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SUMMARY

Exploration in Waratah EL 48/94 during the period December 1994 - November 1995 has been relatively low key. Work completed during this period has included the compilation of an open file literature review and collection of existing regional geological, geochemical and geophysical data.

The Waratah area contains historical discoveries of lead-silver-zinc, tin, copper and iron. Previous exploration in the area includes extensive stream sediment sampling, geological mapping, a range of geophysical surveys and several drill holes which have revealed numerous anomalies. As many of these remain untested or inadequately drilled, the licence area remains prospective for the discovery of significant base metal mineralisation.

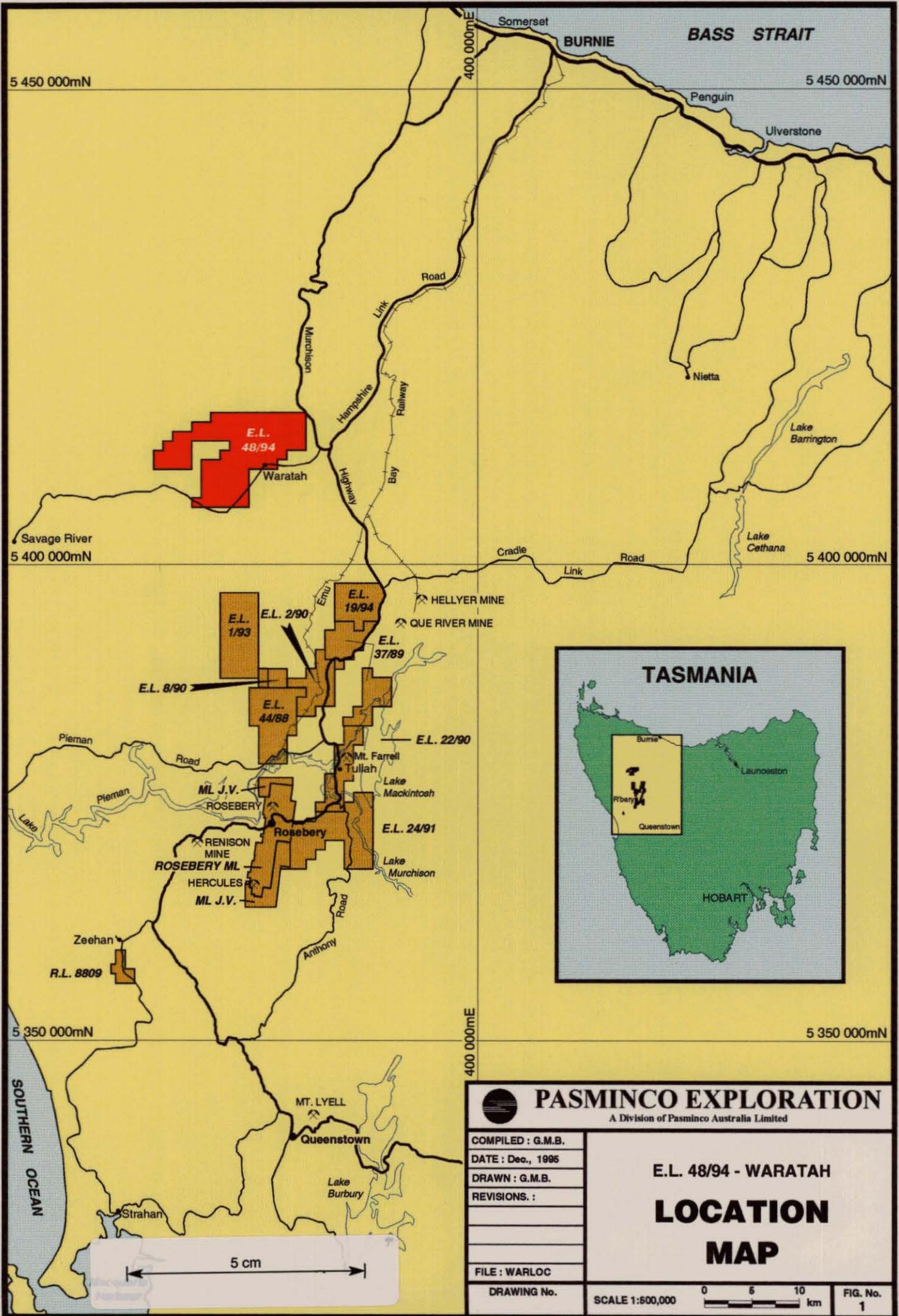
Review of the existing regional geological, geochemical and geophysical data in order to define prospect scale targets is recommended for the following year.

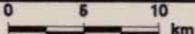
1 INTRODUCTION

The Waratah EL 48/94 is located 60km southeast of Burnie just off the Hampshire Link Road (Figure 1). It covers 87km² from the Deep Gully Creek area northeast of Waratah township to Arthur Dam in the southwest. This first Annual Report for EL 48/94 covers the period from December 1994 to November 1995. Work completed in this period has included the compilation of an open file literature review and collection of existing regional geological, geophysical and geochemical data. Much of this work has been carried out concurrently with EL 17/93 (MPI Gold Pty Ltd), immediately west of EL 48/94, for which a Joint Venture agreement is currently being drafted.

The Mt Bischoff (Sn) and Magnet (Pb-Ag-Zn) Mines lie within and just outside the Licence, along with numerous other small Sn and base metal shows. Base metal mineralization appears to be hosted by Precambrian and Cambrian volcano-sedimentary sequences, with all reported occurrences being vein-style.

Much of the EL area is Crown Land, covered by patches of rainforest and forestry, ti-tree scrub and button grass plains. Access is provided by Corinna Road, numerous logging and old exploration tracks, and walking tracks. Much of the area is accessible only by foot.



 PASMINCO EXPLORATION <small>A Division of Pasminco Australia Limited</small>		
COMPILED : G.M.B.	E.L. 48/94 - WARATAH LOCATION MAP	
DATE : Dec., 1995		
DRAWN : G.M.B.		
REVISIONS :		
FILE : WARLOC		
DRAWING No.	SCALE 1:500,000 	
		FIG. No. 1

