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PASMINCO EXPLORATION
PASMINCO - NORANDA - PLUTONIC JOINT VENTURE

BURNS PEAK EL 44/88 ANNUAL REPORT

NOVEMBER 1992 - OCTOBER 1993

volume 1 of 3

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AUTHORS: RA Poltock, LW Kirsner, MS Saxon

DATE: November 1993

REPORT No.: T93-16

SUBMITTED TO: Regional Exploration Manager - Tasmania

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- Melbourne
- Rosebery

Noranda Pty Limited - Toronto

Plutonic Resources Limited - Sydney

SUBMITTED BY: R Poltock

ACCEPTED BY:

Burnie
November 1993

93-3523.
V 1/3

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1 SUMMARY

Work completed within EL 44/88 during the twelve months ending October 1993 included:

* Drilling BPD77 (472.3m) at Summit.
* Drilling BPD78 (466.3m) at Brown's Tunnel.
* Drilling BPD79 (574.5m) at Brown's Tunnel.
* Gridding, 40km of new cutting and refurbishing old lines at Hollway and South Kershaw.
* Review and compilation of previous exploration, including drilling, geology, geophysics and geochemistry. Data and findings of the review are presented in a separate report (see Appendix 1).
* Dipole-dipole IP surveys at South Kershaw (15 line kms) and Hollway/Cone Hill (21.5 line kms) over pyritic alteration zones.
* B/C horizon soil geochemistry at South Kershaw, evaluating IP responses.
* Geological mapping at South Kershaw, Summit, Shale Basin and Brown's Tunnels.
* Lithogeochemistry, primarily of andesites at Hollway and Brown's Tunnel plus felsic volcanics from the Chester area.

Encouraging results from this work included:

- intersection of copper zinc silver mineralisation at Brown's Tunnel in BP78, significant intersections were: 286.0–295.0m, 9m @ 2.47% Cu, 0.21% Zn, 98g/t Ag in stringer sulphide zone; 322.9–333.0m, 10.1m @ 1.39% Cu, 2.19% Zn, 53g/t Ag in massive pyritic sulphide
- intersection of high grade massive sulfide clasts at Summit in BPD77 in a felsic epiclastic, the clast assayed 36%Pb 16.5%Zn 300g/t ag, the horizon overlies pyritic alteration
- definition of discrete IP responses associated with pyritic alteration at both South Kershaw and Hollway/Cone Hill.

Recommendations for further work include:

- drilling, following up mineralisation intersected in BPD78 at Brown's Tunnel and the massive sulfide clasts in BPD77 at Summit.
- mapping and soil/rock geochemistry to define drill targets at the Shale Basin UTEM anomaly and the Hollway Pyrite Zone IP anomaly.
- relogging drill core and lithogeochemistry to better understand the geology at Brown's Tunnel.

Expenditure for the year to October 1993 was **$423 385**, bringing the total expenditure on E/L 44/88 since its inception in December 1988 to **$2 205 024.**

2 INTRODUCTION

This report documents work undertaken on the Burns Peak EL 44/88, Western Tasmania, covering the period from November 1992 to October 1993. The recommended work program for the period November 1993 to October 1994 is also outlined.

Exploration on the Burns Peak EL is managed and operated by Pasminco Exploration, a division of Pasminco Australia Limited, on behalf of a joint venture between Pasminco, Noranda Proprietary Limited and Plutonic Resources Limited. The EL covers 63km^2 of Cambrian Mt Read Volcanics, and lies immediately west of the Tullah township, north of Lake Rosebery (Figures 1–3). Exploration targets on the EL are principally polymetallic (zinc, lead, copper, silver, gold) sulphide deposits, similar to those at Rosebery and Hellyer.

The EL includes old workings in the Pinnacles and Chester areas, which have been the focus of significant exploration effort over the past 40 years, leaving a legacy of good access tracks and grid lines covering the western half of the EL. The eastern half is less explored, leading to slightly more difficult access in the thickly vegetated and higher relief areas.

The licence was reduced by 50% in accordance with the Mines Department regulations in the fifth year of tenure. The eastern section and the southwestern block, west of the Rosebery Fault were relinquished. A report detailing all exploration on the relinquished area since inception of EL 44/88 was forwarded to the Mines Department on 9 November 1993 (FitzGerald, 1993).

Work during the 92/93 year on the licence has been by Kirsner, Saxon and the Burns Peak Review Team. Since April the program has been run by Poltock. This report details all exploration during the licence year, the Review Report, a stand alone document, is appended in its entirety see (Appendix 1).

During the period covered by this report the main target areas for exploration have been Brown's Tunnel, Summit, South Kershaw and Hollway (see Figure 4). Work has included: drilling holes BPD77, 78 and 79; gridding; IP; soil/rock geochemistry; DHEM and mapping.

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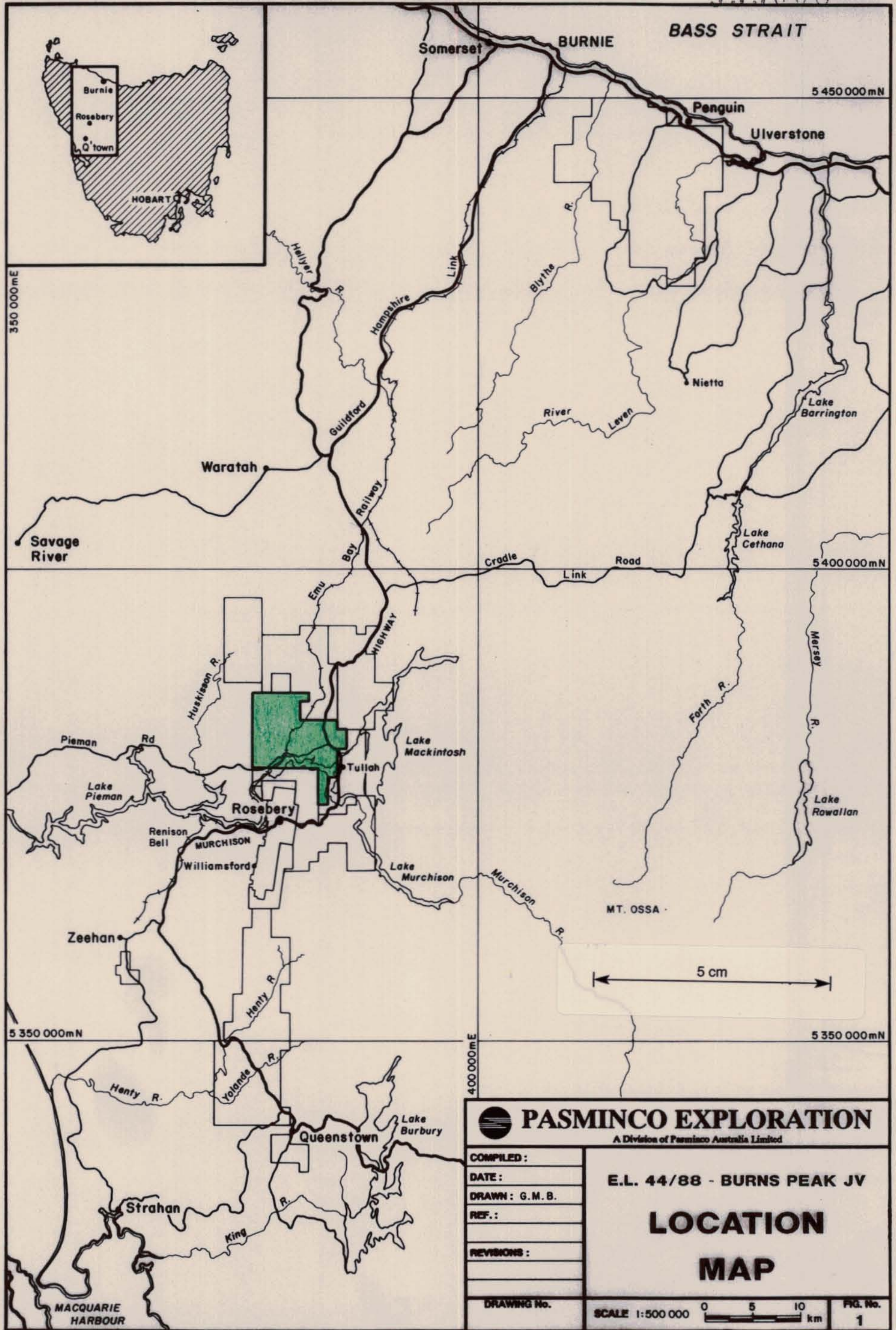
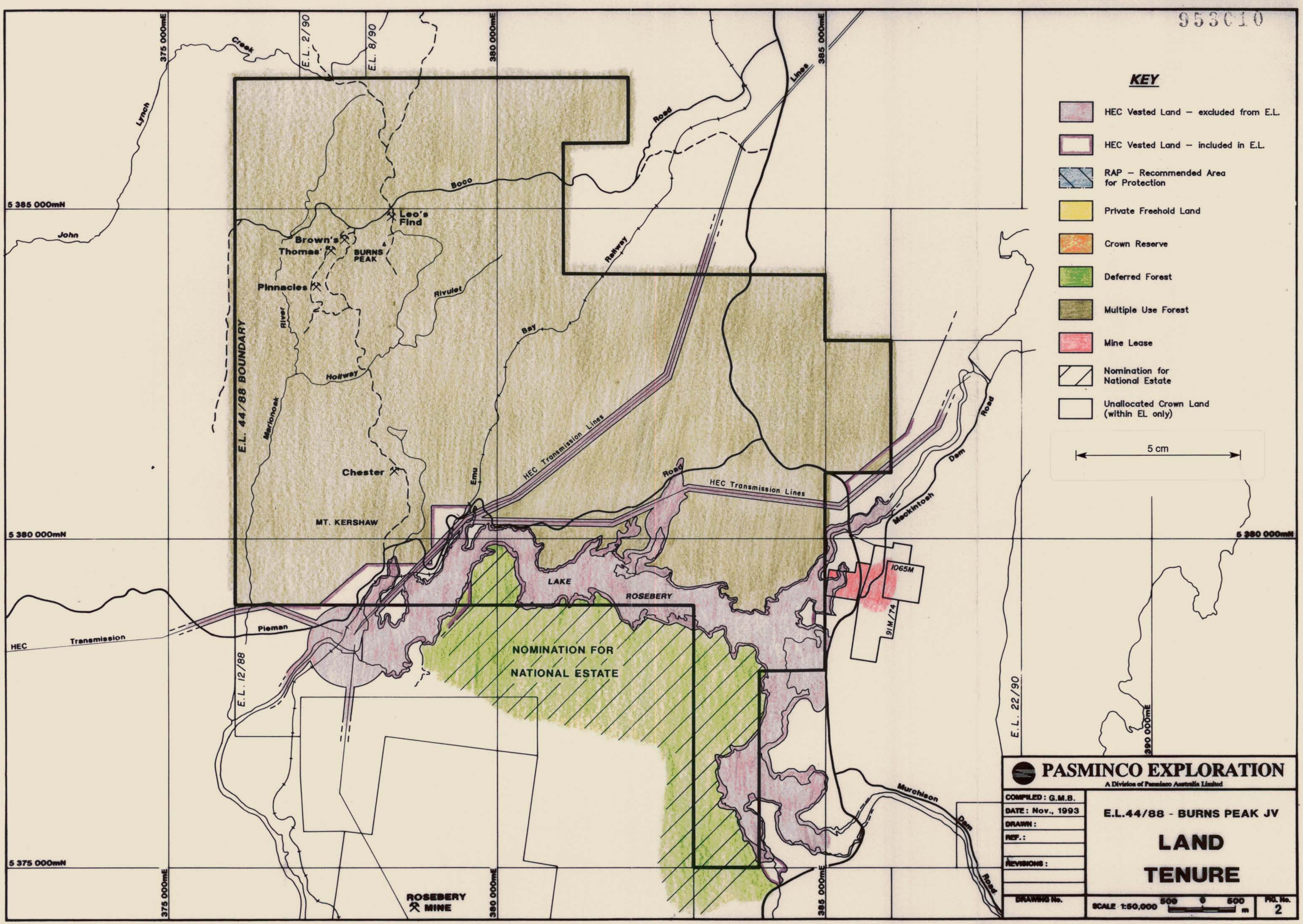

BASS STRAIT
Burnie
Rosebery
Q'town
HOBART
Somerset
BURNIE
Penguin
Ulverstone
5 450 000 mN
350 000 mE
Hellyer R.
Hampshire
Link
Blythe
R.
Nietta
Guildford
River
Leven
Lake Barrington
Waratah
Railway
Savage River
Bay
Emu
Cradle
Link
Road
Lake Cethana
5 400 000 mN
HIGHWAY
Huskisson R.
Mersey
R.
Forth R.
Pieman
Rd
Lake Mackintosh
Tullah
Lake Pieman
Rosebery
Renison Bell
MURCHISON
Williamsford
Lake Murchison
Murchison
R.
MT. OSSA
Lake Rowallan
Zeehan
5 cm
Henty R.
5 350 000 mN
400 000 mE
Yolande
R.
Henty R.
Lake Burbury
Queenstown
Strahan
R.
King
MACQUARIE HARBOUR
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED :
DATE :
DRAWN : G. M. B.
REF. :
REVISIONS :
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
LOCATION MAP
SCALE 1:500 000
0
5
10
km
FIG. No.
1

3 TENURE

The Burns Peak EL 44/88 was initially granted for a renewable one year term on 9 December 1988 to Noranda Pty Ltd and Pasminco Limited in joint venture following their successful tender. Pioneer Minerals Australia Limited became a third member of the joint venture upon granting of the EL. The formal Burns Peak Joint Venture was finally executed on 6 March 1990, between the three companies, having been effectively in place since granting of the EL. The licence was renewed in December 1989, 1990, 1991, and 1992 and a further one year renewal is being sought. The licence area has been reduced by 50% in accordance with Mines Department regulations at the end of the 5th year of tenure (FitzGerald, 1993).

Until 1 July 1990, Geopeko, the exploration division of North Broken Hill Peko Ltd administered and operated the EL under contract for Pasminco. Since that time, Pasminco Exploration (a division of Pasminco Australia Ltd) has taken over these responsibilities. All expenses and tenure have been shared equally between the three Burns Peak Joint Venture partners until June 1993, when Noranda elected not to contribute to the July-December 1993 program. Pioneer Minerals Australia has now become Plutonic Resources Limited and "Pasminco Australia Limited" has been substituted on all licence documents in place of "Pasminco Limited".

The EL is subject to a number of land classifications, which were revised in May 1993. The current land tenure includes land vested in the Hydro-Electric Commission in the area immediately surrounding Lake Rosebery and the Transmission Lines, part of the Farrell Mine Lease, Multiple Use Forest Land and Deferred Forest (Figure 2). Most of the tenement is Unallocated Crown Land designated as Multiple Use Forest.


953010
KEY
HEC Vested Land – excluded from E.L.
HEC Vested Land – included in E.L.
RAP – Recommended Area for Protection
Private Freehold Land
Crown Reserve
Deferred Forest
Multiple Use Forest
Mine Lease
Nomination for National Estate
Unallocated Crown Land (within EL only)
5 cm
375 000mE
380 000mE
385 000mE
390 000mE
5 385 000mN
5 380 000mN
5 375 000mN
E.L. 2/90
E.L. 8/90
E.L. 12/88
E.L. 22/90
E.L. 44/88 BOUNDARY
Lynch
Creek
John
Boco
Leo's Find
Brown's
Thomas'
BURNS PEAK
Pinnacles
Rivulet
River
Bay
Hollway
Marionoak
Chester
MT. KERSHAW
Emu
HEC Transmission Lines
Railway
Road
Lines
LAKE
ROSEBERY
NOMINATION FOR NATIONAL ESTATE
HEC Transmission
Pieman
1065M
91M/74
Mackintosh
Dam
Murchison
ROSEBERY MINE
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : G.M.B.
DATE : Nov., 1993
DRAWN :
REF. :
REVISIONS :
DRAWING No.
E.L.44/88 - BURNS PEAK JV
LAND TENURE
SCALE 1:50,000
500
0
500
m
FIG. No.
2

4 REGIONAL GEOLOGY

The Burns Peak EL covers a large section of the Cambrian Mt Read Volcanics in Western Tasmania. Most of the units exposed at the surface are included in the Central Volcanic Sequence (CVS) (Corbett and McNeill, 1986; Figure 3) and consist of rhyolitic to dacitic lavas and sills and associated volcaniclastic deposits, andesitic lavas and minor sedimentary units. Intruding the sequence are minor quartz–feldspar porphyries and basalt/dolerite sills and dykes. The EL also incorporates a slice of Dundas Group sediments on the western and northern margins. The major contact in the SW of the EL between the Central Volcanic Sequence and the Dundas Group is the Rosebery Fault, which strikes north–south and dips between 40° and 46° to the east at surface. This structure either shallows or flowers into the Henty Fault at depth and was an active thrust fault for at least part of its history. In the northwest and north of the EL the CVS–Dundas Group contact is conformable, but may be, in part, fault controlled also.

The Henty Fault Zone, which forms the eastern boundary of the CVS and trends NNE lies just outside the eastern boundary of the Burns Peak EL.

Units generally trend north–south in the southern and western parts of the EL but turn to a NE–SW trend in the area to the east of the Pinnacles workings. A north–south trend is also apparent along the Pinnacles "Axis" (formerly Pinnacles "Anticline") in the far north of the EL. A proposed stratigraphy is outlined in Rosenhain and Mathison (1989) but this is continually under review.

Numerous sub–economic base metal sulphide deposits occur on the western side of the EL, in a 2km wide belt of mineralised rocks including the Pinnacles, Thomas' Tunnel, Brown's Tunnel and Leo's Find workings. The large Chester massive pyrite deposit occurs in the southwest of the EL. A number of smaller gold, base metals or pyrite workings are also documented, mainly along the western side of the EL, within the CVS rocks.

During the period covered by this report, exploration has concentrated on the areas of known sulphide mineralisation and significant alteration at Brown's/Thomas' Tunnels, Summit, Hollway/Cone Hill and South Kershaw.

953012

PASMINCO EXPLORATION

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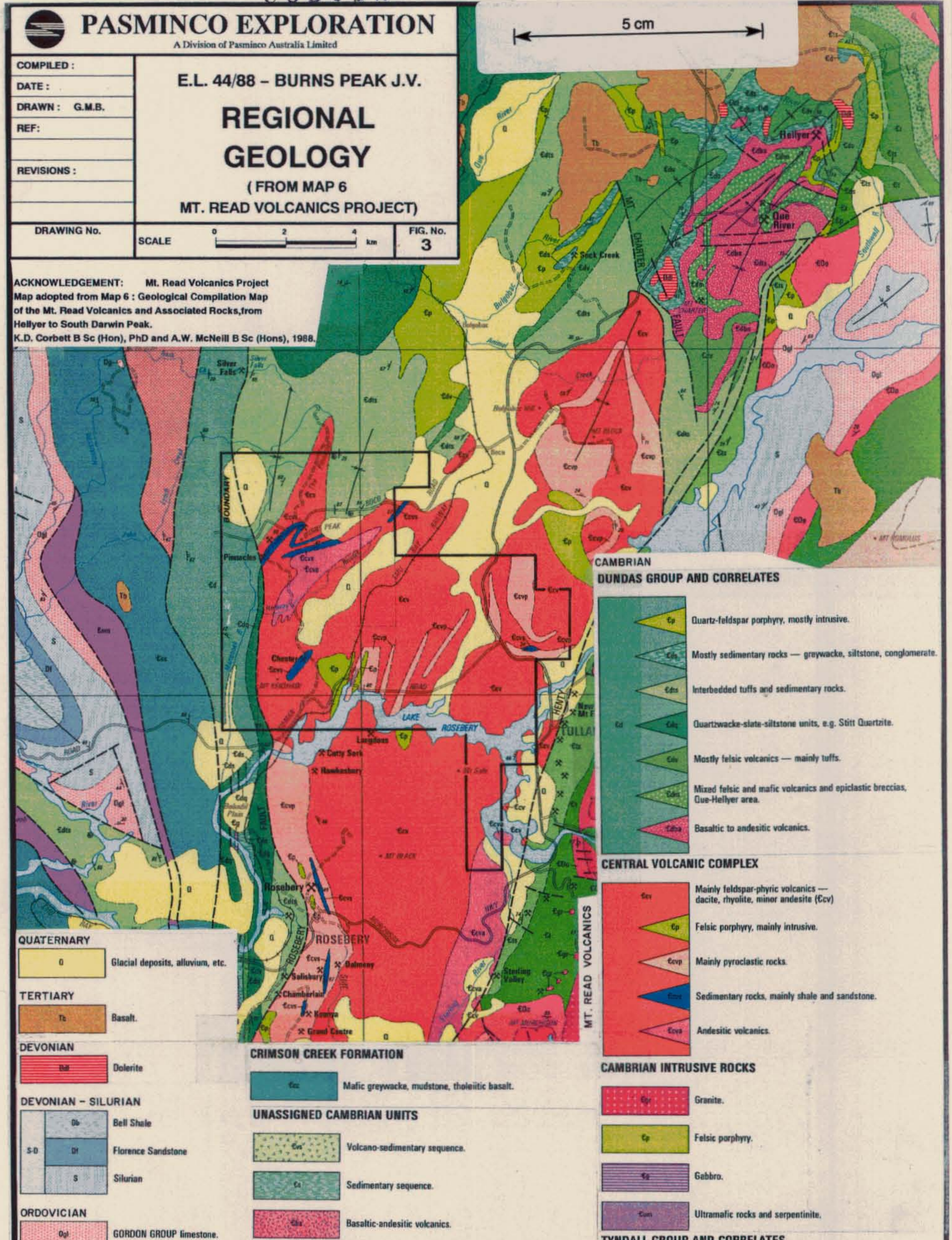
COMPILED:	E.L. 44/88 – BURNS PEAK J.V.
DATE:	**REGIONAL GEOLOGY**
DRAWN: G.M.B.	(FROM MAP 6
REF:	MT. READ VOLCANICS PROJECT)
REVISIONS:	
DRAWING No.	SCALE 0 2 4 km — FIG. No. 3

ACKNOWLEDGEMENT: Mt. Read Volcanics Project
Map adopted from Map 6 : Geological Compilation Map of the Mt. Read Volcanics and Associated Rocks, from Hellyer to South Darwin Peak.
K.D. Corbett B Sc (Hon), PhD and A.W. McNeill B Sc (Hons), 1988.



