

PASMINCO EXPLORATION

**LAKE BARRINGTON EL 3/98
ANNUAL REPORT
FOR THE PERIOD ENDING
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Author: Kim Denwer
Kirsten Simpson

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Submitted To: Exploration Manager - Australia

Copies To: Pasminco Exploration, Melbourne
Pasminco Exploration, Rosebery
Department of Mineral Resources Tasmania

Submitted By:

Accepted By:

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1. SUMMARY

Exploration activities in the third year of tenure of EL 3/98 have included:

- Mapping and geological interpretation.
- Collection and analysis of 1856 B-horizon partial leach soil samples.
- Ground EM at the Hereford Prospect
- Drilling of a 348.7m drill hole at the Hereford Prospect (previously the Days Rd Prospect).

Mapping over the first three years of the licence has resulted in the recognition of a sequence of andesitic/intermediate epiclastics and lavas immediately overlying a quartz feldspar phytic sequence. This contact was interpreted as a potential ore horizon. B-horizon partial leach sampling has concentrated on this horizon. A large coherent multi-element anomaly (Pb, Ag, Zn, Cd, Ba and As) was confirmed in the partial leach data at the Hereford Prospect. Samples of vuggy limonitic veined andesite over the anomaly are themselves anomalous in Pb, Zn and Mn. A fixed loop surface EM survey was completed at the Hereford Prospect to test for a conductive EM source with negative results. Despite the lack of EM response it was decided to persevere and drill the anomaly. A 348.7m diamond drill hole (HPD1) was completed at the prospect.

HPD1 failed to intersect any significant mineralisation. A series of discontinuous carbonate veins are anomalous in Zn, Ba and Mn. The partial leach anomaly is clearly a response to this vein set. This vein set was commonly observed over the surface expression of the partial leach anomaly and appears to be intimately associated with the andesite lava.

A further 7 anomalies have been defined in the partial leach data. These require a limited degree of follow-up with some additional sampling and geological mapping, prior to a decision on further testing by ground EM and(or) diamond drilling.

2. INTRODUCTION

This report documents work undertaken on Exploration Licence 3/98 Lake Barrington for the period April 2000 to April 2001.

Exploration on the Lake Barrington EL is managed and operated by Pasminco Exploration, a division of Pasminco Australia Limited (Pasminco).

The EL covers 66 km² of Cambrian Mt Read Volcanics, and is located 15km west of Sheffield (Figure 1). The principal target of exploration on the licence is volcanic hosted auriferous base metal massive sulphide, similar to mineralisation at Rosebery and Hercules in Western Tasmania.

2.1 Attribution

The following personnel were responsible for the work carried out within the Lake Barrington licence area during this period of tenure:

Senior Geologist:	Andrew McNeill - Pasminco Exploration Rosebery
Contract Geologist:	Kim Denwer - Pasminco Exploration Rosebery
Report Preparation:	Kirsten Simpson - Pasminco Exploration Melbourne

3. LAND TENURE

EL 3/98, Lake Barrington (Figure 1), was granted for a five-year term on 7th April 1998 to Pasminco Limited and covers an area of 66 km². ELA 26/98 (Gowrie Park) and EL 16/99 (Cethana) were consolidated into EL 3/98 on 15/3/99 and 3/12/99 respectively.

The EL is subject to a number of land classifications. The current land tenure includes land vested in the Hydro-Electric Commission in the area immediately surrounding Cethana Dam and the Transmission Lines, State Forest, private land holdings and the Mt Roland Regional Reserve.

The history of tenement holdings in the Lake Barrington Area are detailed below in Table 1.

Table 1: Tenement holdings in the Lake Barrington-Cethana Areas.

Prospects: 1= West Cethana, 2= East Cethana, 3= Staverton, 4= Gowrie Park, 5= Mt Roland Prospect. 6= Lake Barrington

Company	Tenement	Granted	Relinquished	Prospects	Previous Tenement
Asarco	EL 7/73	1973	JV with CRA in 1976	All	Nil
CRA	EL 7/73	JV in 1976	1988	4,5	Nil
CRA	EL 10/76	1976	1987	1,2,3,6	Nil
Noranda/Plutonic JV	10/88	1988	1998	1,2,3,6	EL 10/76
Aberfoyle	11/88	1988	1993	4,5	EL 7/73
RGC Exploration	32/94	1994	1999	4,5	EL 7/73
Pasminco Exploration	3/98	1998	-	1,2,3	EL 10/76
Pasminco Exploration	26/98	1998	-	4	EL 32/94
Pasminco Exploration	16/99	1999	-	-	Various

4. GEOLOGY

The regional geological framework of the Mt Read Belt (MRB) is subdivided, from an exploration perspective, into three elements. The central MRB covering the area of outcrop from south of Queenstown to north of Hellyer, the northern MRB covering the area from Back Bluff eastwards through Gowrie Park and Mole Creek, and the Southern MRB comprising areas west and south of Macquarie Harbour. EL 3/98 is in the central part of the northern MRB.

Basement in the Central and Northern MRB is of 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 termed the Tyennan Block, lies to the south of the Lake Barrington licence (Fig 2).

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

The CCF was deposited in shallow but rapidly subsiding basins comprising basaltic lavas and volcanoclastics, turbidites, carbonates, chert and minor evaporites. This formation is not exposed in the licence area. Ultramafic cumulates and volcanic equivalents were thrust onto the CCF in the mid Cambrian. They are absent from the licence area.

The MRV, in the Central MRB, form a 200 km long by 20 km wide north-south trending belt along the eastern side of the Dundas Trough, adjacent to and in some areas overlapping and intruding the Precambrian basement. The northern extension of the MRV swings eastwards around the northern margin of the Tyennan Precambrian block. 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 all of which lie in the Central MRB.

During late CVC to early Tyndall Group time, Cambrian granitoids intruded the volcanic pile. The majority of the granitoids occur along the eastern margin of the volcanics and stitch the volcanics to the Tyennan Block.