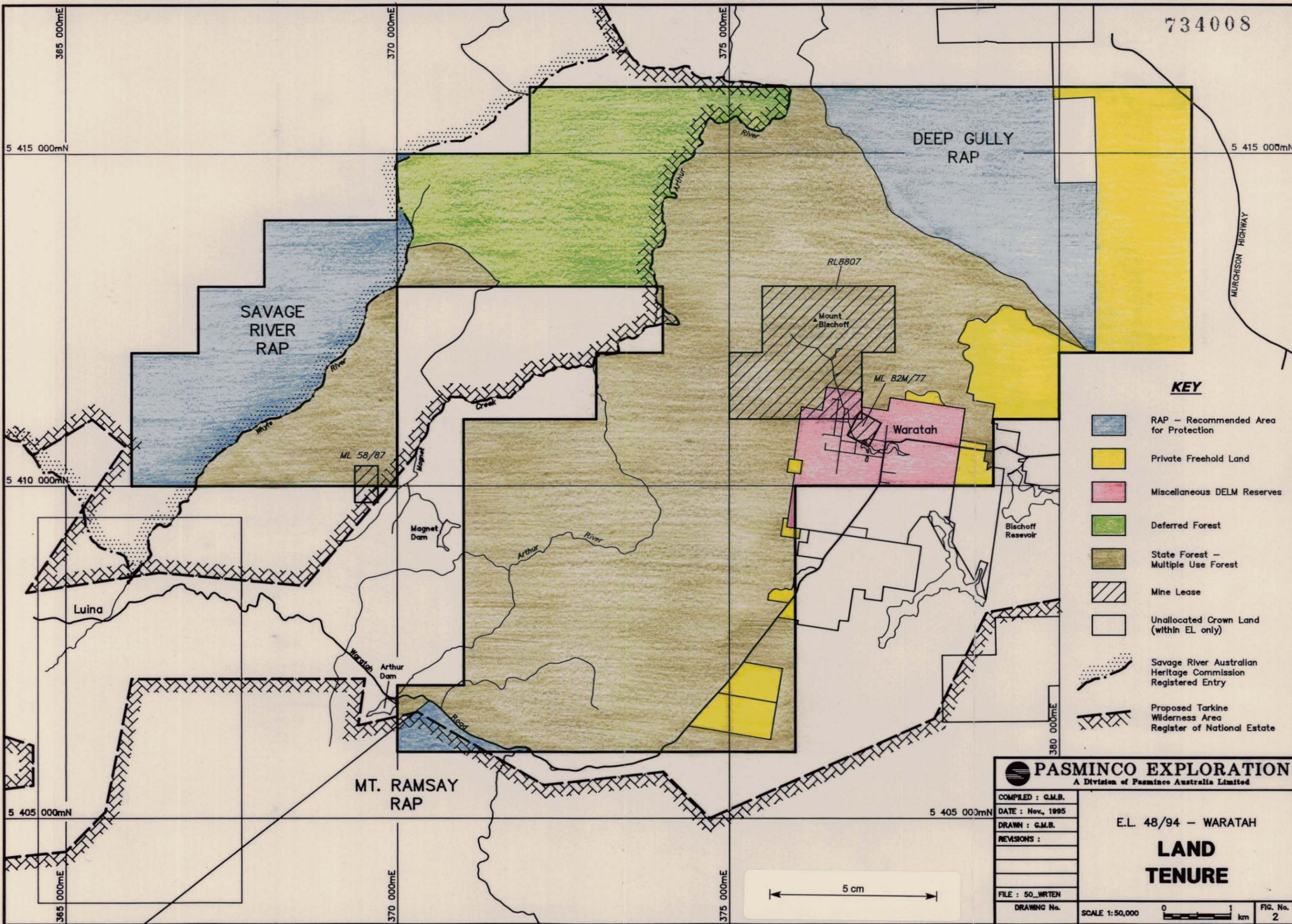
2 TENURE

Waratah EL 48/94 was issued to Pasmaico Australia Limited on December 23 1994 for a period of 12 months. The licence area covers 87km², which excludes a land area of 4 km² (RL8807), 4ha Crown Reserves (82m/77) and a 9 ha Mining Lease (58m/87). The schedule of the licence area is given in AMG coordinates in Appendix 1.

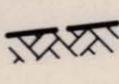
The land tenure of the area comprises predominantly Crown Land, which includes non-allocated, Deferred Forest Land, and Recommended Area for Protection - the Savage River RAP, Mt Ramsay RAP and Deep Gully RAP. As well as State Forest land and private property, the area also contains part of the Savage River Australian Heritage Area.

Pasmaico has submitted an application for renewal of EL 48/94 for a further 12 month period.

734008



KEY

-  RAP - Recommended Area for Protection
-  Private Freehold Land
-  Miscellaneous DELM Reserves
-  Deferred Forest
-  State Forest - Multiple Use Forest
-  Mine Lease
-  Unallocated Crown Land (within EL only)
-  Savage River Australian Heritage Commission Registered Entry
-  Proposed Tarkine Wilderness Area Register of National Estate

PASMINCO EXPLORATION A Division of Pasminco Australia Limited	
COMPILED : G.M.B.	E.L. 48/94 - WARATAH LAND TENURE
DATE : Nov, 1995	
DRAWN : G.M.B.	
REVISIONS :	
FILE : 50_WRTEN	
DRAWING No.	SCALE 1:50,000  km
	FIG. No. 2

3 PREVIOUS EXPLORATION AND MINING

A comprehensive bibliography of reports on previous exploration in the Waratah area is included in Morrison (1995a and b; Appendix 2) which includes a listing of regional data available. Previous exploration conducted in the area is summarised in Table 1.

Earliest work in the Waratah district began with the discovery of tin ore in Tinstone Creek by James Smith in December 1871. Small lodes of antimonial galena, and zinc blende - galena were discovered before tracing the source of the tin to Mt Bischoff. Following the rich discoveries at Broken Hill (New South Wales) in 1882, a silver "boom" commenced and the district was energetically prospected for silver-lead (Nye, 1923). During the following decade discoveries of silver-lead were made at Magnet and Heazlewood, gold at Corinna, tin at Heemskirk and copper and iron at the Rocky and Savage Rivers. Most of the discoveries were made during the years 1890 and 1891. The lodes were opened up and tested during the nineties, and although the majority produced small quantities of argentiferous galena the results were otherwise disappointing.

The Magnet Mine is thought to have been first discovered in 1877 by W.R. Bell, but was not investigated until 1890 when Bell was able to relocate his find. The Magnet Silver Mining Co. was formed in 1895 and worked the mine with various success until 1933. From 1933 to 1940 the mine was controlled by four separate organisations, none of which found it a successful venture. Production from the mine totaled approximately 630,000t @ 6% Pb, 7% Zn and 394 g/t Ag up to 1940 when operation ceased (Cottle, 1951).

Modern exploration in the area commenced in the early 1970's and has been undertaken within several exploration licences since then (Table 1). The work has included extensive stream sediment sampling and geological mapping, a range of geophysical surveys and several drill holes. Numerous Sn and base metal anomalies have been discovered in the area, although much of the mineralization is thought to be related to contamination from Magnet and Mt Bischoff.

In the Magnet Mine area modern exploration began during 1970 with stream sediment sampling undertaken by Comstaff. All results however were discarded due to cultural contamination. A Sn stream sediment anomaly believed not be sourced from the mine was located in 1972, and significant exploration began in 1975 with the establishment of a grid from Magnet to Mt Bischoff. Mapping, soil sampling, ground magnetics and EM surveys resulted in one diamond drill hole targeted at an EM anomaly (BAB1), and two holes (MAG1, MAG2) drilled to test the southern extension of the Magnet Mine Pb-Ag-Zn vein. BAB1 failed to intersect any evidence of mineralization, whilst MAG1 and MAG2 intersected moderate patchy mineralization plus extensive zones of stoping. In 1985 BHP joint-ventured into EL 5/63 and drilled a short hole (BR1) targeting a 1983 DIGHEM anomaly at Butlers Road. This returned anomalous tin and base metal values. No further activity was undertaken by Comstaff, and much of the area was surrendered from EL 5/63 during 1985.

