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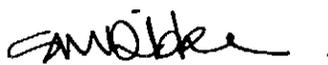
PASMINCO EXPLORATION

COMBINED
BOCO EL 2/90 & NORTH PINNACLES EL 8/90

FINAL REPORT

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DATE: August 1996
REPORT No.: TA-23
SUBMITTED TO: Regional Exploration Manager - Tasmania
DISTRIBUTION: Mineral Resources Tasmania - Hobart
Pasminco Exploration - Burnie
- Melbourne
- Rosebery

El 2/90 See
folio 143, 44
El 8/90 See
folio 113, 114

SUBMITTED BY: 

ACCEPTED BY: 

BURNIE
AUGUST
1996

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SUMMARY

Exploration Licences 2/90 and 8/90, located 17km north of Rosebery, cover a total area of 26km² which has been actively explored for polymetallic base metal sulphide mineralisation by Pasminco Exploration.

Total expenditure on EL 2/90 and 8/90 since inception in 1990 is \$559 604 and \$182 526 respectively. Results of exploration activities conducted by Pasminco over the last six years has failed locate economic mineralisation. Instead the prospectivity of both EL 2/90 and 8/90 has been significantly reduced by the lack of encouraging results, and hence Pasminco Exploration now wishes to withdraw their application to renew the tenements.

1 INTRODUCTION

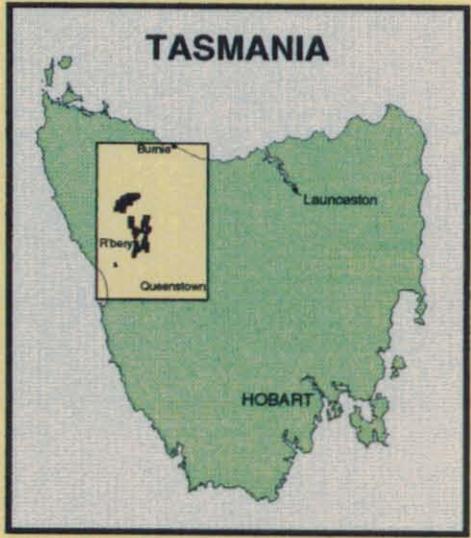
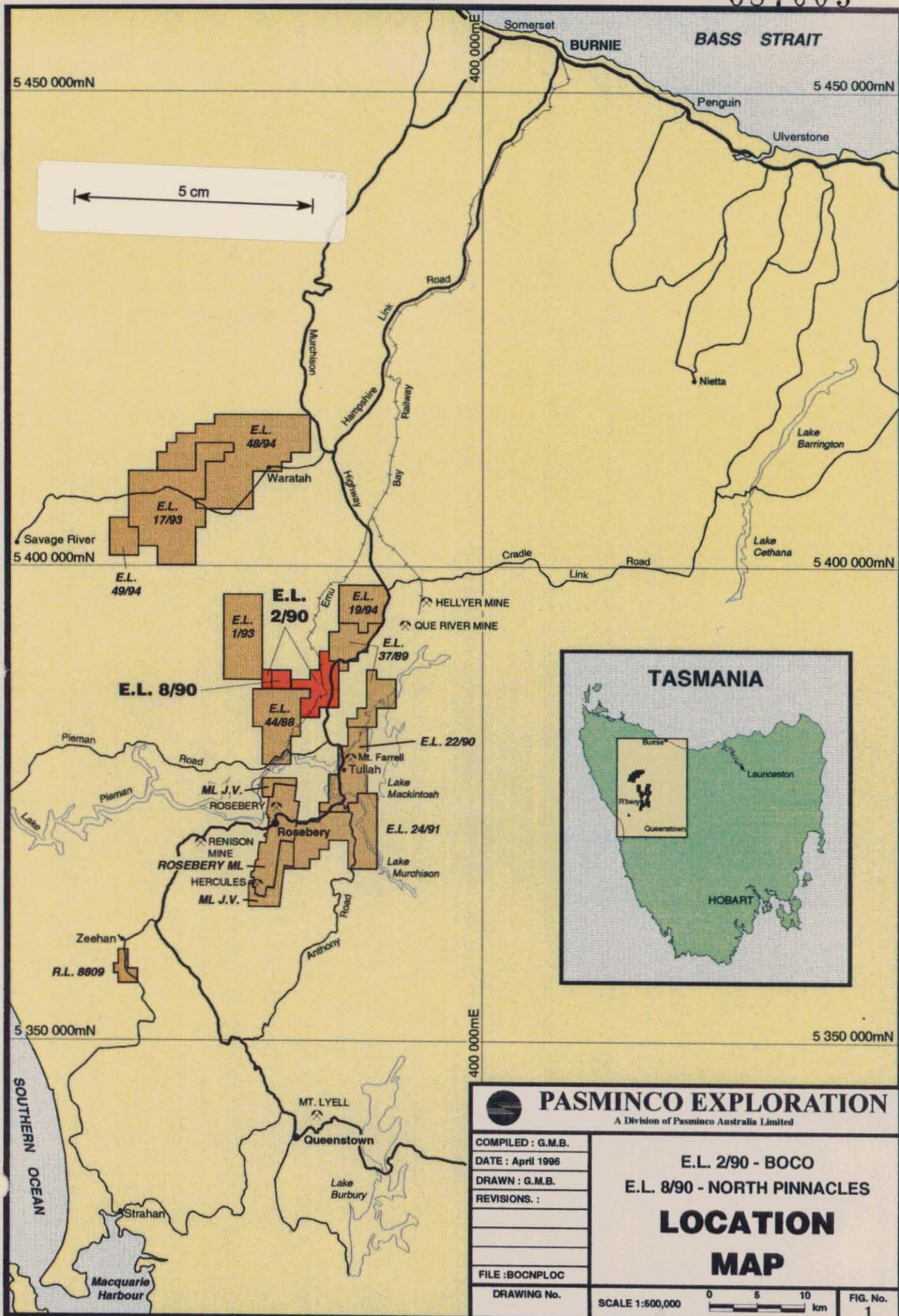
This report documents work undertaken on Exploration Licences 2/90 Boco since the 20th of April 1990 and 8/90 North Pinnacles since the 8th of June 1990, until the 31st of July 1996.