QUATERNARY
- Q — Glacial deposits, alluvium, etc.

TERTIARY
- Tb — Basalt.

DEVONIAN
- Dd — Dolerite

DEVONIAN – SILURIAN (S-D)
- Db — Bell Shale
- Df — Florence Sandstone
- S — Silurian

ORDOVICIAN
- Ogl — GORDON GROUP limestone.

EARLY ORDOVICIAN – LATE CAMBRIAN (€Oe)
- €Oou — Upper sandstone sequence including Pioneer Beds (€Oou).
- Undifferentiated conglomerate and sandstone (€Oo).
- €Oon — Newton Creek Sandstone (€Oon) — interbedded sandstone siltstone and conglomerate with marine fossils.

CRIMSON CREEK FORMATION
- €cc — Mafic greywacke, mudstone, tholeiitic basalt.

UNASSIGNED CAMBRIAN UNITS
- €vs — Volcano-sedimentary sequence.
- €s — Sedimentary sequence.
- €ba — Basaltic-andesitic volcanics.

SUCCESS CREEK GROUP
- €sc — Quartz sandstone, mudstone, siltstone with minor conglomerate and carbonate.

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

CAMBRIAN

DUNDAS GROUP AND CORRELATES (€d)
- €p — Quartz-feldspar porphyry, mostly intrusive.
- €ds — Mostly sedimentary rocks — greywacke, siltstone, conglomerate.
- €dts — Interbedded tuffs and sedimentary rocks.
- €dq — Quartzwacke-slate-siltstone units, e.g. Stitt Quartzite.
- €dv — Mostly felsic volcanics — mainly tuffs.
- €dm — Mixed felsic and mafic volcanics and epiclastic breccias, Que-Hellyer area.
- €dba — Basaltic to andesitic volcanics.

CENTRAL VOLCANIC COMPLEX
- €cv — Mainly feldspar-phyric volcanics — dacite, rhyolite, minor andesite (€cv)
- €p — Felsic porphyry, mainly intrusive.
- €cvp — Mainly pyroclastic rocks.
- €cvs — Sedimentary rocks, mainly shale and sandstone.
- €cva — Andesitic volcanics.

CAMBRIAN INTRUSIVE ROCKS
- €gr — Granite.
- €p — Felsic porphyry.
- €g — Gabbro.
- €um — Ultramafic rocks and serpentinite.

TYNDALL GROUP AND CORRELATES
- €t — Mainly quartz-feldspar-phyric volcanic and volcaniclastic rocks (€t)
- €ts — Mainly sedimentary rocks, including Farrell Slates.
- €tc — Mainly volcaniclastic conglomerate and sandstone.
- €sb — Sticht Range Beds — sandstone, siltstone, siliciclastic congl

5 PREVIOUS EXPLORATION

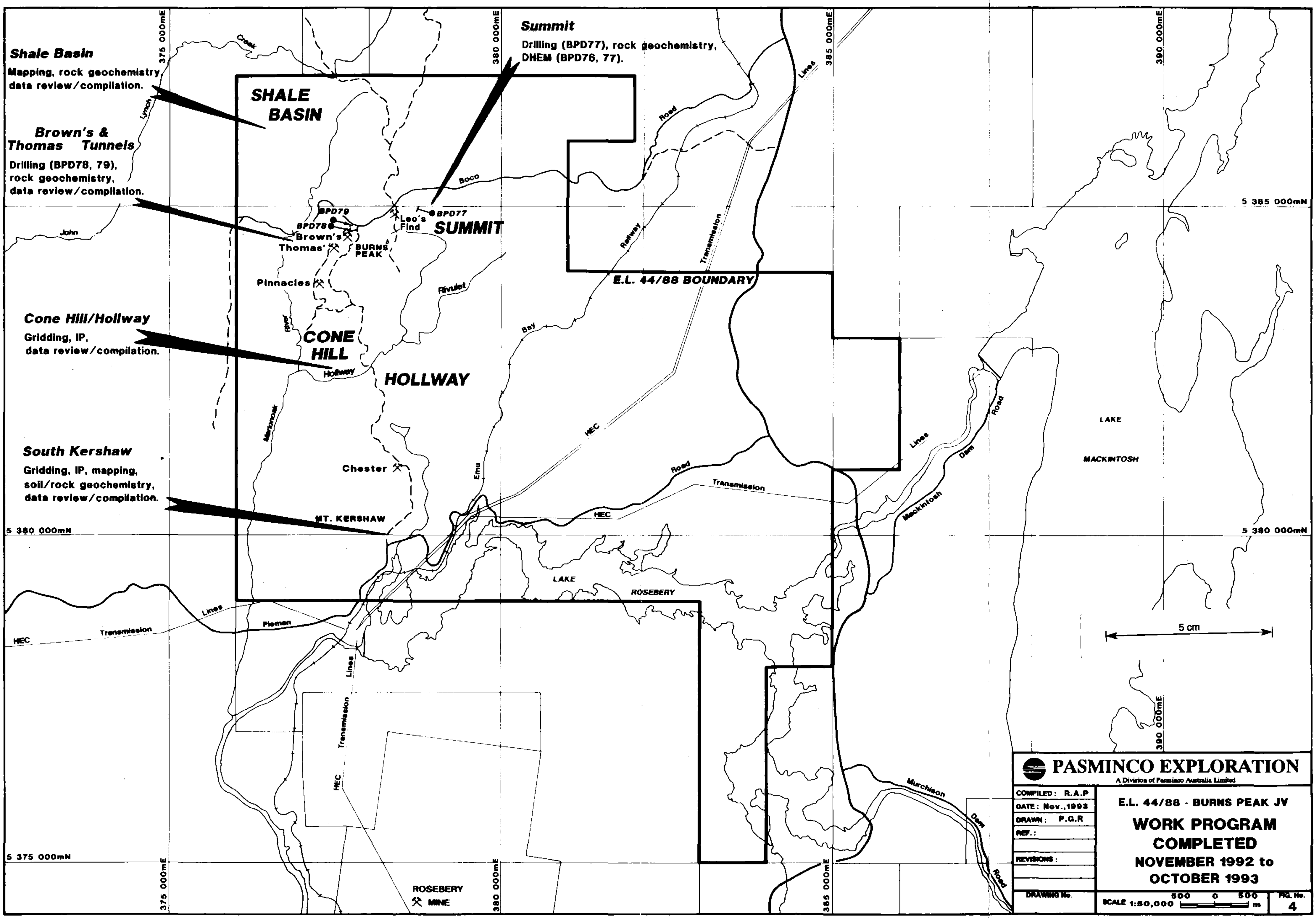
The extensive history of exploration and mining in the area covered by the current Burns Peak EL 44/88 was summarised by Rosenhain and Mathison (1989) and this has been modified, below, as Table 1. The Burns Peak Joint Venture was initiated on granting of the licence in December 1988, and is currently reaching the end of its fifth year of operation. Details of these activities are documented in the past four annual reports (Rosenhain and Mathison 1989; Lorrigan 1990; Kirsner, Lorrigan and Rae 1991 and Kirsner 1992).

TABLE 1

HISTORY OF EXPLORATION ON EL 44/88

1896	Discovery of alluvial gold in Morionoak River by Tom Strong. (Strong's Alluvial Workings)
1896	Discovery of Pinnacles Lodes by McGuiness Bros.
1899	Discovery of Chester by F Kershaw and H Sanderson. (Kershaw's Iron Blow)
1899	Brown's Tunnel driven (Brown's Workings) est. production 300t @ 2% Zn, 2g/t Au, 44g/t Ag.
1899	Southern Workings est. production 55t @ +10% Zn, +8% Pb, 8g/t Au, 38g/t Ag.
1899	Thomas' Tunnel driven (Thomas' workings) est. production 50t @ 4% Zn, 7% Pb, 1g/t Au, 240g/t Ag.
1908	Mt Lyell Mining and Railway Co Ltd secured Chester Leases.
1908–1913	Intensive exploration and mining development at Chester. Production 36 000t @ 37% S.
1918–1920	Minor production from Chester by Cuming Smith & Co. Production 700t @ +25% S.
1947–1950	Electrolytic Zinc Company created foot and vehicle access to Pinnacles area. 14 small diameter diamond drill holes (PP31, 34, 36, 39, 40, 41, 42, 45, 46, 48, 50, 51, 52, 59) completed and workings and topography surveyed. Geophysical test surveys at the Pinnacles (SP, ground magnetics and resistivity).

1959-1960	Geochemical, geological and geophysical surveys over Pinnacles and Chester. Techniques included Sharp vertical loop EM, Turam, ground magnetics (vertical field), gravity. "The significant feature of this coverage is that Pinnacles Mine Mineralisation is non-conducting".
1963	Comstaff acquires EL 5/63 which included the Burns Peak area.
1968-1972	Initial phase of gridding, geochemical sampling, geophysics (IP and EM), mapping and 3DDH at Chester (CH1-3) by Comstaff.
1973-1976	Second phase of gridding, geochemical sampling, etc. 10 DDH drilled (plus CP2 redrilled) at Pinnacles and 13 DDH at Chester (CP1-23). (New metric grid, new soil sampling, new IP). Airborne EM.
1976-1979	Preussag entered into Joint Venture with Comstaff. Detailed mapping and structural synthesis completed. C horizon soil geochemistry, 2 DDH, (PIN1 & 2) trial PEM and IP over Leo's Find.
1980-1983	Exploration of East Chester area. New grid, grid extensions, C horizon soil geochemistry, ground magnetics. IP, DIGHEM. Four DDH (EAB1-4) drilled at East Chester.
1984-1985	New grid at Pinnacles (EAF) mapped, C horizon soil sampling, ground magnetics and UTEM. 19 DDH-discovery (ESB1 & EAF 1-18) of small lenses of massive sulphides and patchy gold mineralisation. New geological interpretation.
1986-1988	BHP entered Joint Venture. Reinterpretation and compilation of exploration results. "Blanket" UTEM and downhole SIROTEM. New geological interpretation. Petrological studies. Wacker sampling.
1988-1991	Pasminco-Noranda-Plutonic Joint Venture on new EL 44/88. Extensive geological mapping, re-appraisal of previous data, Wacker sampling, geochemistry, petrology, DHEM, CSAMT, DH-SIROTEM, Mise-a-la-Masse, aeromagnetic survey, regional and local gravity surveys, drilling of 12 DDH (BPD62-73) Rehabilitation of old tracks, costeans and workings.
1991-92	Pasminco -Noranda- Plutonic JV, exploration was managed by Pasminco and included drilling BPD74, 75, 76, geological mapping and relogging drill core at Hollway and Summit, gravity infill and interpretation, ore/pathfinder/whole rock geochemistry, down hole EM in BPD69,71,75 and compilation/computerisation of historic geochemical data.


Shale Basin
Mapping, rock geochemistry, data review/compilation.
Brown's & Thomas Tunnels
Drilling (BPD78, 79), rock geochemistry, data review/compilation.
Cone Hill/Hollway
Gridding, IP, data review/compilation.
South Kershaw
Gridding, IP, mapping, soil/rock geochemistry, data review/compilation.
Summit
Drilling (BPD77), rock geochemistry, DHEM (BPD76, 77).
SHALE BASIN
SUMMIT
BPD79
BPD78
BPD77
Leo's Find
Brown's
Thomas'
BURNS PEAK
Pinnacles
CONE HILL
HOLLWAY
Chester
MT. KERSHAW
E.L. 44/88 BOUNDARY
LAKE ROSEBERY
LAKE MACKINTOSH
ROSEBERY MINE
Boco
Rivulet
Bay
Emu
Road
Railway
Transmission
Lines
HEC
Pieman
Marionoak
River
Hollway
Creek
Lynch
John
Mackintosh
Dam
Murchison
375 000mE
380 000mE
385 000mE
390 000mE
5 385 000mN
5 380 000mN
5 375 000mN
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: R.A.P
DATE: Nov.,1993
DRAWN: P.G.R
REF.:
REVISIONS:
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
WORK PROGRAM COMPLETED NOVEMBER 1992 to OCTOBER 1993
SCALE 1:50,000
500 0 500 m
FIG. No. 4

953015

6 RESULTS OF EXPLORATION PROGRAMME - NOVEMBER 1992 to OCTOBER 1993

6.1 Lithogeochemistry

Whole rock geochemical analyses of lavas, intrusives and volcaniclastic mass flows from the Brown's Tunnel, Summit and Hollway prospects was undertaken. The aim of this work has been to aid in rock identification in drill core and outcrop. Determination of original lithologies is often difficult due to intense alteration. No attempt has been made to compare the volcanics with those from other areas. Data generated this year has been combined with that from Gregory and Hall (1986), Coutts (1990) and previous Pasminco annual reports. Gregory's data is limited to trace elements and only appears on the Zr/Ti - Nb/Y plot. Sample descriptions and locations are listed in Appendix 9 and analytical reports are included in Appendix 11.

This data set has not been combined with lithogeochemical data generated at Chester this year or the Pasminco MRV data base at this stage.

Lithologies in the mineralised NW sector of the licence fall into four groups:

i. footwall/CVC pumiceous massflows and quartz feldspar porphyries;
ii. Brown's Tunnel "andesites";
iii. Hollway Andesites;
iv. Pinnacles Rhyolite.

Geochemical data is presented on four plots:

Zr/Ti - Nb/Y; Ti/Zr - SiO_2; P_2O_5/Ti -SiO_2 and P_2O_5 - Ti/Zr. Several samples plot as outliers, this is interpreted to be due to intense weathering and/or alteration. The single CVC sample plotting with Brown's Tunnel on P_2O_5/Ti - SiO_2, P_2O_5 - Ti/Zr plots has been mis-identified. A discussion of the key features of each plot is given below.

Zr/Ti – Nb/Y (Figure 5)

The "Y" axis on this plot defines the degree of differentiation, from the least differentiated Hollway Andesite to the CVC/Pinnacles Rhyolite. Most of the Hollway and all of the Brown's Tunnel andesites plot in the rhyodacite field, the reason for this is not known. Nearly all the CVC and Pinnacles Rhyolite samples plot within the rhyolite field.

Ti/Zr – SiO2 (Figure 6)

The "andesites" at Brown's Tunnels occur within the Brown's Tunnel host sequence and range in composition from basalt –dacite on the basis of SiO2 content (BVSP 1981). Although there is a considerable range in SiO2 content the "andesites" form a distinct group with Ti/Zr in the range 10–20, compared to Hollway Andesites >20 and the CVC/Pinnacles Rhyolite <10.

P2O5/TiO2 – SiO2 (Figure 7)

The greatest separation on this plot is between the Hollway Andesites and the CVC. The Brown's Tunnel "andesites" and Pinnacles Rhyolite having some affinities with each other with P2O5/TiO2 in the range 0.2–0.3, with some overlap with Hollway rocks but definite separation from the CVC footwall sequence.

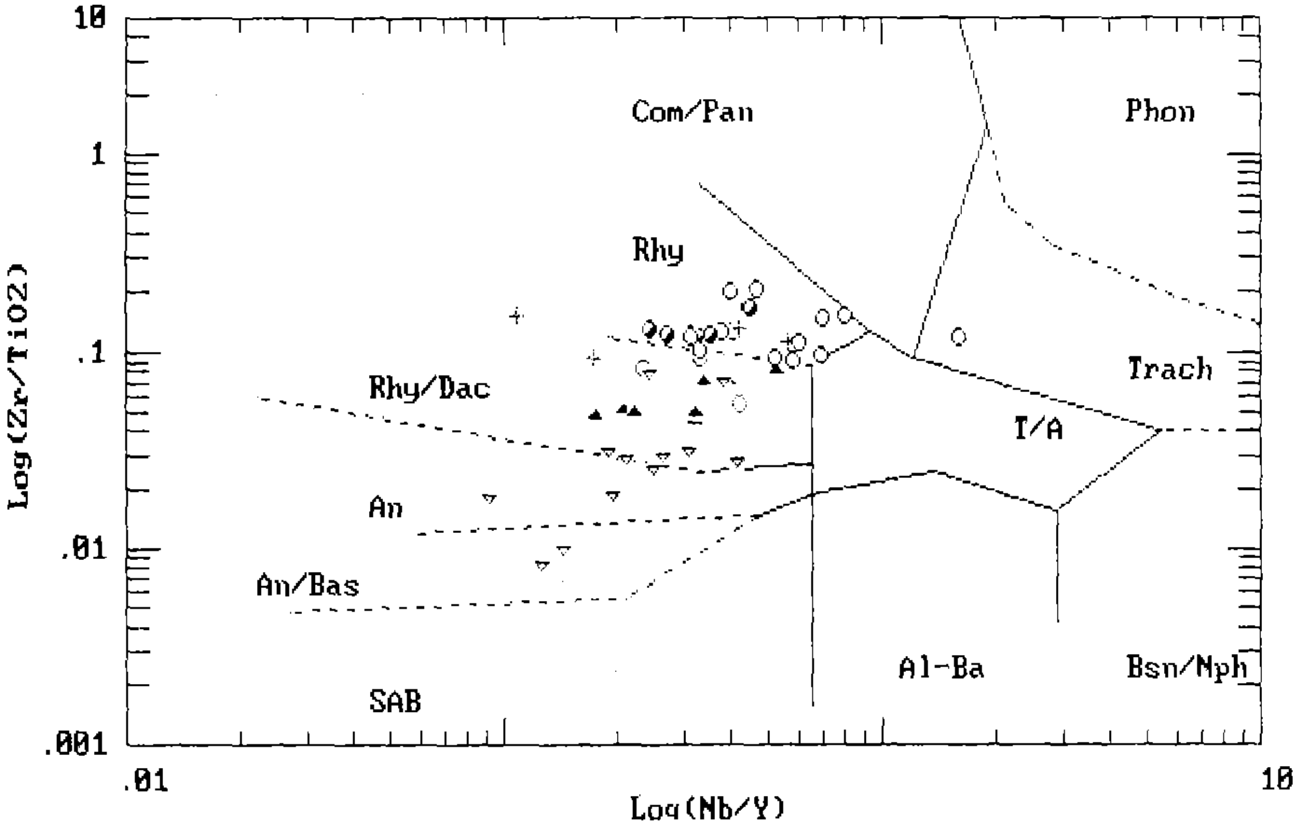
P2O5 – Ti/Zr (Figure 8)

This plot separates the Hollway and Brown's Tunnel andesites but the CVC and Pinnacles Rhyolite overlap. The CVC sample that plots with the Brown's Tunnel "andesites" is from near the end of BPD62 (No 34981) and is most likely a felsic end-member of the "andesites".

In summary the Brown's Tunnel "andesites" form a discrete lithogeochemically identifiable package with some overlap with the Hollway Andesites and the Pinnacles Rhyolite. All basic to intermediate rocks appear to be more differentiated than expected on the Zr/Ti – Nb/Y plot, the majority occurring in the rhyodacite field.

