Kershaw EL have been reprocessed to assist in target definition.

The surveys are:-

- 1) 1993 Mt Kershaw pole-dipole survey (Kirsner, Poltock and Saxon, 1993)
- 2) 1993 Cone Hill dipole-dipole survey (Kirsner, Poltock and Saxon, 1993)
- 3) 1998 Mt Kershaw (North Kershaw Grid) dipole-dipole survey (Edwards, Murphy and Whitbread, 1999 and Parfrey and Simpson, 1999)

The 1999 survey was reprocessed by ArionGold's Senior Geophysicist Chris Dauth using inverted data supplied by Pasminco and is presented on Figures 9 to 12. There is a distinct chargeability anomaly associated with the Chester mineralisation on the 50m depth slice, however this anomaly is not apparent on the 100m section. This is consistent with the interpretation that the Chester mineralisation is relatively flat lying with limited depth extent. The pyrophyllite zone associated with the Chester Shear is also highly chargeable and has a shallow northerly plunge as indicated by the northerly displacement of the chargeability high on the 100m depth slice. The intersection of the Chester Shear IP anomaly with the position of the Chester Horizon is a prime target and requires additional ground examination and sampling. It has not been tested by drilling. The Rosebery Group rocks to the west of the Rosebery Fault is highly chargeable due to the presence of siltstones.

Mike Asten of Flagstaff GeoConsultants reprocessed and inverted the 1993 surveys. To provide continuous IP data throughout the EL the 1999 data was added to the 1993 dataset and a series of level plans at 50m intervals produced from the inverted pseudosections. The level plans are presented at 1:5000 scale (Plans 3 to 18). Due to differences in survey parameters the IP response detected in the 1999 data are subdued when presented in association with the 1993 data. Inverted pseudosections of both the 1993 and 1999 datasets are presented in Appendix 5. All the data used in the reprocessing of the IP data by Mike Asten is presented on the accompanying CD. Powerpoint presentations of the level plans and the inverted pseudosection are included.