During the 1980's the Tasmanian Mines Department carried out exploration on the Luina and Wombat Flat exempt areas (Collins, 1983; Brown 1986). This work included magnetic and DIGHEM surveys and soil geochemistry. The programme culminated in the drilling of two holes at Arthur Dam which targeted coincident magnetic and soil geochemical anomalies. The holes intersected sheet-like pyrrhotite-chalcopyrite bearing veins (AD1) and sphalerite-galena quartz stockwork veining (AD2) in Eocambrian andesites and volcanoclastics.

RGC held EL's 12/90 and 15/90 in the area from 1990-1993 primarily focussing on Renison-style tin mineralisation, specifically carbonate replacement tin deposits such as those mined at Mt Bischoff and Luina. The discovery of a new skarn on the Whyte River Grid and anomalous geochemistry remains untested.

1870's- 1940 *Early prospecting.*

Discovery of tin ore in Tinstone Creek and Mt Bischoff tin deposit. 1877: Magnet Mine discovered, producing approx. 630,000t @ 6% Pb, 7% Zn and 394 g/t Ag (1895 - 1940). 1890's: small discoveries of Ag-Pb, Au, Sn, Cu and Fe lodes opened up.

1963-1989 *EL 5/63, 7AP/AM, Comstaff Pty Ltd (plus BHP Co Ltd).*

1969+: Stream sediment sampling, reconnaissance mapping, gridding and soil sampling around the eastern margin of Meredith Granite.

Early 1970's: Extensive stream sediment sampling and geological mapping (Shaw and Everett, 1985a, b; BHP, 1988), regional TURAM EM survey, CRONE EM and magnetic surveys over 3 grids. Drilled BAB1, MAG1 and MAG2.

1981: Investigation of Deep Gully Creek anomaly; gridding, soil geochemistry, geological mapping, ground magnetics and aeromagnetics identified anomalous tin.

1983: Regional DIGHEM survey identified anomalies in the Deep Gully Creek area (not further investigated). BHP joint-ventured into EL 5/63 in 1985 and drilled BR1.

1984: 5 holes drilled through Tertiary cover.

1963-1989 *EL 1/63, Cominco Exploration Pty Ltd.*

1974 helimag survey, 52m line spacing; 1980 - 1981 DIGHEM EM and stream sediment geochemistry.

1983-1985 *Department of Mines, Luina and Wombat Flat Exempt areas.*

Regional mapping (Brown, 1986), magnetic and DIGHEM surveys and soil geochemistry. Two holes drilled at Arthur Dam, AD1 and AD2.

1988-1990 *EL 46/88, Billiton Australia.*

Gridding of 1983 Comstaff DIGHEM anomaly; geological mapping, ground magnetics and UTEM. Drilling intersected background levels of tin and basemetals.

1989-1990 *EL 47/88 Placer Exploration Ltd.*

Regional stream sediment sampling, rock chip geochemistry (Magnet Mine) and resampling of MAG1, MAG2 and BAB1.

1990-1993 *EL 12/90, EL 15/90, RGC Exploration Ltd.*

Regional data review, magnetic and gravity interpretation of existing data, mapping and rock chip sampling and regional gravity survey led to initiation of Deep Gully Creek Grid and multi-element soil geochemistry. Geochemical anomaly identified close to the Waratah River (remains untested).

1991-1992 *EL 21/90, Geopeko.*

1: 25 000 compilation maps of Comstaff stream sediment data. Limited water and rock float sampling.

1994- *EL 17/93, EL 49/94, MPI Gold Pty Ltd.*

Regional stream sediment sampling, rock chip sampling (Magnet Mine) and resampling of AD1 and AD2.

4 GEOLOGY

4.1 Regional Geology

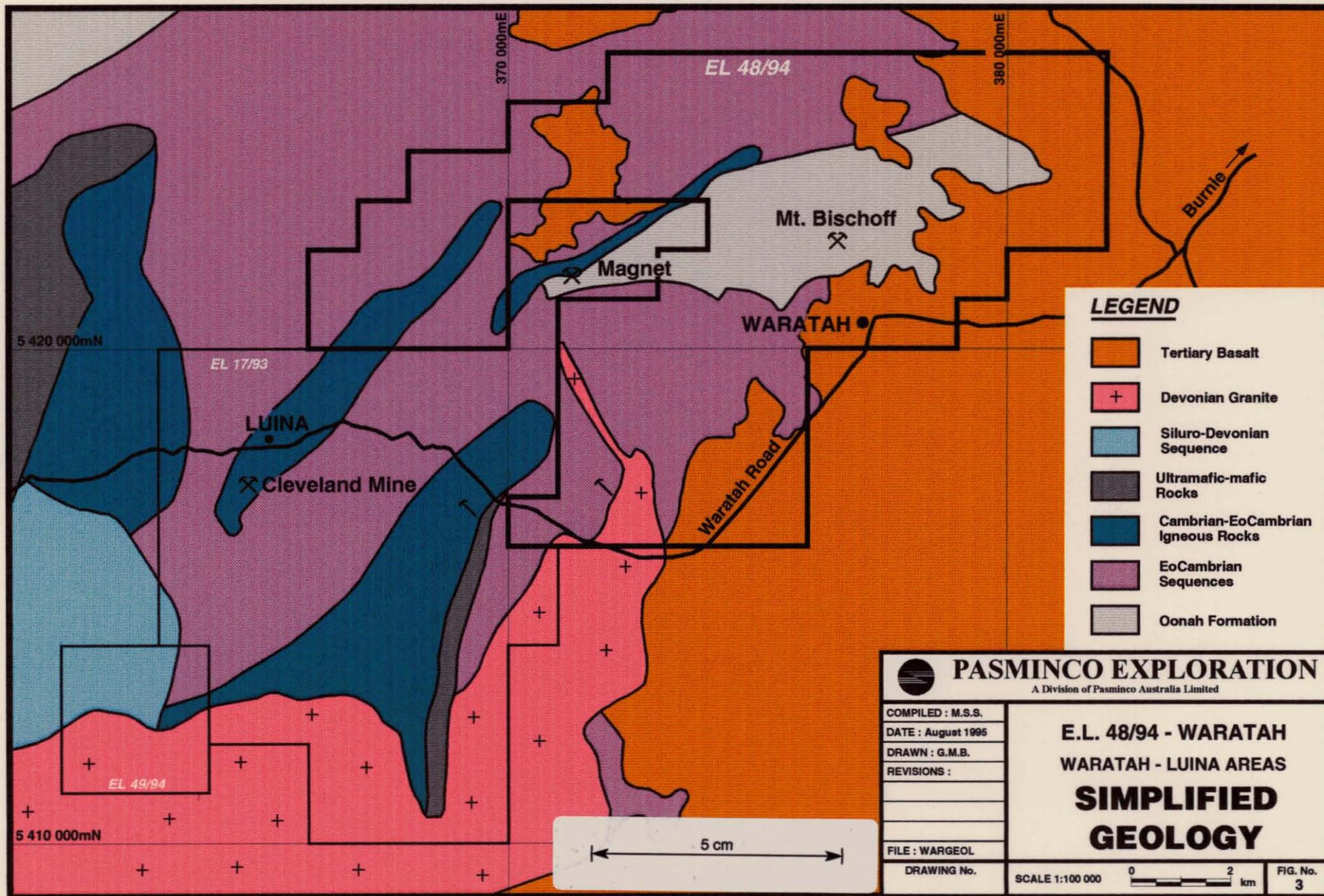
The regional geology of the Waratah area consists of Precambrian to Ordovician rocks of the Dundas Trough. Lithologies which are well described in Brown (1986) include carbonates, intermediate to mafic volcanics and ultramafics. Devonian Meredith Granite forms a shallow ridge extending from outcrop on the Corinna Road to the northeast underneath Mt Bischoff mine (Brown, 1984) (Figure 3). The outcropping lithologies are summarised below.