953018

Winchester & Floyd 1977



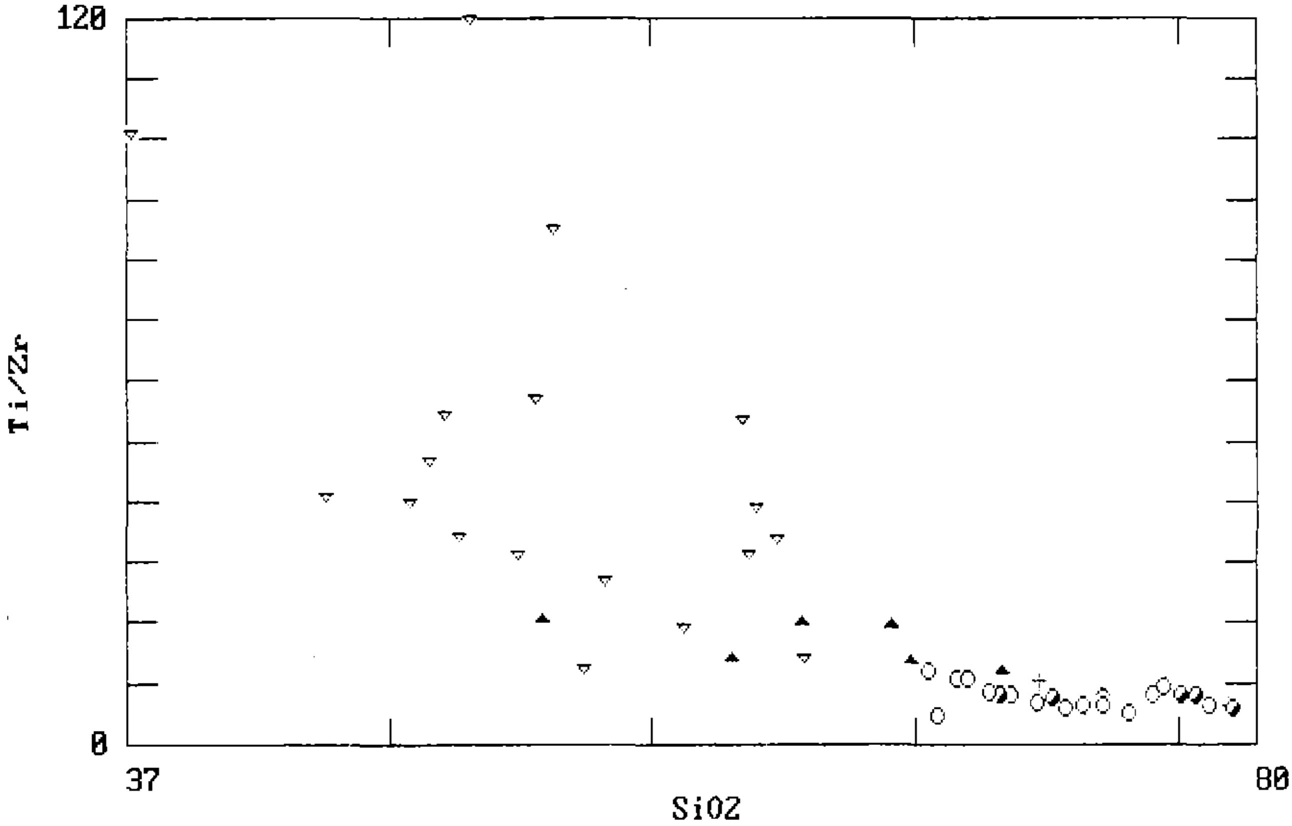
KEY

- ◕ Pinnacles Rhyolite
- ▲ Brown's Tunnel "Andesite"
- ▽ Hollway Andesite
- + Quartz feldspar porphyry
- ○ CVC pumiceous mass flow

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : R.A.P.	E.L. 44/88 – BURNS PEAK JV
DATE : Nov., 1993	PINNACLES
DRAWN :	**LITHOGEOCHEMICAL PLOT**
REFERENCE :	**Zr/Ti – Nb/y**
REVISIONS :	
DRAWING No.	SCALE N.T.S
	FIG. No. 5

953019



KEY

- Pinnacles Rhyolite
- Brown's Tunnel "Andesite"
- Hollway Andesite
- Quartz feldspar porphyry
- CVC pumiceous mass flow

PASMINCO EXPLORATION
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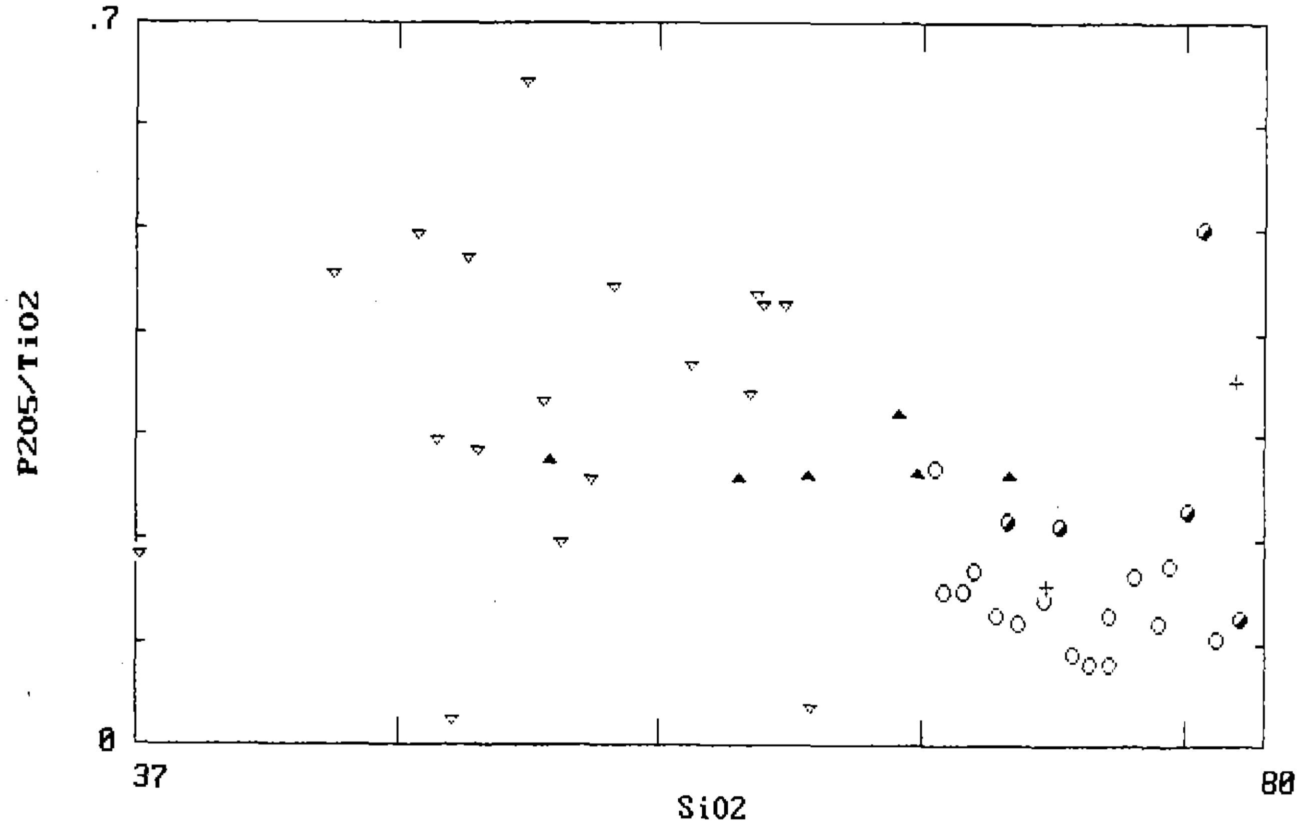
COMPILED : R.A.P.	E.L. 44/88 – BURNS PEAK JV
DATE : Nov., 1993	PINNACLES
DRAWN :	LITHOGEOCHEMICAL
REFERENCE :	PLOT
REVISIONS :	Ti/Zr – SiO2 (wt%)
DRAWING No.	SCALE N.T.S
FIG. No. 6	

953020



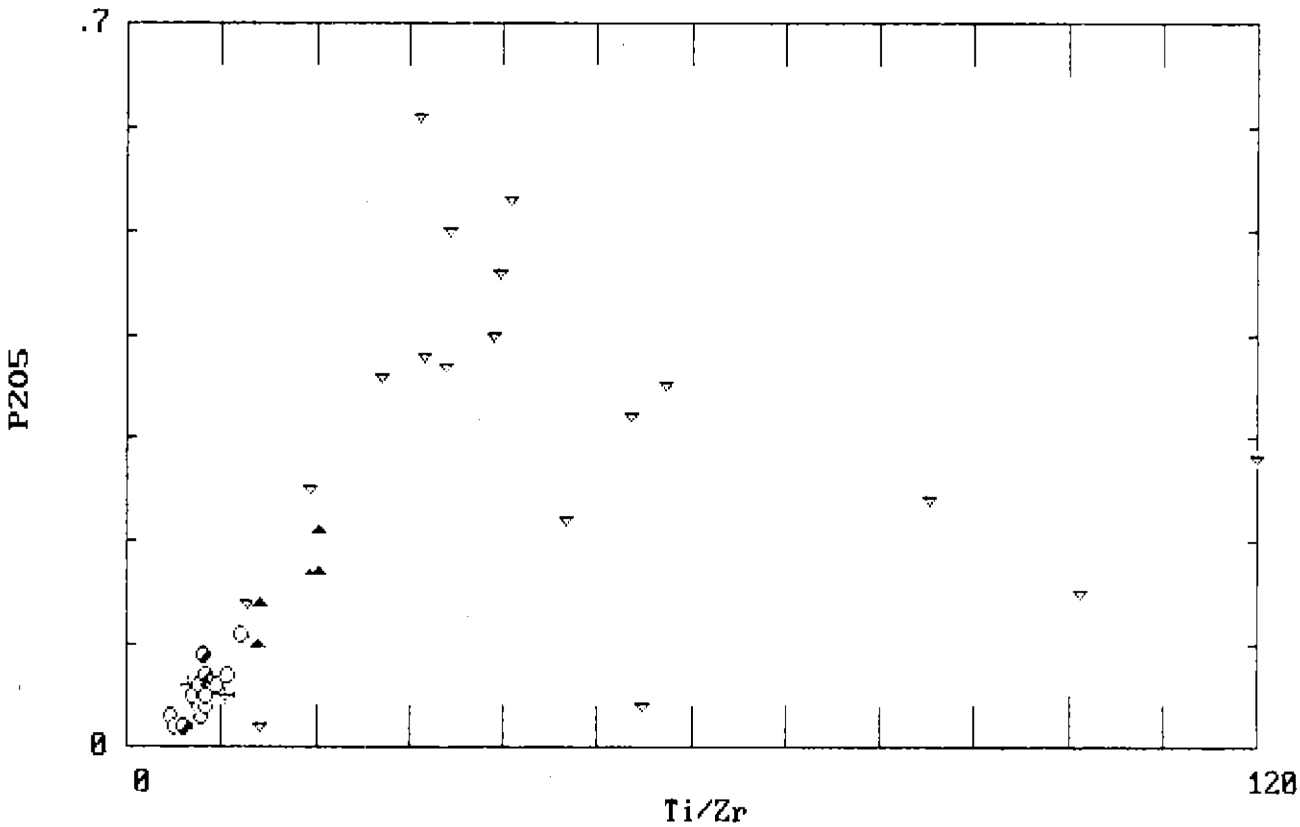
KEY

- ◑ Pinnacles Rhyolite
- ▲ Brown's Tunnel "Andesite"
- ▽ Hollway Andesite
- \+ Quartz feldspar porphyry
- ○ CVC pumiceous mass flow

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : R.A.P.	E.L. 44/88 – BURNS PEAK JV
DATE : Nov., 1993	PINNACLES
DRAWN :	**LITHOGEOCHEMICAL PLOT**
REFERENCE :	**P205/TiO2–SiO2 (wt%)**
REVISIONS :	
DRAWING No.	SCALE N.T.S. — FIG. No. 7

953021



KEY

- ◐ Pinnacles Rhyolite
- ▲ Brown's Tunnel "Andesite"
- ▽ Hollway Andesite
- + Quartz feldspar porphyry
- ○ CVC pumiceous mass flow

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DATE : Nov., 1993	PINNACLES
DRAWN :	LITHOGEOCHEMICAL
REFERENCE :	PLOT
REVISIONS :	P205 (wt%) – Ti/Zr
DRAWING No.	SCALE N.T.S — FIG. No. 8

6.2 Brown's & Thomas' Tunnels

This area was the main focus for the Review Team, work included core logging and compilation of interpretive geological sections. Their work defined the importance of the Pinnacles Shear Zone (PSZ)and an area of untested potential (200x450m) between Brown's and Thomas' Tunnels beneath EAF16 (see Figure 25 in Appendix 1).

Poltock assessed the drill targets proposed by the Review and concluded that although the PSZ has affected the mineralisation in the eastern near surface part of the Brown's Tunnel Host, the potential of the PSZ was limited. It was proposed that mineralisation in the area was primarily VHMS rather than structurally controlled and that the best potential would be in the areas with maximum metal accumulation and coincident high copper grades, these two factors defining proximity to the mineralising feeder zone. Using these two factors the best potential for a significant intersection appeared to be on section 5320N (EAF grid) down dip from intersections in EAF3, 6, 9 and 10. Drill hole BPD78 was proposed to test the moderate to steep west dipping Brown's Tunnel Host (see Appendix 4), the depth limiting factor being the Rosebery Fault hanging wall structure.

Minor mapping, core logging and ore/pathfinder/whole rock geochemistry has been completed in the process of drill target definition. Data has been plotted on an interpretive plan (Figure 9) and sections (Figures10-13). These plots highlight the area of untested Brown's Tunnel Horizon (BTH). A single rock sample of pyrite limonite stockworked Pinnacles Rhyolite collected from 75m SW of the BPD78 collar assayed 0.21% Pb, 0.91g/t Au (No.34974) (see Appendix 9 and 11). This stockwork mineralisation commonly occurs in the rhyolite in the Brown's Tunnel and North Pinnacles (EL 8/90) areas.

6.2.1 HOLE BD78

Diamond drill hole BPD78 was collared on the 27/9/93 and completed on 18/10/93 at 466.3m. The collar location is plotted on Figure 4. The detailed log is included in Appendix 5 and an interpreted section as Figure 15. A summary log of the hole is as follows:

0–265.00m

Pinnacles Rhyolite: feldspar and feldspar quartz phyric rhyolite lavas, lava breccias and minor siltstone lenses, some occurring as peperites. Silica–pyrite and minor base metal mineralisation occurs as disseminations and stockworks.

265.00–323.90m

Brown's Tunnels Host Sequence: fine grained pumice breccias and lava breccias, aphyric to sparsely feldspar–phyric. Moderate to intense sericite–chlorite–silica–pyrite alteration with stringer and disseminated pyrite–chalcopyrite and to a lesser extent sphalerite mineralisation occurs throughout. The best stringer development is between 286–295m, 9m assaying 2.47%Cu, 0.21% Zn, 98g/t Ag and 0.09g/tAu.

322.90–333.00m

Massive pyrite: in part banded with chlorite and disseminated chalcopyrite throughout with blebby sphalerite mainly on the margins. The interval assayed 10.1m @ 1.39% Cu, 2.19% Zn, 53g/t Ag and 0.15g/t Au.

333.00–338.90m

Brown's Tunnel Host Sequence: altered felsic volcanic derived epiclastics and pyritic cherty mudstones.

338.90–355.20m

Andesite lava: massive with carbonate amygdales and pervasive carbonate alteration. Disseminated and veinlet sphalerite and pyrite occurring mainly on the margins.

355.20–454.30m

Brown's Tunnel Host Sequence: felsic pumiceous massflows, pyritic cherty mudstone–laminated grey siltstone and quartz feldspar porphyry sills. Sphalerite veinlets occur throughout.

454.30–466.30m EOH

Central Volcanic Sequence: felsic pumiceous mass flows.

All altered and mineralised sections of the core have been split and submitted for ore and pathfinder suite analysis. Results have only been received for the stringer zone and massive pyrite lens.

In summary the following key points about the geology in BPD78 are presented below:

i. Brown's Tunnel Host and associated massive sulfide mineralisation continues at depth on this section and potential exists for extensions of this mineralisation both to the north and south along strike.

ii. chalcopyrite/pyrite stringer and massive mineralisation intersected is Cu>Zn Ag rich and Au poor. The stringer mineralisation has similarities to the footwall zone beneath the PQ lens at Que River. At Que River this copper rich, gold poor stringer mineralisation is interpreted to have formed at temperatures between 270– 350°C, occurring sub–seafloor at the point of highest fluid discharge and highest temperatures (McGoldrick, 1992). The massive pyrite lens in BPD78 is interpreted to be a massive Pb/Zn sulfide body that has been refined by an ongoing hydrothermal system and may have a similar genesis to S lens at Que River.

iii. Higher Cu/(Cu+Zn) ratios are indicative of proximity to the magmatic source and/or zones of highest temperatures (Large, 1992). When these ratios are calculated for the stringer and massive sulfide in BPD78 a symmetrical distribution is seen with higher temperatures in the core and lower temperatures on the margins of the two intercepts. This symmetrical distribution is interpreted to indicate that hydrothermal fluids have been stratabound, flowing along a porous horizon, rather than transgressive to stratigraphy, flowing up through the sequence. Support for this lateral flow can be seen in the underlying andesite which is less altered than lithologies hosting the stringer and massive sulphides.

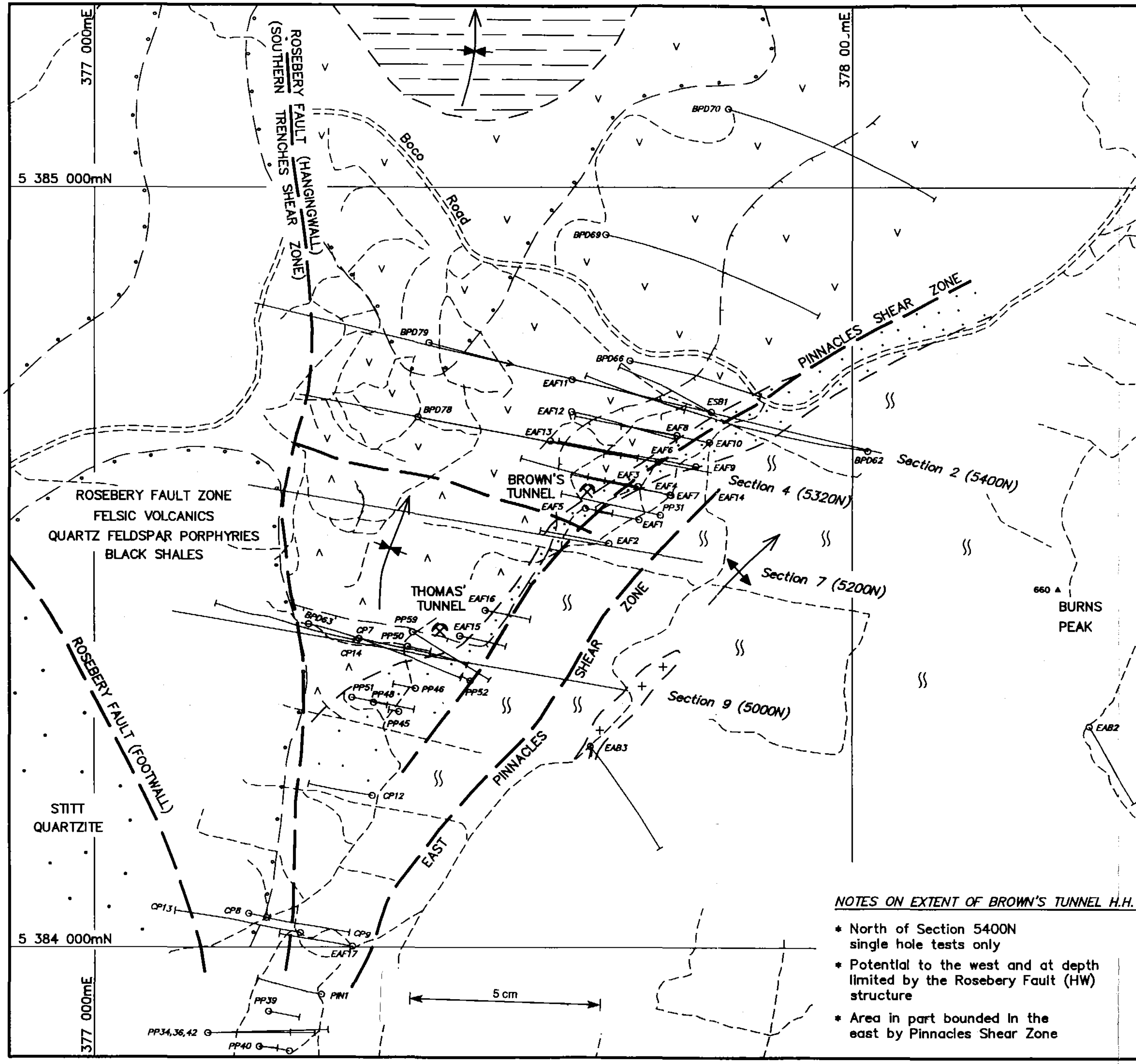
iv. This stratabound alteration in other VHMS fields has resulted in poorly focused hydrothermal fluid discharge and numerous small massive sulfide bodies (Large, 1992). This is the case to date at Brown's Tunnel.

v. Mineralisation occurs throughout the BTH and overlying Pinnacles Rhyolite and overall is zinc>copper dominant with very little lead. Veinlet and disseminated mineralisation in the hanging wall is considered to result from continued hydrothermal activity and associated "zone refining" (Large, 1992).

vi. Mineralisation is concentrated in pumiceous mass flows in the upper part of the Brown's Tunnel host sequence above the andesite.

vii. the "andesites" are interpreted to be lavas based on textures and the consistent association with the BTH. They do not appear to be transgressive into the footwall or hanging wall.

viii. Strong structural foliation is generally restricted to narrow fault zones whereas the mineralisation and associated intense sericite-chlorite alteration is virtually undeformed.