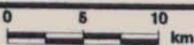
The two licences reported here are held under the same terms and conditions by Pasmenco Exploration, a division of Pasmenco Australia Limited. The licences form one geographically and geologically coherent block, and as such have been amalgamated for reporting purposes.

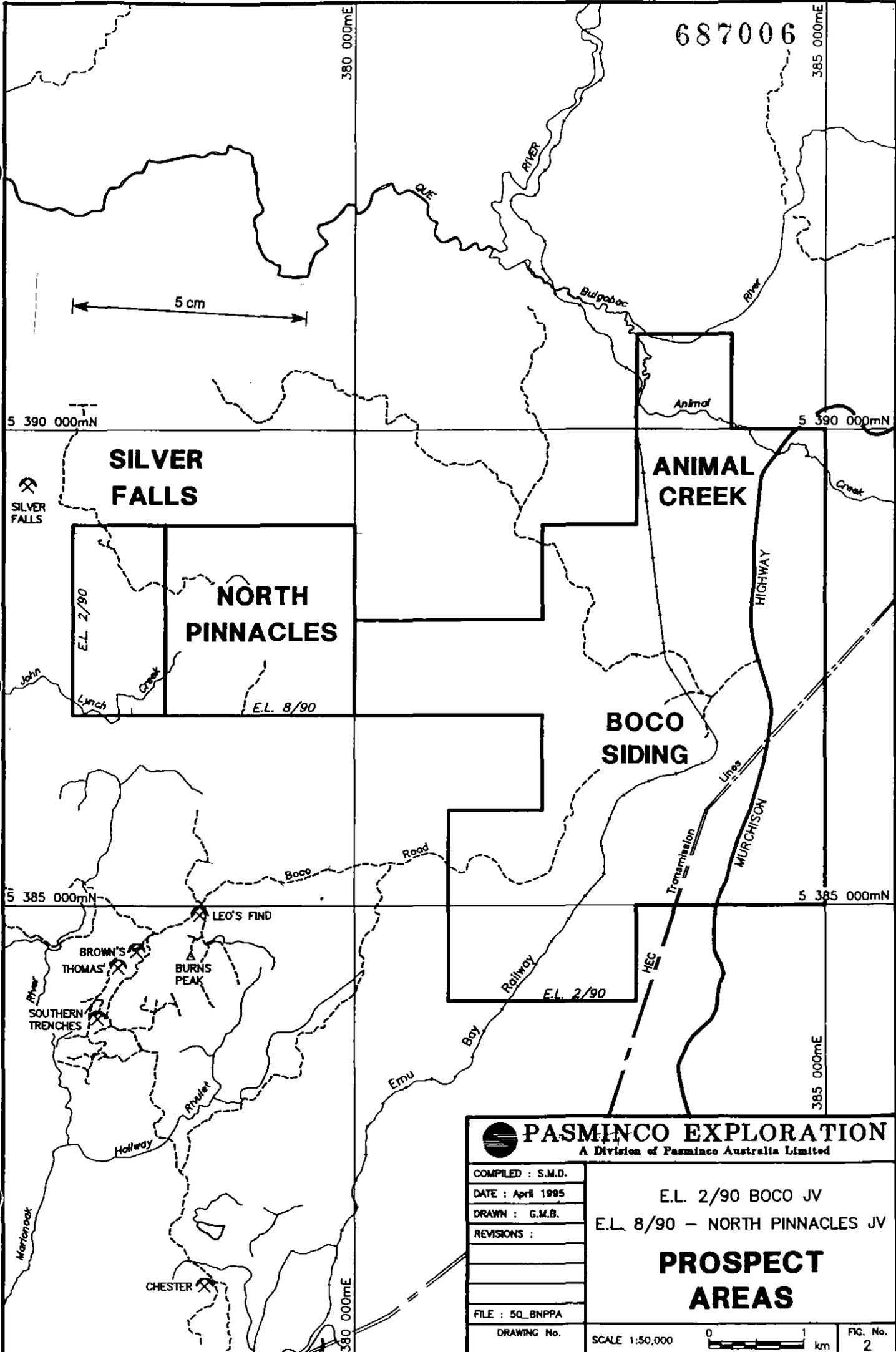
The licence renewal dates have been synchronized to the 8th of June, however budgets and expenditure on the licences remains separate, in accord with an agreement approved by the Department of Mines on 11 May 1992.

