

PASMINCO EXPLORATION

TULLAH EL 22/90

ANNUAL AND FINAL RELINQUISHMENT REPORT FOR

THE PERIOD ENDING 19th OCTOBER 2000

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1. SUMMARY

Exploration activities undertaken on EL 22/90 Tullah during the 1999-2000 reporting period were focused principally on the Farrell, Murchison and Tullah Bluffs prospect areas. Exploration completed over these areas consisted of:

- Griding, partial leach soil sampling, rock chip sampling and soil geochemistry over the Farrell, Murchison and Tullah Bluffs Prospects.
- Geological Mapping over the Tullah Grid and compilation of previous Pasminco mapping.
- Diamond Drilling of TBD1 and TBD2 (518.7m) and DHEM of TBD2 at the Tullah Bluffs Prospect.

During the last year a regional partial leach soil sampling program was completed over the volcanics in the western and northern part of the licence and located several short (<300m) strike length anomalies and one "Pasminco" sized anomaly. The larger anomaly was followed-up with little success and the tenement is now considered to be largely explored, to a depth of 300-400m, for Pasminco sized targets and no further work can be recommended.

Pasminco have completed a 10 year exploration program over the Tullah (EL 22/90) tenement on more than 10 prospects, with a total expenditure of approximately \$2.03 million. This program has included reviews of previous exploration, relogging and re-sampling of old drill core, geological mapping, rock chip and soil sampling, Pb Isotope studies, Heli-borne magnetics and electro-magnetics, gravity, IP, MALM and ground EM surveys, and 5315m of diamond and 567m of percussion drilling. The work has targeted both Devonian vein style and Cambrian VHMS mineralisation and has included detailed assessments of known resources (eg., Lakeside, Murchison Mine, New North Mt Farrell).

2. INTRODUCTION

This report details exploration undertaken on Tullah EL 22/90, between September 1999 and October 2000. EL 22/90 now incorporates both Sterling River EL 24/91 and Mount Farrell EL 13/96 and covers an area of 70km² (Figure 1). In addition, this report incorporates the Moxon Saddle part of EL 6/98 (Queenstown), an area of just under 2km² which abuts EL22/90 to the south.

The Tullah license is located east of the township of Rosebery, in western Tasmania, and covers units of the Cambrian Mt Read Volcanics. It is centred on a 16km long section of the Henty Fault, the ground is well mineralised, with numerous showings and sub-economic deposits of base and precious metals (Figure 2).

The area has a long history of previous mining (mainly small-scale Pb-Ag) and is one of the more heavily explored parts of the Mt Read Volcanics. There have been more than one hundred and thirty (130) diamond and reverse circulation drill holes collared on the tenement at a range of geophysical, geochemical and geological targets. As well as several generations of stream, soil and rock geochemistry, electrical geophysics (primarily IP & EM) and geological mapping. Most of the work has been concentrated along the Henty Fault while less accessible zones, such as the southern and eastern parts of the Sterling River and east of the Farrell Mines, have received minimal attention.

Between 1889 and 1973 several small Pb-Ag mines operated in the Tullah area. The largest and most successful of these were the New North Mt Farrell and North Mt Farrell mines, which were operated continuously between 1899 & 1973. Both mines were established on a series of narrow (1.6m average mining width) lead-silver-zinc lodes and veins within zones of structural disruption in the Farrell Slates. Ore grades in these deposits were modest (typically 8-12% Pb, 2% Zn and 300-500g/t Ag) and the mined tonnages low. The only other discoveries of any significance, which have been made on the tenement by previous exploration effort, are two small (<400,000t) arsenic/gold resources (Lakeside Prospect & Lorrigans Luck Prospect – formally Arsenic Resource). Both of these deposits straddle the Henty Fault and are concealed below glacial overburden. No significant base metal discoveries have been made.