NOTES ON EXTENT OF BROWN'S TUNNEL H.H.

* North of Section 5400N single hole tests only
* Potential to the west and at depth limited by the Rosebery Fault (HW) structure
* Area in part bounded in the east by Pinnacles Shear Zone

LEGEND

953026

QUATERNARY

Fluvioglacials

CAMBRIAN

White Spur Formation

Pinnacles Rhyolite

Andesite

Brown's Tunnel Host Horizon

Pumiceous mass flows

Quartz feldspar porphyries

Rosebery Fault Zone

Stitt Quartzite

Geological boundary

Thrust fault

Fault

Syncline – anticline and plunge

Brown's Tunnel Host Horizon area tested/established by drilling. (Projected to surface)

1992/93 Burns Peak Review

Section 2 (5320N)

Comstaff EAF Grid

Interpretive Geology From Gregory (1987), A.N.L., L.W.K., R.A.P.

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DATE : Nov., 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :

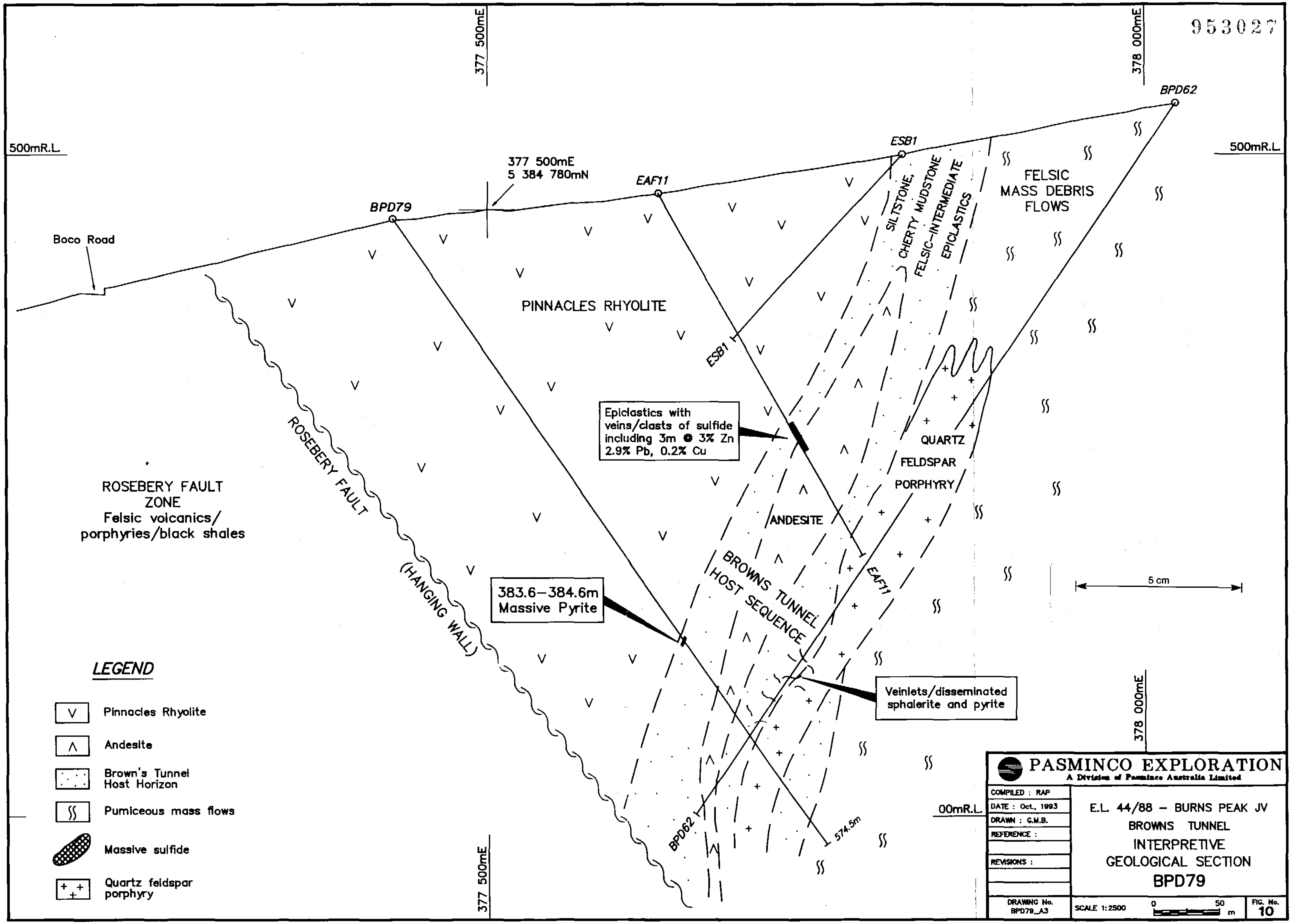
E.L. 44/88 – BURNS PEAK JV
PINNACLES

INTERPRETIVE GEOLOGY

DRAWING No. BTT_GEOL

SCALE 1:5000 0 100 m

FIG. No. 9



953027
377 500mE
378 000mE
BPD62
500mR.L.
ESB1
377 500mE
5 384 780mN
EAF11
BPD79
Boco Road
SILTSTONE, CHERTY MUDSTONE
FELSIC-INTERMEDIATE EPICLASTICS
FELSIC MASS DEBRIS FLOWS
PINNACLES RHYOLITE
ESB1
Epiclastics with veins/clasts of sulfide including 3m @ 3% Zn 2.9% Pb, 0.2% Cu
QUARTZ FELDSPAR PORPHYRY
ROSEBERY FAULT
ROSEBERY FAULT ZONE
Felsic volcanics/ porphyries/black shales
ANDESITE
(HANGING WALL)
BROWNS TUNNEL HOST SEQUENCE
EAF11
5 cm
383.6–384.6m Massive Pyrite
Veinlets/disseminated sphalerite and pyrite
LEGEND
Pinnacles Rhyolite
Andesite
Brown's Tunnel Host Horizon
Pumiceous mass flows
Massive sulfide
Quartz feldspar porphyry
BPD62
574.5m
00mR.L.
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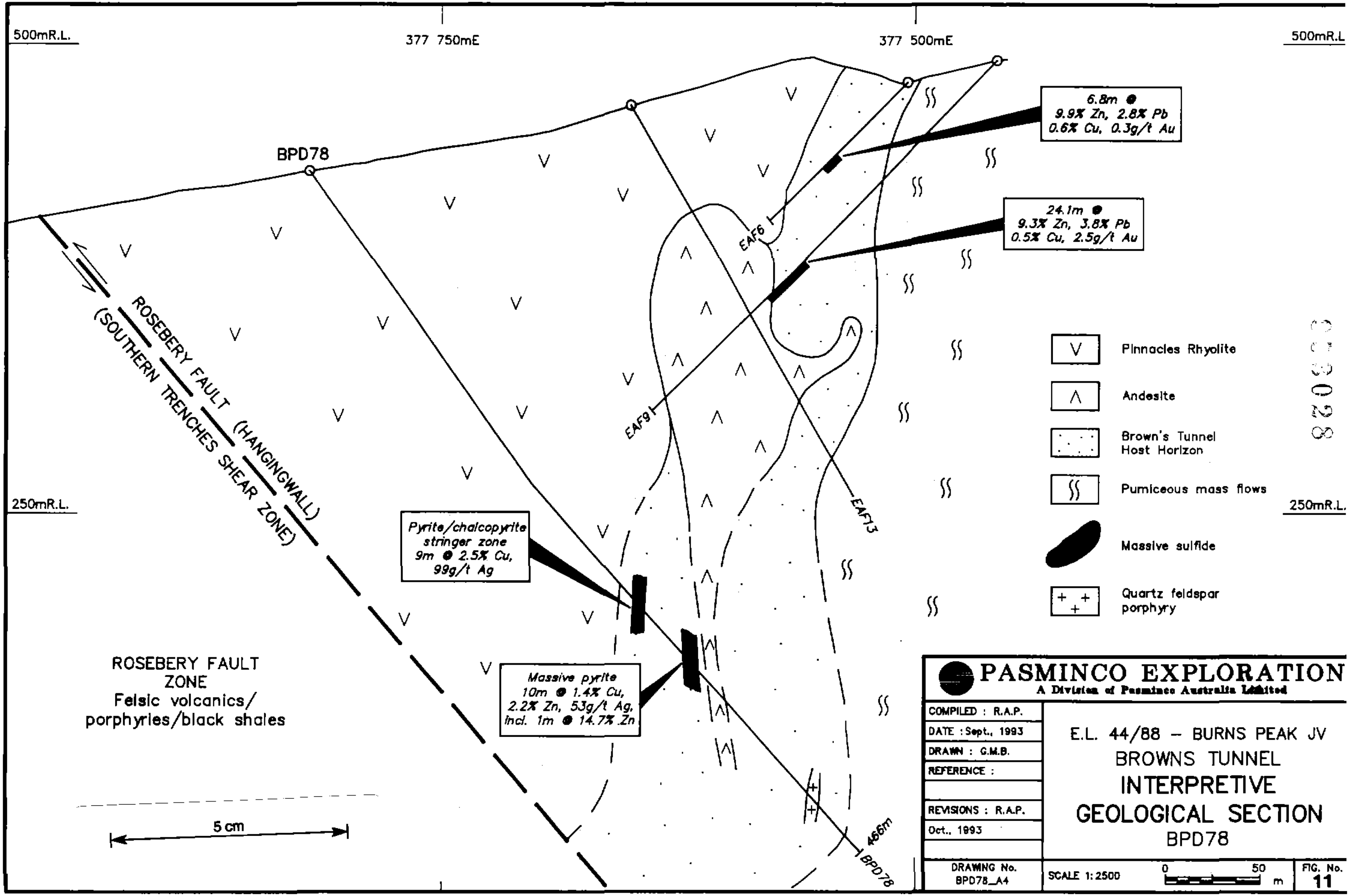
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
E.L. 44/88 – BURNS PEAK JV
BROWNS TUNNEL
INTERPRETIVE GEOLOGICAL SECTION
BPD79
DRAWING No. BPD79_A3
SCALE 1:2500
0 50 m
FIG. No. 10


500mR.L.
377 750mE
377 500mE
500mR.L.
BPD78
6.8m @ 9.9% Zn, 2.8% Pb 0.6% Cu, 0.3g/t Au
24.1m @ 9.3% Zn, 3.8% Pb 0.5% Cu, 2.5g/t Au
EAF6
EAF9
EAF13
ROSEBERY FAULT (HANGINGWALL)
(SOUTHERN TRENCHES SHEAR ZONE)
250mR.L.
250mR.L.
Pyrite/chalcopyrite stringer zone 9m @ 2.5% Cu, 99g/t Ag
Massive pyrite 10m @ 1.4% Cu, 2.2% Zn, 53g/t Ag, incl. 1m @ 14.7% Zn
466m
BPD78
ROSEBERY FAULT ZONE
Felsic volcanics/ porphyries/black shales
5 cm
Pinnacles Rhyolite
Andesite
Brown's Tunnel Host Horizon
Pumiceous mass flows
Massive sulfide
Quartz feldspar porphyry
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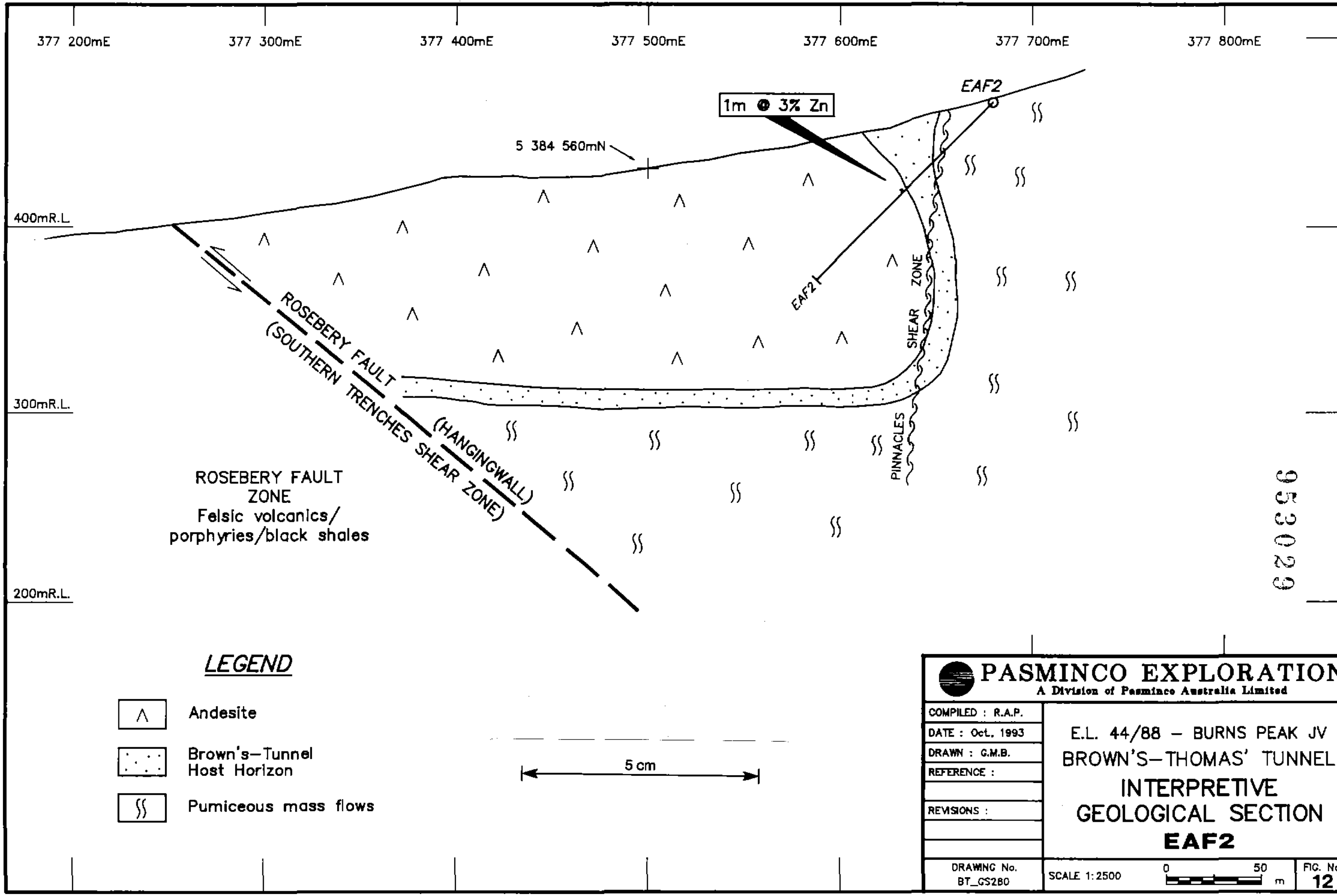
DATE : Sept., 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS : R.A.P.
Oct., 1993
DRAWING No. BPD78_A4
E.L. 44/88 – BURNS PEAK JV
BROWNS TUNNEL
INTERPRETIVE GEOLOGICAL SECTION
BPD78
SCALE 1:2500
0
50
m
FIG. No. 11



377 200mE
377 300mE
377 400mE
377 500mE
377 600mE
377 700mE
377 800mE
EAF2
1m @ 3% Zn
5 384 560mN
400mR.L.
300mR.L.
200mR.L.
EAF2
SHEAR ZONE
PINNACLES
ROSEBERY FAULT (HANGINGWALL)
(SOUTHERN TRENCHES SHEAR ZONE)
ROSEBERY FAULT
ZONE
Felsic volcanics/
porphyries/black shales
950209
LEGEND
Andesite
Brown's–Tunnel
Host Horizon
Pumiceous mass flows
5 cm
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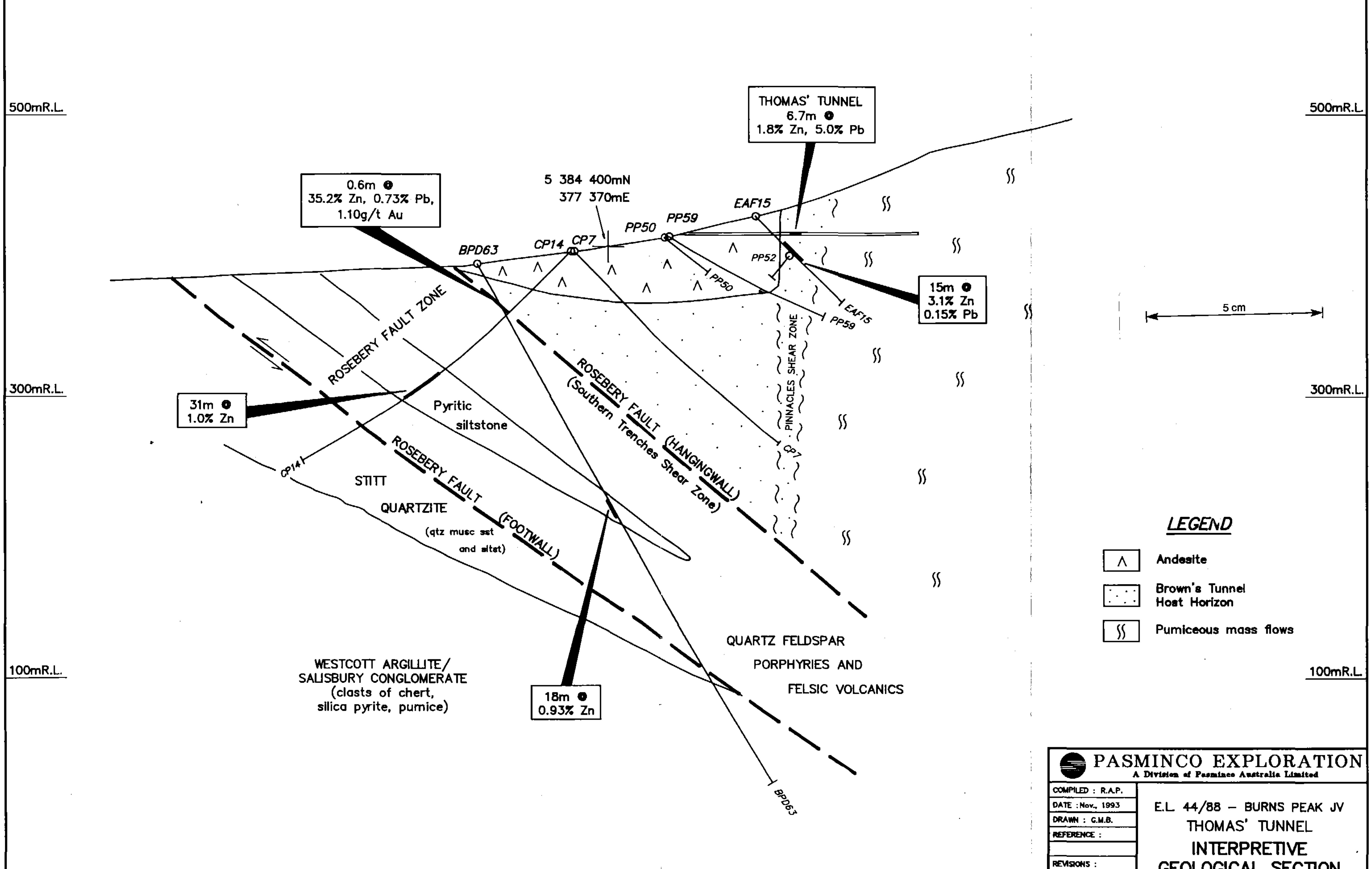
DATE : Oct. 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
E.L. 44/88 – BURNS PEAK JV
BROWN'S–THOMAS' TUNNEL
INTERPRETIVE
GEOLOGICAL SECTION
EAF2
DRAWING No.
BT_GS280
SCALE 1:2500
0
50
m
FIG. No.
12

953030



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DATE : Nov., 1993	THOMAS' TUNNEL
DRAWN : G.M.B.	INTERPRETIVE
REFERENCE :	GEOLOGICAL SECTION
REVISIONS :	BPD63
DRAWING No.	SCALE 1:2500 0 50 m · FIG. No. 13

6.2.2 HOLE BPD79

Drill hole BPD79 was collared on 25/10/93 and completed on 29 November 1993 at 574.5m. The collar is located 100m north of BPD78 (see Figure 4). The hole was designed to test the strike continuation of the chalcopyrite stringer zone and massive pyritic sulfide intersected in BPD78 (see drill proposal Appendix 6). A detailed log of the hole has not been completed, a summary log of the hole is as follows,

0– 11.80m
Fluvioglacials Deposits

11.80– 382.25m
Pinnacles Rhyolite: feldspar and feldspar quartz phyric lavas, breccias, with fine grained epiclastics and cherty mudstone peperites from 217.90m. Variably sericite–carbonate altered with disseminated pyrite and traces of sphalerite, galena and chalcopyrite mainly in sheared epiclastic lenses.