4.2 Oonah Formation

A block of Oonah Formation of approximately 17km² in size surrounds the Mt Bischoff Mine and extends below basalt to the east. The Proterozoic Oonah Formation is composed of pale grey quartz sandstones, pale grey siltstones, dark grey shales, dolomites and minor mafic lavas and volcanoclastics. A high degree of deformation often allows distinction from younger rocks.

The Oonah Formation has been divided into upper and lower successions on the basis of lithology. The lower sequence is dominated by micaceous quartz sandstones and siltstone with minor interbedded phyllitic mudstone. The upper Oonah Formation has a greater abundance of mudstone and shale with dolomite and occasional intercalated mafic volcanics.

In the Mt Bischoff area the Oonah Formation is comprised of a shale and siltstone succession with thick units of dolomite that correlates to the upper sequence. It is inferred that the Oonah/Crimson Creek Formation contacts in the Mt Bischoff area are faulted, possibly involving significant over thrusting of Precambrian over the Eocambrian sequences.



LEGEND

- Tertiary Basalt
- + Devonian Granite
- Siluro-Devonian Sequence
- Ultramafic-mafic Rocks
- Cambrian-EoCambrian Igneous Rocks
- EoCambrian Sequences
- Oonah Formation

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : M.S.S.	E.L. 48/94 - WARATAH WARATAH - LUINA AREAS SIMPLIFIED GEOLOGY
DATE : August 1995	
DRAWN : G.M.B.	
REVISIONS :	
FILE : WARGEOL	DRAWING No.
SCALE 1:100 000	
FIG. No. 3	

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4.3 **Crimson Creek Formation**

The Crimson Creek Formation occurs to the north and east of the Meredith Granite, and is in part overlain by Tertiary basalt. The formation is comprised largely of basalt lavas, basaltic volcanoclastics, and finely bedded siltstone and mudstone. Brown (1986) notes that the Crimson Creek Formation becomes more basaltic to the north of the Meredith Granite. Thin carbonate horizons occur in the Crimson Creek Formation but rarely outcrop.

Contact metamorphism of the Crimson Creek by the Meredith Granite has resulted in a highly magnetic aureole about the granite. It is probable that this magnetic signature will swamp any magnetic anomaly sourced from mineralization, thus limiting the use of magnetics to an indirect mapping tool.

Ultramafic and mafic rocks have been locally overthrust onto the Crimson Creek Formation.

4.4 **Ordovician to Devonian sediments**

A sequence of Ordovician to Devonian sediments overlie the Crimson Creek Formation and associated ultramafic rocks within a small syncline to the north of the Meredith Granite in the Mt Stewart-Heazlewood area. These sediments belong to the conformable Gordon Limestone-Eldon Group sequence, and the Gordon Limestone at the base of the sequence may have a stratigraphic thickness of up to 500m. It is overlain by the Crotty Sandstone, a white, friable, quartz rich unit up to 400m in thickness, which forms a prominent ridge around the edge of the syncline. Much of the sequence is poorly exposed and covered by alluvium.

4.5 Meredith Granite

The Meredith Granite has been radiometrically dated at 356 Ma, using both K-Ar and Rb-Sr methods (Brown, 1986). Around the north-eastern tip and eastern margin the granite is porphyritic close to the contact and contains feldspar (up to 25mm) and quartz phenocrysts (up to 8mm). The granite becomes increasingly equigranular towards the core, and contains biotite throughout. Zones of greisenization and concentrations of tourmaline veining are common and conspicuous close to the granite margins. Quartz feldspar porphyry dykes related to the Meredith granite occur at Mt Bischoff and at Deep Gully Creek.

Modeling of the shape of the Meredith Granite (Leaman and Richardson, 1989) demonstrates a shallow ridge extending from outcrop on the Corinna Road to the northeast underneath Mt Bischoff mine. An infill of gravity stations by RGC during 1990/91 in this area confirmed this ridge and highlighted the granite topography.

4.6 Tertiary Basalt

An extensive plateau of Tertiary Basalt covers the area east and south of Waratah with erosional outliers elsewhere. Basalt cover may be up to 300m in thickness, comprised of flows ranging from less than 1m to greater than 10m thick. Fluvial and lacustrine sediments occur between basalt flows, ranging from mud to gravel grain size.

Magnetic character and variation in thickness of the basalt severely hinders interpretation of sub-basalt basement magnetic features.

4.7 Known Mineralization

The Waratah-Luina area is well known for large replacement-style Sn deposits (Mt Bischoff and Cleveland), but lesser known for Pb-Zn mineralization.

The largest base metal orebody discovered and mined to date is Magnet, which lies to the immediate west of EL 48/94. Approximately 630,000t @ 6% Pb, 7% Zn and 394 g/t Ag were extracted from the mine between 1895 and 1940. The ore body has a strike length of 90m, a true width averaging 5.5m, and was worked to 365m vertical depth. The orebody is described as occupying a steep west-northwest dipping fracture system within an early Cambrian mafic/ultramafic body known as the Magnet dyke, close to its discordant footwall contact with early Cambrian sedimentary rocks.

The ore at Magnet consists of sphalerite and argentiferous galena with lesser amounts of arsenopyrite, pyrite, boulangerite, pyrargyrite, tetrahedrite and chalcopyrite in a gangue of manganosiderite.

Other base metal mineralization sites are discussed in Nye (1923), however each are small vein style galena dominated accumulations which were worked to a shallow depth only.

The Cleveland Sn-Cu deposit located 6km west of EL 48/94 comprises several stratabound lenses of pyrrhotite-cassiterite-stannite-chalcopyrite mineralization formed by metasomatic replacement of limestone beds. The limestone is a small part of the Crimson Creek Formation in the area, forming the transitional sequence between mafic volcanics and the overlying turbidite sequence. The tabular lenses are up to 30m in thickness, and are disrupted by a series of sub-parallel reverse faults that were mineralization conduits.

At Mt Bischoff, massive pyrrhotite has partially replaced a 40-60m thick dolomite bed within a sequence of turbiditic sandstone, siltstone and shale of the Oonah Formation. Quartz-feldspar porphyry dykes intrude this sequence. Other mineralization styles include topazised porphyry dykes and late stage quartz-carbonate-fluorite veins.

During the initial year's exploration of Waratah EL 48/94, work has focussed on the compilation and evaluation of previous prospecting and exploration data in order to prepare a geological framework of the areas for which more detailed studies may be investigated.