EL 2/90 (22km²) and EL 8/90 (4km²) jointly cover 26km² of the Cambrian Mt Read Volcanics and are centred 17km NNE of Rosebery and 16km SW of the Hellyer Mine on Tasmania's West Coast (Figure 1). The principal target of exploration on the licences is a volcanic hosted auriferous base metal massive sulphide body, similar to those at Rosebery and Hercules.

The EL's include old workings at Boco Creek (Samuel Smith's Lode), with the Silver Falls Pb workings occurring immediately outside the licences' western boundary. Advanced exploration throughout the past 20 years, principally over the North Pinnacles, Silver Falls and Boco Siding Prospects, (Figure 2) has left a legacy of good access tracks and grid lines on the southern half of the licences, with access in the east and northeast along the Murchison Highway and Emu Bay Railway.



 PASMINCO EXPLORATION <small>A Division of Pasminco Australia Limited</small>	
COMPILED : G.M.B. DATE : April 1996 DRAWN : G.M.B. REVISIONS : FILE :BOCNPLOC DRAWING No.	E.L. 2/90 - BOCO E.L. 8/90 - NORTH PINNACLES LOCATION MAP
SCALE 1:500,000	
	FIG. No. 1



 PASMINCO EXPLORATION A Division of Pasminco Australia Limited	
COMPILED : S.M.D. DATE : April 1995 DRAWN : G.M.B. REVISIONS : FILE : 50_BNPPA	E.L. 2/90 BOCO JV E.L. 8/90 - NORTH PINNACLES JV <h2 style="margin: 0;">PROSPECT AREAS</h2>
DRAWING No.	SCALE 1:50,000
	
FIG. No. 2	

2 TENURE

Exploration Licence 2/90 (Boco) of 55km² was granted to The Shell Company of Australia Limited on 20 April 1990 for a period of 10 years, renewable every 12 months. This followed Shell's successful tender through the Tasmanian Department of Mines tender system.

Billiton Australia (Billiton), the metals division of The Shell Company of Australia, were sole managers and operators of EL 2/90 from the date of inception until 12 October 1990 when a heads of agreement to form a joint venture between The Shell Company of Australia Limited and Pasminco Australia Limited (Pasminco) was signed. This Joint Venture applied to both EL 2/90 and EL 8/90 (North Pinnacles). The JV agreement allowed Pasminco to earn a 60% interest in the two licences by spending a combined total of \$500,000 over 4 years from the date of inception of the Joint Venture.