Cambrian volcanism and sedimentation was followed by predominantly basement derived late Cambrian to Devonian age sedimentation, including siliciclastic conglomerate, sandstone and limestone. These sequences occur within, and peripheral to, the licence.

At least two phases of regional compression were associated with the mid Devonian Tabberabberan Orogeny. The development of folding, cleavage and regional thrusts in lower Palaeozoic rocks were associated with this event. Fold trends in the licence area are approximately E-W.

Deformation was followed by the extensive intrusion of Devonian to Carboniferous granitoids of batholithic proportions. One such intrusion, the Dalcoath Granite, and associated hornfels aureole, outcrop south of the licence. 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. A similar setting may be interpreted for the base metal vein deposits in the Round Hill workings. After substantial erosion of this terrane, extensive Tertiary flood basalts and subvolcanic sediments were deposited. Basalt flows cover much of the northern part of the licence.

5. PREVIOUS EXPLORATION

Previous exploration is documented in Denwer (2000) and Murphy (1999) and will only be briefly summarised herein. Asarco, CRA, Noranda, Aberfoyle Plutonic and RGC have all held part of the current tenement area. Exploration programmes completed include mapping, soil geochemistry, IP and TEM surveys, DIGHEM, helicopter borne magnetics, 16 percussion holes for 1244 metres and 23 diamond drill holes for 4256.1 metres.

A summary of work carried out in the Lake Barrington area by previous explorers and Pasminco during the life of EL 3/98 is detailed in tables 2 and 3 respectively.

Table 2: Previous Exploration carried out in the Lake Barrington EL3/98 area by other Companies

Company	Year	Exploration Activities
CRAE	1976-88	<p>The ground was originally held by Asarco under EL 7/73. CRAE joint ventured into this tenement in 1976 to assess targets generated through Asarco's stream sampling programme. CRAE, who also held EL 10/76, explored the area from 1976-1988. Porter probably recognised the potential of the area while following up anomalous stream sediment results (Anon 1974).</p> <p>During 1976-77 (Purvis 1977a), CRAE completed geochemical sampling, mapping, and gradient array IP surveys. Although no large amplitude anomalies were detected in the IP, three diamond drillholes were drilled at West Cethana (Figure 4; DD77CC1-DD77CC3; Purvis, 1977b) for 460m. A strongly altered sequence of acid volcanics with anomalous Pb and Zn was recognised. The most encouraging result was in drillhole DD77CC1 which intersected 0.4m @ 8.2% Zn, 0.2 % Pb from 78.6-79.0m in siliceous schists, and 2.6m @ 0.92% Zn, 0.91% Pb from 98.0-100.6m as bedded Pb-Zn sulphides in a black tuff.</p> <p>During 1976-77, at East Cethana (Figure 4, Purvis, 1977b) CRAE completed geochemical sampling, mapping, gradient array IP, EM, magnetics and two diamond drillholes (DD77CC4 and DD77CC5) for 314m. A zone of coincident geochemical and IP anomalism 1300m long and 250m wide was recognised at the eastern end of the prospect. The two drillholes encountered significant sulphides with a best result of 1.0m @ 3.88% Zn, 0.8 % Pb 1.18%Cu and 185 ppm Ag from 37.8-38.8m, and from 78.6-79m in DD77CC5 bands of sulphides occur in a dark chloritic tuff-shale. Several other intersections of 0.5-1.0% combined Pb-Zn over 2-3 metres were intersected in the holes.</p> <p>During 1977-1979, at East Cethana (Purvis, 1979a) three drillholes (DD77CC6, DD77CC7, and DD78CC8) were completed for 495.5m, a dipole-dipole IP survey was completed and a small amount of additional gridding, geochemical sampling and mapping. The three drillholes were targeted at the IP anomalies recognised in the 1976 programme (Purvis, 1977b). The results were regarded as being poor, however two separate intersections were recorded with Pb+Zn >1% and a best result of 4.5m @ 1.2%Zn, 0.4% Pb, and 2.4m of 1%Pb and 0.65% Zn.</p> <p>In 1981 (Flis, 1983), a DIGHEM II survey detected an anomaly near the western end of the East Cethana grid.</p> <p>During 1984-1985 (Tembe, 1985), the previous stream sediment, grid soil sampling and geophysical data were compiled. At West Cethana, two percussion drill holes (PD84CC9 and</p>

Company	Year	Exploration Activities
		<p>PD84CC10) were drilled with base metal poor sulphides intersected over 24m in PD84CC9. Downhole EM in these two drill holes failed to identify a conductor. Core from previous drill holes was re-assayed for gold but no significant values were returned. Other work included rock chip sampling of the Roland Conglomerate and Moina Sandstone in the Claude Mountain Lookout area (17 samples) to test for gold. These samples were assayed for Cu, Pb, Zn, Ag, As, Sb, and Au but no anomalies were detected.</p> <p>During 1986-87 (Caithness and von Strokirch, 1987), at West Cethana, three diamond drill holes (DD86CC11 (abandoned), DD86CC12 and DD86CC13) were completed for 496.5m. The holes were targeted to test a UTEM response and a soil geochemical response in an inferred prospective geological sequence. They failed to intersect any significant mineralisation.</p> <p>CRA relinquished EL's 7/73 and 10/76 in 1988.</p>
NORANDA	1988-92	<p>In August 1988 Noranda successfully tendered for the ground, which was granted as EL 10/88. Noranda immediately joint ventured this ground with Plutonic Operations Ltd. During 1988, a review of CRA geophysics by Zarzavatjian (in Jones, 1989) revealed that some alteration zones had not been covered by IP and UTEM and that numerous IP anomalies that occurred at the end of lines and others with coincident geochemical anomalism had not been followed up. Pb isotope studies of core samples indicated that the mineralisation has an isotopic signature similar to Rosebery.</p> <p>During 1989-90 (Jones, 1990), a gravity survey was done and a helicopter-borne high-resolution aeromagnetic survey was completed. An honours thesis titled "The geology and mineralisation of the Cethana Pyrite Zone" (Hicks, 1989) was completed. A 50m-dipole IP survey on 6 widely spaced lines produced strong well-defined responses on lines 21700E and 21800E.</p>
PLUTONIC	1992-97	<p>On 2 June 1992 Plutonic became the operator of the licence with Noranda retaining a 10% NPR. A further review of previous work was completed (MacDonald and Tomlinson, 1992). Zarzavatjian (in MacDonald and Tomlinson, 1992) completed a geophysical review that identified many weak anomalies in the IP including anomaly CHAR-CE1 that was interpreted to be a single continuous chargeability anomaly running E-W between 21600E and 22600E. Ten diamond drill holes were proposed to test this anomaly in East Cethana.</p> <p>During 1993, Crone PEM covered 2 lines and 13 lines on West and East Cethana respectively. MacDonald (1993) suggested that the northern contact between the quartz-sericite schist and overlying volcano-sedimentary rocks represented a favourable horizon for a VMS deposit. The schist was regarded as footwall alteration. An EL area reduction then resulted in fragmentation of the licence.</p> <p>During 1994-95, 2 diamond drillholes (CED1 and CED2; Figure 4) were completed at East Cethana for 495m. CED1 was targeted at an IP anomaly and CED2 was targeted along strike of mineralised sediments intersected in 77DDCC5 and at the same IP trend as CED1. No significant intersections were found. Downhole EM was completed on these two holes and CC4, 6, 7 and 8 with no off-hole responses. It was concluded that the zone of high chargeability in East Cethana between 21600E and 22600E tested by CC4, CC7, CED1 and CED2 is a broad zone of stringer mineralisation interpreted to be a VMS footwall zone with the favourable horizon occurring to the north. A recommendation was made to test this northern zone by drilling a fence of percussion holes along the track at 21400E.</p> <p>During 1995-96, exploration efforts by Plutonic were concentrated on the Gog Range portion of their tenement (east of the current EL 3/98).</p>