Despite the intensity of past exploration efforts and the presence of numerous base metal prospects, mineral occurrences and historic mines which occur in the license area, it is a concern that no new base metal discoveries have been made. There is no shortage of “smoke” in the area and one can not help think that there may be larger deposits lurking within the tenement. The problem remains - how do we find them? Techniques employed by previous explorers, including Pasminco, perhaps with the exception of electrical geophysics (IP and EM) and drilling, have essentially been restricted to looking for mineralisation (or associated alteration) within a depth range of 100-200m across the tenement. In most instances these techniques have been best suited to testing ≤100m below surface, particularly in areas of thick glacial cover and

in the vicinity of black shale horizons. Remaining potential for discovering significant economic mineralisation (>2Mt) on the tenement appears to be within the 200 to 500m depth range. Pasminco's current exploration limit for economic targets in the Mt Read Belt is 500m for a stand-alone base metal deposit <10Mt.

The problem we are faced with however, is how do we effectively explore the 100-500m depth interval?

One approach Pasminco Exploration has embarked on is to utilise partial extraction geochemistry. Studies conducted in Australia and overseas have indicated that partial extraction geochemistry can potentially detect concealed mineralisation through thick transported overburden (including glacial deposits) and at significant depths of burial (eg $\leq 500\text{m}$). To date Pasminco has completed partial leach orientation studies over several prospects in the Mt Read Belt, including the Rosebery mine. Results of this work have been very encouraging and significant success has been achieved on one project area using this approach. Perhaps one of the most encouraging aspects of Partial leach geochemistry is its cost effectiveness, particularly in covering large areas.

During 1999-2000 exploration has focused on a regional program involving Griding, geological mapping, partial leach soil and rock-chip sampling over the Farrell, Murchison and Tullah Bluffs areas. A coherent anomaly located by this survey was then followed up by diamond drilling (DDH TBD1 and TBD2 for 518.7m) and DHEM.

2.1 Attribution

The following personnel were responsible for the work carried out within the Tullah licence area during the 1999-2000 reporting period.

Geologist	Colin Dell - Contractor
Geologist	Owen Parfrey – Pasminco Exploration Rosebery
Senior Geologist	Andrew McNeill – Pasminco Exploration Rosebery.
Senior Geochemist	David Lawie – ETS Melbourne.
Senior Geophysicist	Chris Dauth – ETS Melbourne.
Report Compilation	Kirsten Simpson – ETS Melbourne.

3. LAND TENURE

Tullah EL 22/90 covers an area of 70 km², and now incorporates Sterling River EL 24/91 and Mt. Farrell EL 13/96 following amalgamation of the three titles in June 1997. EL6/98 (Queenstown) was granted to Pasminco in December 1997. In February 1998 Pasminco was granted permission to combine reporting of the Moxon Saddle part of EL 6/98 with Tullah EL 22/90.

The Tullah EL was applied for in August 1990 by Peko Exploration Limited, a subsidiary of North Broken Hill Limited. In September 1990 the EL application was transferred to Pasminco Australia Limited (of which NBH then owned 45%) and the EL was granted on 20 October 1990.

Sterling River EL 24/91 originally covered 48km² around Mt Murchison, south of the original Tullah EL. The granted area covered 42km², with 2.7km² of Pasminco's Rosebery Mine Lease and 2.4km² vested in the HEC, being excluded from the licence.

Sterling River was originally applied for by Pasminco Exploration as 42km² in August 1991, but an area 6km² to the SE of Mt Murchison was added to the application in October 1991. The EL was granted on 10 January 1992 and the renewal and reporting date for Sterling River were made the same as that for Tullah EL 22/90.

Mount Farrell EL 13/96 comprises two square kilometres south of the summit of Mt. Farrell and was a portion of the ground relinquished on 20 October 1995 (as part of a statutory reduction of EL 22/90). The EL covers the Owen Conglomerate/Murchison Volcanics contact just south of Mount Farrell and the Osborne alteration zone. This licence contained a small zone vested in the HEC in the Lake Rosebery dam area and approximately 75% of the original EL 24/91 is covered by the Mt Murchison RAP (Crown Land).

In June 1997 Tullah EL 22/90, Sterling River EL 24/91 and Mount Farrell EL 13/96 were amalgamated and are now collectively reported, with the Moxon Saddle block of EL 6/98, under Tullah EL 22/90.

4. GEOLOGY

The Tullah licence covers units of the Cambrian Mt Read Volcanics extending either side of a 16km section of the Henty Fault. The latter is a major NNE-trending and steeply west-dipping structure located towards the eastern margin of the Mt Read Volcanic belt (Figure 2).