The Joint Venture agreement between Pasminco and the Shell Company of Australia Limited was terminated during the 1994/95 working year. Since then EL 2/90 and EL 8/90 have been fully owned and managed by Pasminco.

Under current Department of Mines regulations, EL 2/90 was subject to a compulsory 50% reduction in April 1995. The tenement area was reduced from 55km² to 22km². Tenement EL 8/90, although due for compulsory reduction at this same time, was exempt as any reduction in the 4km² size would result in an unworkable exploration area (Saxon, 1995a). Both EL 2/90 and EL 8/90 are now at the end of the sixth year of tenure.

Land covered by tenements EL 2/90 and EL 8/90 is unallocated Crown Land designated as Multiple Use Forest Land (Figure 3).

687008

380 000mE

385 000mE

5 cm

5 390 000mN

5 390 000mN

SILVER FALLS

E.L. 2/90
E.L. 8/90

5 385 000mN

5 385 000mN

BROWN'S
THOMAS
SOUTHERN TRENCHES
LEO'S FIND
BURNS PEAK

KEY

-  HEC Vested Land - included in E.L.
-  Multiple Use Forest

NOTE

Tenure is shown within E.L.'s only

380 000mE

385 000mE

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : G.M.B.
DATE : April 1996
DRAWN : G.M.B.
REVISIONS :

E.L. 2/90 BOCO
E.L. 8/90 - NORTH PINNACLES

LAND TENURE

FILE > 50_BNPLT
DRAWING No.

SCALE 1:50,000



FIG. No. 3

3 REGIONAL GEOLOGY

The following summary is extracted from Saxon (1995b).

ELs 2/90 and 8/90 are located within the Dundas Trough of western Tasmania. The target sequence is the Middle Cambrian Mt Read Volcanics.

Basement in western Tasmania is Precambrian age, comprising predominantly greenschist facies meta-sediments with minor basalts and dolerites. Higher grade amphibolite and eclogite facies are also present within the Precambrian. This Precambrian basement is exposed to the west of the two exploration licences (Figure 4).

Cambrian volcanism and sedimentation developed on this continental crust, and is subdivided into the Eo-Cambrian tholeiitic Crimson Creek Formation (CCF) and the mid to late Cambrian Dundas Group and predominantly calc-alkaline Mt Read Volcanics (MRV).

The CCF was deposited in shallow but rapidly subsiding basins (Brown, 1986 and Haines, 1991). The CCF consists of basaltic lavas and volcanoclastics, turbidites, carbonates, chert and minor evaporites. The formation is exposed west of the licences.

Ultramafic cumulates and volcanic equivalents were thrust onto the CCF in the mid Cambrian (Crawford and Berry 1991). These rocks generate strong magnetic anomalies and outcrop within the Huskisson Syncline, to the west of the licences (Figure 4). The ultramafics are interpreted at depth between North Pinnacles and Silver Falls by Leaman (1992).

The MRV form a 200km long by 20km wide north-south trending belt along the eastern side of the Dundas Trough, adjacent to and in some areas on lapping and intruding the Precambrian basement. The volcanics include intermediate to felsic lavas, subvolcanic porphyries and granites, volcanoclastics and basement-derived sedimentary

rocks. The MRV host five economically significant volcanic hosted massive sulphide deposits.

In the two exploration licences, equivalents of the MRV underlie the entire licence, and vary from massive felsic lavas, volcanoclastics and subvolcanic intrusives in the southeast, to mixed provenance fine to coarse grained sediments in the north and northwest.

A package of sediments which possibly postdates the MRV occurs in the western sector of the licence footwall to the Rosebery Fault. These carbonate siltstones, wackes and polymict conglomerates have been recently temporally correlated via fossil evidence with the Owen Conglomerate. Gradationally overlying this sequence are quartz muscovite sandstone and conglomerate largely derived from Precambrian metasediments, but with some material from felsic volcanics and ultramafics.

Regional structures associated with the MRV are the Rosebery Fault, splays of which extend into the Silver Falls area, and the Henty Fault which is located 5km east of the licence.

