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Pasminco Rosebery Mine

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BURNS PEAK EL 44/88
JOINT VENTURE ANNUAL REPORT
1ST JANUARY 1999 - 31ST OCTOBER 1999

99_4394

Joint Venture Annual Report - Burns Peak - EL44/88

Pasminco Exploration*
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Date:

November 1999

PASMINCO ROSEBERY MINE
JOINT VENTURE ANNUAL REPORT
1st JANUARY 1999 TO 31st OCTOBER 1999

EXECUTIVE SUMMARY

Exploration on EL44/88 during the period from 1st January 1999 to 31st October 1999 consisted of mining and metallurgical studies on the Browns Tunnel and Southern Trenches base metal resources.

Total expenditure for the period was \$45,478.63.

The work has shown that the Browns Tunnel resource is a sub-economic mining proposition. However the Southern Trenches resource may be viable if additional tonnes are defined. Exploration in the remaining 7 month tenure of the licence will be focussed on testing the strike extensions of the Southern Trenches mineralisation and on reviewing past exploration in the area to see if worthwhile exploration targets can be generated. A budget of \$130,000 has been allocated for this work.

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 BURNS PEAK EL 44/88
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1. INTRODUCTION

EL 44/88 covers 12 km² of Cambrian Mount Read Volcanics and lies 6 km northwest of the Tullah township and north of Lake Rosebery (Figure 1). The principal target on the licence is volcanic hosted auriferous base metal massive sulphide deposits similar to mineralisation at Rosebery and Hercules. The EL includes old workings at the Pinnacles (including Browns Tunnel and Southern Trenches).

The licence has been in force since 1988 and statutory reductions had been progressively reduced the area to 34 sq kms by the 10th year of tenure (1998). An 18 month extension over 12 sq kms was granted at the end of 1998 to the 9th June 2000.

Details of the work completed on the latest relinquished portion of the licence is contained in a relinquishment report submitted in November 1998 (Murphy and Denwar, 1998).

