

PASMINCO EXPLORATION

**LAKE BARRINGTON EL 3/98
ANNUAL REPORT
FOR THE PERIOD ENDING
27 FEBRUARY 2002**

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Date: 27 February 2002

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Rosebery Report No: BAR35

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1. SUMMARY

In the period April 2001 to 27 February 2002, no fieldwork was completed by Pasminco on EL 3/98 Lake Barrington.

It is recommended that in the next 12 months the 7 anomalies defined in the 2000/2001 partial leach data be followed-up and a prospectivity review of the tenement, for both large VHMS targets and smaller veins style mill feed targets, be completed.

2. INTRODUCTION

This report documents work undertaken on Exploration Licence 3/98 Lake Barrington for the period April 2001 to February 2002.

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 the reporting period:

Senior Geologist: Andrew McNeill - Pasminco Exploration Rosebery

3. LAND TENURE

EL 3/98, Lake Barrington (Figure 1), was granted to Pasminco Australia Limited, on 27th March 1998 for a five-year term and covered an area of 15.75 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 giving a total current area of 65.75 km².

The current tenement excludes a 0.048 km² Mining lease (41M/82) for gravel, immediately south of the junction of the Cethana and Old Lorinna Roads.

The tenement 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 high voltage Transmission Lines, State Forest, Forest Reserves, informal reserves, private land holdings, un-allocated Crown Land and the Mt Roland Regional Reserve. All land tenures are available for exploration under the Mineral Resources Development Act.

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 10/88 EL 10/76
Pasminco Exploration	26/98	1998	-	4	EL 32/94
Pasminco Exploration	16/99	1999	-	-	Various

4. GEOLOGY

The regional geology of EL 3/98 is described on the Sheffield 1:63,360 Geological map sheet and explanatory report (Jennings et al., 1959; Jennings et al., 1979). Although establishing the overall regional geology, the description and sub-division of the Cambrian – Ordovician sequences is now dated and new geological coverage at 1:25,000 has been initiated by MRT. At the time of writing the Wilmot and Cethana sheets (McClenaghan and Green, 1999) covering the entire tenement had been published.

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 onlapping 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 et al. (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 Pasmenco during the life of EL 3/98 is detailed in Tables 2 and 3 respectively.

Table 2: Previous Exploration carried out in the area of Lake Barrington EL3/98 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 drill holes 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 drill hole 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 drill holes (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 drill holes 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 zones 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, 1979) three drill holes (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 drill holes 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 PD84CC10) were drilled with base metal poor sulphides intersected over 24m in PD84CC9.</p>

Company	Year	Exploration Activities
		<p>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 drill holes (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</p>

Company	Year	Exploration Activities
		<p>portion of their tenement (east of the current EL 3/98).</p> <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 completed on Lake Barrington EL3/98 by Pasmaenco.

Date	Exploration Activities	Results
1998/1999 (Murphy et. al 1999)	<p>A literature review of previous exploration.</p> <p>Compilation and digitising of most previous soil geochemical data into a GIS platform.</p> <p>Re-processing and imaging of the 1990 heli magnetics</p> <p>The entire Cethana proportion of the EL was mapped at 1:5000 scale using an ortho photo mosaic.</p> <p>A geological interp. was completed.</p>	<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 (stringer 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 Pasmaenco 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	A literature review of previous exploration.	Stratigraphic relationships are uncertain in the West Cethana through to Gowrie Park area but mapping during 1998-99 (Murphy et. al

Date	Exploration Activities	Results
(Denwer 2000).	<p>Orientation Partial leach sampling programme involving the cutting of four grid widely spaced lines for 7.1 km and assaying soil samples using conventional and partial leach techniques.</p> <p>Cutting, partial leach sampling of soils and mapping of a 9.5 kilometre grid at the Days Rd Prospect.</p> <p>Relogging of all holes (18 holes for 2672m) completed on the CAZ.</p> <p>Continued 1:5000 scale mapping of the tenement.</p> <p>Pb isotope study at the Round Mountain Workings.</p> <p>Stitching of the Plutonic airmag and the RGC ground magnetics.</p>	<p>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 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. 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>
2000/2001 (Denwer and Simpson, 2001)	<p>Mapping and geological interpretation.</p> <p>Collection and analysis of 1856 B-horizon partial leach soil samples.</p> <p>Ground EM at the Hereford Prospect</p> <p>Drilling of a 348.7m drill hole at the Hereford Prospect (previously the Days Rd Prospect).</p>	<p>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 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.</p> <p>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.</p> <p>A further 7 anomalies have been defined in the partial leach data.</p>

Date	Exploration Activities	Results
		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.

6. WORK COMPLETED 2001-2002 REPORTING PERIOD

6.1 Fieldwork

No fieldwork was completed during the reporting period.

6.2 Ortho Photos

During 1998 and 1999 Pasmaenco Exploration commissioned HECEC Australia Pty Ltd. to compile rectified ortho photos of its western Tasmanian tenements, including EL 3/98. This data has not been included in previous reports and is included here in a digital format only (MapInfo and ER-mapper formats) as Appendix 1.

7. CONCLUSIONS AND RECOMMENDATIONS

No fieldwork was completed by Pasmaenco on EL 3/98, Lake Barrington, in the period April 2001 to 27 February 2002. The lack of fieldwork was a direct result of a severely reduced exploration budget and resources culminating, in September 2001, with the disbanding of the Exploration Division and the transfer of responsibility for district exploration to Rosebery Mine.

It is recommended that in the next 12 month period:

- The 7 anomalies defined in the 2000/2001 partial leach data (see Denver and Simpson, 2001) be followed-up with some additional sampling and geological mapping prior to a decision on further testing by ground EM and (or) diamond drilling.
- The prospectivity of the tenement for both large VHMS systems and smaller potential mill feed targets be re-assessed using the mapping data collected by Pasmaenco on both EL 3/98 and the adjacent EL 13/2000, recent MRT mapping, the results of the WTRMP helicopter-borne magnetics and electromagnetics, and research underway at CODES on regional correlations of the Tyndall Group (Greg Ebsworth PhD).

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 10-month period April 2001 to 27 February 2002 was \$7,275. A summary of the expenditure breakdown is given below.

Personnel	\$888
Travel and Accommodation	\$7
Geoscience Consultants	\$808
Geochemical Consultants & Assays	\$0
Other Contractors	\$0
Geophysical Surveys & Contractors	\$0
Drilling Contractors	\$0
Stores & Supplies	\$0
Vehicles Plant & Equipment	\$20
Land	\$881
Computing	\$0
Office	\$4,010
Administration Fee 10%	\$661
Total Project Expenditure	\$7,275

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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