Cambrian volcanism and sedimentation was followed by predominantly basement derived late Cambrian to Devonian age sedimentation, which includes siliclastic conglomerate, sandstone and limestone. None of these sequences occur within the licence.

At least two phases of regional compression were associated with the mid Devonian Tabberabberan Orogeny (Keele, 1991). The development of folding, cleavage and regional thrusts in lower Paleozoic rocks were associated with this event. Fold trends in the licences are N to NE.

Deformation was followed by the extensive intrusion of Devonian to Carboniferous granitoids. The Meredith Granite and its associated metamorphic aureole outcrop west of the B-NP licences (Brown 1986). The Meredith Granite dominates the regional gravity in the licence area. The Devonian granites are associated with carbonate

replacement Sn mineralisation at Renison Bell and Mount Bischoff, and the Pb Zn Ag vein deposits of Zeehan and possibly the Tullah Fields.

After substantial erosion of this terrane extensive Tertiary flood basalts and sub-volcanic sediments were deposited. Remnants of the basalt flows are preserved to the north of the licences.



PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED : P.G.R.

DATE : April 1996

DRAWN :

REVISIONS

FILE :

DRAWING No.

SCALE 0 2 4 km

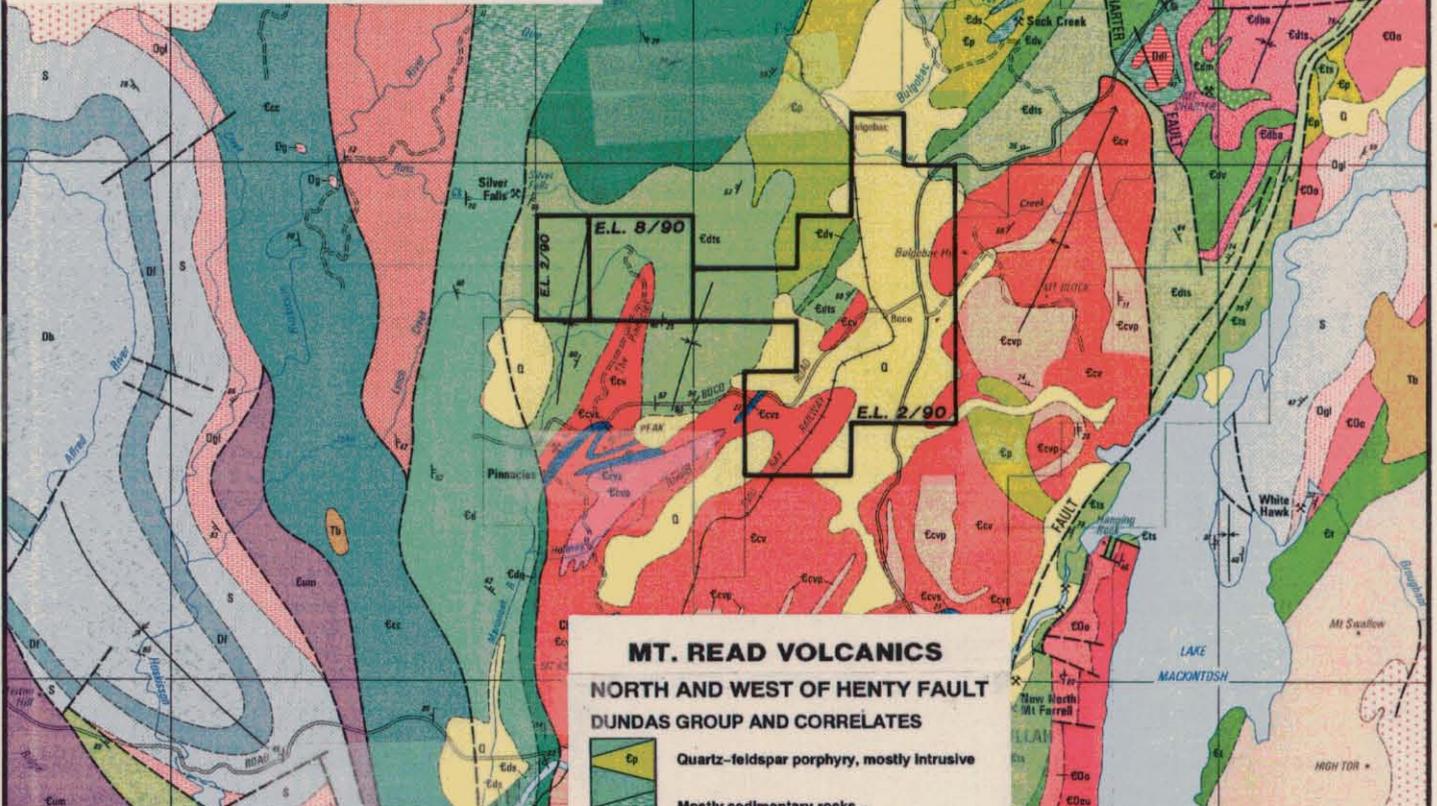
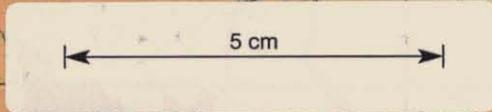
FIG. No. 4