Company	Year	Exploration Activities
		<p>During 1996-97 (Close and Reid, 1997), a six-hole reverse circulation programme (CERC 1 to 5; Figure 4) for 373 metres was completed at East Cethana. The aim of this programme was to define an exhalative VMS horizon in the northern part of the tenement. Results from this programme were not encouraging. Our mapping indicates this program was poorly located and should have targeted further to the north.</p> <p>In August 1997, Plutonic relinquished the portions of EL 10/88 that covered the Cethana area.</p>

Table 3: Previous Exploration carried out in the Lake Barrington EL3/98 area by Pasmenco.

Date	Exploration Activities	Results
1998/1999 (Murphy et. al 1999)	<ul style="list-style-type: none"> • A literature review of previous exploration. • Compilation and digitising of most previous soil geochemical data into a GIS platform. • Re-processing and imaging of the 1990 heli magnetics • The entire Cethana proportion of the EL was mapped at 1:5000 scale using an orthophoto mosaic. • A geological interpretation was completed. 	<p>The extent of the Cethana Alteration Zone (CAZ) requires large volumes of fluids to have passed through these rocks. The fluids evidently carried base metal sulphides (stinger type veins), but the metals may have been deposited elsewhere. However the depth potential of the CAZ requires further evaluation (initially through partial leach soil sampling). Two exploration plays arise from the potential of metal deposition elsewhere in the area. One is a Devonian play and the other is an ostensibly Cambrian play.</p> <p>Devonian Play</p> <p>Southward directed fluid migration expelled from the felsic pile during ductile and brittle shearing. Fluids exited through the Moina/Owen siliciclastics, mixed with meteoric and magmatic fluids and were trapped in fold and fault positions. This would explain the existence of the Round Hill series of workings and suggest the need, also in light of the transfer fault interpretation, to re-evaluate this area for Pb, Ag and Zn potential.</p> <p>Cambrian Play</p> <p>This relates to the contact of the felsic sequence and the overlying magnetite bearing epiclastics, and implies the alteration (CAZ) is a Cambrian footwall system. If a correlation is made with western Tasmania stratigraphy, it is suggested this contact is equivalent to the base of Tyndall Group (similarity to Zig Zag Hill Formation? White and McPhie, 1996). It is also apparent that this contact has not previously been explored to any significant degree within the EL area. RGC held the adjoining EL to the east (Gowrie Park, currently Pasmenco EL 26/98) and targeted this stratigraphic position, although results were not encouraging from the work they undertook. The recognition of a possible Cambrian age granite in West Cethana could impact on the prospectivity of this area.</p>
1999/2000 (Denwer 2000).	<ul style="list-style-type: none"> • A literature review of previous exploration. • Orientation Partial leach sampling programme involving the cutting of four grid widely 	<p>Stratigraphic relationships are uncertain in the West Cethana through to Gowrie Park area but mapping during 1998-99 (Murphy et.al 1999) indicates that the rhyolitic volcanics are younging to the north. This mapping also demonstrated that the mineralisation (and alteration) within the Cethana Alteration Zone is related to strike extensive shear zones with a</p>

Date	Exploration Activities	Results
	<p>spaced lines for 7.1 km and assaying soil samples using conventional and partial leach techniques.</p> <ul style="list-style-type: none"> • Cutting, partial leach sampling of soils and mapping of a 9.5 kilometre grid at the Days Rd Prospect. • Relogging of all holes (18 holes for 2672m) completed on the CAZ, • Continued 1:5000 scale mapping of the tenement. • Pb isotope study at the Round Mountain Workings. • Stitching of the Plutonic airmag and the RGC ground magnetics. 	<p>dilemma of what came first; the alteration or the shearing.</p> <p>Plutonic tried to evaluate a higher exhalative stratigraphic position (their six hole RC program of 1996-97) and RGC identified and drilled a contact between felsic and andesitic volcanics to the east at Gowrie Park (Gregory 1997). It is apparent from our mapping that, if an exhalative position to this footwall alteration exists, then it lies further north than the area tested by Plutonic, at the transition from the felsic sequence to the andesitic sequence. The lithologies at this boundary, seen in the creek north of Olivers Road, are strongly cleaved and chlorite altered. Some historical copper prospecting in the immediate area was reported (by a landholder) and fragments of clayey azurite (?) were retrieved from a recently dug pit.</p> <p>In addition, the heli-magnetics indicates the presence of discrete magnetic features along strike of this contact to the east, which need to be, evaluated in future programs.</p> <p>It was very encouraging that during orientation soil sampling that a significant conventional and partial leach soil anomaly was discovered at the Days Road Prospect. This has provided some confidence in the model and the partial leach sampling technique.</p>

6. WORK COMPLETED 2000-2001 REPORTING PERIOD

6.1 Geological mapping

The understanding of the geology in this area has been significantly enhanced with the recent release of new 1:25,000 geology maps for Cethana and Wilmot by Mineral Resources Tasmania (McClenaghan and Green, 1999). All the grid lines and access roads were mapped at 1:10,000 scale. A geological fact map is presented as Plan 1 and an interpretation map as Plan 2.