382.25 – 435.50m
Brown's Tunnel Host Sequence: fine grained pumiceous mass flows with moderate to intense sericite– silica alteration. Massive pyritic sulfide occurs between 383.60– 384.60m and minor chalcopyrite stringers at 385.90m. Minor disseminated and veinlet pyrite, sphalerite, chalcopyrite and to a lesser extent galena occur throughout.

435.50 – 438.70m
Brown's Tunnel Host Sequence: fine to medium grained epiclastics.

438.70 – 452.50m
Andesite: fine grained with carbonate amygdales and abundant sphalerite, chalcopyrite and carbonate veins. Feldspar phenocrysts are occasionally fuchsite altered.

452.50 – 473.00m
Brown's Tunnel Host Sequence: Pumiceous mass flows and fine–medium grained epiclastics.

473.00 – 517.00m
Quartz feldspar porphyry.

517.00 – 551.00m
Brown's Tunnel Host Sequence: siltstone, chert and graded felsic mass flows.

551.00 – 574.50m EOH
Central Volcanic Complex: pumiceous mass flows.

The hole intersected an altered sequence similar to that in BPD78. Mineralisation was limited to a metre of massive pyritic sulphide between 303.6 – 384.6m. Altered and mineralised sections have not been analysed yet.

6.3 Summit

The Summit prospect is located east of the Pinnacles anticline and the Leo's Find area and immediately south of Boco Road (see Figure 4). Exploration during the year was directed towards further testing the contact between the Hollway Andesite and overlying felsic volcanics in proximity to the Burns Peak Shear Zone on the western limb of the north plunging Boco Road Syncline see (Figure 16). Weak basemetal mineralisation outcrops in the exposed keel of the syncline and was intersected in BPD76 (see Kirsner, 1992).

Potential exists north of the syncline keel but becomes deeper and is partially obscured by glacial cover see (Figure 16).

Work at Summit included: drilling BPD77; DHEM in BPD76 and 77 and ore suite/wholerock geochemistry. The majority of this work has been carried out by Kirsner. Poltock prepared a drill proposal (see appendix 7) but drilling this hole was deferred, following the encouraging results obtained in BPD78. It is expected to drill this hole in 1993/94.

6.3.1 HOLE BPD76

BPD76 was drilled in the previous licence year but analytical results were not available at time of writing (see Kirsner, 1992). Four narrow zones (2 - 5m wide) with about 1% Pb+Zn were intersected, the best interval 1.1m @ 1.43% Pb, 2.79% Zn occurs between 467.90 - 469.00m at the contact between a gravelly sandstone with sulphidic matrix and an underlying strongly sericite fuchsite altered andesite. This mineralisation is located within 40m of the Burns Peak Shear Zone.

Down hole EM has been completed in BPD76, details of the survey and interpretations are included in Appendix 8. A strong off-hole conductor was recorded just above the drilled position of the black shales (above 200m) as well as a broader, less intense response near the base of the hole. The latter response is possibly associated with andesitic lithologies. A number of small, narrow "in hole" responses were recorded through the thick ashy units and are unexplained at this time.

6.3.2 HOLE BPD77

Diamond drill hole BPD77 was collared on 15 January 1993, 700m northeast of the Burns Peak Summit, on the western limb of the Boco Road syncline, and was completed at 472.3m on 27 January. The hole intersected two rhyolite-dominated coarse mass flow horizons which each contain 3 to 5 clasts of high-grade base metal sulphide between 103m to 107m and 163m to 171m. The largest clast, at 103.3m, is 15cm long and about 10cm wide is galena dominated and has assayed 36% Pb, 16.5% Zn and 300ppm Ag. The other clasts are 1cm to 5cm long and have variable compositions, but contain mainly sphalerite and galena. These sulphide clast horizons sit within a rhyolite lava and epiclastic pile. A strongly silicified zone, cross cut by pyrite "stringers" with minor base metal selvedges lies directly below the upper sulphide clast horizon (110m to 115m). The hole intersected a minor fault at 464.7m but failed to encounter basaltic andesites. A detailed log of hole BPD77 is given in Appendix 3 and on interpreted section as Figure 17.

Summary Log BPD77:

0 - 251m	Rhyolitic epiclastics and minor lavas including sulphide clast horizons at 103-107m & 163-171m
251 - 259m	Shale
259 - 330m	Rhyolite lava/porphyry
330 - 358m	Shale
358 - 472.3m EOH	Pumiceous Volcaniclastics including fault zone at 464.7m

A drilling proposal has been written to test the down dip extent of the sulfide clast bearing horizon and associated alteration intersected in BPD77 (see Appendix 7). This proposal was put on hold after the significant intersections obtained in BPD78 at Brown's Tunnel.

Down-hole EM has been completed in BPD77, details of the survey and interpretations are included in Appendix 8. A strong off-hole conductor was recorded at 370m down-hole. Modelling of the response puts it at 25m to 100m from the hole, in the inferred position of the black shale, which was intersected from 330m to 360m down-hole. No in-hole response was recorded from the shale, inferring that either the shale changes character off hole, or that there is another element involved in the geology near the hole. The response is more than 150m stratigraphically below the horizon that contains high-grade massive sulfide clasts and is thought to be unrelated to it.

6.4 South Kershaw

The South Kershaw area is located between Chester and Bastyan in the SW corner of EL 44/88 (see Figure 4). Exploration was aimed at evaluating an open ended IP response on the southern most line of the Chester grid (1974 EAD grid, Comstaff) and strongly altered felsic volcanics with traces of base metals which outcrop on the Lower Pieman Dam road (Purvis, 1992). Work included, gridding, IP, mapping and soil geochemistry.

The IP survey used a pole-dipole array with a 50m dipole separation. Details of survey and interpretation are included in Appendix 12. The survey defining a discrete shallow chargeability anomaly.

Geological mapping on the grid has been completed by Saxon, who located widespread intensely sericite–carbonate–pyrite altered felsic volcanics. The volcanics are interpreted as part of the Mt Black Volcanics (see Figure 18). Rocks were analysed for base and precious metals and in some cases the whole rock suite, this lithogeochemistry has not been processed or interpreted at this stage.

The area of altered volcanics and coincident IP response were sampled with B/C horizon soil geochemistry. 164 samples were assayed for ore and pathfinder suite elements (see Appendix 11). Sample locations are plotted on Figure 19, Zn and Mn values are plotted on Figures 20 and 21 respectively. There is a positive correlation between Zn and Mn, this is interpreted as a scavenging effect by Mn. The Mn has probably been shed from carbonate altered volcanics.

The lack of significant soil anomalies in the vicinity of the IP response, which is interpreted to be near surface (see Appendix 12) downgrades the prospectivity of the area.

6.5 Hollway/Cone Hill

Exploration completed in the Hollway area (see Figure 4) included line cutting, IP, mapping and rock geochemistry. The IP survey was designed to fill in the gaps in the Comstaff IP coverage in the more prospective NW sector of licence and more specifically cover the Hollway Pyrite Zone (HPZ) centred at 5 382 700N, 378 000E. The Hollway Pyrite Zone is associated with sericite alteration in the Hollway Andesite see (Figure 22) and is readily apparent in the aeromagnetics as a magnetic low (see Appendix 1, Plate 2). A total of 21.5 line kilometres of gridding has been completed, most of this refurbishing the existing Comstaff/BHP EAB grid system.

The IP survey used a dipole–dipole array with a 50m dipole separation, details of the survey and interpretation are included in Appendix 12. The survey defined a chargeability high associated with the HPZ and the Rosebery Fault and a moderate anomaly immediately east of the Rosebery Fault. The HPZ response is interpreted to be associated with increased pyrite content above background and the source is near surface. The Rosebery Fault response is probably due to chargeable black shales in the footwall Dundas Group rocks.

The "Review" (Appendix 1) has recommended that the Hollway IP anomaly be evaluated for base and precious metals with B/C soil geochemistry and mapping. To date only limited rock sampling has been carried out. Sample locations are plotted on Figure 23, descriptions and results are included in Appendices 9 and 11.

6.6 Shale Basin

The Shale Basin prospect is located in the NW sector of EL44/88 (see Figure 4) an area that has been virtually untested by Pasminco Exploration. The review of electrical geophysical data (see Hughes, Appendix 1) has identified one of the strongest UTEM responses detected by BHP's blanket coverage of the Burns Peak tenement in 1986. in this area. The area immediately east of the UTEM anomaly was extensively costeaned by Comstaff in their evaluation of Zn soil anomalies at Shale Basin but these anomalies were never drilled.

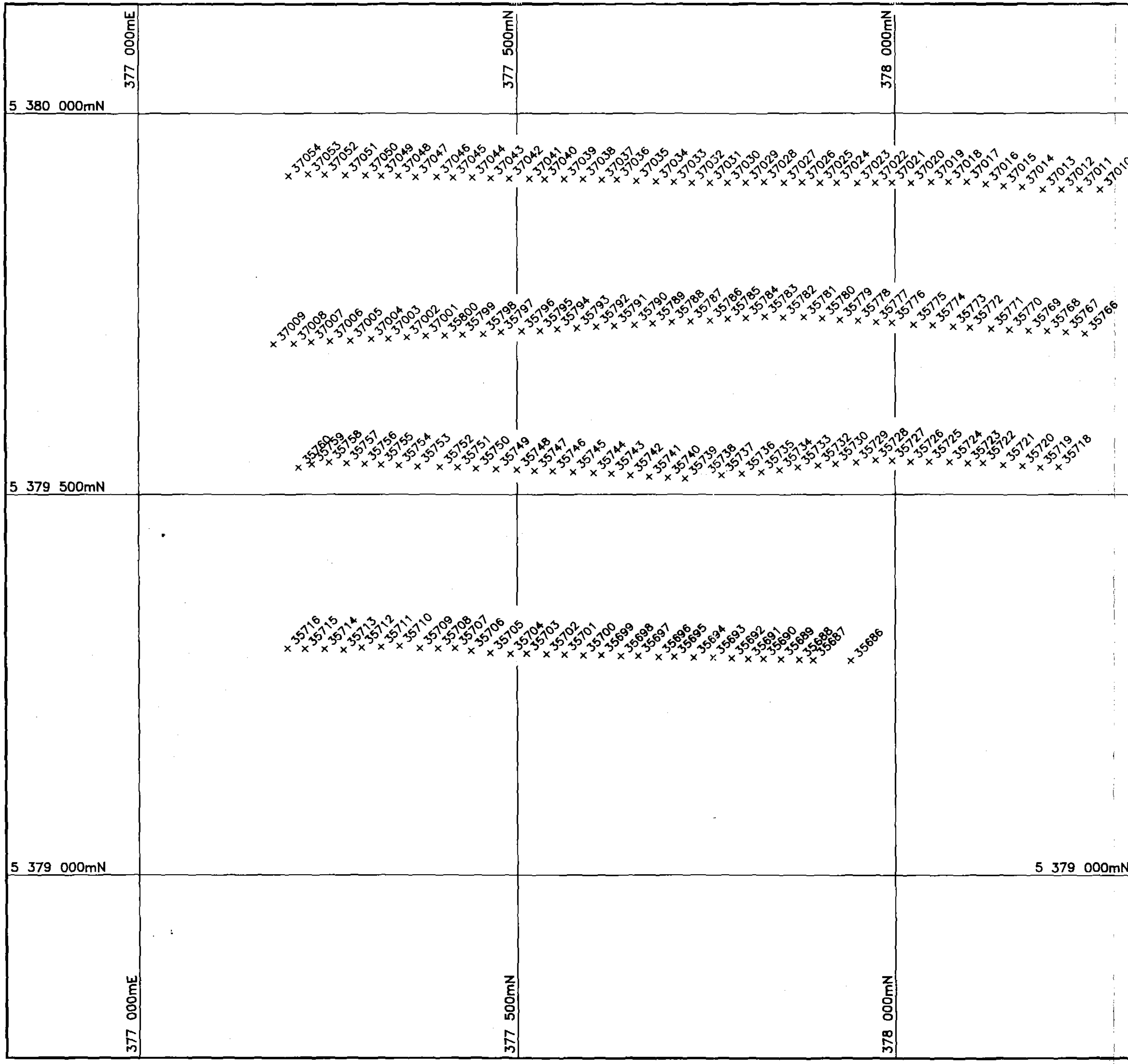
The UTEM anomaly is located in an area of fluvioglacial cover and may be the result of current channelling on this contact with the (bedrock see Hughes, Appendix 1).

Limited geological traverses and rock geochemistry has been completed to follow up the Review's recommendations. The best assay was 0.18% Pb, 0.06% Zn from a slightly pyritic siltstone (see Figure 23 and Appendices 9 and 11).

In a regional geological context the UTEM anomaly is interpreted to be in proximity to the Rosebery Fault hanging wall structure. This fault has thrust White Spur Formation siltstones and underlying Pinnacles Rhyolite over a sequence of quartz feldspars porphyries and shales. The geology within the fault zone may be similar to that at Silver Falls 3 km further north in EL 2/90, and in the vicinity of BPD63, 2km to the south (see Figure 13) at Brown's Tunnel. Alteration and mineralisation occurs at both locations.

The Shale basin soil/rock geochemical and UTEM anomalies are the only indications of mineralisation to the NW of Brown's Tunnel in EL 44/88. The Zn geochemistry may be a leakage anomaly from mineralised Brown's Tunnel Host Sequence beneath the White Spur Formation and Pinnacles Rhyolite. The drilling program at North Pinnacles, 2km NE in EL 8/90, should give some insights into the prospectivity of this area.

953037



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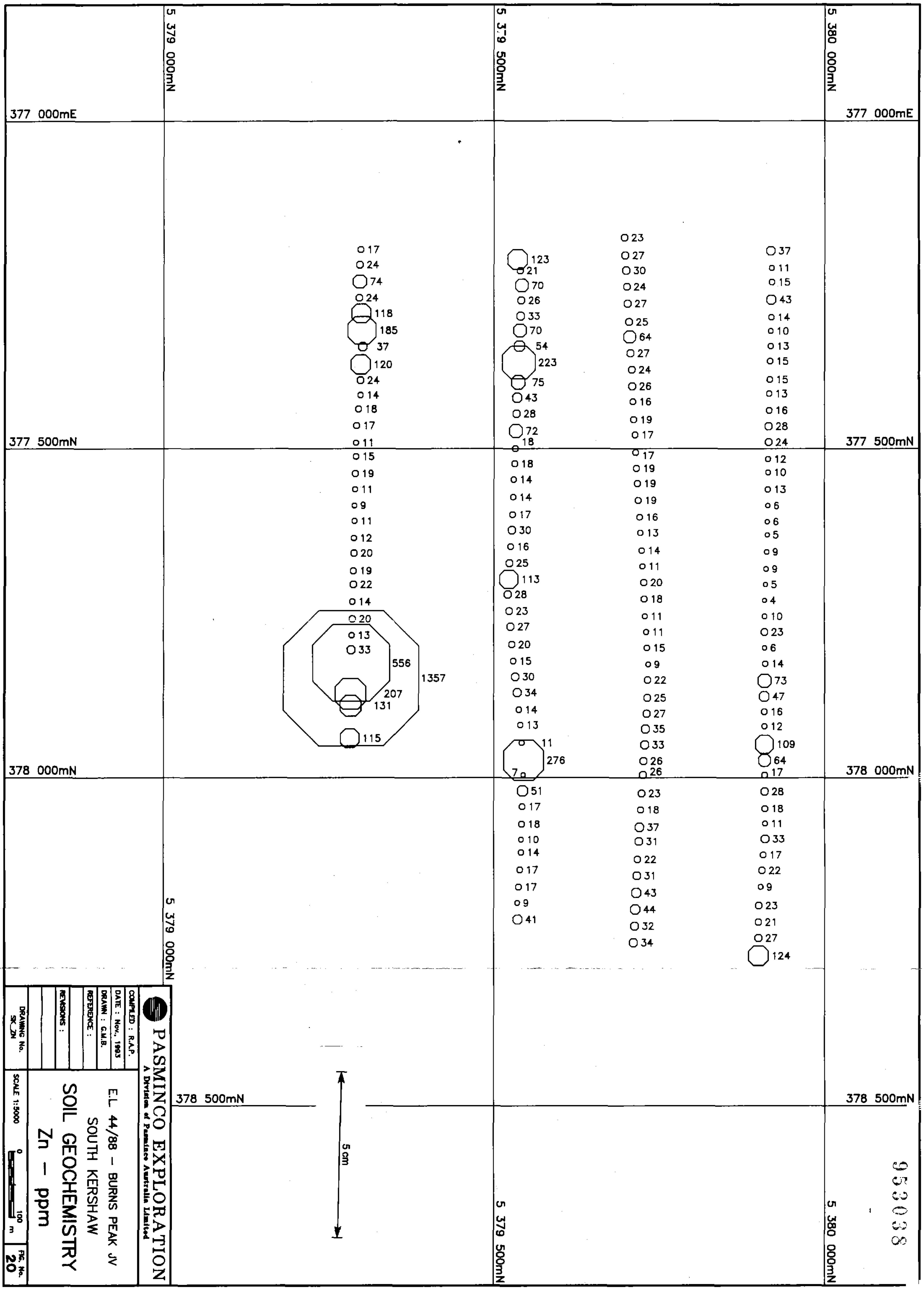
DATE : Nov., 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
DRAWING No.