E.L. 2/90 - BOCO
E.L. 8/90 - NORTH PINNACLES
REGIONAL GEOLOGY
FROM MAP 6 OF THE
MT. READ VOLCANICS PROJECT

ACKNOWLEDGMENT

Mt. Read Volcanics Project adopted from Map 6 - Geological Compilation Map of the Mt. Read Volcanics & Associated Rocks, from Hellyer to South Darwin Peak.

K.D. Corbett B Sc (HON) PhD and A.W. McNeill B Sc (HON) 1988.



MT. READ VOLCANICS
NORTH AND WEST OF HENTY FAULT
DUNDAS GROUP AND CORRELATES

- Quartz-feldspar porphyry, mostly intrusive
- Mostly sedimentary rocks - greywacke, siltstone, conglomerate
- Interbedded tufts and sedimentary rocks
- Quartzwacke-slate-siltstone units, e.g. Stitt Quartzite
- Mostly felsic volcanics - mainly tufts
- Mixed felsic and mafic volcanics and epiclastic breccias, Que-Hellyer area
- Basaltic to andesitic volcanics

CENTRAL VOLCANIC COMPLEX

- Mainly feldspar-phyric volcanics - dacite, rhyolite, minor andesite (Ccv)
- Felsic porphyry, mainly intrusive
- Mainly pyroclastic rocks
- Sedimentary rocks, mainly shale and sandstone
- Andesitic volcanics

CAMBRIAN INTRUSIVE ROCKS

- Granite
- Felsic porphyry
- Gabbro
- Ultramafic rocks & serpentinite

SOUTH AND EAST OF HENTY FAULT
TYNDALL GROUP AND CORRELATES

- Mainly sed. rocks, incl Farrell Slates
- Mainly quartz-feldspar-phyric volcanic and volcanoclastic rocks (Ct)
- Mainly volcanoclastic congl. and sandstone
- Sticht Range Beds - sandstone, siltstone, siliciclastic conglomerate

PRECAMBRIAN

- Quartzite-slate sequences - correlates of Oonah Formation
- Metamorphosed sequences of Tyennan Region. Major lithological boundary trends shown

- QUATERNARY**
 - Glacial deposits, alluvium, etc.
- TERTIARY**
 - Basalt
 - Sediments - gravel, sand, clays
- JURASSIC**
 - Dolerite
- PERMIAN - CARBONIFEROUS**
 - Undifferentiated
- DEVONIAN**
 - Dolerite
 - Granite
- DEVONIAN - SILURIAN**
 - Bell Shale
 - Florence Sandstone
 - Silurian
- ORDOVICIAN**
 - GORDON GROUP limestone
- EARLY ORDOVICIAN - LATE CAMBRIAN**
 - Upper sandstone sequences including Pioneer Beds (COou)
 - Undifferentiated conglomerate and sandstone (COo)
 - Newton Creek Sandstone (COon) - interbedded sandstone siltstone and conglomerate with marine fossils

4 EXPLORATION SUMMARY

Exploration prior to 1990 on what is now EL2/90 and EL8/90 has been summarised by Randell (1991). Previous exploration since the inception of both tenements is listed below. For a full discussion on previous exploration refer to the annual reports referenced.