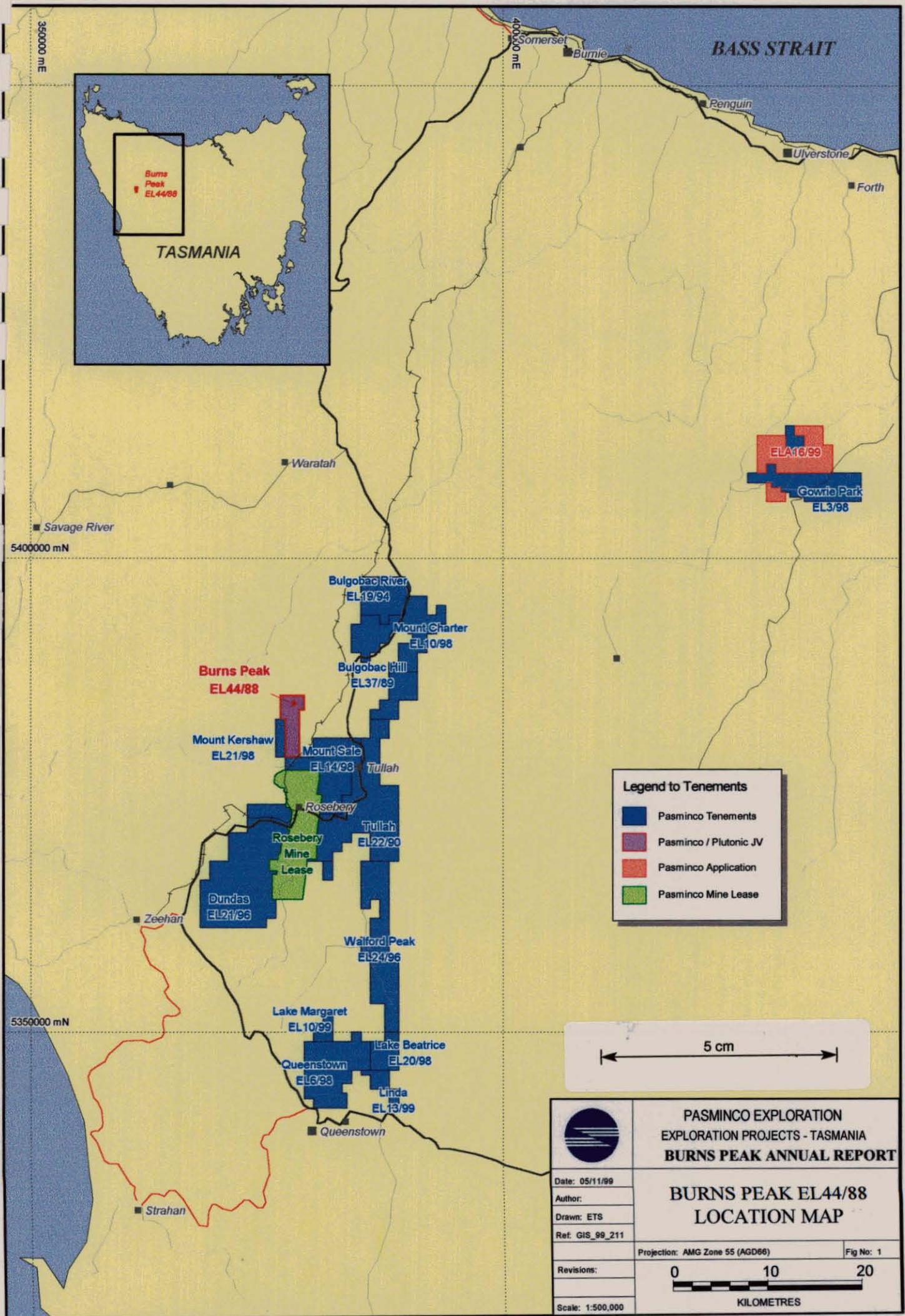
This report documents work undertaken on the retained portion of EL44/88 Burns Peak in the period 1st January 1999 to 31st October 1999. The work has mainly comprised mining and metallurgical studies on the Browns Tunnel and Southern Trenches base metal resources.

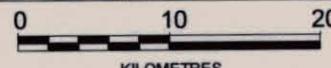
2. TENURE

EL 44/88 was initially granted for a renewable one year term on the 9th December 1988 to Noranda Pty Limited. Following the successful tender Noranda Pty Ltd and Pasminco Limited formed a Joint Venture involving EL44/88. Pioneer Minerals Australia Limited became a third member of the joint venture upon granting of the EL.

The Burns Peak Joint Venture was executed on the 6th March 1990, between the three companies, having been effectively in place since granting of the EL. The licence was reduced to 50% of the original area at the end of the 5th year of tenure. The 10th and final year of tenure ended on the 9th December 1998. An application for an 18 month extension over a 12 sq km area covering Browns Tunnel, Southern Trenches and the North Kershaw-Chester area was lodged in November 1998 and formally granted on the 22nd February 1999.

Until the 1st July 1990, Geopeko, the exploration division of North Broken Hill Peko Ltd managed the EL under contract to Pasminco. From that time until end June 1997 Pasminco Exploration has managed the project. From the 1st July 1997 Pasminco Rosebery Mine has managed the project.



	PASMINCO EXPLORATION EXPLORATION PROJECTS - TASMANIA BURNS PEAK ANNUAL REPORT	
	BURNS PEAK EL44/88 LOCATION MAP	
Date: 05/11/99		
Author:		
Drawn: ETS		
Ref: GIS_99_211		
Revisions:	Projection: AMG Zone 55 (AGD86)	Fig No: 1
Scale: 1:500,000		

Exploration expenditure was shared equally between the joint venture partners until June 1993, when Noranda elected not to contribute to the July -December 1993 programme. Pioneer Minerals Australia was renamed Plutonic Resources Limited and "Pasminco Australia limited" has been substituted on all licence documents in place of "Pasminco Limited".