The Cambrian stratigraphy can be divided into two main units,

1. A quartz-feldspar-phyric volcanogenic sequence, and
2. An intermediate/andesitic epiclastic and lava sequence

6.1.1 Quartz – Feldspar-phyric Volcanogenic Sequence

These comprise quartz-feldspar porphyry sub-volcanic intrusives, lavas and related quartz-feldspar-phyric sediments, (Cvtqf Plan 2) that outcrop to the north of the Roland Conglomerate and Moina Sandstone contact (Coucp and Om respectively Plan 2). This

sequence strikes east-west to northwest-southeast and generally dips steeply north. It is interpreted that the sequence also faces to the north, although evidence to support this interpretation is largely based on the occurrence of quartz porphyry detritus within the interpreted overlying intermediate/andesitic volcanoclastics to the north. This sequence is discussed in considerable detail in Murphy et.al (1999). The quartz-phyric nature of this sequence bears some comparison with the White Spur Formation, which overlies the Central Volcanic Sequence of Western Tasmania but the correlation is not convincing.

6.1.2 Intermediate/Andesitic Epiclastic and Lava Sequence

These are identified as an east-west belt of rocks that apparently overlie the more acid sequence and that in the mapped area, are unconformably overlain by Tertiary Basalts forming the plateau area to the north.

The basal units of the intermediate/andesitic sequence, seen in the creek north of the junction of Claude and Olivers Road, comprise crystal lithic sandstones and lesser chlorite-sericite schists. The basal unit contains common feldspar crystals, rare quartz crystals, pink aphyric lava (rhyolitic?) clasts, and variable amounts (to 5%) of detrital magnetite. The latter unit locally contains rounded to subrounded muscovite-quartzite pebbles that are interpreted to be derived from Precambrian basement. The crystal lithic sandstones often weather to a dark red soil with preserved kernels of fresh material. The basal unit is very similar to a specific unit within the basal Tyndall Group, Lynchford Member, colloquially termed the Lynchford Tuff.

The thickness of this basal unit varies rapidly and it is interpreted that this unit was deposited on an irregular sea floor. In the vicinity of 5408500mN 430000E the basal unit is not present and has on-lapped onto the underlying Cambrian topography.

Overlying the basal unit is a thick mixed sequence of variably magnetic intermediate lavas, mafic volcanoclastics and polymict mafic conglomerates. There are two major mappable occurrences of intermediate lavas (Cvtab, Plan 2) in the licence, at the Hereford Prospect and at 5409000N 432000E and numerous patchy discontinuous occurrences to the east of the Gowrie Park Fault. These lavas tend to cross cut the stratigraphy and it is interpreted that they were lava domes. In hand specimen the andesites are magnetic and consist of feldspar and clinopyroxene crystals in a blue-green matrix, and the dacites are typically weakly or non-to weakly magnetic and consist of feldspar and quartz phenocrysts in an orange groundmass. The two lava types are typically closely associated and whole rock geochemistry (Denwer 2000) indicates that they have very similar chemistry and range from rhyo-dacitic to andesitic in composition. It is interpreted that they represent differentiated lavas from the one extrusion.

The volcanoclastics and polymict sandstone-conglomerates occur between the intermediate lava 'domes'. It is often difficult to ascertain if the sandstone units are

volcaniclastic or epiclastic in origin and it is suspected that the eruption of intermediate lava was accompanied by pyroclastic eruption with subsequent reworking. The mafic conglomerate is massive to diffusely graded and less commonly bedded. It is comprised of matrix supported pebble-cobble sized clasts of subangular to subrounded feldspar-phyric andesite ($\leq 500\text{mm}$), rounded pale pink to yellow Pre-Cambrian quartzite ($\leq 100\text{mm}$), minor chert, and feldspar \pm quartz phyric volcanics. These conglomerates probably grade into the much finer grained andesitic siltstones and lavas. The large andesite clasts are identical to the lava dome andesites and indicate reworking of these domes. This unit is identical to the coarse conglomerates on the Cradle Mountain Link Road, which are interpreted to be upper Tyndall Group (Zig Zag Hill Formation) correlates.

On a more regional scale the intermediate/andesitic rocks are overlain by uniform unaltered quartz-phyric rhyolite lava. Government mapping (McClenaghan and Green 1999) shows this rhyolitic unit is in turn overlain by a sequence of intermediate-andesitic epiclastics and lavas. It is suspected that this is a fold repetition of the intermediate/andesitic rocks seen in the Gowrie Park area but there is insufficient structural evidence to confirm this.

6.2 Partial Leach Geochemistry.

1856 B-horizon soil samples were collected during the current year. The majority of the sample lines were spaced at 200m but the lines from 14000E to 17600E were spaced at 400m. The spacing was increased in an attempt to reduce the number of samples (and subsequently the cost) needed to delineate anomalies.

Samples were collected at or near each 25m spaced peg and involved digging a hole with a pick, removing the organic rich A-horizon and collecting approximately 500g of sample. A small additional amount of soil was collected at each sample site and placed in a chip tray for reference and to allow colour assignment. The samples were placed in clip lock plastic bags and once returned to the field office the bags were opened to prevent anaerobic reduction reactions. The bags were left opened until a batch of 300 samples was collected and then they were closed for dispatch.