Within the EL volcanics range from rhyolitic to basaltic in composition, but are mainly rhyolite and dacite. Rock types include lavas, intrusives, volcanoclastics, minor pyroclastics and epiclastic sediments.

West of the Henty Fault are the Mt Black Volcanics, a sequence of dacitic to andesitic

volcanics, mainly lavas and intercalated reworked volcanoclastics. Underlying the Mt Black Volcanics and separating them from the Henty Fault on the western side of the Sterling Valley are the Sterling Valley Volcanics, a wedge of andesitic and basaltic lavas, sills and clastic sediments.

Lying along the eastern side of the Henty Fault is an extensive unit of west-dipping and facing, fine grained interbedded clastic sediments including black shales – known as the Farrell Slates. The term Slates is in fact a misnomer as the Farrell Slates include a significant portion of felsic volcanoclastic material intercalated with horizons of dark grey to black shale and siltstone. East of and stratigraphically below the Farrell Slates are the rhyolitic to dacitic Murchison Volcanics which form part of the Eastern Quartz Phyrlic Sequence (EQS). The Murchison Volcanics include lavas, intrusives and volcanoclastics and are intruded by the chemically-similar Murchison Granite (Cambrian) and unconformably overlain by Cambro-Ordovician Owen Conglomerate.

Most of the volcanics are hydrothermally altered to some degree. In particular, the Murchison Volcanics contain intensely altered zones, most significantly and extensively along their upper contact with the overlying Farrell Slates.

Pb, Zn, Cu, Ag, Au, Sn and As mineralisation is widespread in the Farrell Slates and the Murchison Volcanics, particularly east of the Henty Fault. The only significant mineralisation known west of the Henty Fault is Lorrigans Luck (Au-As-Cu-Sn) deposit. This deposit was formerly known as the ‘Arsenic Resource’ and is hosted within the mafic Sterling Valley Volcanics.

Most of the known mineralisation in the tenement is of a structurally-controlled lode and vein style. Many lodes are semi-conformable with primary layering in the enclosing rocks. Both the mineralisation and bedding tend to parallel the steep west dip of the Henty Fault close to this structure but tend to cross cut bedding with increasing distance away from the fault.

The presence of Au-Sn mineralisation, as well as evidence from lead and sulphur isotopes, has suggested that much of the mineralisation in the Tullah-Sterling River area is a Cambrian-Devonian hybrid (Purvis, 1992). The gold, as well as some of the base metals and silver, have been attributed to a Cambrian volcanogenic origin. These metals are thought to have been remobilised during Devonian deformation, largely due to the thermal influence of granite intrusion, with inputs of Sn, As, further base metals and silver at that time. Gold is a notable absentee from the Devonian age Pb-Zn-Ag Farrell orebodies at Tullah - the largest (now 80% mined out) of the known resources within the current tenement.

The significant mineral occurrences on the license are shown on Figure 2. Two of the larger mineralised bodies (the Lakeside gold deposit with 750,000 @ 2.1g/t Au and the Lorrigans Luck deposit with 480,000t @ 5% As & 1g/t Au), are not exposed at surface and were found by drilling in the 1980s (Weber *et al.*, 1997).

5. PREVIOUS EXPLORATION

Previous exploration has been conducted across the Tullah tenement area by various companies, dating back to the early 1950's (Lorrigan, 1991; Purvis, 1992). The majority of existing geophysical work completed across the three amalgamated tenement areas has been reviewed by Pasminco over the past two years. Details of this data review, covering the Tullah and Sterling Valley areas, were presented in the 1997 Annual Report (Weber *et al.*, 1997). Table 1 presents a summary of previous exploration completed across the area now covered Tullah (EL 22/90).

Table 1. Previous Exploration conducted on the Tullah tenement area.