At the end of August 1997 Plutonic signified their intention to withdraw from the joint venture and commenced negotiations with Pasminco on a suitable price and format for Pasminco to acquire Plutonic's share. Work on the EL was deferred whilst the negotiations were underway.

In December 1997 Homestake Australia launched a takeover bid for Plutonic Resources. The takeover was successfully concluded in April 1998 with the Plutonic name still being retained for pre-existing licences.

At the end of January 1998 Pasminco and Plutonic completed the purchase of Noranda's share of the joint venture with each remaining partner taking 50%, concluding approximately 2 years of negotiations. At that point interests in the joint venture were 50% Pasminco and 50% Plutonic.

Permission to commence work at Browns Tunnel - Southern Trenches was granted in May 1998 whilst Plutonic (Homestake) reviewed the Burns Peak data.

In July 1998 Plutonic indicated that they would not be contributing to past expenditure accrued from the 1st January 1998 or to any further expenditure until further notice. Interests in the joint venture as at the 1st July 1999 are Pasminco 51.58% and Plutonic 48.42%.

The EL is subject to a number of land classifications which were revised in May 1993. The current land tenure includes land vested in the Hydro-Electric Commission in the area immediately surrounding Lake Rosebery and the Transmission Lines, Multiple Use Forest Land and RFA CAR reserve. Most of the tenement is Unallocated Crown land designated as Multiple Use Forest.

3. REGIONAL GEOLOGY

The regional geology is as described in last year's report and will not be repeated here.

4. PREVIOUS WORK

The extensive history of exploration and mining in the area covered by the current Burns Peak EL 44/88 was summarised by Rosenhain and Mathison (1989) and this has been modified below.

EL 44/88 is currently at the end of the 10th year of tenure. Details of these activities are documented in the past ten annual reports (Rosenhain and Mathison, 1989; Lorrigan, 1990; Kirsner, Lorrigan and Rae 1991; Kirsner 1992; Poltock, Kirsner and Saxon 1993;

Poltock and Saxon 1994; Saxon 1995. Quayle and Dibben 1996, Dibben 1997 and Webber, Dibben and Murphy 1997, and Edwards, Murphy and Whitbread 1999) and in the 1998 Relinquishment Report (Murphy and Denver 1998), .

Table 1 History of Exploration on EL44/88

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/t Ag.
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, (PIMI & 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. OP, 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 relogging drill core at Hollway 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-Hollway, review and compilation of previous exploration, Dipole-dipole IP at South Kershaw-Hollway, 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 Hollway 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.

5. WORK COMPLETED

Work completed on the retained area of Burns Peak EL 44/88 from 1st January 1999 to 31st October 1999 has consisted of mining and metallurgical studies on the base metal resources outlined at Browns Tunnel and Southern Trenches in 1998.

Soil sampling to test the southern extensions of the Southern Trenches mineralisation commenced towards the end of October 1999.

5.1 PRE-FEASIBILITY STUDIES - BROWNS TUNNEL AND SOUTHERN TRENCHES.

5.1.1 Introduction

The 1998 Annual Report on EL44/88 Burns Peak contained details on two base/precious metal resources at the Browns Tunnel and Southern Trenches prospects. Pre-feasibility studies have been completed on both prospects as part of a Pasmenco review of alternative ore sources for the Rosebery mill. The results of the studies on Browns Tunnel and Southern Trenches are presented in this report.

5.1.2 Resources

The resource available within the Burns Peak Joint Venture Area (EL 44/88) has been fully described in the recent annual report (Edwards, Murphy & Whitbread, Jan 1999). The available resources at the two prospects within this area at the \$40TMU cutoff and 3m minimum ore width are listed as follows :-

	tonnes	% Pb	% Zn	% Cu	Ag g/t	Au g/t	% Fe	TMU
Brown's Tunnel	104,000	1.9	6.8	0.6	45	0.9	2-11	120
Southern Trenches	10,000	17.3	21.9	2.0	93	11.0	4-10	508

At Brown's Tunnel the resource occurs as a series of small discontinuous lenses outlined on three cross-sections 40m apart, at increasing depths south to north ranging from 20m to 100m below surface. An initial conceptual pit containing all of the resource resulted in a waste:ore ratio of 22:1, clearly too high to be economically viable. The best ratio achievable on a reduced resource tonnage is 12.5:1 for 51,000 tonnes ore (@ \$115 TMU and 635,00 tonnes waste. These are the tonnages used in the costings and financial evaluation below.