Three duplicate and two standard samples were submitted in every 100 samples. These duplicate samples were replicated at the lab. The duplicate field sample enabled evaluation of the site variability and the replicate sample enabled evaluation of the laboratory variability.

The samples were analysed by Amdel in South Australia using partial leach technique DL42 followed by ICP. Elements analysed were Ag, As, Au, Ba, Bi, Cd, Cu, Co, Mo, Ni, Pb, Ni, Zn, Zr and the rare earth elements Ce, Eu, Gd, La and Sm.

For the purpose of this interpretation the entire DL42 partial leach database was used. This incorporated the 421 samples collected in 1999-2000 from the Hereford Prospect

for a total of 2277 samples. The samples from the original four orientation lines (272 samples) are not included in this interpretation as they were analysed using another leach (DL37) and comparing results from different leach's can be difficult.

Sample locations are shown in Plan 3 and sample results are included as appendix 1. The partial leach assay results are appended as excel spreadsheet: **CethanaPL42_Medtrans** and the replicate and duplicate data as **Lake Barrington Duplicate Data**. In the former file both the raw data and a response ratio are recorded. The response ratio is calculated by dividing the assay result by the median for each element.

6.2.1 Quality Control

The results from the reference standard for all batches are generally of good quality, although a few samples are plotting out side their designated control limits. Plots 1 to 3 show the analytical results for standard PXTas1a for elements Cu, Pb & Zn, with control limits set at ± 2 standard deviations from the mean. The gold and bismuth data for all jobs on the Cethana grid are generally poor as a significant proportion of results are below or very near the detection limit. There is some variability in the median element concentrations from batch to batch across the grid, however this is considered to be within the normal range expected for partial leach surveys. The variability imposed on the results due to soil/lithological changes across the grid is likely to be more significant than the analytical variation so levelling to batch is probably not warranted in this case.