5.1 Data Review

Pasminco acquired available open file and Mines Department records, which were compiled and reviewed by contract geologist Ken Morrison (Appendix 2). This review has indicated the Waratah area to be prospective for three styles of deposit:

1 *Replacement*

Tin dominant anomalies have been identified in stream sediment and soil geochemical sampling and are also believed to be associated with granite-sourced geophysical anomalies, eg. Deep Gully Creek, Whyte River, Wombat Flat, Foleys East, Luina. The anomalies are possibly associated with sheet-like replacement of carbonate lithologies eg. Mt Bischoff style, and/or metasomatic replacement of limestone beds eg. Cleveland Sn-Cu deposit.

2 *Lead-zinc ± gold-silver veins*

Veins which have been drilled or sampled in the area are located at Butlers Road, Washington Hay, Persic-Silver Cliffs, Arthur Dam and Magnet. The vein-style mineralisation could be related to larger vein systems, stockwork development and/or structure controlled replacement mineralisation. Most of the discoveries remain under explored.

3 *Sub-basalt geophysical anomalies*

These are so far unexplained by drilling and are probably signatures related to Tertiary basalt, eg. Stonedam Creek and 1981 CRA MBD anomaly, Cominco DIGHEM anomaly.

5.2 Regional Data Compilation

Regional soil geochemistry data from Arthur Dam and Wombat Flat (Baker, 1986) and regional stream sediment geochemistry (Comstaff, 1977) is being added to Pasminco's Geological Information System (GIS) to form a regional database for the Waratah district. This data has not yet been reviewed.

5.3 Field Activity

Several brief field visits have been made during the year to familiarize with surface geology.

6 CONCLUSIONS

Exploration undertaken to date within Waratah EL 48/94 has focussed on the regional scale compilation of previous exploration data. Evaluation of geochemical anomalies and vein-style mineralization suggests three target styles in the area:

- 1) tin dominant replacement of carbonate lithologies
- 2) lead-zinc \pm gold-silver veins
- 3) Sub-basalt geophysical anomalies

Much of the Licence remains under explored either by inadequate follow up or lack of drilling.

7 RECOMMENDATIONS

Further exploration of Waratah EL 48/94 is recommended. Activity in the following year should include:

- Continuing regional scale compilation of geology, geophysics and geochemistry.
- Reprocessing of 1981 BMR 400m spaced regional aeromagnetic data and interpretation of 1: 50 000 output.
- Regional data review and investigation of the defined base metal veins and anomalies and accessible workings and prospects. Mapping should include:

MPI and other stream sediment anomalies;

Comstaff DIGHEM anomalies;

Oonah/Crimson Creek Formations faulted contacts;

Mapping along strike from Cleveland mine.

Further mapping and/or an appropriate sampling programme should be scheduled, subject to the results, if new or additional data is required.

8 ENVIRONMENTAL DISTURBANCE AND REHABILITATION

Brief field visits within EL 48/94 during the 1994 - 1995 period have been restricted to traverses on foot. No environmental disturbance was associated with this activity and no rehabilitation was required.

9 EXPENDITURE

Expenditure on EL 48/94 during the current period ending October 1995 is \$38 651.

Personnel & On costs	18 501
Travel & Accommodation	1 693
Geological Consultants	1 060
Analytical Costs	507
Drilling (including access & core processing/storage)	752
Other Consultants	3 119
Stores & Supplies	1 151
Vehicles & Equipment	1 298
Land	2 050
Computing	681
Office Running Costs	4 325
Administration Fee	3 514
TOTAL EXPENDITURE	38 651

10 KEYWORDS AND LOCALITY

BASIC VOLCANICS, BRECCIA, GRANITE, CARBONATE, BASE METALS, TIN, GOLD, REPLACEMENT, STOCKWORKS, VEINS, PRECAMBRIAN, CAMBRIAN, DEVONIAN, ORDOVICIAN, TERTIARY, DATA REVIEW, GEOLOGY, GEOCHEMISTRY.

BURNIE SK5503, WARATAH, RUSSELL, DUNDAS

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APPENDIX 1

Schedule for EL 48/94 Waratah

**LAND DISTRICT OF RUSSELL
VICINITY OF WARATAH
MUNICIPALITY OF WARATAH/WYNYARD
EXPLORATION LICENCE 48/94 87SKM
PASMNCO AUSTRALIA LIMITED**

Commencing at a south east corner at grid coordinates 376 000 metres E 5 406 000 metres N thence grid west to 370 000 metres E grid north to 5 407 000 metres N grid east to 371 000 metres E again grid north to 5 411 000 metres N again east to 373 000 metres E again grid north to 5 412 000 metres N again grid east to 374 000 metres E again grid north to 5 413 000 metres N again grid west to 370 000 metres E aforesaid south to 5 410 000 metres N again grid west to 366 000 metre E again grid north to 5 412 000 metres aforesaid again grid east to 376 000 metres E again grid north to 5 413 000 metres N aforesaid again east to 368 000 metres E again grid north to 5 414 000 metres N again grid east to 370 000 metres E aforesaid again grid north to 5 415 000 metres N again grid east to 372 000 metres E again north to 5 416 000 metres N again grid east to 382 000 metres E again grid south to 5 412 000 metres N aforesaid grid west to 380 000 metres E again grid south to 5 411 000 metres N aforesaid again grid west to 379 000 metres E again grid south to 5 410 000 metres N aforesaid again grid west to 376 000 metres E aforesaid thence again grid south to the point of commencement.

This area excludes: 4 ha Crown Reserves, 9 ha Mining Leases and 4 skm as described below:

Commencing at the south west corner of the area whose grid coordinates are 375 000 metres east 5 411 000 metres north thence grid north to 5 412 000 metres north grid east to 375 500 metres east again grid north to 5 413 000 metres north again grid east to 377 500 metres east grid south to 541 200 metres north aforesaid grid west to 377 000 west east again grid south to 5 411 000 metres north aforesaid thence grid west to the point of commencement.

LAND TENURE:

This area comprises:

- Private Property
- Crown Land
- Crown Land - Deferred Forest Land
- Sate Forest - Multiple Use Forest Land
- Savage River RAP - Crown Land
- Mt Ramsay RAP - Crown Land
- Deep Gully RAP - Crown Land

The area contains part of the Savage River; Australian Heritage Commission Act, Registered Entry.

Note: This land table is a guide only.

EXCLUSIONS

The area embraced by the licence includes State Forests but does not include:

- (A) All other public reserves or municipal reserves or roadways.
- (B) All forms of mining tenements and water licences including leases, water licences, easement licences, special and exploration licences, prospectors licences, miners rights, permits to enter, owners consents and owners rights which were in lawful possession or marked out prior to the date of marking out of this licence.
- (C) Land exempt from the provisions of the Mining Act, 1929.
- (D) Land under the National Parks and Wildlife Act, 1970 not subject to the Mining Act, 1929.
- (E) All Crown reservations or other land set apart or dedicated for any public purposes.

APPENDIX 2

Open File Literature Review - K.C Morrison, August 1995

**Pasminco Exploration
Waratah Project
Open File Literature Review**

K.C. Morrison
2 August 1995

1. INTRODUCTION

The project area is currently covered by three Exploration Licences; E.L.s 17/93 and 49/94 (MPI Pty Ltd) and E.L. 48/94 (Pasminco Exploration).

A comprehensive set of company reports on previous exploration covering parts of the project area is held in the Tasmania Development and Resources Open File library, Rosny Park.