The Southern Trenches resource is a single isolated pod of high grade mineralisation on one cross-section, at a depth of 15 to 35 metres. Approx 70,000 tonnes of waste will need to be removed to extract the 10,000t resource ie. a ratio of 7:1.

These tonnages are approximate only. Detailed pit designs would need to be completed to provide more reliable figures.

5.1.3 Environmental

The Browns Tunnel and Southern Trenches prospects are located in the headwaters of Strongs Creek at an elevation of 450-500m a.s.l close to the Boco road, 12 km (33km by road) due north of Rosebery Mine. The area is covered in re-growth scrub with patches of remnant forest and is isolated from human habitation.

This area is currently held under exploration licence, EL 44/88 "Burns Peak" which expires in June 2000. A Mining Lease will be required if this area is to proceed to production, and this will entail preparation of a Development Proposal and Environmental Management Plan for submission to the relevant government authorities.

Whilst the prospect areas are virtually undisturbed by previous mining activity, exploration activity has been intense with numerous tracks, drill pads, and trenches constructed. It can be expected that relatively stringent environmental conditions would be attached to a Mining Lease. Particular emphasis would be placed on the prevention of acid mine drainage and general contamination of the drainage system, minimisation of the disturbed area, and final rehabilitation.

5.1.4 Metallurgical

5.1.4.1 Browns Tunnel

Flotation tests were carried out on selected ore grade samples for base metal recoveries. The results were comparable with typical Rosebery ore and no major problems are envisaged (Watters, 1999).

Gravity separation tests were also carried out by Pasminco's Broken Hill Group Technical Services for gold recovery (Greet, 1999a). These showed that the samples contained less than 20% coarse gold (>75 micron) and gravity concentration methods are unlikely to adequately concentrate the gold. The summary pages from the metallurgical reports are included in Appendix 1.

5.1.4.2 Southern Trenches

One sample was delivered to the Pasminco metallurgical laboratory for testwork (Greet, 1999b). The results indicate that the ore is amenable to treatment through the Rosebery Mill. 45% of the gold is in the +75 micron fraction indicating that a significant

proportion of the gold could be recovered by gravity methods. The summary page from the metallurgical report is included in Appendix 1.

5.1.5 Costs

The unit mining cost for an opencut operation in either Brown's Tunnel or Southern Trenches will be higher than the \$5 per tonne cost experienced in the Rosebery southern open cut, because of the more stringent environmental conditions that will need to be observed. An arbitrary figure of \$5.50 per tonne is used as a mining cost for both ore and waste. This would include the cost of Pasmenco supervision of the contractor, grade control and survey control and ongoing environmental works. In addition there will be a transport cost for ore from the minesite to Rosebery (approximately 33km), estimated in previous studies at \$7.30 per tonne.

5.1.5.1 Browns Tunnel

Pre-production costs

Feasibility and permitting	\$ 80,000
Site clearing and road construction	\$ 30,000 Cap.
Overburden removal (465,000t to RL460 @ \$5.50)	\$2,557,500 Cap.

Operating cost

Mining (ore + remaining waste 221,000t @ \$5.50)	\$1,215,500
Ore transport (51,000t + 10% dilution = 56,000t @ \$7.30)	\$ 408,800

Closure cost

Final rehabilitation	\$ 50,000
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Total cost for Brown's Tunnel is therefore estimated at \$4,341,800 or \$77.53 per tonne of ore delivered to the Rosebery mill.