E.L. 44/88 – BURNS PEAK JV
SOUTH KERSHAW

SOIL GEOCHEMISTRY SAMPLE LOCATIONS

SCALE 1:5000 0 100 m

FIG. No. 19


5 379 000mN
5 379 500mN
5 380 000mN
377 000mE
377 500mN
378 000mN
378 500mN
5 cm
PASMINCO EXPLORATION
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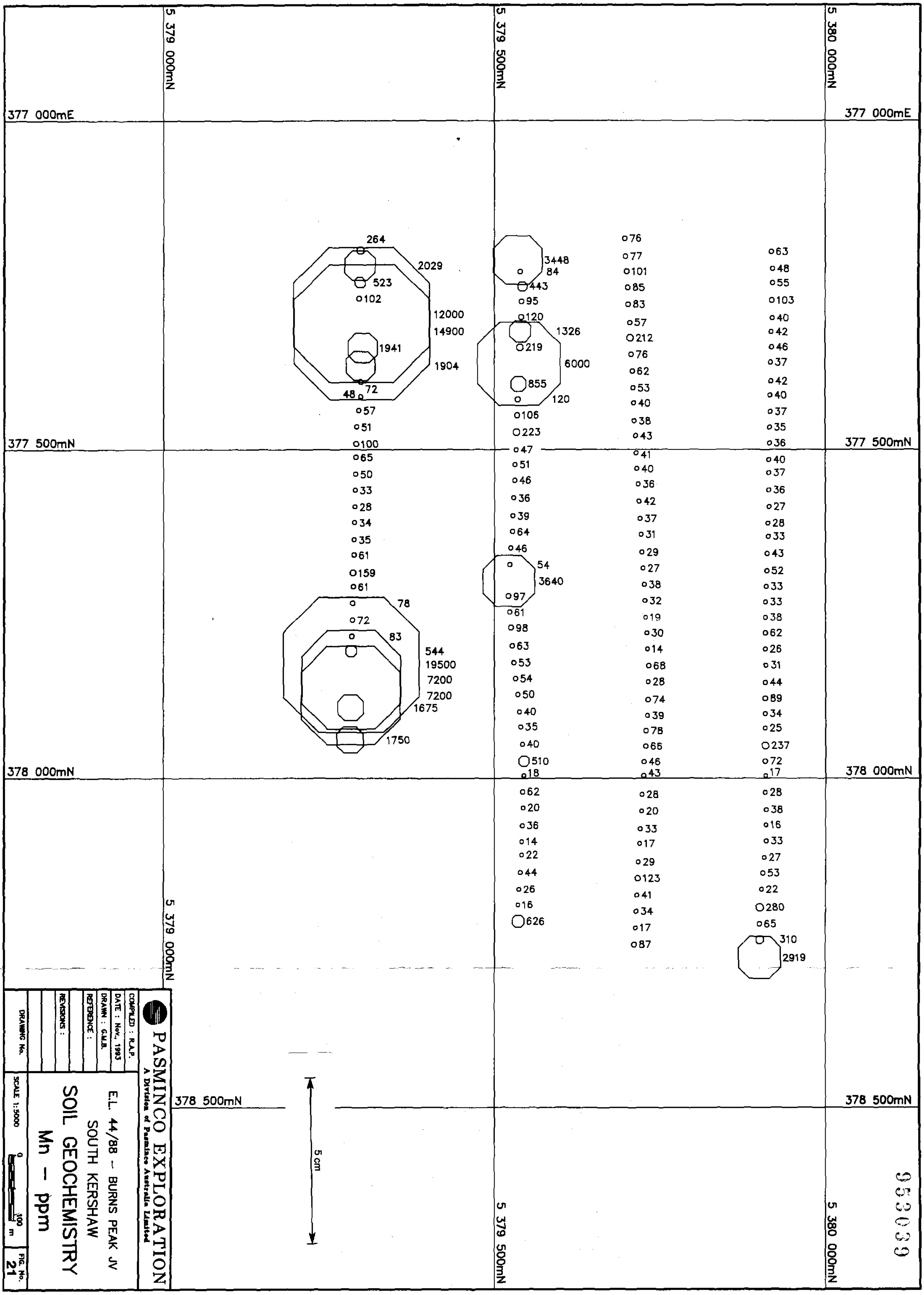
COMPILED : R.A.P.
DATE : Nov., 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
DRAWING No. SK_ZN
E.L 44/88 – BURNS PEAK JV
SOUTH KERSHAW
SOIL GEOCHEMISTRY
Zn – ppm
SCALE 1:5000
0
100 m
FIG. No. 20
953038



5 379 000mN
5 379 500mN
5 380 000mN
377 000mE
377 500mN
378 000mN
378 500mN
264
2029
523
0102
12000
14900
1941
1904
48
72
57
51
100
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50
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28
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35
61
159
61
78
72
83
544
19500
7200
7200
1675
1750
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443
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6000
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106
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53
22
280
65
310
2919
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : R.A.P.
DATE : Nov. 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
DRAWING No.
E.L. 44/88 – BURNS PEAK JV
SOUTH KERSHAW
SOIL GEOCHEMISTRY
Mn – ppm
SCALE 1:5000
0
100
m
FIG. No.
21
5cm
953039

7 ENVIRONMENTAL DISTURBANCE & REHABILITATION

Drill access tracks and pads have been formed at the Summit and Brown's Tunnel prospects. At Summit, 500m of track was developed to drill site BPD77 (see Figure 16). Vegetation traversed is low teatree, baura, buttongrass scrub and only minor drainages were crossed. The track has not been rehabilitated as it may be extended east to another drill site.

Drill pads BPD78 and 79 are located in the recently logged area between Brown's Tunnel and Boco Road, the pads and access utilised existing logging tracks. This drilling program was ongoing at time of writing and no rehabilitation has been carried out.

40km of gridding has been completed at South Kershaw and Hollway , the majority of this recutting existing Comstaff/BHP lines.

Ground surfaces have stabilised and plant communities are well established on areas rehabilitate in previous years.

8 EXPENDITURE

The cost of exploration completed on EL 44/88 Burns Peak during the period November 1992 to October 1993 was **$423 385**. This brings the total expenditure on the tenement since its inception in December 1988 to **$2 205 024**.

A break down of the expenditure for the last 12 months is as follows:

Expenditure	**$**
Personnel	135 511
Travel & Accommodation	12 939
Geological Contractors	13 325
Geophysical Consultants	350
Analytical Costs	12 475
Track Cutting & Griding	26 908
Geophysical Surveys: IP & DHEM	46 848
Other Consultants & Contractors	4 154
Drilling, including access, core processing & storage	65 741
Stores & Supplies	6 816
Vehicles, Plant & Equipment	13 434
Tenement Costs	1 398
Computing	10 821
Office Running Costs	34 175
Administration	38 490
TOTAL EXPENDITURE	**423 385**

9 CONCLUSIONS

Exploration in the 12 months to November 1993 has been successful in enhancing the prospectivity of the NW sector of EL 44/88.

The Review has compiled and interpreted the voluminous historical data base left by Comstaff and BHP, this data can now be readily accessed through Techbase. The Review highlighted the significance of the ductile Pinnacles and Southern Trenches Shear Zones at Brown's Tunnel, and the untested potential of a UTEM anomaly at Shale Basin and the Hollway Pyrite Zone.

DDH BPD77, 78 and 79 were completed during the year, BPD77 at Summit intersected an epiclastic unit with highgrade massive sulfide clasts overlying pyritic stringer alteration; BPD78, at Brown's Tunnel intersected copper zinc silver rich stringer and massive pyrite mineralisation. BPD79 has just been completed at the time of writing, and has been drilled to follow up the intersections in BPD78. The hole has intersected similar altered lithologies but with only minor mineralisation.

The drill intercepts in BPD77 and 78 may be on different stratigraphic horizons but in both situations the greatest potential is at depth to the north beneath the Boco Syncline at Summit and the Shale Basin syncline at Brown's Tunnel. It is hoped that the planned ground magnetics and Mise-a-La-Masse surveys centred on Brown's Tunnel will define blind drill targets to the north.

IP surveys at South Kershaw and Hollway/Cone Hill appear to have mapped out the known pyritic alteration zones. The South Kershaw anomaly has been evaluated with soil and rock geochemistry without significant results. More work is required at Hollway.

10 RECOMMENDATIONS

10.1 Drilling

i. Extend BPD62 from 658.50m to 860m, the aim to:

- test the down dip extent of the Brown's Tunnel host sequence and associated alteration intersected in BPD79 (see Figure 10);
- intersect the Rosebery Fault Hanging wall structure (see Figure 10) to establish the dip and location of this fault as it could limit the down dip potential beneath BPD78 and 79;
- test the shale and porphyry package in the Rosebery Fault zone, 31m @ 1.0%Zn was intersected in CP14 in pyritic siltstones (see Figure 13).

ii. A two hole program (total 500m) south of BPD78 in the area of andesites exposed in a syncline (see Figures 9 and 12). Considerable untested potential exists in the syncline at depths between 150 – 250m, however the upper section of the Brown's Tunnel Host Sequence has been eroded exposing the andesite. It is this upper section which is associated with mineralisation in holes EAF9 and BPD78.

iii. Drill the proposed hole at Summit (450m) to test the downdip extent of the massive sulfide clasts and pyritic alteration intersected in BPD77 (see Appendix 7).

Note that these drilling priorities may change significantly after the mise–a–la–masse and ground magnetics surveys have been completed early in 1994.

10.2 Drill Target Definition

i. **South Kershaw:** compile and interpret soil/rock geochemistry in vicinity of the IP anomaly. Wacker sampling may be necessary to attain a complete bedrock coverage;

ii. **Hollway:** mapping and bedrock geochemistry over the IP anomaly and areas peripheral to it;

iii. **Shale Basin:** evaluate the UTEM anomaly defined in the Review. Most of the area is covered with fluvioglacials so Wacker sampling should be used to define the cover thickness and nature of bedrock.

10.3 Lithogeochemistry

Build up the ore/pathfinder/lithogeochemical data base on volcanic and intrusive units in the Brown's, Summit, Hollway and Chester areas. The data will be used to define lithological units and alteration/metal zonation.

10.4 Geological Mapping & Relogging Core

This work should be run in conjunction with the lithogeochemical program. Summary logs of all existing drilling should be entered into Datcol and Techbase. Section and plan plots can then be made incorporating lithologies/alteration indices/Zn and Cu numbers. These compilations will define proximity to hydrothermal feeders/metal accumulations. This will be most effective at Brown's Tunnels where a high density of drilling already exists.

10.5 Gridding

Refurbish and recut 11km of the old Comstaff EAF grid at 100m line spacings for mise-la-masse and ground magnetics.

10.6 Mise-a-la-masse (MALM)

A mise-a-la-masse survey centred on the chalcopyrite stringer zone and massive pyritic sulfide intersected in BPD78 at Brown's Tunnels will be carried out at 200m line spacings.

10.7 Ground magnetics

A ground magnetics survey centred on Brown's Tunnel, using the same grid as for the MALM but at line spacings of 100m will also be undertaken. It is hoped that the survey will define the extent of "andesites" which are part of the Brown's Tunnel host and alteration zones. Magnetic susceptibilities of the "andesite" range from 0.27 – 0.61 (10^{-3}) compared to <0.1 (10^{-3}) for most other lithologies.

11 REFERENCES

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KEYWORDS & LOCATION

COPPER, LEAD, ZINC, SILVER, GOLD, VHMS (VOLCANIC HOSTED MASSIVE SULPHIDE), LITHOGEOCHEMISTRY. BROWN'S TUNNEL, THOMAS' TUNNEL, SHALE BASIN, SUMMIT, HOLLWAY, SOUTH KERSHAW, PINNACLES RHYOLITE, BROWN'S TUNNEL HOST, ANDESITE, CVC PUMICEOUS MASS FLOWS, DHEM (DOWN HOLES ELECTROMAGNETICS), IP, UTEM, DRILLING.

APPENDICES

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APPENDIX 1

Refer to: Burns Peak EL 44/88 Review
(Pasminco Exploration Report No. T93-2)

APPENDIX 2

BPD77 Drilling Proposal

FILED ..306-07

PASMINCO EXPLORATION

BURNS PEAK JV – EL 44/88

DIAMOND DRILL HOLE PROPOSAL – SUMMIT PROSPECT

Hole Number: BPD77

Location (AMG): 379 000E
5384 900N
530mRL

Collar: DIP -60°
AZIMUTH 280° AMG

DEPTH: 450m

TARGET: Alteration and mineralisation in a sequence of andesites, rhyolitic volcaniclastics and shales, 500m north-east of drill hole BPD76, and the Burns Peak Summit.

GEOLOGY: A sequence of andesitic lavas and volcaniclastics is overlain by tuffaceous/ashy siltstones, rhyolitic epiclastics (mainly mass flows) and minor lavas, black to grey shales and quartz-rich sandstones. These units are folded about a northeast-trending axis to form an open, north-plunging syncline which can be mapped on the Boco Road, 300m north of the proposed collar. The hole will test for alteration and mineralisation on the western limb of the syncline, which dips between 35° and 50° to the east. This limb of the syncline is cut off to the west by a steeply dipping northeast – trending pyritic shear zone (the Burns Peak Shear) which is possibly a feeder structure for mineralising fluids in the region.

The target zones are the ashy siltstones immediately below the black shale and the andesites, both of which contain strong alteration and low level base metal mineralisation in BPD76. The expected geology is summarised in the accompanying map and section.

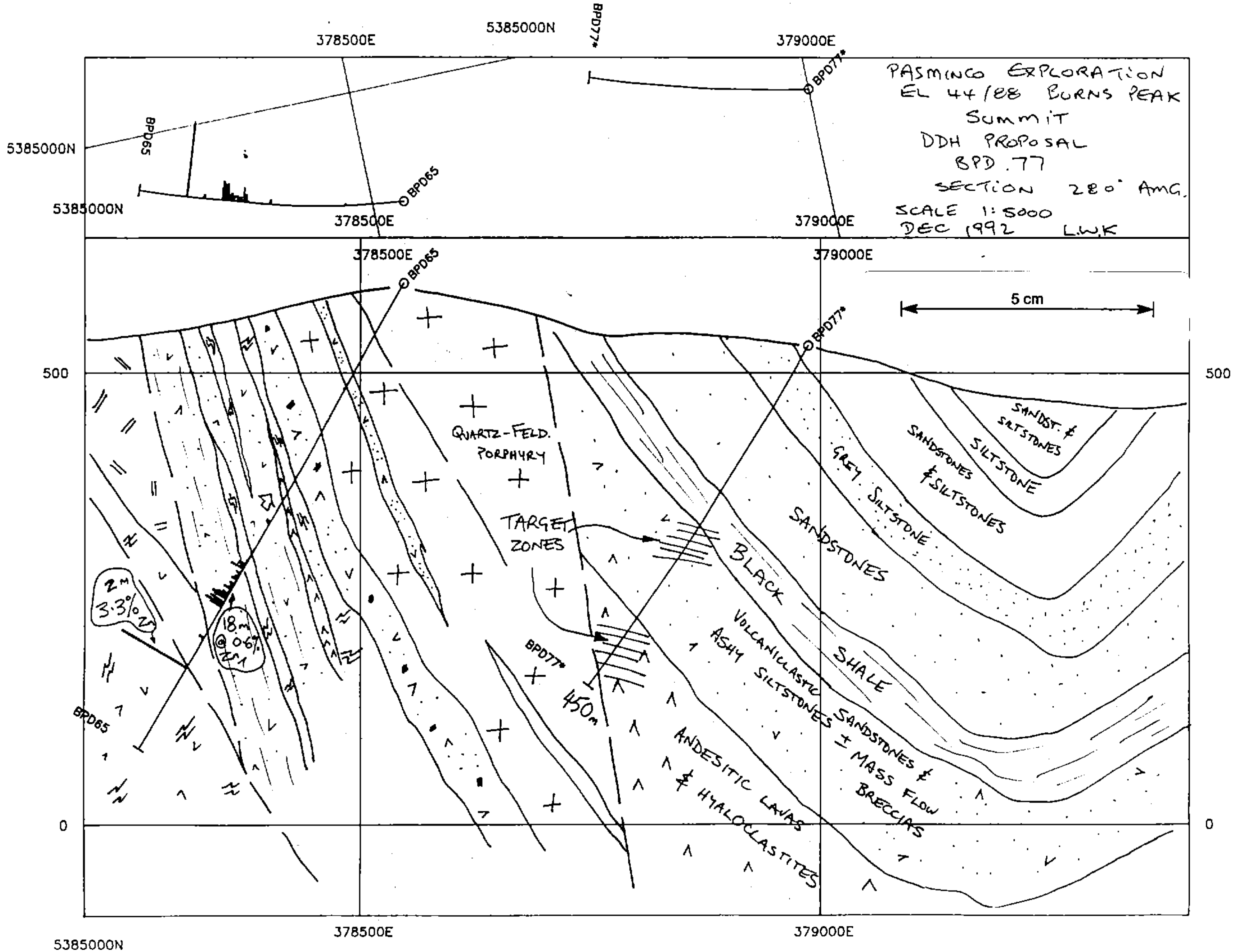
GEOCHEMISTRY: A° soil sampling shows little indication of shallow ore in the area. Auger and Wacker samples failed to penetrate the glacial cover in much of the nearby area. Rock chips from sediments along the Boco Road peak at >1 000ppm Pb and >200ppm Zn in what is along strike of a hangingwall position to the target zones.

GEOPHYSICS: The target zone is effectively "blind" to electrical geophysics – it is too deep for the IP to pick up a direct ore response, and the only conductors seen in the UTEM data are outcropping black shales. The target is in a magnetically quiet zone, but the Burns Peak shear is mappable in the data. Gravity coverage in the area is more suitable for more "regional" analysis than for specific drill targeting. The IP data gives an easterly dip for the weakly contrasting units near the collar position.

L. Kirsner

LW Kirsner

January 1993



PASMINCO EXPLORATION
EL 44/88 BURNS PEAK
SUMMIT
DDH PROPOSAL
BPD 77
SECTION 280° AMG.
SCALE 1:5000
DEC 1992 L.W.K
5385000N
378500E
379000E
BPD77*
BPD65
5 cm
500
0
QUARTZ-FELD. PORPHYRY
TARGET ZONES
2m 3.3% Zn
18m @ 0.6% Zn
450m
SANDST. & SILTSTONES
SILTSTONE
SANDSTONES & SILTSTONES
GREY SILTSTONE
SANDSTONES
BLACK SHALE
VOLCANICLASTIC SANDSTONES & MASS FLOW BRECCIAS
ASHY SILTSTONES +
ANDESITIC LAVAS & HYALOCLASTITES

953052

APPENDIX 3

BPD77 Drill Log

HOLE No. BPD 77

PASMINCO EXPLORATION
DIAMOND DRILL CORE RECORD

Page 1 of

LOCATION	TASMANIA
PROJECT	BURNS PEAK
PROSPECT	SUMMIT
DESIGNED BY	L.W. KIRSNER
LOGGED BY	L.W. KIRSNER
RELOGGED	—
COMMENCED	15-1-1993
COMPLETED	27-1-1993
DRILLED BY	LONGYEAR
DRILL RIG	LONGYEAR 44

OBJECTIVE

A further test of the alteration and mineralization intersected in BPD 76 (located 500m to SW). The zone of interest is hosted in rhyolitic volcaniclastics, shale and andesite.

RESULT

The hole intersected felsic derived mass flows, shale and minor quartz feldspar porphyries. Several high grade polymetalic massive sulfide clasts occur between 103-107m and 163-171m. The upper clast bearing horizon is underlain by pyrite - sericite stringer alteration

LOCATION/SURVEY DATA (AMG)

Grid	AMG		RL Collar m	530
Northing m	5384 900		Bearing Collar	280°
Easting m	379 000		Dip Collar	-60°
DH Survey Type	EASTMAN CAMERA.		Length Hole m	472.30m

Depth m	Bearing	Dip	Depth m	Bearing	Dip
58.00	282	-60			
103.30	281	-59.75			
150.00	282	-58.75			
200.00	283	-58.00			
250.00	285.50	-57.25			
300.00	287.50	-56.50			
350.00	289.50	-55.50			
400.00	292.	-54.75			
450.00	294	-54.0			

SIGNIFICANT INTERSECTIONS

From m	To m	Interval m	Pb	Zn	Ag			Comments
103.30	103.45	0.15	36%	16.5%	300g/t			Massive sulfide clast

SIGNIFICANT CORE LOSS

From m	To m	% Lost

POOR GROUND CONDITION ZONES

From m	To m	Condition

HOLE SIZE

Size	Depth m
0-50	HQ
50-472.3	NQ

HOLE CONDITIONS AFTER COMPLETION

Collar	
Steel Casing	
PVC Casing	0 - 472.30m
Ground Water	
Wedge	
Drill Pad	NOT REHABILITATED

450359

BPD77 (values in ppm)

FROM	TO	SAMPLE	Cu	Pb	Zn	Ag	Au	Fe%	Ba	As	Mn
100.00	102.00	34718	15	174	701	<1	<0.008		776		1186
102.00	104.00	34719	31	2660	2090	2.0	0.01		690		900
103.00	103.10	34840	2500	360000	165000	300.0	6.60	2.15	1	5	815
104.00	106.00	34720	6	174	320	<1	<0.008		879		1473
106.00	108.00	34721	13	956	1503	1.0	<0.008		855		1380
108.00	110.00	34722	4	273	902	<1	<0.008		987		1510
110.00	112.00	34723	27	4920	8000	4.0	0.01		385		1388
112.00	114.00	34724	47	7000	9800	7.0	0.02		514		673
114.00	116.00	34725	15	1750	1984	1.0	<0.008		426		754
116.00	118.00	34726	11	351	1015	<1	<0.008		669		1106
118.00	120.00	34727	22	99	109	<1	<0.008		553		1274
120.00	122.00	34728	4	609	240	<1	<0.008		460		2040
122.00	124.00	34729	10	2815	1052	1.0	<0.008		703		1836
124.00	126.00	34730	12	719	2065	<1	<0.008		555		1735
126.00	128.00	34731	5	457	1046	<1	<0.008		615		1455
160.00	162.00	34732	7	1087	1294	1.0	<0.008		495		1392
162.00	164.00	34733	3	486	671	<1	<0.008		1140		801
164.00	166.00	34734	7	883	2655	1.0	<0.008		833		1409
166.00	168.00	34735	6	383	610	<1	<0.008		641		1505
168.00	170.00	34736	169	3865	7700	4.0	0.10		592		1349
170.00	172.00	34737	59	1767	3630	2.0	<0.008		956		1156
172.00	174.00	34738	18	1916	2538	1.0	0.01		1345		1253
174.00	176.00	34739	73	585	2119	1.0	0.01		897		1486
250.50	250.60	34763	21	1113	4931						
261.40	261.50	34766	9	79	390						
277.70	277.80	34767	4	271	44						
472.00	472.10	34768	2	4	56						

BPD77 (values in %)

			Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5	Na2O	SO3	LOI
250.50	250.60	34763	10.97	75.10	0.12	2.02	0.18	2.09	3.59	0.85	0.02	0.17	1.00	3.85
261.40	261.50	34766	15.24	70.60	0.25	2.49	0.13	1.34	3.67	0.92	0.03	2.56	0.13	3.01
277.70	277.80	34767	11.55	78.90	0.17	1.35	0.04	0.50	1.49	0.10	0.03	4.95	0.02	0.78
472.00	472.10	34768	12.80	74.10	0.31	2.85	0.12	0.89	3.78	1.75	0.04	0.55	0.02	3.31