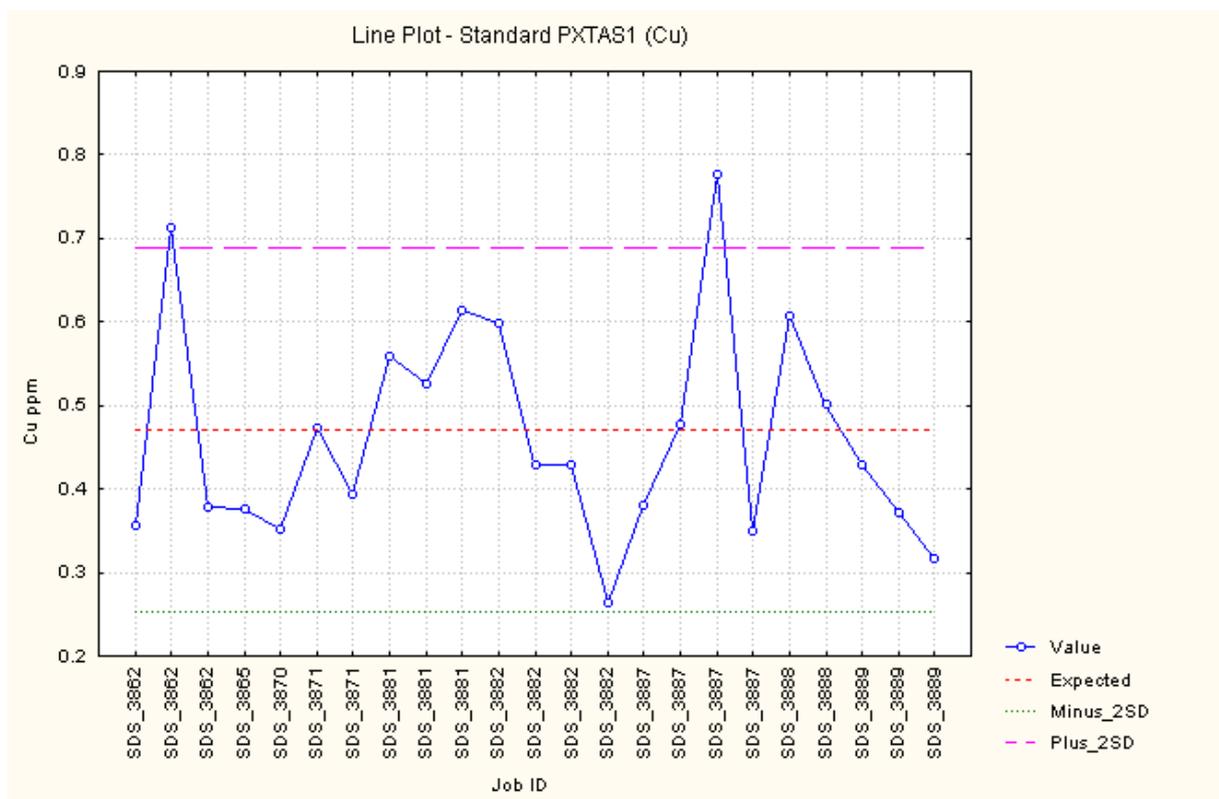


Fig 3: Pasminco Standard PXTAS1a – Line plot of Cu

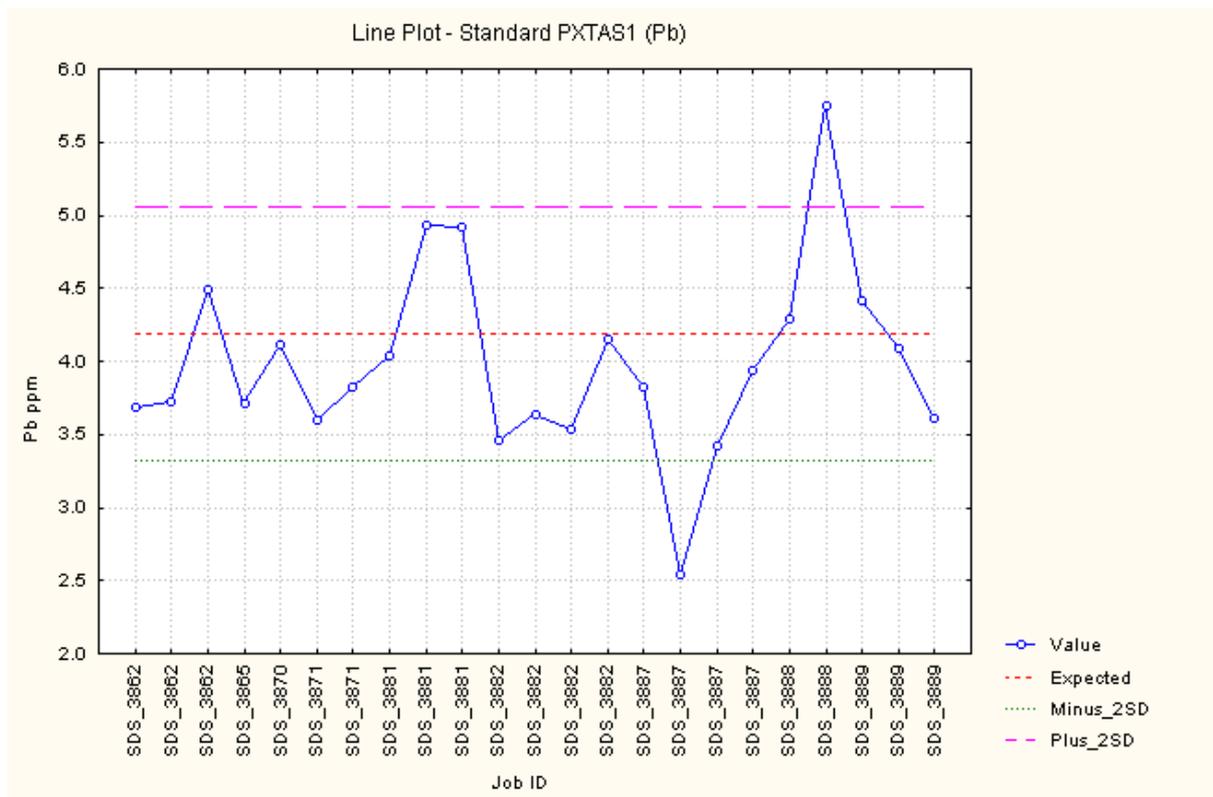


Fig 4: Pasminco Standard PXTAS1a – Line plot of Pb

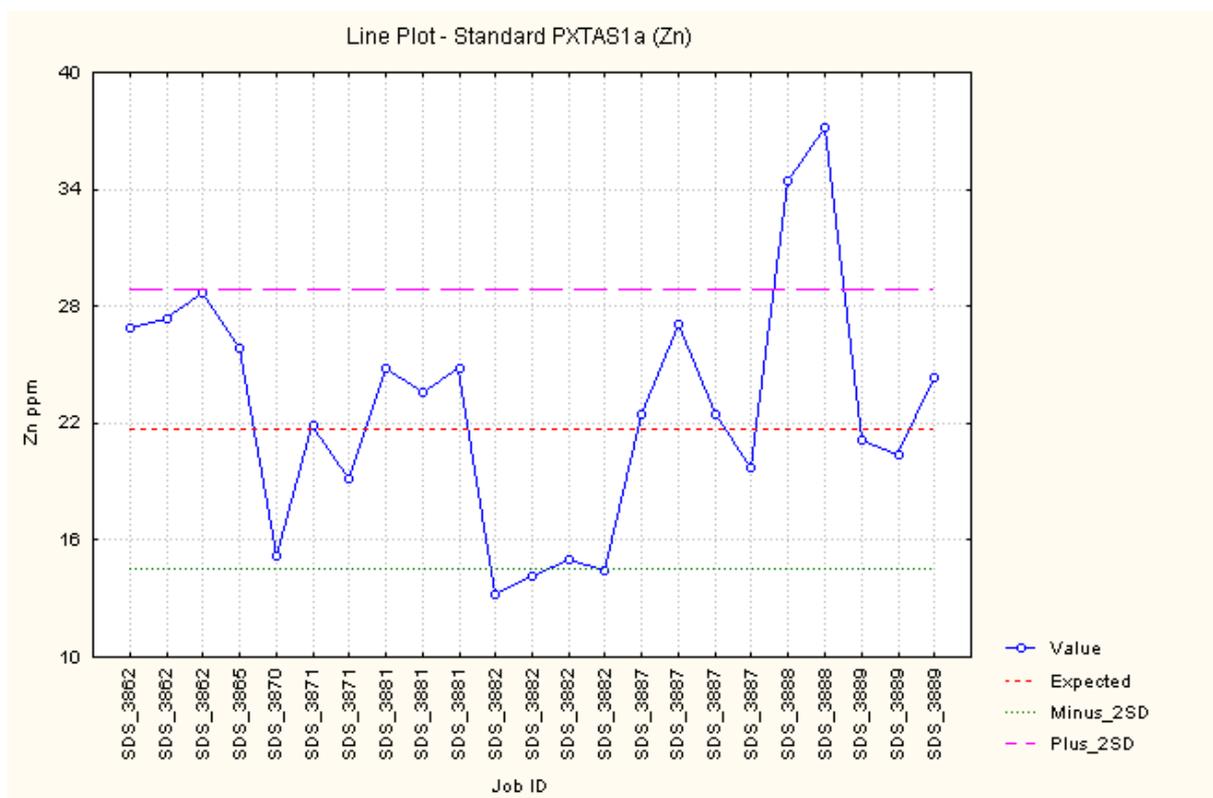


Fig 5: Pasminco Standard PXTAS1a – Line plot of Zn

6.2.2 Results

Data from the PL sampling have been examined using a number of different methods. For interpretation purposes, however, these data are best viewed as a series of stacked line profiles. To allow multiple elements to be plotted on the same axis while viewing the data in profile form, each element has been transformed into a response ratio. This process converts the data into dimensionless values but is a very good method for highlighting outlying (or anomalous) points. It also has the advantage of reducing the dynamic range between different elements in the data and subsequently allowing direct comparison of each element. The attached map (Plan 4) shows stacked profile plots of Cu, Pb, Zn, Ag and As over the Cethana grid.