Figure 9. 1999 Mt Kershaw Dipole-Dipole IP Chargeability 50m Depth Slice

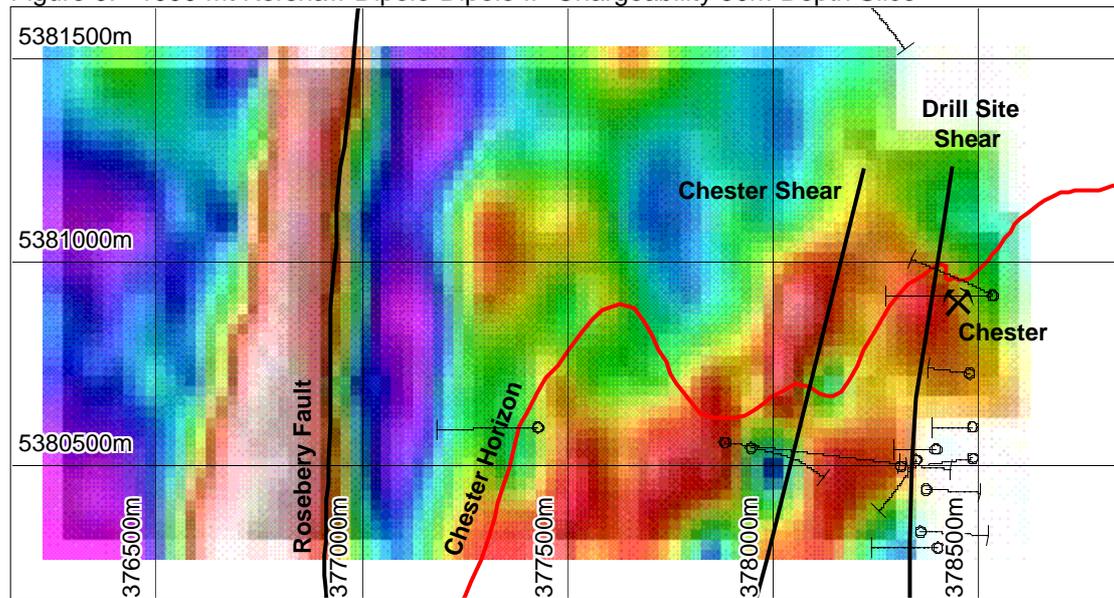


Figure 10. 1999 Mt Kershaw Dipole-Dipole IP Chargeability 100m Depth Slice

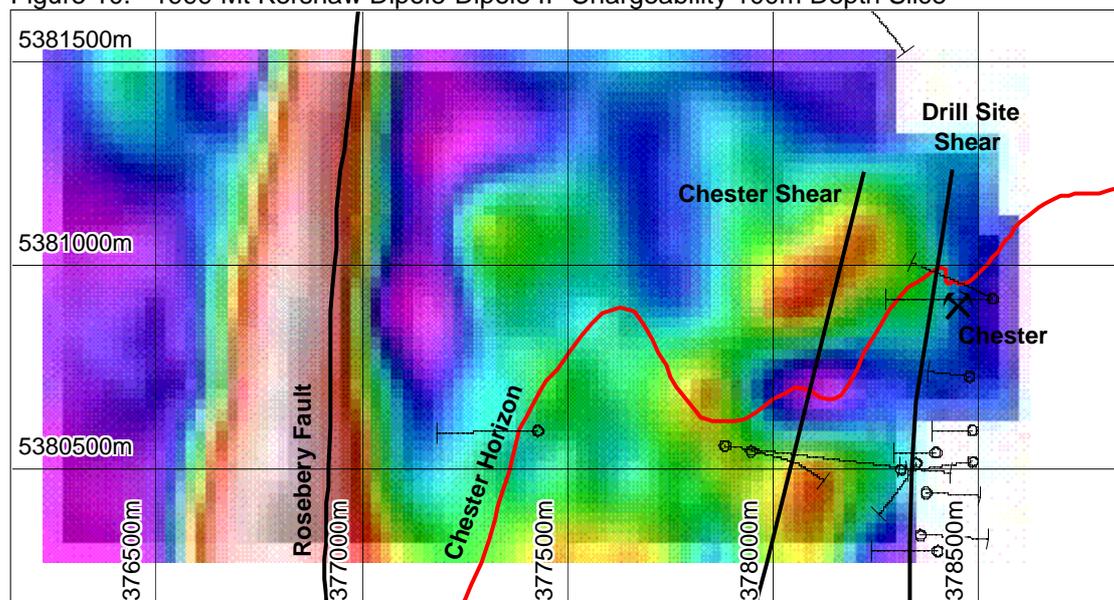


Figure 11. 1999 Mt Kershaw Dipole-Dipole IP Inverted Resistivity 50m Depth Slice

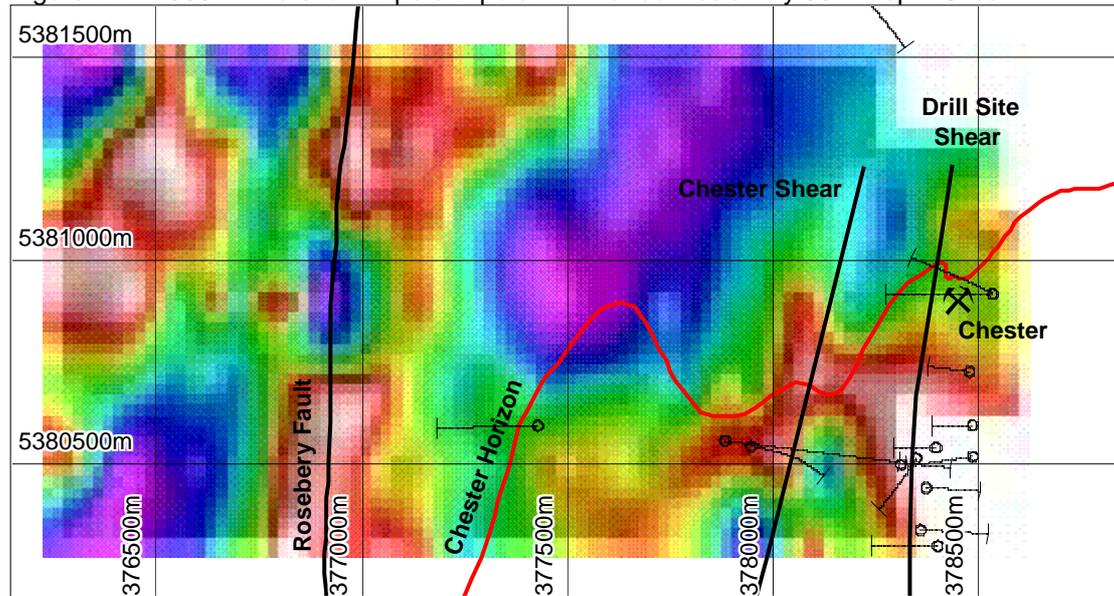
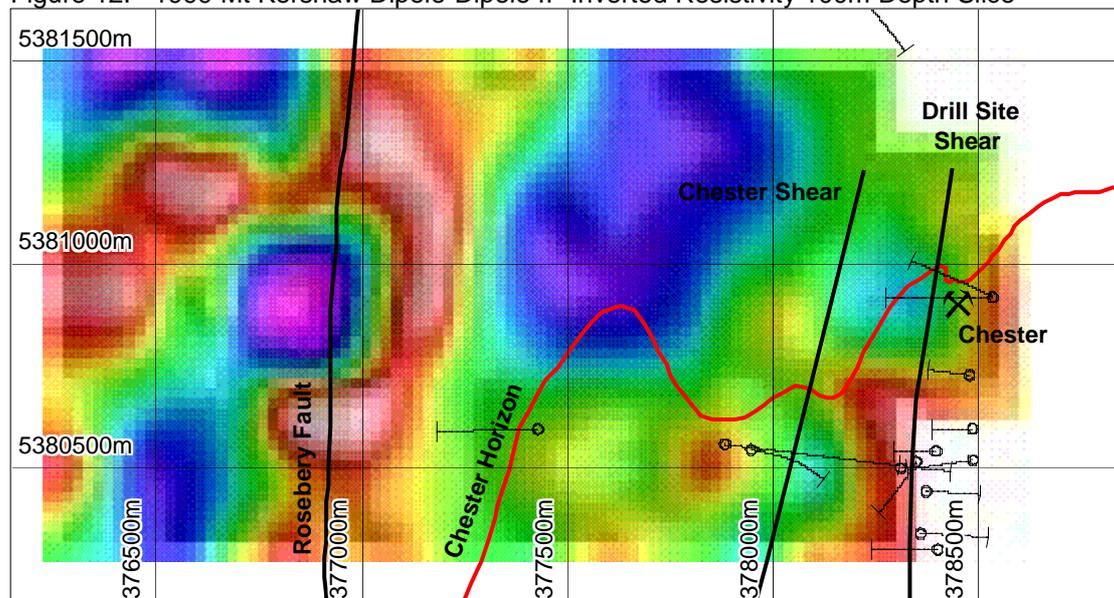


Figure 12. 1999 Mt Kershaw Dipole-Dipole IP Inverted Resistivity 100m Depth Slice



4.4.2 Western Tasmania Regional Minerals Program Data

The data from the Government funded Western Tasmania Regional Minerals Program Helimag survey of Western Tasmania was purchased and reprocessed by Chris Dauth as part of Goldfields ongoing regional exploration program. Data images of Total Magnetic Intensity (TMI), 1st vertical derivative (1VD) and Radiometrics (Red-Green-Blue Potassium-Thorium-Uranium) are presented in Appendix 3.

Airborne EM currently being flown as part of the same program will be purchased and processed when available.