20/04/90 - 10/10/90

EL 2/90: analysis of past exploration and the collection and assaying of 20 lithochemical samples in an attempt to locate favourable lithochemical breaks in the stratigraphy that may host economic mineralisation. (Randell, 1991a)

EL 8/90: analysis of past exploration and conceptual modelling, and the collection of three lithochemical samples. (Randell, 1991b)

11/10/90 - 29/02/92 (Kirsner, 1992) (EL 2/90 and EL 8/90 combined)

- high-level black and white photogrammetry
- transferring of all historical drill hole data into Techbase
- 100m spaced helimag and radiometrics was flown at a 80m flying height and a report was produced (Leaman, 1991a and b)
- two gravity surveys were completed by the Tasmanian Division of Mines and Mineral Resources, one in an area of glacial cover between Animal creek and to the north and the boundary of EL 2/90 to the south and the other over the North Pinnacles and Silver Falls prospects. The surveys covered in excess of 20km² each and at 225m of 400m spacings. Relevant reports include Leaman (1991c and 1992)
- regional mapping throughout the area which followed on from a base metal study done by Wright, Lees and Lorrigan (1991)
- mapping and relogging drill core in the Boco Siding alteration zone
- the drilling of AK1 (553.7m) which targeted a magnetic gravity feature at the contact between the CVC and Dundas Group (Poltock, 1993).

29/02/92 - 06/05/93 (Poltock 1993)

- 400m spaced gridding in the northwest portion of the area to accommodate geological mapping, IP, soil geochemistry and gravimetric work
- the collection of 74 rock chip samples :- 53 as reference samples, 5 for ore and pathfinder element analysis and 21 for whole rock geochemistry. Of these nine samples were sent to Tony Crawford for petrography

06/05/93 - 30/04/94 (Poltock 1994)

- 470 B/C horizon samples were taken from the Silver Falls grid
- previous geochemical data collected by Aberfoyle was digitised and combined with the Pasminco data
- NPD5 (781.6m) was drilled to intersect the Brown's Tunnel host sequence but terminated in Pinnacles Rhyolite
- All available electrical geophysical data was compiled and integrated with the Pasminco IP survey. Target areas were defined in the northwest of EL 2/90 and in the North Pinnacles prospect.
- 3.6km of line access cut in the Bulgobac Falls area of EL 2/90
- Rehabilitation of NPD5 and DDH HRD1 access tracks

01/05/94 - 30/04/95 (Saxon 1995)

- DHEM conducted on NPD5 using two 600m x 600m loops, located a conductive body greater than 300m from the hole (possibly east) at a depth of 400m which is thought to correspond to shales within the White Spur Formation

01/05/95 - 30/04/96 (Dibben 1996)

- 1 600m of ground magnetics and 1600m of ground IP in the southeast of EL 2/90
- geological mapping of the grid lines cut for the Ground magnetic/IP survey
- geological mapping of the southern part of the Emu Bay Railway cutting within EL 2/90
- a geological interpretation of the regional aeromagnetic and gravity data

5 EXPENDITURE SUMMARY EL 2/90 AND EL 8/90

Annual expenditures for exploration conducted on tenements EL 2/90 and 8/90 since inception is listed below:

DATE	EL 2/90	EL 8/90
20/04/90 - 10/10/90	4 736	295
11/10/90 - 29/02/92	246 916	32 156
29/02/92 - 06/05/93	187 374	23 782
06/05/93 - 30/04/94	86 683	107 795
01/05/94 - 30/04/95	16 339	12 210
01/05/95 - 30/04/96	17 556	6 288
Total	559 604	182 526

6 CONCLUSIONS AND RECOMMENDATIONS

Since 1990 Pasminco Exploration has carried out extensive work on EL 2/90 and 8/90 including photogrammetry, mapping, lithogeochemistry, rock chip sampling, aeromagnetic, IP and gravity surveys, relogging of diamond core, diamond drilling and downhole EM. Exploration activities on the current target areas have failed to locate significant mineralisation at shallow depths and have produced negative results. A re-assessment of all past exploration data has indicated that the potential for mineralisation within the tenements is low.

Therefore Pasminco Exploration has decided to withdraw their application for renewal on tenements EL 2/90 and 8/90.

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9 KEY WORDS AND LOCATION

LEAD, ZINC, GOLD, SEDIMENTS, ACID VOLCANIC, RHYOLITE, IP, GROUND
MAGNETICS, AEROMAGNETICS, GRAVITY, SILVER FALLS, ROSEBERY,
EMU BAY RAILWAY.

BOCO, NORTH PINNACLES, SK55-3