The copper background is elevated in the north and western portion of the grid (i.e. west of line 13, 500E). There is also a definite shift (upwards) in the background levels of most elements west of line 13,500E. This change is observed as an ENE trend in the data which is coincident with the Dasher River valley. The most likely cause is either a change in soil type and/or geology across this drainage divide. The latter is the preferred explanation as the areas of Tertiary Basalt outcrop are definitely elevated in copper and there is not basalt on the SE side of the Dasher River. This interpretation also implies that there is significant down slope migration of the basalt soil and or basalt detritus.

Lead and silver are elevated in three main areas. The first and most anomalous area is centred at the Hereford prospect (lines 8,800E to 9,400E). This zone is characterised by elevated Pb & Ag (with associated Cd, As, Ba and Zn). It represents the best Ag, Cd & Pb anomaly on the grid. This prospect has been followed up by ground EM and also by drilling (section 6.3).

The second elevated zone is present to the SW of the Hereford Prospect on the southern ends of lines 8,300E and 8,500E (~250m strike length, Anomaly 1, Plan 4). This anomaly has a weaker Ag and Cd association but has higher As and Bi (& minor Au). It is also coincident with a small magnetic low. The element association is very similar to the Hereford prospect except for the elevated Bi and As. However it is also situated very close to the main road and it is suspected that it may be related to cultural contamination (the As, Bi & Au association is a contamination signature at Tullah). A visual check should show if contamination is the cause.

The third area is located 3.5km to the east of the Hereford Prospect and is centred between lines 11,800E to 12,400E (~600m wide, Anomaly 2, Plan 4). This area has a similar signature to the Hereford Prospect with elevated Pb & Ag but much weaker Cd, As and Ba. The anomaly is located within an area of generally elevated background Pb. Geological mapping indicates that the geological setting is very similar to the Hereford Prospect with a differentiated andesite-dacite lava dome intruding? a package of intermediate epiclastics. At the Hereford Prospect the partial leach anomalism has been demonstrated to be a response to thin carbonate veins within the andesite lava (section

6.3). It is suspected that this anomaly is a similar response. It is recommended that there is a visual check of the geology and if the same thin manganiferous oxidised veinlets as at Hereford prospect are recognised on surface then no additional work should be completed.

Between lines 13,000E and 13,600E there is a narrow trending zone of moderately elevated Ag, Pb, Ba, Cu and Zn (Anomaly 3, Plan 4). It occurs in only a few samples on each line and is approximately coincident with the trend of the Dasher River. This anomaly may be picking up a structure associated with the river valley. A visual check of this area is warranted.

A multi element anomaly is present on the southern end of line 13,200E (Anomaly 4, Plan 4). It is located in an area of generally lower background and extends for approximately 100m. It consists of elevated Cu, Pb, Zn, Ag and minor As and is located on the southern edge of a magnetic high. The anomaly is not closed to the south. This anomaly occurs at the contact between the quartz-feldspar-phyric volcanogenic sequence and the intermediate/andesitic epiclastic and lava sequence as indicated by shallow RC drilling by RGC (Gregory 1997). The work completed by RGC in this area should be investigated, the line extended to close off the anomaly to the south and the potential that the anomaly is down slope soil creep from the Gowrie Park anomaly (of CRA, Purvis, 1978) should be investigated.

A narrow spiky Pb and Ag anomaly (with minor Ba and As, Anomaly 5, Plan 4) is present on line 14,400E. This anomaly is only made up of 1-2 samples, however because the line spacing is 400m this could reflect a significant anomaly. This anomaly should be followed up by cutting and sampling two 300-400 lines cut at 200m spacing at 14200 and 14600mE.

A zone of moderate Zn, Pb, Cu and Ag anomalism is present on lines 14,800E and 15,200E (Anomaly 6, Plan 4). These samples are located near the old Gowrie Park town site and most likely reflect cultural contamination. No further work is recommended on this anomaly.

There is a 150m wide zone of moderately elevated Zn, Ba & Pb on line 15,600E (anomaly 7, Plan 4). This anomaly is subtle, however because the line spacing is 400m this could reflect a major anomaly. This anomaly should be followed by cutting and sampling of two 400-500m lines on 200m spacing at 15400 and 15800E.

A 250m wide Pb, Cu, and As anomaly is present on the northern end of line 16,400E (Anomaly 8, Plan 4). It is one of the stronger anomalies on the grid and it occurs in an area of increased cleavage intensity due to sericitic alteration. This anomaly should be followed up by cutting and sampling of two lines at 16200 and 16600mE.

6.3 Hereford Prospect

The Hereford Prospect previously referred to as the Days Rd Prospect was discovered in 1999 as part of the orientation partial leach survey using deep leach 37. A full account of the previous work and a description of the geology can be found in Denwer (2000).

421 partial leach samples were collected during the 1999-2000 field season from the Hereford Prospect but the results were not available in the last reporting period.

A large coherent multi-element anomaly (Pb, Ag, Zn, Cd, Ba and As) was confirmed in the partial leach data. The Hereford anomaly is defined clearly on line 8800mE (Plan 4) where the line profiles show that this anomaly is best defined in Ag, Pb, As and Zn. The Cu profile is dominated by the Tertiary Basalt response. Silver anomalism best defines the prospect and a silver response can be seen on lines 9200 and 9400E. The anomaly has dimensions of 800m x 300m.

Because of the size of the partial leach geochemical anomaly (800x300m) it was hoped that a technique could be found to better target a drill hole. A fixed loop surface EM survey was completed at the Hereford Prospect to test for a conductive EM source (report included in Appendix 2).

A total of 4.3 line km of data was acquired with a single transmitter loop position using the CRONE PEM time-domain EM system. The survey did not detect any anomalous EM responses that could be caused by a large, conductive base metal sulfide deposit (Dauth, Appendix 2).