Previous literature reviews on the most important references have been conducted by Pasminco for the ETA 366 (E.L. 48/94) application bid (Saxon, 1994) and for background to the MPI joint venture negotiations (Morrison, 1995 a and b). This report supplements those earlier reports and is intended to complete the pre-exploration review of existing data availability.

2. PREVIOUS EXPLORATION

A comprehensive bibliography of company reports on previous exploration within the Waratah-Mt Cleveland area is enclosed as Appendix 1, which includes four reference lists.

- BHP (Comstock JV) - Open File Report 88-2815
- Tasmanian Department of Mines Unpublished Report 1983/35 reference list.
- Pasminco - ETA 366 evaluation, internal memorandum.
- Pasminco Library - listing of reports copied.

These reports, together with exploration and research conducted by the Tasmanian Department of Mines (Collins, 1983; Brown, 1986) show that exploration useful to Pasminco at Waratah has been conducted by the following groups:

1963-1989

Cominco Exploration Pty Ltd (plus Aberfoyle Resources Ltd and Billiton Australia); E.L. 1/63 and E.L. 34/82.

1963-1989

Comstaff Pty Ltd (plus BHP Co Ltd); E.L. 5/63, E.L. 1/68, 7 AP/AM

1983-1985

Tasmanian Department of Mines; Luina and Wombat Flat Exempt Areas.

1988-1990

Billiton Australia; E.L. 46/88

1989-1990

Placer Exploration Ltd; E.L. 47/88

1990-1993

RGC Exploration Pty Ltd; E.L. 12/90, E.L. 15/90

1991-1992

Geopeko; E.L. 45/85, E.L. 21/90

Prior tenure and the main prospects are shown on Figure 1.

Saxon (1994) summarised the main prospects and exploration anomalies investigated by the previous explorers and, when combined with the information on the abandoned small lead-zinc workings along the "Magnet trend" (Ward, 1911; Nye, 1923; Ellis, 1980 a and b), they fall into 4 categories of probable explanation.

1. Tin dominant anomalies and associated granite-sourced geophysical anomalies; Deep Gully Creek, Whyte River, Wombat Flat, Foleys East, Luina. Most of the Cominco, Billiton and RGC work was directed towards tin.
2. Sub basalt geophysical anomalies unexplained by drilling and probably related to Tertiary basalt; Stone Dam Creek (and 1981 CRA MBD anomaly), Cominco Dighem anomaly (possibly sub basalt gravels)
3. Small lead-zinc veins, drilled or reasonably sampled; Washington Hay, Butlers Road, Persic-Silver Cliffs.
4. Significant zinc +/- gold mineralisation with exploration signature demonstrated and currently underexplored; Arthur Dam, Magnet.

Arthur Dam ranks higher than Magnet because on the former a strong geochemical/magnetic anomaly with easy access has been partly drilled, with an encouraging zinc/gold intersection, and requires evaluation with more drilling. In particular, the larger of the two soil anomalies remains totally untested (Figure 2).

3. FUTURE EXPLORATION

A proposal and work program to explore Arthur Dam is outlined in Morrison (1995c). At Magnet the old Comstaff grid along the alteration zone has only three exploration drill holes within it (Figure 2) and the current Pasmenco strategy for Year 1 exploration is to conduct an ore and host rock petrology and geochemistry comparative study between Arthur Dam (drill core) and Magnet (outcrop and dump samples).

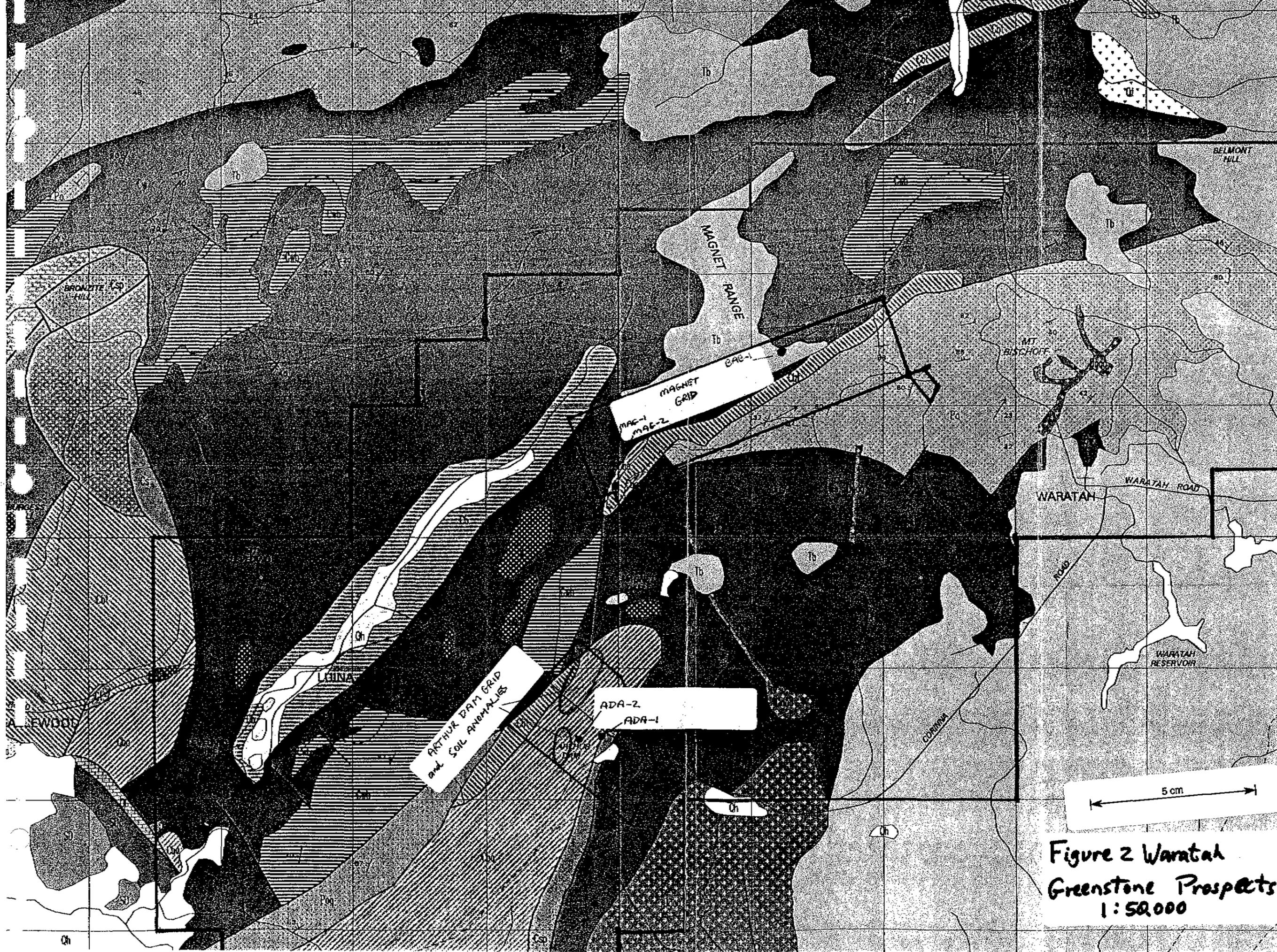


Figure 2 Waratah
Greenstone Prospects
1:50,000

On the regional scale the aim is to compile a set of maps interpreting the available geology, geophysics and geochemistry, focussed on the NE-SW trending low magnetic belts of mafic and ultramafic volcanics, including the high magnesium andesites and low titanium basalts thought to be associated with Magnet and Arthur Dam mineralisation. The regional work will also target structural and lithological signatures associated with replacement style mineralisation as outlined in Saxon (1994).