YEAR	COMPANY	EL	WORK CONDUCTED
1950's	-	-	Dominantly geophysics - IP, ground mag & fixed loop EM
1973/74	Asarco (Aust) Pty Ltd	4/73	Stream sediment survey - identified Sn & base-metal anomalies
1973 - 78	Asarco-Cominco JV	4/73	Bedrock auger sampling, mag, EM, IP & 3 DDH.
1979	EZ	1/62	Review of past work
1979/80	EZ	1/62	Murchison River area, ground mag IP & drilling
1979/80	EZ	4/73	Work focused on Henty Fault Zone - mapping, soil geochem, IP, ground mag,
1980/81	EZ	1/62	Stream sed survey, soil sampling, grid mapping ground mag, drilling
1980/81	EZ	4/73	DDH to test coincident ground mag & IP anomalies; minor sulphides & Sn
1981	EZ	1/62	Drilling, data review & lineament analysis
1982	EZ	4/73	Soil geochem survey over Mt Black Volcanics, close to Henty Fault. Anomalous Sn resulted in costeaning and rock chip sampling with resultant high Au, however mineralisation style (vein) unattractive and work discontinued. One DDH drilled under costean in 1985 (low resistivity zone) - minor sulphides intersected.
1983	EZ	4/73	Data review, costean sample analysis
1983/84	EZ	1/62	DIGHEM survey, gridding, ground mag, mapping, rock chip geochem, EM,
1984	EZ	1/62	Gold study, core sampling.
1984	EZ	4/73	High As intersections resulted in shift away from Sn to As. Informal ore reserve calculation - 4 sulphide lenses within 4 holes est. 480 000t@5% As ("Arsenic Resource"), with mineralisation open to north, south & at depth. Core analysed for Au using aqua regia/AAS - Au masked by presence of sulphides.
1984/85	EZ	4/73	DIGHEM, grid mapping, core from Arsenic Resource area re-assayed for Au using Fire Assay analysis. 12 samples returned >1g/t Au. Fire Assay analysis consistently gave a higher assay than the previously employed aqua regia/AAS method. A gold content for the Arsenic Resource area was calculated using the As ore reserve intersections, resulting in an est. ore content of 480,000t @ 5.02% As, 0.84 g/t Au.
1985/86	EZ	4/73	Additional drilling to test geophysical targets, Henty Fault Zone & interpreted cross-structures.

Table 1. Previous Exploration conducted on the Tullah tenement area. (cont.)

YEAR	COMPANY	EL	WORK CONDUCTED
1986	EZ	4/73	Review of work undertaken to date.
1986/87	EZ	1/62	Target Model - Henty Fault Zone, core sampling, UTEM, compilation of Farrell Mines Data.
1986/87	EZ	4/73	Metallurgical testing of As zones, re-assay of core (fire assay), rock chip analysis.
1987/88	EZ	1/62	Drilling, down-hole IP & resistivity (Lakeside), BCL survey, drill core re-assays, gravity, EM, ground mag (Duttons), mapping, rock chip sampling, drill core re-assay (Farrell-Mackintosh), drill core re-assay, IP, rock chip & BCL sampling (Murchison Mine)
1987/88	EZ	4/73	Gravity & IP surveys, re-assay of core, metallurgical testing
1988	EZ	1/62	UTEM, down hole EM, resource est (Lakeside), ground mag & EM (Tullah Flats), gridding, mapping, soil sampling ground mag, IP & EM (Murchison Mine)
1989	EZ	1/62	Indicated resources for Lakeside.

Pasminco began exploration activities within Tullah EL 22/90 during 1990 and on Sterling River EL 24/91 (now part of EL 22/90) in 1991. The exploration completed on the 7 sq km relinquished in 1995 is reported in Purvis (1995a) and Table 2 presents a summary of work conducted by Pasminco between 1990 and 1999 over the amalgamated tenement area.

Table 2. Previous Exploration conducted by Pasminco within the Tullah tenement area.

YEAR	AREA(S)	WORK CONDUCTED
1990 – 93 Lorrigan (1991) Purvis (1992) Purvis (1993)	Murchison Mine Sterling Valley	Aeromag & radiometric helicopter-borne surveys, gravity survey, evaluation of Murchison Mine & DDH (MM1a), relogging of 12 underground drillholes from old Farrell Mines, geol. mapping & geochem rock sampling (Sterling Valley, Murchison Gorge, Farrell Range, Henty Fault), EM survey, down hole EM,
1993/94 Purvis (1994)	Tullah Flats Mackintosh Dam South Stitt	DDH & DHEM (Mackintosh Dam & Tullah Flat), MALM & IP (Mackintosh Dam), interp of 1991-93 gravity & aeromag surveys, mapping & rock sampling (Mackintosh Dam & South Stitt), resurveying of old drillhole collars & completion of drillhole survey database for all surface exploration holes, computerisation of full geochem records for approx. half of surface exploration holes, review of mineral potential of tenement area.
1994/95 Purvis (1995)	Sterling Valley Farrell Mines	4 DDH, DHEM, relogging & sampling of old core (1400m), mapping of alteration zone along Farrell Slates/Murchison Volcanics contact (rock sampling & struct/aeromag interp), ground mag, mapping & rock sampling over mag anomaly (Sterling Valley Volcs), initial evaluation of Farrell Mines, geol. mapping across Sterling Valley incl. relogging of old core, Hons Thesis on Structure & Mineralisation of Farrell Slates & Murchison Volcanics (Uren, 1994)