5.1.5.2 Southern Trenches

Pre-production costs

Feasibility and permitting	\$ 50,000
Site clearing and road construction	\$ 30,000 Cap.
Overburden removal (55,000t to RL400 @ \$5.50)	\$ 302,500 Cap.

Operating cost

Mining (ore + remaining waste 25,000t @ \$5.50)	\$ 137,500
Ore transport (10,000t + 10% dilution = 11,000t @ \$7.30)	\$ 80,300

Closure cost

Final rehabilitation	\$ 25,000
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Total cost for Southern Trenches is therefore estimated at \$625.300 or \$56.85 per tonne of ore delivered to the Rosebery mill.

This costing assumes that Brown's Tunnel is not viable, and that the small deposit at Southern Trenches is developed as a stand-alone operation. If in fact both are developed, there would be some small savings.

5.1.6 Financial Evaluation

5.1.6.1 Browns Tunnel

Browns Tunnel as a stand alone operation is not a viable mining operation with an NPV @ 15% of minus \$1.37M. This is due to the combination of relatively low grades, high stripping ratios (hence high upfront expenditure before production) and the small tonnage of ore available.

5.1.6.2 Southern Trenches

A cashflow study was carried out of the proposed open cut operation using the costs and parameters supplied in the previous section.

The study showed a positive NPV of \$1.29M at a 15% discount rate with a high IRR over the projected mine life of less than a year, reflecting the extremely high grades of the ore. However the very short mine life and small tonnage makes it an unattractive proposition.

5.1.6.3 Combined Browns Tunnel/Southern Trenches

The possibility of a combined Browns Tunnel/Southern Trenches operation was considered and rejected as a sensible proposition. The Southern Trenches operation would be effectively sacrificing its potential profit to support Browns Tunnel.

5.1.7 Additional Resource Potential

5.1.7.1 Browns Tunnel

There is probably some potential for additional small lenses of ore grade material to be discovered in the area. However indications are that the lenses will be small and difficult to detect without an intensive close spaced drilling programme.

5.1.7.2 Southern Trenches

Mineralisation at Southern Trenches is contained within a roughly north-south trending shear zone. Additional pods of high grade (+10% Pb+Zn) material are exposed in the shear zone in the trenches just to the north of the drilled pod. These do not appear to have any great lateral or vertical extent but could be useful additions to any mining

operation, potentially adding several thousand tonnes for a minimal mining cost. The area to the south is largely untested and additional lenses could be uncovered here.

The small size of the lenses make exploration by drilling an expensive exercise as close spaced drilling will be required. Geochemical and/or geophysical techniques could be used as a first pass option if these prove to be viable discovery methods.

5.1.7.3 Intervening Browns Tunnel - Southern Trenches Area

The intervening 1km of prospective shear and host rock contain other small pods of mineralisation, eg at Thomas's Tunnel. Further work is required to test the potential for other hidden pods along this zone.

5.1.8 Conclusions

- The Browns Tunnel resource is sub-economic at this stage and is unlikely to be economic without an increase in tonnes and/or grade or metal prices.
- The Southern Trenches on paper is an economic proposition due to the high grades but its current small size makes it unattractive to Pasminco at present. Further work to define additional resources will increase the likelihood of the deposit being developed.
- There is still potential for additional tonnes to be outlined elsewhere at both prospects, in the intervening ground, and to the south of Southern Trenches.

6. ENVIRONMENTAL DISTURBANCE AND REHABILITATION

Clean up and backfilling of drill sumps was done on completion of the drilling programme at the end of 1998. A final clean up and rehabilitation will be done prior to the expiry of the licence in June 2000.

Grid line cutting has commenced to the south of Southern Trenches in preparation for the forthcoming soil sampling programme.