5. DISCUSSION and RECOMMENDATIONS

The Chester Mine is a zone of intense silica-pyrophyllite-pyrite alteration that replaces a thinly bedded ashy siltstone unit developed within the Mount Black Volcanics. The siltstone and overlying volcanic rocks have a rhyolitic composition in contrast to the footwall rocks at Chester which are dacitic to andesitic in composition. The contact between the rhyolite and underlying footwall rocks is defined as the Chester Horizon. The ashy siltstone at Chester forms discontinuous lens at the Chester Horizon and in the overlying hangingwall sequence.

Most of the diamond drilling in the Chester area has focused on targeting IP anomalies due pyrite rich alteration within the footwall rocks. Only two drill holes (BPD73 and 74) have intersected the Chester Horizon however both holes are located in the distal parts of the alteration system. The Chester Horizon directly overlying the most intense footwall alteration has not been drilled although it is exposed in the Chester open cut.

The footwall rocks consist of predominantly of feldspar phyric pumice breccias with some feldspar phyric lavas. Facies identification is commonly masked by intense texturally destructive sericite-pyrophyllite-pyrite alteration. Thin section examination is useful to determine the volcanic facies but not always diagnostic in highly altered rocks.

The hanging wall rocks contains variable proportions of feldspar phyric lavas and pumice breccias with interbedded horizons of ashy siltstone. The general facies of these rocks is very similar to that displayed by the footwall rocks and identification requires lithogeochemical analysis in the absence of mappable marker horizons.

Thin basalt dykes are common in both the footwall and hanging wall sequence. They are highly abundant in zones of intense footwall alteration and clearly postdate the alteration.

Mapping by Pasminco suggests that the Chester Horizon has a general NE-SW trend with several small scale north plunging parasitic folds developed near the Chester Mine. These folds are most common over areas of intense footwall alteration. Near the Rosebery Fault, the Chester Horizon dips steeply west.

Most of the footwall alteration is concentrated along two major north to northwest trending zones of intense cleavage development. The zones have been called the Drill Site Shear and the Chester Shear by previous workers.

Due to an abundance of pyrite in the alteration assemblage, IP has been the main geophysical technique used at Chester. Data from previous surveys was reprocessed to help define the location of zones of high chargeability (see Figures 9 to 12 and Plans 3 to 18).

The ongoing CODES based alteration study has employed a range of different techniques (PIMA, XRD analysis, XRF analysis, Neutron Activation analysis and Isotopic analysis) for the location of chemical/physical vectors towards potential economic grade mineralisation. The results to date have highlighted the Chester Shear as being characterised by acid-sulphate alteration assemblages (pyrophyllite-kaolinite). This zone is relatively under drilled compared to the adjacent Drill Site Shear.

The following work program is recommended for the next twelve months:-

1. The EL should be mapped at 1:5000 scale.
2. The IP data should be examined to identify anomalous zones that should be followed up by additional rock chip and/or soil sampling (ie sampling over the intersection of the Chester Shear with the Chester Horizon).
3. Previous drill holes in the north of the EL should be relogged.
4. The recent MRT airborne EM data should be purchased and processed when available.