**Table 2. Previous Exploration conducted by Pasminco within the Tullah tenement area
(cont.)**

YEAR	AREA(S)	WORK CONDUCTED
1995/96 McGunnigle (1996)	Lakeside Farrell Mines Sterling Valley	12 DDH, rock chip sampling (Murchison Gorge Alteration Zone), geol mapping & rock chip sampling (Sterling Valley), geophysics review (Lakeside), review of previous exploration (Lakeside & Lorrigans Luck)
1996/97 Weber et al. (1997)	Tullah Sterling River Mount Farrell	Exploration for Au mineralisation associated with Henty Fault Zone, review of prior exploration in Sterling Valley area, study of paragenesis of mineralisation at Lorrigan's Luck Prospect (previously Arsenic Prospect), Lakeside & Sterling Valley, soil orientation surveys (Lakeside Prospect & Sterling Valley), mapping and rock chip sampling (Sterling Valley area), review of existing geophysical data across Tullah licence area, recommendation for drilling IP target (nth of Lakeside), review of past exploration in South Stitt area (EL 24/91) & prospecting review using Pasminco GIS system of past exploration data, drilling of 7 RC holes (567.5m) and 3 DDHs (204.0m) which intersected significant but low grade gold mineralisation in the Lakeside Prospect.
1997/98 Parfrey and Murphy (1998)	Mackintosh Dam, East Stitt, Sterling Valley Mine, Bruce Creek & Anthony Rd	Review & re-interp of existing IP data, gridding, geol mapping, soil & rock chip sampling & IP surveys.
1998/99 Parfrey and McNeill (2000)	Bruce Creek, East Stitt & Murchison	Work focused on partial leach soil sampling, diamond drilling (236m) and geological mapping within the Bruce Creek Prospect area, geological mapping and Airborne Electromagnetics over the North Murchison area and geological mapping and soil geochemistry over the East Stitt grid. A Compilation of historic geological and drill hole data over the entire tenement area was also completed.

6. WORK COMPLETED 1999-2000 REPORTING PERIOD

Work completed during the 1999-2000 reporting period focused principally on the Farrell, Murchison and Tullah Bluff prospect areas. Exploration completed over these areas consisted of:

- Partial leach soil sampling, rock chip sampling and soil geochemistry over the Farrell, Murchison and Tullah Bluffs Prospects.
- Geological Mapping over the Tullah Grid
- Diamond Drilling and DHEM of TBD2 at the Tullah Bluffs Prospect

A review of further potential for mill feed in the small resources of the Farrell group of mines and the Murchison Mine was also completed. This review found that there remains some depth and along strike potential but the tonnage potential is unlikely to be sufficient to be of interest to Pasminco.

Details and results of the exploration activities undertaken during the reporting period are outlined in the following sections.

6.1 Details of Work Completed

6.1.1 Partial Leach Sampling

A partial leach sampling program was completed over the Tullah grid with a total of 2288 samples, including duplicates and standards, collected (see Appendix 1 for results and Plate 1 for sample locations). Approximately 46 kilometers of grid cutting was completed as a part of this survey. Control points (at 25-200m spacing) for all lines on the grid were collected using DGPS, and these points were used to calculate UTM coordinates for each sample point which were then loaded into the Pasminco Geoscientific Database (GDB).