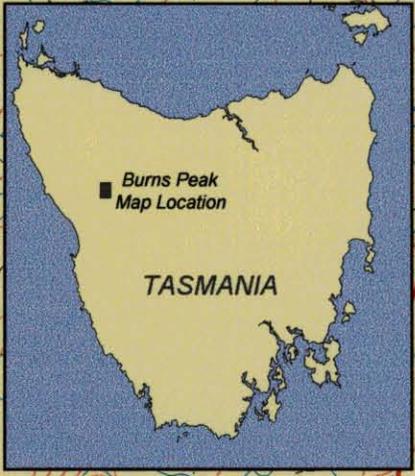
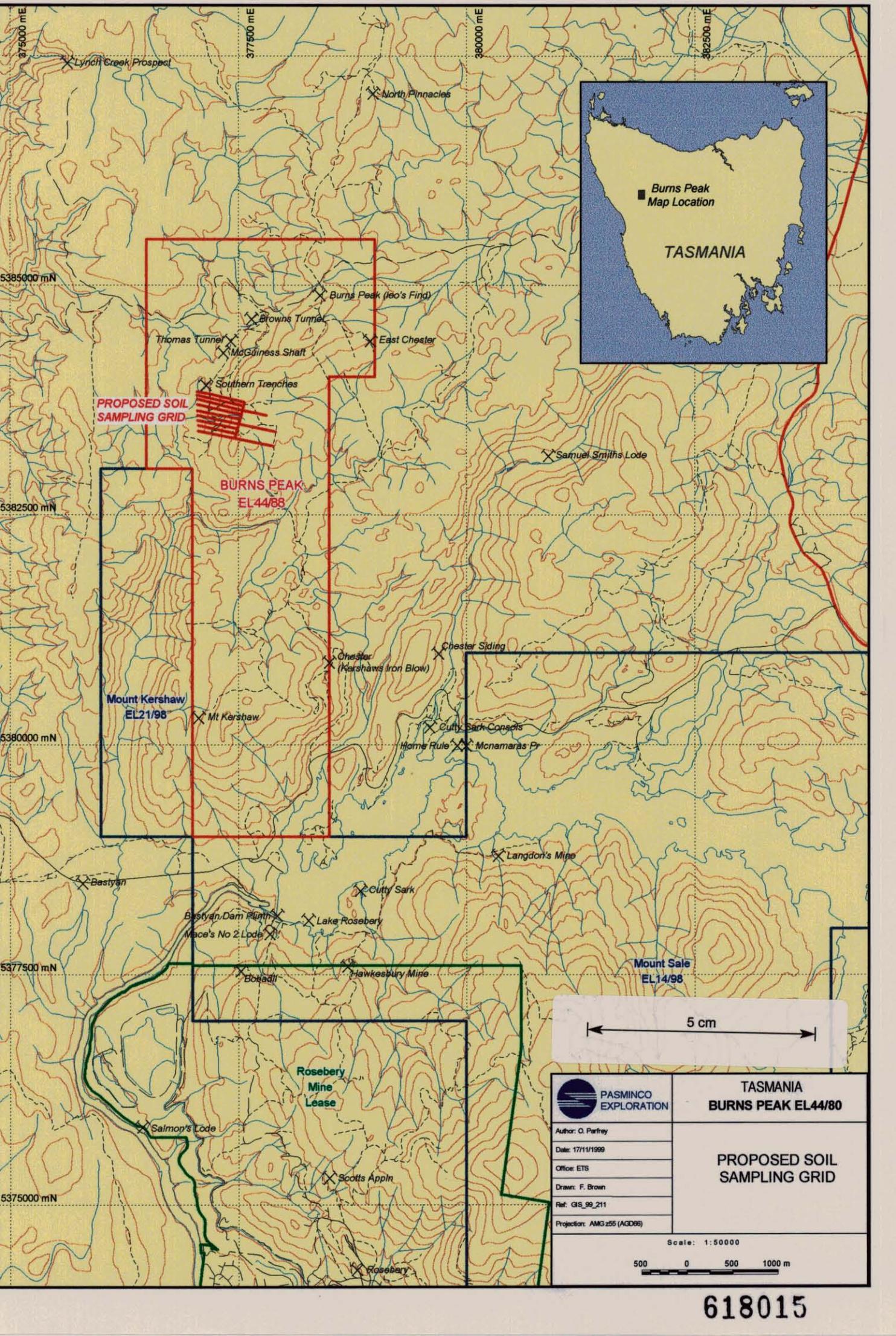
7. PROPOSED PROGRAMME FOR NOVEMBER 1999 TO JUNE 2000

7.1 MMI SOIL SAMPLING

A MMI soil sampling programme to test the southern extensions of the Southern Trenches mineralisation commenced at the end of October 1999. The proposed sample lines are shown on Figure 2. A budget of \$35,000 has been allocated to cover this work.