BPD77 (values in ppm)

			Rb	Sr	V	Nb	Y	Zr
250.50	250.60	34763	137	56	<5	10	25	144
261.40	261.50	34766	159	184	<5	10	32	188
277.70	277.80	34767	42	193	<5	4	37	155
472.00	472.10	34768	194	75	10	13	32	240

BPD77 SPECIFIC GRAVITY

depth	value	formation code	lithology code
41.00	2.58	?	bx
80.10	2.64	?	Lr
118.30	2.65	?	Lr
162.10	2.65	?	Lr
197.20	2.69	?	qpmf
240.50	2.71	?	bx
253.40	2.75	?	sh
282.10	2.59	?	Lr
322.30	2.63	?	Lr
354.50	2.76	?	sh
400.10	2.66	CVC	pmf
439.30	2.68	CVC	pmf
472.00	2.70	CVC	pmf

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. **BPD77**

PROJECT: BURNS PEAK

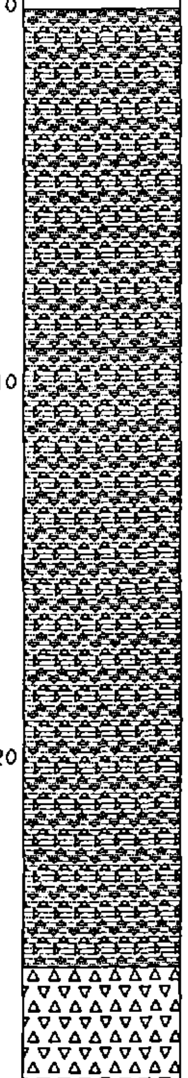
Vertical Scale 1 : 200

5 cm

From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
0.00	9.00	FLUVIOGLACIAL DEPOSITS No core recovered 0.0 to 9.0 metres.			S fgl		
9.00	25.40	FLUVIOGLACIAL DEPOSITS Cream, Brown, Medium grained, Very coarse grained, Massive, Quartz phyric, Feldspar phyric.	DISSEMINATED, minor sphalerite disseminated, minor galena disseminated, very minor sphalerite on selvedges, Clots of fg sp/gn in the stronger silicified zones and on clast boundaries. Assoc'd with epidote veins..		S fgl		
25.40	42.20	BRECCIA CONTAINING CLASTS OF ACID LAVA Brown, Grey, Very coarse grained, Medium grained, Massive, Moderately Silicified, Slightly Epidotised, Clast-supported vcg flow-banded rhyolite breccia/mass-flow. Chloritic/feldspathic matrix.			V bx c La		sil ep

GRAPHIC: Depth | Lithology | Structures

0
10
20



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PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
		vcg flow-banded rhyolite breccia/mass-flow. Chloritic/feldspathic matrix. 5 cm	very minor sphalerite on fractures.	30				
			sphalerite in veins, galena in veins, sp/gn veinlet at 30deg to LCR..	40				
42.20	43.40	BRECCIA CONTAINING CLASTS OF ACID LAVA Brown, Grey, Medium grained, Coarse grained, Massive, Feldspar phyric, As above but finer-grained - gravel (3-6mm clasts) and minor sand sized clasts.			FAULT, Brittle, Breccia. Broken rounded fragments.	V bx c La	flt	
43.40	48.60	BRECCIA CONTAINING CLASTS OF ACID LAVA Grey, Coarse grained, Massive, Feldspar phyric, Quartz phyric, Slightly Sericitised, 10 to 70mm clasts form 30% vol, flow banded, q,f rhyolite lava with ser/f/q matrix, sand sized.				V bx c La		ser
48.60	58.80	BRECCIA CONTAINING CLASTS OF ACID LAVA Grey, Medium grained, Fine grained, Massive, Feldspar phyric, Quartz phyric, 2 to 40mm clasts - v.similar to above. Includes some msv siliceous clasts.	minor sphalerite on selvedges, minor sphalerite on fractures, Spots of sp on clast boundaries and in clasts.. minor sphalerite on selvedges, 2-4mm clots of sp on bedding planes.. DISSEMINATED, 0.5%	50		V bx c La		

653058

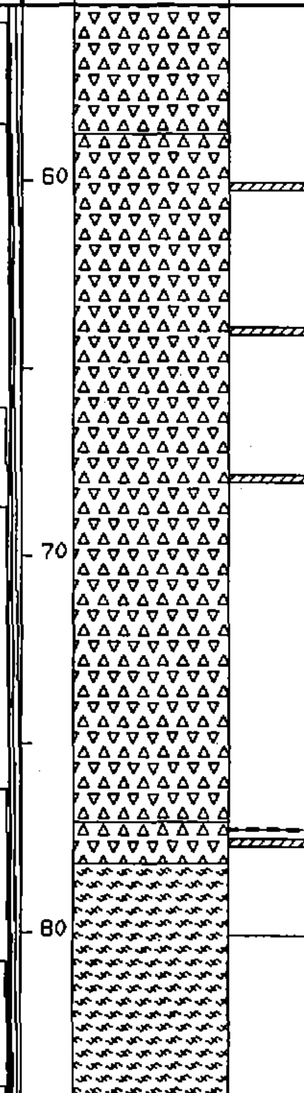
From	To	LITHOLOGY & ALTERATION	LITH	STR	ALT
58.80	77.10	BRECCIA CONTAINING CLASTS OF ACID LAVA Grey, Green, Coarse grained, Massive, Feldspar phyric, Quartz phyric, Moderately Silicified, Slightly Sericitised. 61.6 to 63.9 and 65.6 to 68.5 strong silicification. Clasts 10-50mm.	V bx c La	vein vein	sil ser
		BRECCIA CONTAINING INCLUSIONS OF ACID LAVA WITH MINOR MYLONITE Dark, Grey, Coarse grained, Brecciated, Highly Chloritised, Tectonic breccia zone - fault?			
77.10	78.20	RHYOLITE CONTAINING CLASTS OF BRECCIA Grey, Green, Coarse grained, Brecciated, Flow banded, Moderately Chloritised, Slightly Silicified, Rhyolite lava/hyaloclastic breccia, clasts msv to fb, variably bleached/silic. Possible Vpm frags.	V bx	vein	chl
78.20	85.60	RHYOLITE Grey, Medium grained, Flow banded, Feldspar phyric, Sericitised, Classic fb fsp x'll rich lava with a ser matrix.	L Lr c bx	vein so	chl sil
		RHYOLITE CONTAINING CLASTS OF BRECCIA Grey, Medium grained, Brecciated, Flow banded, Feldspar phyric, Lava breccia/hyaloclastite. fb clasts 2-20mm, x'lls 1-2mm. Possible pumice clasts.			
		SANDSTONE AND RHYOLITE Grey, Coarse grained, Bedded, Brecciated, Flow base peperite -			

5 cm

MINERALISATION

- DISSEMINATED, 0.5% sphalerite disseminated, trace galena disseminated, On bedding planes..
- DISSEMINATED, 1% pyrite on selvedges. Dissem and between clasts..
- DISSEMINATED, pyrite disseminated, 1% pyrite on selvedges, Pyrite dissem and between clasts..
- DISSEMINATED, galena minor sphalerite disseminated. Zone of sulphide clasts in mass flow..
- MASSIVE, 40% galena massive, 20% sphalerite massive, 20% pyrite massive, minor disseminated, 13cm long, rounded/ovoid clast of high grade. massive galena & sphalerite mineralis'n, with diffuse boundaries (? post-deposition remobilisation), in a mass flow unit..
- MASSIVE, 40% sphalerite massive, 10% galena massive, 4cm long x 1cm wide oblong clast of high grade. pb/zn massive mineralis'n with a siliceous matrix..
- MASSIVE, 20% sphalerite massive, 10% galena massive, 3cm clast of massive base metal sulphide, in Vmf..
- STRINGER, 5% pyrite as

GRAPHIC (Depth, Lithology, Structures)



STRUCTURES

- VEIN, Quartz. Veinlets throughout interval.
- VEIN, A 10.
- VEIN, A 15. Epidote veinlets commonly associated with sp/gn blebs.
- VEIN, A 25, Breccia, Quartz. Breccia/veined fault zone/hydrothermal channel.
- PRIMARY FABRIC, A 50. Bedding or cleavage near fault.
- FAULT, A 20, Brittle, Breccia. Lineation at 90degLCA in fault plane.
- PRIMARY FABRIC, A 25

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG
Vertical Scale 1 : 200

5 cm

PROJECT: BURNS PEAK

HOLE No. **BPD77**

DESCRIPTION

From	To	LITH	STR	ALT
85.60	86.50	L Lr	so	ser
86.50	89.80	L Lr c bx	vein	
89.80	90.30		so	
90.30	92.10	L Lr c bx	ss	
92.40	94.00	L Lr c bx	so	
94.00	98.50	V Lr & sst	flt	ser
98.50	103.20	V qpmf c Lr & sst c f	flt	ser
103.20	103.85	V qpmf		ser
103.85	105.60	S bx c sst	sl	chl ser
105.60	106.50	L Lr		chl
106.50	107.00		vein	
107.00	109.50	V Lr - sst	jnt so	
109.50	114.30	L Lr	flt	sil

LITHOLOGY & ALTERATION

SANDSTONE AND RHYOLITE
Grey, Coarse grained, Bedded, Brecciated, Flow base peperite - bedded fg seds with 20mm clasts of fb Lr in it.

RHYOLITE CONTAINING CLASTS OF BRECCIA
Grey, Medium grained, Coarse grained, Brecciated, Flow banded, Flow banded rhy clasts, some jigsaw textures, some coarser rounded frags.

SANDSTONE
Cream, Grey, Fine grained, Bedded, Quartz phyric, Feldspar phyric, Bedded ashy fg lithic sandstone.

RHYOLITE CONTAINING CLASTS OF BRECCIA
Cream, Grey, Coarse grained, Brecciated.

RHYOLITE AND SANDSTONE
Grey, Pink, Coarse grained, Fine grained, Brecciated, Massive, Feldspar phyric, Slightly Sericitised, Rhyolite lava peperite

QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE AND SANDSTONE CONTAINING CLASTS OF
Grey, Green, Coarse grained, Fine grained, Massive, Brecciated, Feldspar phyric, Slightly Sericitised, Mass flow with angular to rounded clasts of rhy lava and fsp x'lls. Clasts 1mm to 50mm incl a grey fg sst matrix. Pyrite between clasts at 99.2m.

QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE CONTAINING CLASTS OF
Grey, Coarse grained, Massive, Brecciated, Feldspar phyric, Moderately Sericitised, Single flow? possibly uphole fining. Contains angular rhy clasts, fsp x'lls and msv sulphide clasts.

BRECCIA CONTAINING CLASTS OF SANDSTONE GRADING TO QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE
Grey, Green, Medium grained, Coarse grained, Massive, Brecciated, Moderately Chloritised, Slightly Sericitised, Re-deposited hyaloclastite/peperite in a sandy matrix at top of unit, lithic breccia/mass flow containing rhy clasts (rounded) near base. Some chloritised angular clasts.

RHYOLITE CONTAINING CLASTS OF BRECCIA
Grey, Green, Coarse grained, Massive, Brecciated, Slightly Chloritised, Peperite with juvenile clasts of redeposited Lr, and hyaloclastic plastically deformed Lr frags.

QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE
Grey, Green, Coarse grained, Fine grained, Massive, Brecciated, Moderately Chloritised, Sedimentary breccia/massflow deposited with rounded clasts of Lr, and a massive sulphide clasts (sp/gn) at 106.8, cut off by a carb.

MINERALISATION

sulphide, in Vmf..

STRINGER, 5% pyrite as stringers, minor galena in veinlets, very minor sphalerite in veinlets, Silicified zone with py replacement-style stringer/veining and minor base metal selvages. Later stage brittle veinlets with carbonate+sp+gn..

galena in veinlets, sphalerite in veinlets, Zone of BM veinlets..

galena in veinlets, very minor sphalerite in veinlets, Base metal-bearing veinlets..

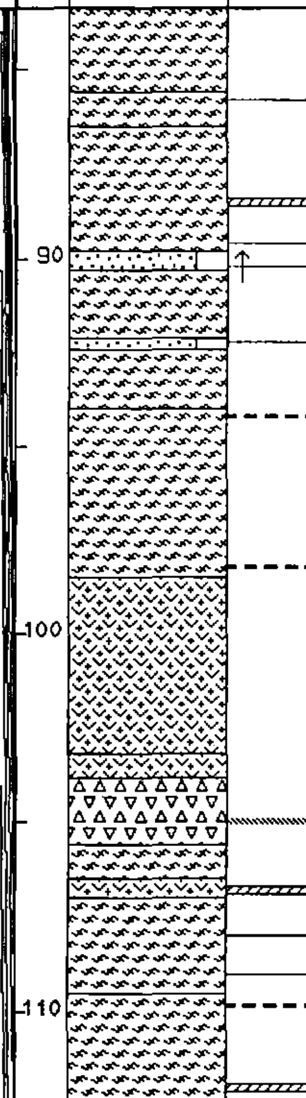
galena in veinlets, very minor sphalerite in veinlets, Base metal-bearing veinlets..

galena in veinlets, very minor sphalerite in veinlets, Base metal-bearing veinlets..

trace galena in veins.

GRAPHIC

Depth | Lithology | Structures



STRUCTURES

fault plane.

PRIMARY FABRIC, A 25. Flow banding in rhy lava clasts in hyaloclastite.

PRIMARY FABRIC, A 60. Flow banded rhyplite.

VEIN, A 30, Sphalerite, Galena.

PRIMARY FABRIC, A 55. Flow banding.

BEDDING, A 40, Younging uphole.

PRIMARY FABRIC, A 30. Flow banding.

FAULT, A 0, Brittle. Slickensides at 90degLCA on fault plane.

FAULT, A 20, Brittle. Slickensides as above.

FIRST CLEAVAGE, A 45, Weak. Lineation now down dip.

VEIN, A 60, Galena. Carbonate veinlet adjacent to msv sulphide clast.

JOINT, A 20. Lineation at 90deg to LCA.

PRIMARY FABRIC, A 50.

VEIN, A 40, Galena, Sphalerite. Veinlets in silicified zone.

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
		breccia/massflow deposited with rounded clasts of Lr, and a massive sulphide clasts (sp/gn) at 106.8, cut off by a carb. vein @60deg to LCA.			Veinlets in silicified zone. FAULT, Brittle, Sericite. Minor sericitic fault.			
114.30	117.40	RHYOLITE GRADING WITH SANDSTONE Grey, Green, Coarse grained, Fine grained, Brecciated, Massive, Peperite/hyaloclastite with some jigsaw fit textures. Lithic clasts near base.				V Lr - sst	vein	sil
117.40	121.80	RHYOLITE Grey, Fine grained, Brecciated, Massive, Feldspar phyric, Highly Silicified, Strongly silicified Lr which has been brecciated hydrothermally. Contains pyritic stringer veins with minor base metal selvages. Carbonate veinlets with sp/gn also present.	DISSEMINATED, minor sphalerite disseminated. In matrix..	120		L Lr		
121.80	129.30	RHYOLITE GRADING WITH SANDSTONE Khaki, Pink, Coarse grained, Fine grained, Massive, Brecciated, Slightly Silicified, Flow banded Lrhy clasts in sst matrix.	STRINGER, minor sphalerite in veinlets, minor galena in veinlets, minor sphalerite as stringers, minor galena as stringers, In cleavage and on veins..			L Lr		ser chl
		RHYOLITE Pink, Massive, Flow brecciated.	STRINGER, minor sphalerite in veinlets, minor galena in veinlets, minor sphalerite as stringers, minor galena as stringers, In cleavage and on veins..					
		RHYOLITE Pink, Khaki, Medium grained, Coarse grained, Massive, Flow brecciated, Feldspar phyric, Moderately Sericitised, Moderately Chloritised, Some crackle bx and pseudo bx zones.	STRINGER, minor sphalerite in veinlets, minor galena in veinlets, minor sphalerite as stringers, minor galena as stringers, In cleavage and on veins..	130				
129.30	140.50	QUARTZ PHYRIC MASS FLOW WITH MINOR RHYOLITE GRADING TO BRECCIA CONTAINING CLASTS OF RHYOLITE Grey, Green, Medium grained, Coarse grained, Upwards fining sequence, Brecciated, Feldspar phyric, Quartz phyric, Sand matrix at top of interval grades down to a clast supported mass flow/volcanomict breccia.		140		V qpmf m Lr > bx c Lr		

5 cm

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

HOLE No. **BPD77**

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
				140				
140.50	146.40	RHYOLITE INTERBEDDED WITH RHYOLITE BRECCIA Grey, Cream, Coarse grained, Massive, Brecciated, Feldspar phyric.				L Lr b Lr bx		
146.40	149.20	RHYOLITE GRADING WITH SANDSTONE Grey, Cream, Coarse grained, Massive, Brecciated, Moderately Chloritised, Flow margin peperite with pseudo clastic chl alteration overprint.			FIRST CLEAVAGE, A 20, Shear, Strong. Lineation parallel to LCA.	V Lr - sst	sl	chl
149.20	157.80	RHYOLITE Khaki, Pink, Medium grained, Massive, Flow banded, Feldspar phyric, Slightly Chloritised.		150	VEIN, Quartz. Zone of more frequent veining. FIRST CLEAVAGE. Intensification of cleavage.	L Lr	vein sl	chl
157.80	161.50	RHYOLITE GRADING WITH SANDSTONE Grey, Cream, Coarse grained, Massive, Brecciated, Feldspar phyric.		160		V Lr - sst		
161.50	165.20	RHYOLITE Grey, Cream, Medium grained, Cleaved, Flow brecciated, Feldspar phyric, Highly Chloritised, Highly Sericitised, Hyalocl. with alt'n pseudo breccia appearance. Includes narrow zone of peperite at 164.3m which contains dissem sphal. Altn strongest in cleavage.				L Lr		chl ser
165.20	169.80	QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE WITH MINOR SANDSTONE Grey, Cream, Massive, Feldspar phyric, Moderately Sericitised, Sand matrix and a few massive base metal sulphide blebs (?clasts?).	DISSEMINATED, minor sphalerite massive, minor galena massive, Sulphide			V qpmf c Lr m sst		ser
		PUMICEOUS MASS FLOW Grey, Green, Fine grained, Massive, Pumiceous, Wisps, Feldspar						

5 cm

29096

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

HOLE No. BPD77

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
169.80	170.30	PUMICEOUS MASS FLOW Grey, Green, Fine grained, Massive, Pumiceous, Wisps, Feldspar phyric, Moderately Chloritised, Moderately Detextured.	sphalerite massive, minor galena massive. Sulphide clasts 5 to 10 mm size. Possibly selective replacement?.				
170.30	170.90	QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE WITH MINOR SANDSTONE Grey, Medium grained, Brecciated, Polymict mass flow with sst matrix and minor sulphide clasts. Generally angular clasts dominate.					
170.90	174.70	PUMICEOUS MASS FLOW Grey, Fine grained, Massive, Pumiceous, Feldspar phyric, Slightly Chloritised, Moderately Detextured, Chloritic patches and pseudoclastic texture.			V pmf		chl dtx
		SCHIST AND MYLONITE Cream, Medium grained, Cleaved, Moderately Sericitised, Shear zone.		FAULT, A 40, Shear.		flt	
174.80	[illegible]	BRECCIA GRADING TO RHYOLITE Grey, Medium grained, Brecciated, Massive, Moderately Sericitised, Moderately Chloritised, Hydrothermally brecciated rhyolite lava down to 176.2 then massive to hyaloclastic rhyolite lava. Some dark chloritic zones.		FAULT, A 30, Brittle, Pug.	V bx > Lr	flt	ser
183.00	193.30	RHYOLITE AND BRECCIA Green, Yellow, Medium grained, Brecciated, Slightly Chloritised, Slightly Sericitised, Variable clvg at 30 deg to LCA.	DISSEMINATED. minor sphalerite on fractures.	FIRST CLEAVAGE, A 30, Strong. FIRST CLEAVAGE, A 0, Strong, Shear.	V Lr & bx	sl sl	
193.30	216.30	QUARTZ PHYRIC MASS FLOW CONTAINING CLASTS OF RHYOLITE AND BRECCIA Green, Yellow, Medium grained, Coarse grained, Feldspar phyric, Slightly Chloritised, Slightly Sericitised, Peperite with fb Lr clasts and msv siliceous clasts, feldspar rich			V qpmf c Lr & bx		