Samples were submitted in 9 individual batches and QC data was reviewed for each batch on return of results. An analytical problem was identified in the copper data for job SDS 3834. The following graph (Figure 3) illustrates this problem by plotting Log Cu data against the lab sequence number. It appears as though Cu drifted midway through the batch analysis. Amdel believed the most likely source of the problem was the leaching stage and as such decided to re-analyse the entire batch for all elements. As a result of this the new Cu data was re-loaded into the GDB and the old data removed.

Figure 3: Log Cu data plotted against lab sequence number.

Initial inspection of data suggested significant cultural contamination in the vicinity of the Farrell and Murchison Mine workings. Additional contamination was also evident along the Murchison Highway and the Anthony Road. To eliminate the influence of these highly elevated data all sample sites within 100m of the roads and mine workings were removed from the data set and the data re-interpreted.

Interpretation of the Tullah PL survey data defined 6 anomalous areas. Of these 6 areas, one anomaly (in the southern part of the grid between lines 5374000N to 5373400N) was interpreted to possibly be a response from a Pasmaenco size target (none of the other potential targets were followed-up). The anomaly, known as the **Tullah Bluffs** anomaly, covers an area of 800m by 500m, is not closed off to the south, and is defined by elevated Cu, Pb, Zn, As, Ag and Au. The anomaly appears to be associated with dacite to rhyolite lavas and intrusions which form the prominent Sterling Valley bluffs and show strong potassic and chlorite alteration coinciding with an intense magnetic low. The western edge of the anomaly appears to be bounded by the Farrell fault or the base of the Farrell Slates, a position previously considered to be highly prospective (eg., Allen, 1995).

Infill grids were cut (2 km) and surveyed with DGPS between 5373200N and 5373600N and an extension of line 5372600N to try and close off the anomaly to the south. Rock-chip sampling, PL soil sampling (109 samples) and geological mapping were completed on lines 5373000 – 5373800N and “C” horizon total digest soil sampling (31 samples) was completed on line 5373600N (See Appendix 3 for sample locations and results). Partial Leach results from the infill sampling over the Tullah Bluffs PL anomaly demonstrated that the anomaly is continuous on 5 lines between 5373400N and

5374000N (and possibly as far south as 5373000N, although the anomaly is more diffuse).

The total digest soils (from line 5373600N) and rock chip samples from over the PL anomaly are, with the exception of a single high Pb value (1662 ppm), not strongly base metal anomalous and support the interpretation that the anomaly reflects a buried source rather than being related to surficial mineralisation.

6.1.2 Geological Mapping

The Geological mapping program commenced in the previous year (Parfrey and McNeill, 1999) was completed, with mapping of all lines cut as part of the PL sampling program and on the Anthony Road. This mapping has been compiled, along with all other mapping completed by Pasminco on EL 22/90, onto a series of Four 1:5,000 plans (Figures 4-8). Very little mineralisation and (or) alteration was observed (not overly discouraging, given that the host sequence in, for example, the Murchison open pit is relatively unaltered and un-mineralised immediately away from ore) with most outcrop being either weathered grey siltstone and shale or quartz+feldspar phytic porphyry or crystal rich volcaniclastics.

In association with the mapping a total of 49 rock-chip samples (locations shown on Plates 1&2) were collected and submitted for assay (See Appendix 2 for detailed sample locations and results).

Two samples of mineralisation from the Murchison volcanics were submitted to SIROTOPE for lead isotope analysis:

330553, 385196mE, 5374786mN; galena+pyrite veined sericitic quartz-phyric volcaniclastic from an un-named adit.

330566, 385735mE, 5374800mN; coarse galena and sphalerite in a volcanic breccia from the dump at Donoghues workings.

Results (Appendix 4) indicate that the Pb is of Devonian age and therefore not related to remobilisation of Cambrian VHMS mineralisation.