Inventory of Best Regional Data Available for Year 1 Compilation

1. *Geology*

Tasmanian Geological Survey, 1995, Central Arthur Project - Map 2, 1:50,000 Sheet [MRT publication]

Tasmanian Geological Survey, 1986, Bulletin 62, Geology of the Dundas-Mt Lindsay-Mt Youngbuck Region. [MRT publication]

2. *Stream Sediment Geochemistry*

Comstaff E.L. 5/63 - data base, print out of all samples 1963-1977 - MRT Open File Library [77-1226]

Cominco E.L. 1/63 - 1:25,000 maps [74-1-36, 75-1072, 76-1181]

Placer E.L. 47/88 - data tables in report, Magnet area [90-3070]

Geopeko E.L. 21/90 - 1:25,000 compilation maps of previous data [92-3371]

MPI E.L. 17/93 - 1:25,000 maps with new data [Roger Poltocks Report]

3. *Aeromagnetics*

Cominco 1974 helimag survey, .52 m line spacing [75-1072, 75-1115]

CRAE 1979 Georex survey - original data not located but reprocessed by Billiton [89-3053]

Department of Mines 1981 West Coast Survey [Unpublished Report 1982/39]

Comstaff 1982 Area 1 Survey [88-2815]

RGC - 1991 Magnetic and gravity interpretations of existing data, including review of 1981 Department of Mines Survey by Wyatt and Associates [91-3284]

Pasminco in-house magnetics, based on 1981 Department of Mines data.
This may be the best achievable from existing data.

4. *Airborne EM*

Comstaff 1975 Input EM [88-2815]

Cominco 1980 Dighem EM [80-1452, 80-1485]

Cominco 1981 Dighem EM [81-1577, 82-1710]

Comstaff 1983 Dighem EM, helisurvey 200 m line space. This is probably the most useful survey [84-2135 = W5 (Pasminco library), 84-2129, 88-2815]

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APPENDIX 3

Prospectivity Review Progress Report - K.C Morrison, May 1995

734052

Pasminco Exploration

E.L. 48/94 and E.L. 17/93

**Prospectivity Review Progress Report
1 May 1995**

**K.C. Morrison
1 May 1995**

A full review of the Open File literature, including the geophysics data requested by Paul Basford, is still in progress but several observations and conclusions worthy of reporting have been made to date.

1 ARTHUR DAM MINERALISATION

Complete drill core sets from the 1985 Mines Department holes AD-1 (395 m) and AD-2 (296 m) are held at the MRT core store, Mornington. No drill logs are registered on the Open File data base in the MRT library but during 1994 the core was re-sampled (and possibly logged) by Roger Poltock for MPI.

Both holes were drilled on the same azimuth and declination but AD-1 was collared 75 metres north and 365 metres east of AD-2. The original Department of Mines assays were taken on 46 samples from AD-1 and 27 from AD-2. The results were markedly different, with AD-1 showing no useful Zn/Pb mineralisation but several marginal Cu/Ag values (maximum sample 216 @ 1.9% Cu, 36 ppm Ag), and AD-2 showing no significant copper but strong Pb-Zn + minor Au mineralisation. In particular an 8 metre zone from 107 metres, grades +5% Pb + Zn, in addition to several intersections grading from 1 - 6 ppm Au over drill widths of 20 - 100 cm.

The different formats of assay data for AD-1 and AD-2 and the absence of logs and a report suggests that not all the information was preserved at MRT.

Inspection of the core over the mineralised interval of 105 - 130 metres in AD-2 shows the host rock to be mainly green chloritic and partly serpentinised, pyroxene-rich, medium grained dolerite/pyroxenite, with lesser amounts of green-black fine basic lava and argillite. Brecciation and pervasive silica and silica/hematite alteration are common, especially near mineralisation (Photo 1).

Mineralisation is dominantly sphalerite-galena plus minor chalcopyrite and pyrite. The sphalerite-galena occurs in undulose bands (Photo 2) and pyrite is in surprisingly low abundance. No carbonate, sulphate or disseminated pyrite were observed in mineralised zones and the sphalerite appears to be mainly pink-brown, rather than the darker, Fe-rich marmetite variety, common in Devonian vein deposits in Tasmania.

On the basis of observations to date, the mineralisation shows little affinity with either fracture-fill quartz vein style or replacement/skarn style. The prevalence of intense brecciation and cataclastic silicification pervading the mafic host rocks, together with ore mineral banding but no evidence of selvage textures, suggests a style more typical of control by a major structure, eg the greenstone shear zone style.

*low H₂O content
green to
sh. to
alt. about 100m in
low H₂O content
low H₂O content
low H₂O content*

*Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
Photo 9
Photo 10
Photo 11
Photo 12
Photo 13
Photo 14
Photo 15
Photo 16
Photo 17
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Photo 97
Photo 98
Photo 99
Photo 100*