REFERENCES

- Boda, S.P., 1991. The Geology, Structural Setting and Genesis of the Chester Mine, Northwest Tasmania. BSc(hons) thesis. Australian National University.
- Callaghan, T., 1998. Geology and Alteration of the Mt Julia Deposit, Henty Gold Mine, Tasmania. M.Econ.Geol.Thesis, University of Tasmania.
- Collins, P.L.F., 1981. A sulphur isotope study of the Chester massive pyrite deposit, Western Tasmania. Unpub. Rep. Dept. Mines. Tasm. 1981/27
- Crawford, A.J, Corbett, K.D, and Everard, J.L, 1992. Geochemistry of the Cambrian Volcanic-Hosted Massive Sulfide-Rich Mount Read Volcanics, Tasmania, and some Tectonic Implications. *Econ Geol*, V87, pp 597-619.
- Edwards, P.W., Murphy, F.C., and Whitbread, M., 1999. EL 44/88 Burns Peak Annual Report for the period November 1997 - December 1998. Pasminco Exploration. TCR 99-4262.
- Green, G.R., and Taheri, J., 1992. Stable isotopes and geochemistry as exploration indicators. *Tasmanian Geological Survey Bulletin* 70, 84-91
- Grifkin, C.C., and Allen, R.L., 2001. Textural and chemical characteristics of diagenetic and hydrothermal alteration in glassy volcanic rocks: Examples from the Mount Read Volcanics, Tasmania. *Econ. Geol.* V96, pp 973-1002.
- Halley, S.W., 1996. Geochemistry and genesis of the Garfield Prospect. *In Halley, Vicary, Corlett and Wyman, 1996. Annual Report 1995/96 Els 102/87, 55/89 and 12/92. RGC Exploration.*
- Herrmann, W., 2000. Boco Prospect - S & O isotopic characteristics and alteration zonation. *In Progress Report on Work at Case Study Sites - presentations. Stable and Radiogenic Isotope Applications to Ranking Prospects in Volcanic and Volcanosedimentary Terrains: Mt. Read Volcanics Case Study. Centre for Ore Deposit Research, University of Tasmania.*
- Huston, D.L., and Kamprad, J., 2000. The Western Tharsis Deposit. A high sulphidation Cu-Au deposit in the Mt Lyell field, of possible Ordovician age. *AGSO Research Newsletter*, May 2000, No. 32, pp 2-6.
- Kirsner, L.W., 1992. EL 44/88 Burns Peak Annual Report for the period November 1991 - October 1992. Pasminco Exploration. TCR 92-3406
- Kirsner, L.W., Lorrigan, A.N., and Rae, H.C., 1991. EL 44/88 Burns Peak Annual Report for the period November 1990 - October 1991. Pasminco Exploration. TCR 91-3310
- Kirsner, L.W., Poltock, R, and Saxon, J.D., 1993. EL 44/88 Burns Peak Annual Report for the period November 1992 - October 1993. Pasminco Exploration. TCR 93-3523
- Large, R.R., Allen, R.L., Blake, M.D., and Herrmann, W., 2001. Hydrothermal alteration and volatile element halos for the Rosebery K lens VHMS deposit, western Tasmania. *Econ. Geol.* V96, pp 1055-1072.
- McNeill, A.W., 2001. Burns Peak EL 44/88 Annual and Final Relinquishment Report for the period 1 November 2000 to 31 May 2001. Pasminco Exploration. TCR 01-4567

- Murphy, F.C., and Denver, K., 1998 Partial Relinquishment Report – EL 44/88, Burns Peak. Pasminco Exploration. TCR 98-4246
- Parfrey, O., and Simpson, K.L., 1999 Mt Kersahw EL 21/98 First Annual and Final Technical Report for the Period November 1998-99. Pasminco Exploration. TCR 00-4414
- Solomon, M., Eastoe, C.J., Walshe, J.I., and Green, G.R., 1988. Mineral deposits and sulphur isotope abundances in the Mount Read Volcanics between Que River and Mount Darwin, Tasmania. Econ. Geol. V83, 1307-1328
- Street, M., 1999 Alteration of the South Henty Prospect. BSc(hons) thesis. University of Tasmania.
- Williams, N., 2000 The Basin Lake High Sulphidation Alteration System, Western Tasmania. BSc(hons) thesis. University of Tasmania.
- Woolford, A., 2000 Geology and Genesis of the Southern Trenches Mineralisation, Burns Peak. BSc(hons) thesis. University of Tasmania.

APPENDIX 1

Symbols and Codes used in drill logs

APPENDIX 2

Diamond Drill Hole Logs

and

Summaries

APPENDIX 3

Regional Data Compilation Images

APPENDIX 4

Chester Alteration Study Geochemical and PIMA data

APPENDIX 5

IP inversion pseudosections

PLANS