6.1.3 Drilling

At the **Tullah Bluffs Prospect** two diamond drill holes TBD1 and TBD2 were completed for 518.7m. Both holes were designed to test the multi-element partial leach soil anomaly discussed in section 6.1.1. DDH TBD1 was collared at 5373591.7mN, 384714.1mE, 202.4 mRL (Coordinates in AGD66, Zone 55) on 6/6/00 and then abandoned at 75.7m on 9/6/00 as it had lifted 7°, much more than planned (A log of TBD1 is included in Appendix 5). DDH TBD2 was therefore collared with a steeper dip on 10/6/00 and drilled to completion at 443.0m on 28/6/00. A detailed log and downhole survey details are included in Appendix 5 and assay results are included as appendix 6; a summary log is as follows:

Table 3: TBD2 Summary Log

FROM	TO	LITHOLOGY
0.0	1.7	Organic material and clays. 1.7m core loss
1.7	10.2	Fine to medium grained, deeply weathered quartz-rich mass flow.
10.2	41.6	quartz-feldspar-phyric mass flow sediments
41.6	65.8	Interbedded laminated shales, siltstones and quartz-feldspar mass flow beds; trace disseminated sphalerite in shales only from 41.6-43.9m
65.8	129.6	Medium to coarse, poorly sorted quartz-feldspar-lithic volcanoclastic derived mass flow sediments
129.6	137.5	Fine grained volcanoclastic sandstone and interbedded volcanoclastic siltstone/ash
137.5	225.5	Medium to coarse grained, poorly sorted feldspar-quartz mass flow sediments; minor vein and trace disseminated sphalerite 143.1-146.1m. 10mm vein/band of massive sulphide at 199.3m
225.5	227.3	Fine grained volcanoclastic sandstone and interbedded volcanoclastic siltstone/ash
227.3	229.5	Coarse grained, poorly sorted quartz-feldspar mass flow sediments
229.5	232.5	Fine grained quartz-feldspar moderately sorted sandstone
232.5	300.2	Coarse to medium grained, poorly sorted quartz-feldspar mass flow sediments; extreme quartz-sericite-pyrite alteration 245.2-248.6m adjacent to 100mm fault at 247.1m. 2% sphalerite in quartz-carbonate-chlorite vein at 262.8m
300.2	303.6	Massive, coarse grained quartz-feldspar porphyry
303.6	428.3	Quartz-feldspar-phyric mass flows; patchy sericite-chlorite alteration and associated disseminated sphalerite 353.6-392.1m
428.3	434.8	Laminated siltstone with thin beds of quartz-feldspar-phyric mass flow sediments
434.8	443	Poorly sorted medium grained quartz-feldspar mass flow sediments

The lithologies encountered in this hole were as expected i.e., felsic volcanics and sediments of the Farrell-Murchison sequence. However, a greater than expected percentage of volcanoclastic derived mass flow sediments were encountered (~85% of the hole), with siltstones and minor shales accounting for the remaining bulk of the hole. The only volcanic/intrusive logged was a 3m thick, coarse quartz-feldspar porphyry. Several core orientations were attempted, however, only one allowed recovery of bedding orientation yielding 70-85° to 244-258° magnetic, at 226-231.7m depth, which is consistent with the orientations obtained from mapping (see Figures 4-8).

The major sulphide minerals observed in the core were pyrite, pyrrhotite, sphalerite, chalcopyrite, arsenopyrite and galena. Fluorite and arsenopyrite were also observed in some quartz veins.

Alteration was intensely developed in narrow zones, but, was mostly of moderate intensity and comprises 4 distinct alteration assemblages: pervasive quartz-chlorite, pervasive K-feldspar-quartz, pervasive bleached silica-sericite ± pyrite and a distinct patchy/spotty pale green-yellow chlorite-sericite alteration. This last alteration type was most closely associated with disseminated sphalerite mineralisation – generally the more intense alteration was associated with an increase in the percentage of visible sphalerite.

Assay results were not encouraging with no individual assays of > 0.5% Pb or Zn recorded. The best results, in terms of Zn, were:

41.6 – 45.0m, 3.4m @ 0.14% Zn
193.0 -195.0m, 2.0 m @ 0.3% Zn, 0.2% Pb and 30.7 g/t Ag
262.0 –264.0m, 2.0m @ 0.33% Zn
430.0 - 434.0m, 4.0m @ 0.14% Zn (not closed off)

Cu results were generally <150 ppm with a maximum of 779 ppm (292.0-294.0m) associated with 11 g/t Ag. Au results were also generally low, with only one value >0.1 g/t (2.0m (299.0-301.0m) @ 0.22 g/t Au and 0.22% As).