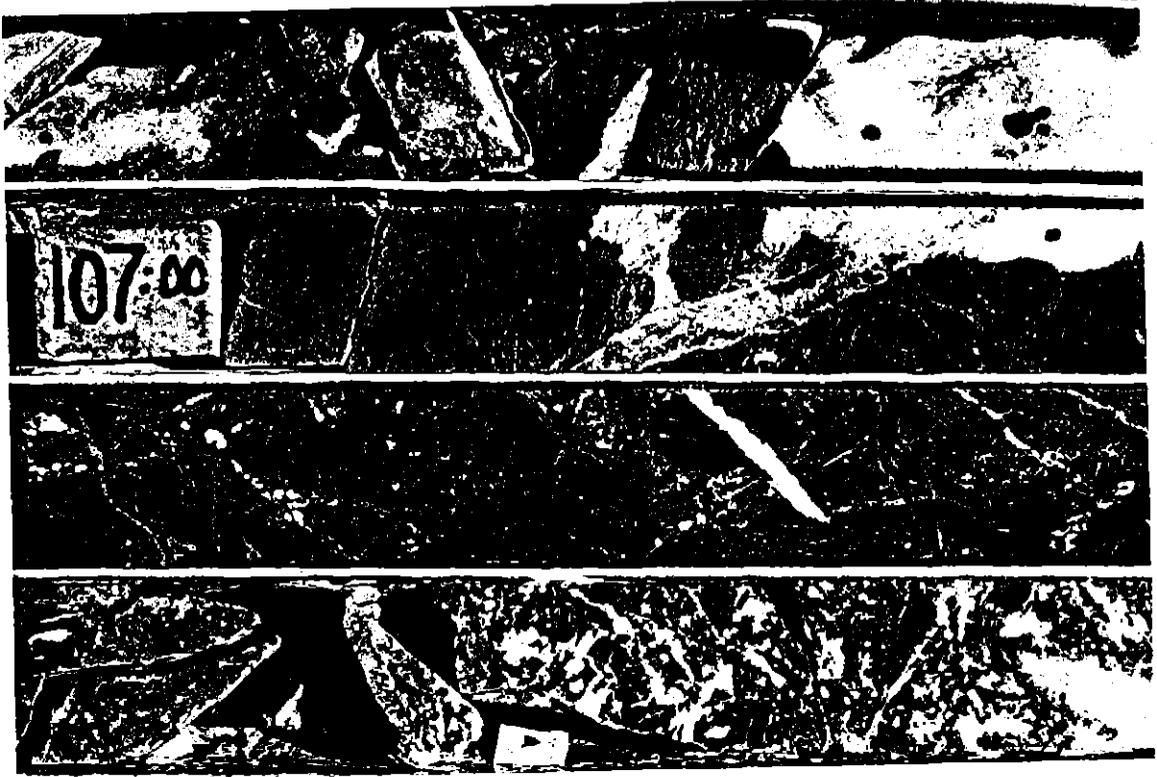


Photo 1 Brecciated mafic volcanics with silica, sphalerite and cataclastic vein quartz alteration, AD-2.

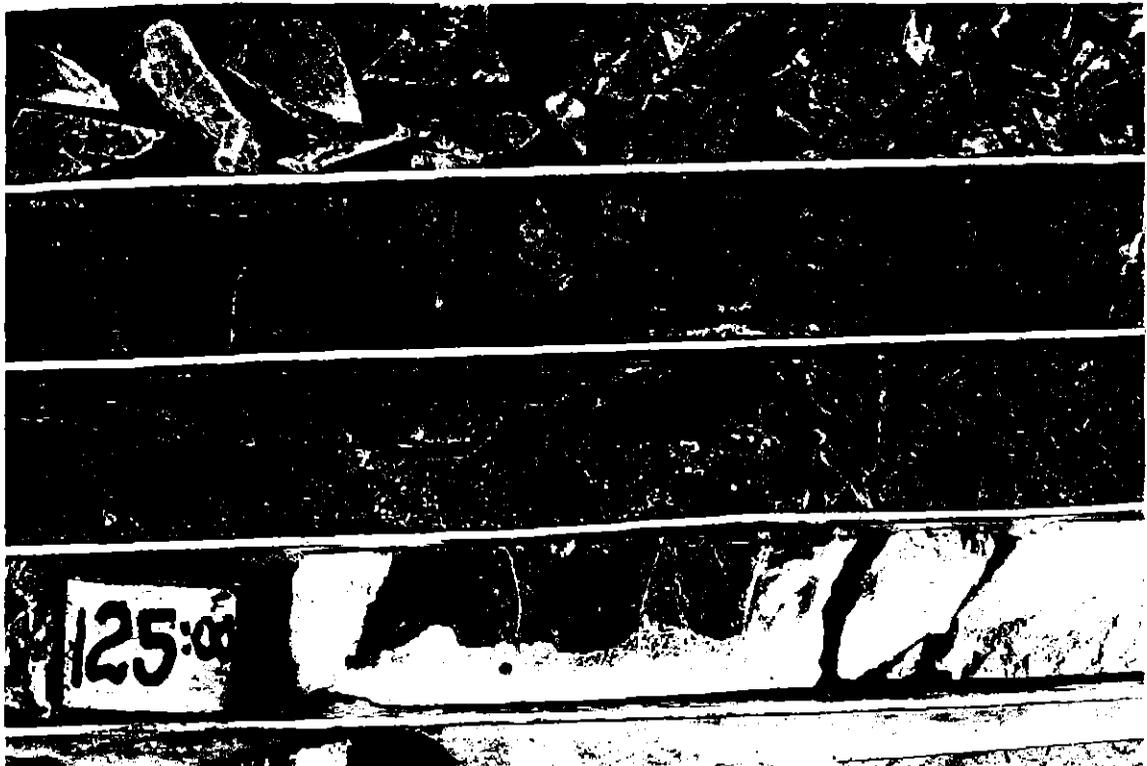


Photo 2 Weakly banded sphalerite-galena (minor chalcopyrite) with silica, hematite mineralisation in mafic volcaniclastics, AD-2.

2 MAGNET MINERALISATION

The observations above raise the possibility that Arthur Dam and Magnet may be of similar style and that both may have a different genesis than those small vein deposits along the "Persic-Godkin trend" which have closer affinities to the Devonian granites.

In the literature, Magnet is described as occurring at intersecting shears within a partly alocchthonous, brecciated unit of layered ultramafic/mafic porphyries and orbicular lavas (Cottle, 1951). The structure is probably a thrust, upthrusting the middle Cambrian "Magnet Dyke" rocks against older Crimson Creek Formation correlates (Collins & Williams, 1986). Brown (1986) equates the Magnet Dyke rocks to the low titanium basalt and high magnesian andesite suites of lavas and volcanoclastics mapped regionally to the north of the Meredith Granite.

Mineralisation at Magnet is described as banded galena-sphalerite-pyrite with mainly ankerite and siderite gangue, extending into the wall rocks (Cottle, 1951). A 1800 x 400 metre arcuate alteration zone of propylitic quartz veining, pyrite and chalcopyrite haloes the deposit at the shear zone intersection (Ellis, 1990).

Another similarity with Arthur Dam is the apparent presence of accessory gold at Magnet. In a report to the Department of Mines (Report No. 69, year unknown) mine management quote ore parcels with up to 260 oz per ton Ag and 12 ppm Au. Ward (1911) refers to traces of gold in the galena lodes of the Waratah district and Nye (1923) specifies grades of 3 ppm Au in ore samples from the Confidence Mine, where the host rock is described as "serpentinised gabbro". However, at the Tinstone Creek zinc-antimony-lead prospect, hosted in Oonah Formation metasediments, gold assays in the high grade samples returned <0.15 ppm (Brathwaite, 1970). A thorough sampling program of all available shows between Waratah and Heazlewood is needed to test the link between gold and host rock composition.

3 CONCLUSIONS AND RECOMMENDATIONS

- 1 An exploration model covering the main features of the Magnet deposit and the Arthur Dam mineralisation involves targets which are structurally controlled, hosted in the NE-SW trending Cambrian greenstone belts and contain a low pyrite, moderate zinc+lead, high silver plus some gold ore mineralogy.

The strike extent of the prospective rocks requires the two ELs to be worked together and, as Arthur Dam is the only presently known target requiring prospect scale exploration, an approach to MPI Gold Pty Ltd for an option/JV to explore EL 17/93 is warranted.

- 2 Two aspects of the geology of this deposit type which provide exploration opportunities are the structural intersections (shear zones) and the potential for trends in the base and precious metal composition. A regional geophysics/structural geology compilation, with new magnetics and gravity acquisition if required, combined with a study of the ore mineralogy and lead and sulphur isotope signatures from the old workings, should locate prospects for grid-based exploration leading to drilling.

Arthur Dam is already at the stage where grid-based drill target generation work is needed. Core log and assay information held by MPI should be accessed under the impending option/JV agreement and, if necessary, further logging and petrology should be conducted on the core in Hobart.

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