7.2 REVIEW OF PAST WORK

All the past work in the Browns Tunnel - Southern Trenches area will be reviewed to determine if worthwhile exploration targets can be generated.



PROPOSED SOIL SAMPLING GRID

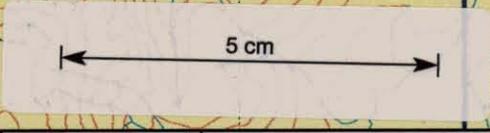


**BURNS PEAK
EL44/88**

**Mount Kershaw
EL21/98**

**Mount Sale
EL14/98**

**Rosebery
Mine
Lease**



 PASMICO EXPLORATION	TASMANIA BURNS PEAK EL44/80	
	<p>Author: C. Parfrey Date: 17/11/1999 Office: ETS Drawn: F. Brown Ref: GIS_99_211 Projection: AMG z55 (AGD86)</p>	
<p>PROPOSED SOIL SAMPLING GRID</p>		
<p>Scale: 1:50000</p> 		

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7.3 RC/DIAMOND DRILLING

It is anticipated that worthwhile drilling targets will be generated by the soils sampling programme and the exploration review. A contingency budget of \$50,000 has been allocated for this work.

The proposed budget for November 1999 to June 1999 is listed below:

Staffing	\$14,000
Soil Sampling	\$35,000
Drilling	\$50,000
Rehabilitation	\$20,000
Misc. Expenses	\$11,000
TOTAL	\$130,000

8. 1999 EXPLORATION EXPENDITURE

Total exploration expenditure from 1ST January 1999 to end October 1999 was \$45,478.63 broken up as shown on Table 2.

Table 2: Exploration Expenditure, EL 44/88 Jan-Oct 1999

ITEM	COST
Personnel	\$8,102.61
Geochemistry	\$23.10
Geophysical Surveys and Consultants	\$21,514.75
Other Consultants	\$4,470.72
Feasibility Studies	\$5,000.00
Misc Supplies	\$185.69
Office	\$2,340.92
Travel and Accommodation	\$262.34
Rentals, tenement administration, land	\$360.00
Vehicles, plant & equipment	\$78.97
Administration	\$3,139.53
TOTAL	\$45,478.63

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BURNS PEAK EL 44/88

JOINT VENTURE ANNUAL REPORT

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APPENDIX 1

BROWNS TUNNEL AND SOUTHERN TRENCHES

METALLURGICAL STUDIES

SUMMARY PAGES

SUMMARY

1.0 INTRODUCTION

Eight intersections from several drill holes of Brown's Tunnel (Lens 1) were dispatched to GTS Mineral Processing in Broken Hill for ore characterisation. This work entailed completion of grinding calibrations for each intersection to achieve a P_{80} of 75 microns, determination of the amount of coarse gold in the head sample by screen fire assay, and the determination of the amenability of the precious metals to gravity concentration.

Flotation testing will be completed at a later date.

2.0 CONCLUSIONS

The following conclusions can be drawn from this work:

- The head grades determined during the course of this work were similar to those provided by Geology. Intersections 004B-M1 and 006B-M1 were the only samples containing economic grades of valuable minerals.
- The average laboratory grinding time for these samples was approximately 15 minutes.
- These samples contained less than 20 percent coarse (+75 micron) gold. Therefore, it is unlikely that gravity concentration techniques will adequately concentrate the gold.
- Dirty gravity concentrate were produced in all instances, however intersections 004B-M1 and 006B-M1 were the only samples which showed any promise.