More encouragingly, VHMS footwall alteration indicator elements (Na and Ca) were depleted in several zones down the hole, the most prominent being 264-282m where Na₂O contents are <0.25% and CaO contents are <0.9% (vs. 1.3-2.7% and 1-2.5% Na₂O and CaO respectively in relatively “unaltered” Murchison volcanics). The depleted Na and Ca zones have Ishikawa alteration indices of 91-96, suggesting strong footwall hydrothermal alteration, although this does not match with the logging which suggests that these zones are at most moderately altered. The abundances of other elements, eg., high K₂O (up to 10%), Ba (to 3500 ppm) and Rb (to 700 ppm) when compared with unaltered Murchison Volcanics (with < 5% K₂O, <1000 ppm Ba and <300 ppm Rb), suggest that the alteration is not VHMS footwall style, but, indicates diagenetic (or granite related?) K feldspar alteration as described by AMIRA Project P439. This conclusion, coupled with the generally low base metal values, significantly downgrades the prospect. However, it is unclear whether the largely disseminated

mineralisation intersected by the hole is sufficient to have caused the PL soil anomaly or whether some other source (at depth?) is required.

Magnetic susceptibility readings were collected at each core block down the hole (Appendix 5). Background values are generally $0.01-0.1 \times 10^{-5}$ SI units with peaks of up to 7.6×10^{-5} SI units, generally corresponding to the presence, as indicated in the drill log, of pyrrhotite.

6.1.4 DHEM Survey

A down-hole electromagnetic survey was completed in drill-hole TBD2 (Appendix 7). Three component data were acquired for the entire length of the drill-hole at 10m-station interval using the CRONE PEM time-domain EM system. A broad response detected in the data has been attributed to a package of black shales (The Farrell Slates) situated approximately 200 m west of the drill collar.

7. REHABILITATION

Drill sites at the Lakeside prospect were rehabilitated during April, 2000. Discussions with MRT representatives indicate that, with the exception of the TBD1-2 access track, which will be rehabilitated when the weather improves in spring, there are no further areas that require any rehabilitation work.

8. CONCLUSIONS AND RECOMMENDATIONS

Pasminco have completed a 10 year exploration program over the Tullah (EL 22/90) tenement on more than 10 prospects, with a total expenditure of approximately \$2.03 million. This program has included reviews of previous exploration, relogging and re-sampling of old drill core, geological mapping, rock chip and soil sampling, Pb Isotope studies, Heli-borne magnetics and electro-magnetics, gravity, IP, MALM and ground EM surveys, and 5315m of diamond and 567m of percussion drilling. The work has targeted both Devonian vein style and Cambrian VHMS mineralisation and has included detailed assessments of known resources (eg., Lakeside, Murchison Mine, New North Mt Farrell).

During the last year a regional partial leach soil sampling program was completed over the volcanics in the western and northern part of the licence and located several short (<300m) strike length anomalies and one "Pasminco" sized anomaly. The larger anomaly was followed-up with little success and the tenement is now considered to be largely explored, to a depth of 300-400m, for Pasminco sized targets and no further work can be recommended.

9. EXPENDITURE

The total expenditure for all work undertaken by Pasminco Exploration within Tullah EL 22/90 for the twelve month period to the end of August 2000 was \$361,087. A detailed expenditure statement is given below.

Personnel	\$121,333
Travel and Accommodation	\$6,420
Geological Consultants	\$3,002
Geochemical Consultants & Assays	\$58,650
Geophysical Surveys & Contractors	\$4,391
Other Contractors	\$37,675
Drilling Contractors	\$48,473
Stores & Supplies	\$915
Vehicles Plant & Equipment	\$1,797
Land	\$3,957
Computing	\$2,845
Office	\$38,803
Administration Fee 10%	\$32,826
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Total Tenement Expenditure	\$361,087

10. KEYWORDS AND LOCALITY

Keywords

ZINC, LEAD, GOLD, SILVER, ARSENIC, TIN, VOLCANOGENIC, ALTERATION, STRUCTURE, GEOCHEMISTRY, GRANITE, GIS, IP, GRIDING, MMI, STERLING VALLEY, TULLAH, FARRELL, MACKINTOSH DAM, EAST STITT, BRUCE CREEK, ANTHONY ROAD, MOXON SADDLE

Location

BURNIE SK55-3 & QUEENSTOWN SK55-5:

TULLAH, STERLING RIVER, MT MURCHISON

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