Despite the lack of EM response it was decided to persevere and drill the anomaly as:

- 1). If a sphalerite rich system (ratio Zn: Pb of +8) existed on the prospect (eg Hercules) then it was unlikely that the EM survey would have detected it, and*
- 2) The partial leach anomaly was large, coherent and unexplained. The hole was designed to test the central part of the geochemical anomaly 260m below the surface, i.e., below the estimated depth of effective ground EM penetration.*

Diamond Drillhole HPD1 was drilled to test the main part of the geochemical anomaly. Contract Diamond Drilling based out of Sheffield drilled the hole. The hole commenced on 12th September 2000 and was completed on 10th October 2000. The drill log and assay results are included as Appendix 3 and a drill section is included as Plan 5. A summary of the drillhole is as follows:

- 0.0-7.5m:** Fresh competent Tertiary Basalt
- 7.5-12.7m:** Colluvium
- 12.7-67.7m:** Unaltered andesite lava, both fine aphyric and coarse hornblende-feldspar-phyric. From 42-52m a stockwork of vuggy limonitic veinlets was intersected, from 52-67.7m a stockwork of thin discontinuous carbonate veinlets are intersected (These are the same vein set).
- 67.7-79.5m:** Unaltered dacite lava. From 67.7-70.0m a stockwork of thin discontinuous carbonate veinlets were intersected.
- 79.5-89.1m:** K-feldspar and chlorite altered feldspar-lithic-quartz sandstone/conglomerate.
- 89.1- 149m:** Unaltered dacite lava.
- 149- 158.7m:** Andesitic volcanoclastic.
- 158.7-181.8m:** Felsic epiclastics, highly variable coarse lithic conglomerate to siltstone.
- 181.8-198.7m:** Andesite/dacite lava.
- 198.2-203.7m:** Ashy volcanic.
- 203.7-348.7m:** Andesite lava.

This hole failed to intersect any significant mineralisation. The thin discontinuous carbonate veins intersected from 42-70m weather to vuggy limonitic fractures. Samples of similar vuggy limonitic material collected at surface are anomalous in Pb, Zn and Mn. Samples of the thin discontinuous carbonate veins/stockworks intersected in core were analysed (appendix 3) and they are anomalous in Zn, Ba and Mn (see attached table). The partial leach anomaly is clearly a response to this vein set. This vein set was commonly observed over the surface expression of the partial leach anomaly and appears to be intimately associated with the andesite lava.

Element	Zn	Ba	Mn	Pb
Min	570	1340	1660	30
Max	845	1740	2590	122
Median	710	1465	2210	51

Table 4. Summary of assays results from HPD1.

7. CONCLUSIONS AND RECOMMENDATIONS

Mapping over the first three years of the licence has resulted in the recognition of a sequence of andesitic/intermediate epiclastics and lavas immediately overlying a quartz feldspar phyric sequence. This contact was interpreted as a potential ore horizon. B-horizon partial leach sampling has concentrated on this horizon.

A total of 1856 B-horizon partial leach sampling was completed over the andesitic/intermediate epiclastics and quartz feldspar phyric contact. Prior to completion of this sampling a large (800m x 300), coherent multi-element anomaly (Pb, Ag, Zn, Cd, Ba and As) was confirmed in the partial leach data at the Hereford Prospect. Ground truthing of this anomaly revealed abundant vuggy limonitic veined andesite float, which was anomalous in Pb, Zn and Mn.

A fixed loop surface EM survey was completed at the Hereford Prospect to test for a conductive EM source. It was hoped that the EM would assist targeting within this large geochemical anomaly. There was no EM response however it was decided to persevere and drill the anomaly. A 348.7m diamond drill hole was completed at the prospect.

HPD1 failed to intersect any significant mineralisation. A series of discontinuous carbonate vein intersected from 42-70m are anomalous in Zn, Ba and Mn. The partial leach anomaly is clearly a response to this vein set.

A further 7 anomalies have been defined in the partial leach data. These require a limited degree of follow-up with some additional sampling and geological mapping prior to a decision on further testing by ground EM and(or) diamond drilling.

There is little doubt that the intermediate/andesitic sequence is a correlate of the Tyndall Group with the basal units being correlated with the Lynchford Member (Lynchford Tuff) and upper parts of this unit being correlated with the Zig Zag Hill Formation of the Tyndall group. This unit has been demonstrated in the Gowrie Park area to be younging to the north and subsequently it is the interpretation of the quartz feldspar-phyric volcanogenic sequence that is important from a mineralisation perspective. It is probable that this unit is a White Spur Formation equivalent. If this interpretation is correct it severely downgrades the prospectivity of this tenement.

8. EXPENDITURE

Total expenditure for all work undertaken by Pasminco Exploration on EL 3/98 Lake Barrington (including costs associated with EL's 26/98 and 16/99, which were incorporated into the licence during the current year) for the thirteen-month period 1 March 2000 to 31 March 2001 was \$. A summary of the expenditure breakdown is given below.

Personnel	\$57,144.67
Travel and Accommodation	\$5,717.70
Geoscience Consultants	\$40,266.25
Geochemical Consultants & Assays	\$41,768.74
Other Contractors	\$38,588.32
Geophysical Surveys & Contractors	\$9,545.50
Drilling Contractors	\$40,923.99
Stores & Supplies	\$1,184.88
Vehicles Plant & Equipment	\$1,317.84
Land	\$4,560.59
Computing	\$863.56
Office	\$18,561.10
Administration Fee 10%	\$26,044.31
Total Project Expenditure	\$286,487.45

9. KEYWORDS AND LOCALITY

Keywords

COPPER, ZINC, LEAD, GOLD, ANDESITE, RHYOLITE, VOLCANICS, FAULT, SHEAR ZONE, FOLD, PYRITE, CHLORITE, SERICITE, GEOCHEM SOIL, GEOL MAPPING DETAILED, GEOPHYS MAGNETICS, ALTERATION, ORE POTENTIAL, NORTHERN MT READ VOLCANICS, CETHANA, ROUND HILL, DAYS RD PROSPECT.

Locality

1:250,000 SK55-NW & SW

1:100,000 Forth 8115

Mersey 8114

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