3.0 RECOMMENDATIONS

Conduct flotation tests on intersections 004B-M1 and 006B-M1 to determine the flotation response of the base metals.

Examine alternative processing techniques to improve the recovery of precious metals.

SUMMARY

1.0 INTRODUCTION

Eight intersections from several drill holes of Brown's Tunnel (Lens 1) were supplied to GTS-Mineral Processing, by Pasminco Rosebery Mine, for ore characterisation. The initial phases of the work investigated the amenability of the various intersections to gravity concentration for the recovery of gold (Greet, 1999). It was recommended that two intersections be tested to determine the flotation response of galena and sphalerite (Greet, 1999).

The aim of the present work is to apply a "standard" laboratory flowsheet to both intersections; then rank each intersections performance according to its metallurgical response. Further, gold and silver assays of all flotation products were obtained to determine the precious metal distribution during flotation.

It is important to realise that the laboratory flowsheet used in this work is by no means optimised, and the results are only an indication of the rougher flotation performance.

2.0 CONCLUSIONS

1. Based on these limited tests using un-optimised conditions it would appear that galena and sphalerite can be recovered with few problems.
2. Intersection 006B-M1 out performed intersection 004B-M1 in both the lead and zinc circuits with respect to concentrate grades achieved at the specified recovery.
3. The strong association between galena and sphalerite (as noted by the zinc losses in the lead circuit), indicate that regrinding in the lead circuit will be required.
4. Precious metals were recovered primarily in the lead concentrate. These recoveries should be increased significantly with further optimisation.

3.0 RECOMMENDATIONS

- 1,2&3. Optimise the reagent regime and laboratory flowsheet (including regrinding) to obtain significantly better laboratory results which will provide a better indication of metallurgical performance.
4. Examine ways of increasing precious metal recoveries during flotation.

SUMMARY

1.0 INTRODUCTION

A sample of the Southern Trenches prospect was dispatched to Pasminco Group Technical Support to determine the metallurgical characteristics of this ore.

This report details the results generated from this work.

2.0 CONCLUSIONS

1. The head assays of the Southern Trenches ore indicate that this prospect contains comparatively high grades of both base and precious metals high.
2. The screen fire assay data suggested that approximately 45 percent of the gold was contained in the +75 micron fraction, indicating that a significant proportion of the gold could be recovered by gravity.
3. It is possible to produce a comparatively clean gravity concentrate assaying 232 grams per tonne of gold, at 60 percent gold recovery.
4. Cyanidation of Southern Trenches ores produced moderate gold recoveries (i.e. 80 percent, after a 48 hour leach). However, the reagent consumption, particularly for cyanide, was also high, using around 1.6 kilograms per tonne of lime and greater than 12 kilograms per tonne of cyanide.
5. The laboratory flotation procedure used in these tests was only partially optimised, and further work is needed to achieve results near plan, particularly to cope with such high feed grades.

The planned copper recovery was achieved, but copper grade was below plan. The low copper grade was attributed to poor selectivity for chalcopyrite against galena and iron sulphides.

The target lead recovery was achieved during lead flotation, however the grade was low. The low lead grade was attributed to poor selectivity for galena against sphalerite, iron sulphides and non-sulphide gangue.

The zinc metallurgy suffered due to the high losses of sphalerite in the lead circuit. Target zinc grade and recovery were not achieved during zinc flotation. The low zinc grade was attributed to the poor selectivity for sphalerite against galena, iron sulphides and non-sulphide gangue.

Precious metal recoveries were similar to those achieved in the plant, with good recoveries to the copper and lead concentrates.

3.0 RECOMMENDATIONS

1. This ore would be amenable metallurgical treatment through the current Rosebery concentrator, although attention must be paid to optimising the reagent regimes and regrinding circuits to achieve the best separation of values from the gangue. This is particularly pertinent in the lead and zinc circuits.
2. Perform further optimisation work to improve the standard laboratory flowsheet so that target grades and recoveries can be achieved in copper, lead and zinc flotation.