5 cm

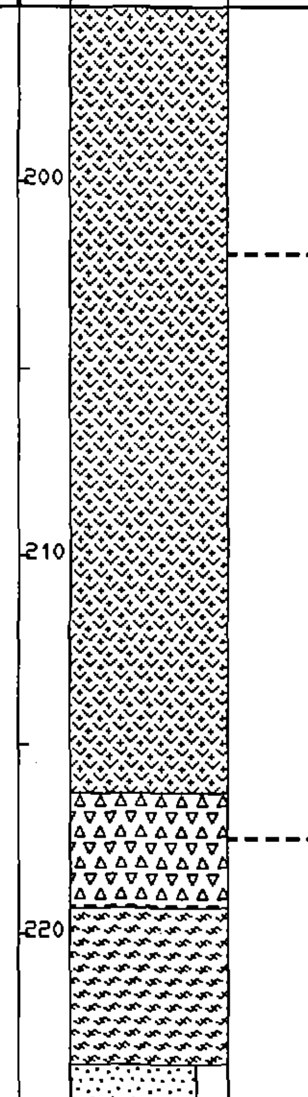
PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

PROJECT: BURNS PEAK	HOLE No. **BPD77**
Vertical Scale 1 : 200	Page 8 of 17

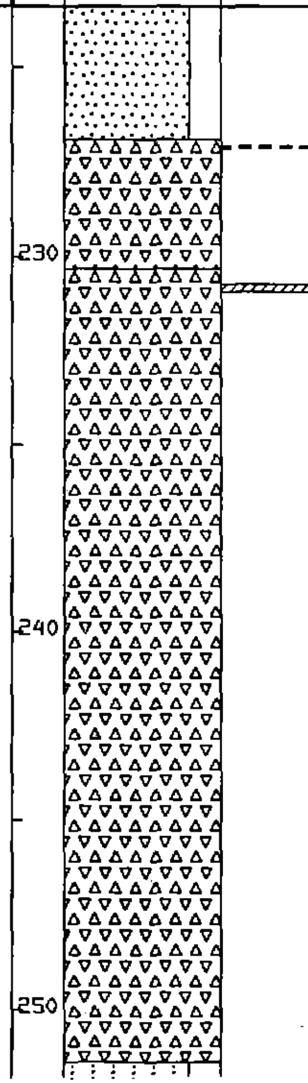
From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
		phyric, Slightly Chloritised, Slightly Sericitised, Peperite with fb Lr clasts and msv siliceous clasts, feldspar rich matrix and some carbonate in breccia zones. 5 cm		FAULT, A 20, Shear, Brittle. Shear and fault with L1 at 90degLCA.		flt	
216.30	219.30	BRECCIA GRADING WITH SHALE AND SANDSTONE Grey, Black, Fine grained, Medium grained, Cleaved, Brecciated, Feldspar phyric, Slightly Chloritised, Shale and sandy tuff in a cleaved fault zone.		FAULT, A 10, Fracture, Brittle. In dark chloritic/?shaley matrix zone.	S bx - sh & sst	flt	
219.30	223.40	RHYOLITE AND QUARTZ PHYRIC MASS FLOW Green, Yellow, Coarse grained, Medium grained, Massive, Brecciated, Feldspar phyric, Quartz phyric, Slightly Chloritised.			V Lr & qpmf		
223.40	226.90	SANDSTONE Grey, Fine grained, Medium grained, Massive, Cleaved, Feldspar			V sst		

GRAPHIC



From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
223.40	226.90	SANDSTONE Grey, Fine grained, Medium grained, Massive, Cleaved, Feldspar phyric, Wisps, Slightly Chloritised, Chloritic wisps in a tuffaceous sandstone.			V sst		
226.90	230.30	BRECCIA AND SANDSTONE CONTAINING LAMINAE OF SHALE CONTAINING CLASTS OF SILTSTONE Grey, Green, Coarse grained, Fine grained, Cleaved, Brecciated, Slightly Chloritised, Slightly Sericitised, Shale zone at top of sheared interval, mst clasts near base. Many qtz/carb veins.		FAULT, A 20, Reverse movement, Brittle.	V bx & sst l sh c slt	flt	
230.30	251.40	BRECCIA CONTAINING CLASTS OF RHYOLITE INTERBEDDED WITH SANDSTONE AND CONGLOMERATE Green, Grey, Coarse grained, Fine grained, Massive, Feldspar phyric, Quartz phyric, Slightly Chloritised, Slightly Sericitised, Interbedded tuffaceous sandstones and conglom. with coarser acid volcaniclastics. Lowest metre has stronger ser/chl alteration.		VEIN, A 40, Reverse movement. Lineation at 40deg to LCA in plane of veins. BEDDING, Younging uphole.	V bx c Lr b sst & cong	vein	
251.40	253.00	TURBIDITE CONTAINING CLASTS OF RHYOLITE INTERBEDDED WITH SHALE Grey, Coarse grained, Fine grained, Massive, Reworked upper					

5 cm



HOLE No. BPD77

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

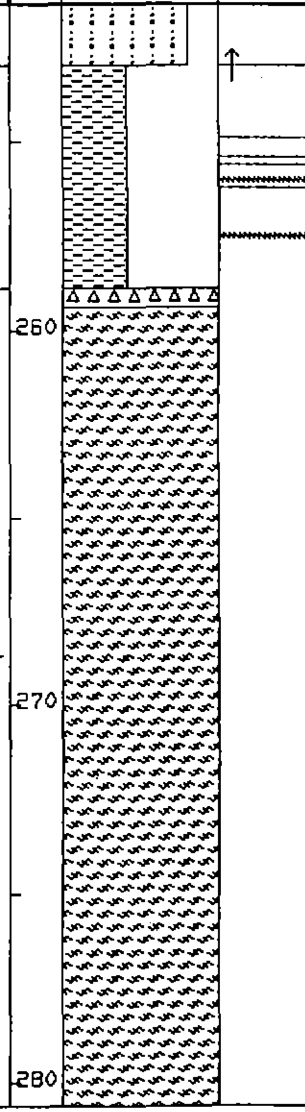
DESCRIPTION

From	To	LITHOLOGY & ALTERATION	MINERALISATION
251.40	253.00	Grey, Coarse grained, Fine grained, Massive, Reworked upper contact of the narrow shale unit - includes clasts of the over lying sequence.	
253.00	258.90	SHALE Black, Fine grained, Laminated, Slightly Carbonatised, Laminated pyritic shale with qtz/carb veins. Sharp lower sedimentary contact.	DISSEMINATED, 5% pyrite as stringers, on selvedges, on fractures, disseminated, Pyrite on bedding planes and as clots in fractures and cleavage..
~~258.90~~	~~259.40~~	BRECCIA Grey, Coarse grained, Fine grained, Brecciated, Massive, Reworked zone at the top of the underlying porphyritic rhyolite, with a shale matrix.	
259.40	329.20	RHYOLITE GRADING WITH BRECCIA Grey, Buff, Coarse grained, Massive, Quartz phyric, Feldspar phyric, Slightly Silicified, Coarse porphyritic rhyolitic lava and minor lava breccia/hyaloclastite. Some qtz/carb veinlets and chlorite veins.Coarse feldspars have grown in-situ, having nucleated on finer grained pre-existing crystals. Feldspars are epidote altered in the lowest 10 metres. Tectonic brecciation below 325.5m.	

5 cm

GRAPHIC

Depth | Lithology | Structures



260

270

280

STRUCTURES

STRUCTURES
BEDDING, A 70.
BEDDING, A 70.
BEDDING, A 70.
FIRST CLEAVAGE, A 35.
BEDDING, A 70. Indicates anticline to the west.
BEDDING, A 70.
FIRST CLEAVAGE, A 30.
BEDDING, A 30. Defines asymmetric folds - syncline east, anticline west.

CODES

LITH	STR	ALT
S t c Lr		
S sh	ss ss ss ss s$ ss s$	
L Lr - bx		

953036

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG
Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
				280						
		5 cm		290						
				300						

953067

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

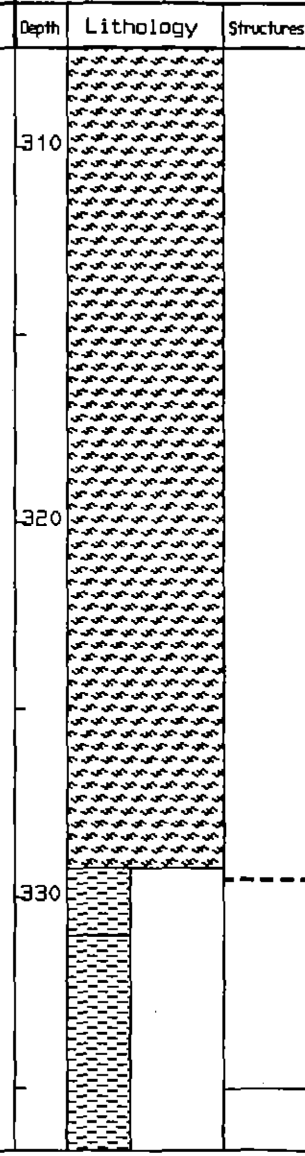
Vertical Scale 1 : 200

HOLE No. BPD77

PROJECT: BURNS PEAK

5 cm

From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
				FAULT, A 20. Breccia. Reverse movement, Brittle. Major fault zone at the top of the shale - wide cataclastic zone similar in style and amount of deformation to the Rosebery Fault.			
329.20	331.00	SHALE GRADING WITH BRECCIA Black, Grey, Coarse grained, Fine grained, Brecciated, Cleaved, Highly Detextured, Tectonic breccia zone at the top of the shale unit - within the fault zone.		BEDDING, A 35.	S sh - bx	flt	
331.00	358.30	SHALE WITH MINOR BRECCIA Black, Fine grained, Laminated, Cleaved, Slightly Carbonatised, Contains a network of fine carbonate veinlets, fine pyrite on bedding planes and extended into the cleavage. Some clots of coarser pyrite. Intermixed and interbedded with underlying unit in lower 5 metres of shale unit.		BEDDING, A 15. FAULT, A 45, Brittle, Breccia. Minor brittle fault zone with discrete pug zones, but dominated by coarser breccia with shale matrix.	S sh m bx	ss	



PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

5 cm

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
				340, 350	breccia with shale matrix.			
					BEDDING, D 55. W dip (Core orientation marks at: 262.3, 265.3, 337.3, 340.3, 538.3 - some are unreliable due to poor match over 3m or low angle break)		ss flt	
					BEDDING, D 83. E dip (shales only approximately orientated due to poor match of marks at 337.3 and 340.3)		ss ss ss ss	
					BEDDING, D 84. W dip		ss ss	
					BEDDING, D 76. W dip		ss	
					BEDDING, D 80. W dip			
					BEDDING, D 86. W dip			
					BEDDING, D 40. S dip			
358.30	360.80	SANDSTONE CONTAINING CLASTS OF SILTSTONE AND RHYOLITE Grey, Green, Coarse grained, Medium grained, Massive, Brecciated, Slightly Chloritised, Moderately Sericitised, Fine grained volcaniclastic with clasts of the overlying and underlying lithologies.		360		V sst c slt & Lr		
360.80	472.30	PUMICEOUS MASS FLOW CONTAINING CLASTS OF RHYOLITE BRECCIA Grey, Pink, Fine grained, Medium grained, Massive, Cleaved, Pumiceous, Feldspar phyric, Moderately Detextured, Slightly Sericitised, Slightly polymict at the top of the unit, grading down to a more massive consistently pumiceous unit. Increasing [illegible]				V pmf c Lr bx		

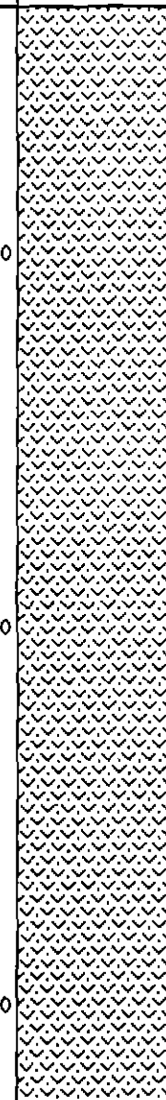
PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		Sericitised, slightly polymict at the top of the unit, grading down to a more massive consistently pumiceous unit. Increasing rhyolite lava clast content from 420m down-hole.		370 380 390						

5 cm

PASMINCO EXPLORATION

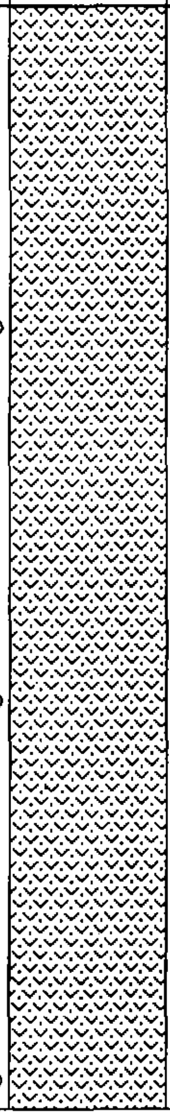
DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		400						
				410						
				420						



953071

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		420						
				430						
				440			FAULT, A 60, Pug. Breccia, Brittle. Minor fault.		flt	

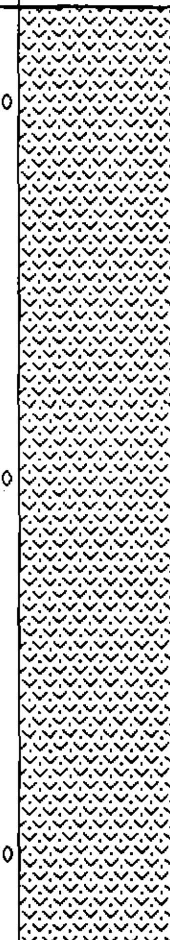
PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD77**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		450 460 470			FAULT, A 65, Brittle, Breccia, Pug. Minor fault with symmetrical bleaching around it for 10 metres each way along the core.		flt	

953073

APPENDIX 4
BPD78 Drill Proposal

DIAMOND DRILL HOLE PROPOSAL BPD78

BROWNS TUNNEL

Proposed collar position: 377460E 5384690N SECTION 4

Az: 100 AMG

Dip: -55

RL: 445

Total depth: 350m

Summary

The near surface (<200m depth) potential for massive sulphides in the Brown's Tunnel (BT)/Thomas' Tunnel (TT) horizon and associated steep dipping shears has been reasonably well tested.

Further potential for the discovery of significant mineralisation is dependent on either one of two interpretations;

a) the occurrence of a steep dipping shear (PSZ) and coincident host stratigraphy as outlined by the Burns Peak Review on sections 7-9.
b) the shallow (west limb of syncline) to moderate west dipping host package which extends west beyond the area already drilled.

Geological evidence from drilling to date indicates that the latter is the most likely interpretation, and if correct opens up the greatest area of untested potential see Fig 1.

On section 4 both interpretations can be tested in one 350m deep hole. This section contains the best intercepts for Cu Pb Zn to date, suggesting that it is proximal to the mineralising feeder zone.

Both models are depth limited by the east dipping (40-50) hanging wall structure of the Rosebery Fault. At the surface this structure equates with the Southern Trenches Shear Zone.

Stratigraphy

The mineralised horizon occurs in a west facing sequence with possible localised overturning. A very generalised stratigraphy comprises three units;

- footwall, massive pumiceous mainly feldspar phyric mass flows with subordinate fine grained quartz feldspar phyric lavas/sills and strongly quartz feldspar porphyritic intrusives. Composition of all lithologies is probably rhyodacite. Pumiceous rocks are pervasively sericite altered +- disseminated pyrite.
- host sequence, comprising massive/disseminated sulphides, fine grained vitric/cherty sediments (fine tops of underlying pumiceous mass flows), fine-medium grained volcaniclastics including siltstone and feldspar phyric "andesites". These "andesites" range in SiO2 content from basalt – rhyodacite, the more felsic end members are distinct geochemically from the footwall rhyodacites.
- hanging wall, fine to medium grained quartz feldspar phyric rhyodacite lavas and associated epiclastics. Interpreted as basal section of the Pinnacles Rhyolite.

Structure

The mineralised sequence lies above and is truncated in the west and at depth by a moderate east dipping shear zone which is interpreted as the hanging wall structure to the Rosebery Fault (RFHW). In addition to depth limiting the mineralisation the RFHW may have rotated some lithologies, particularly massive sulphide lenses into the plane of the structure.

Mapped shears and cleaved zones on Boco Road strike N – NE, dip 40 – 70 east and are considered as sympathetic structures to RFHW. The RFHW equates with STSZ of the Burns Peak Review.

The dip of the RFHW is constrained by drilling on section 9 where it has been intercepted by BPD63 and CP14 with dip of 40 east. Further north the structure has not been intersected in deeper holes drilled to the west (EAF14 and BPD62 see sections 5 and 2) indicating that the dip steepens to at least 50.

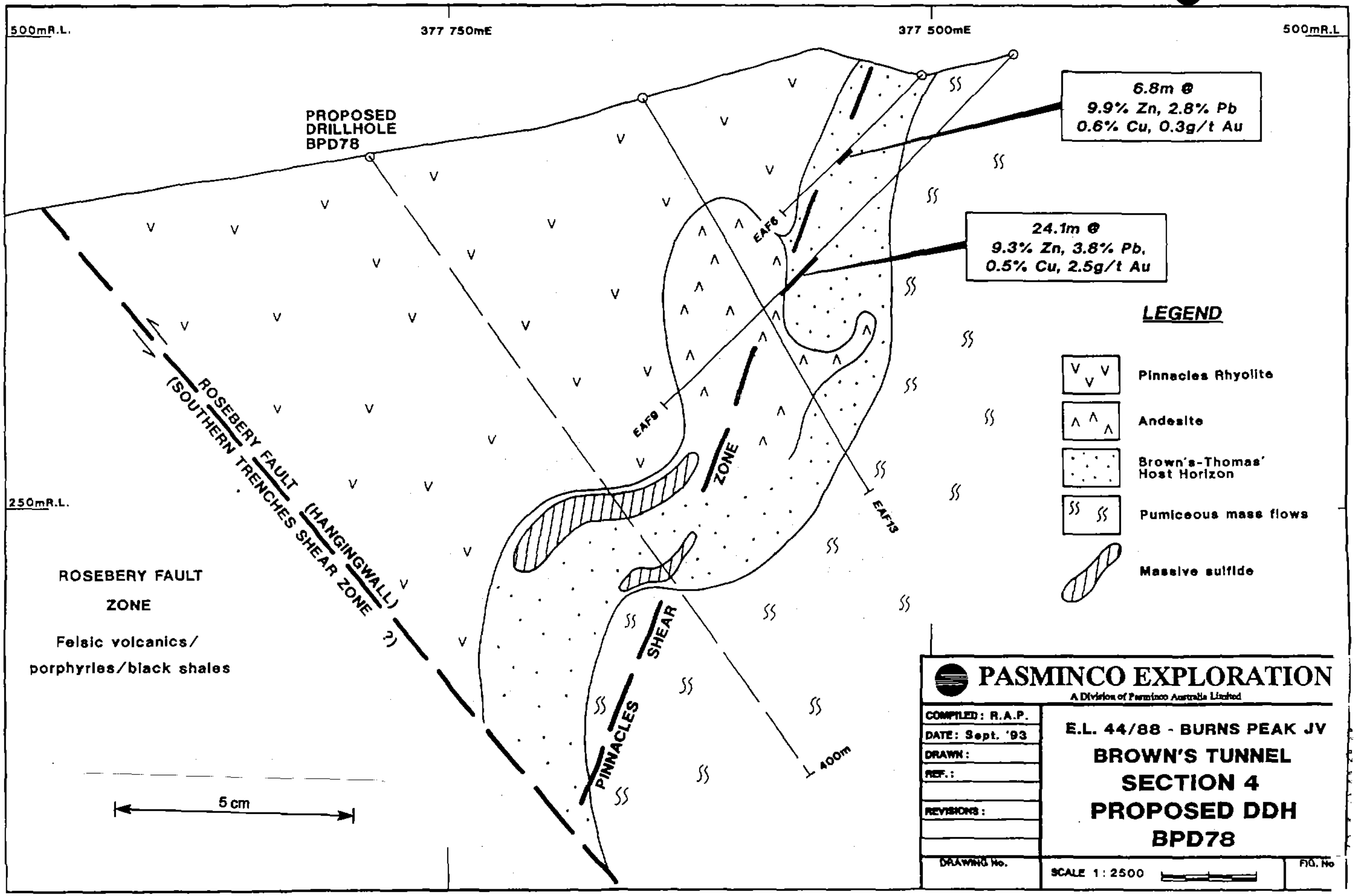
In a gross sense on sections 2-4 the host sequence dips west at 60. Superimposed on this are folds with wavelengths of 100m. Axial planes of the folds are probably subparallel to the RF.

Mineralisation model

The BT/TT sulphide mineralisation is interpreted to be primarily a VHMS with some but probably minimal secondary structural remobilisation.

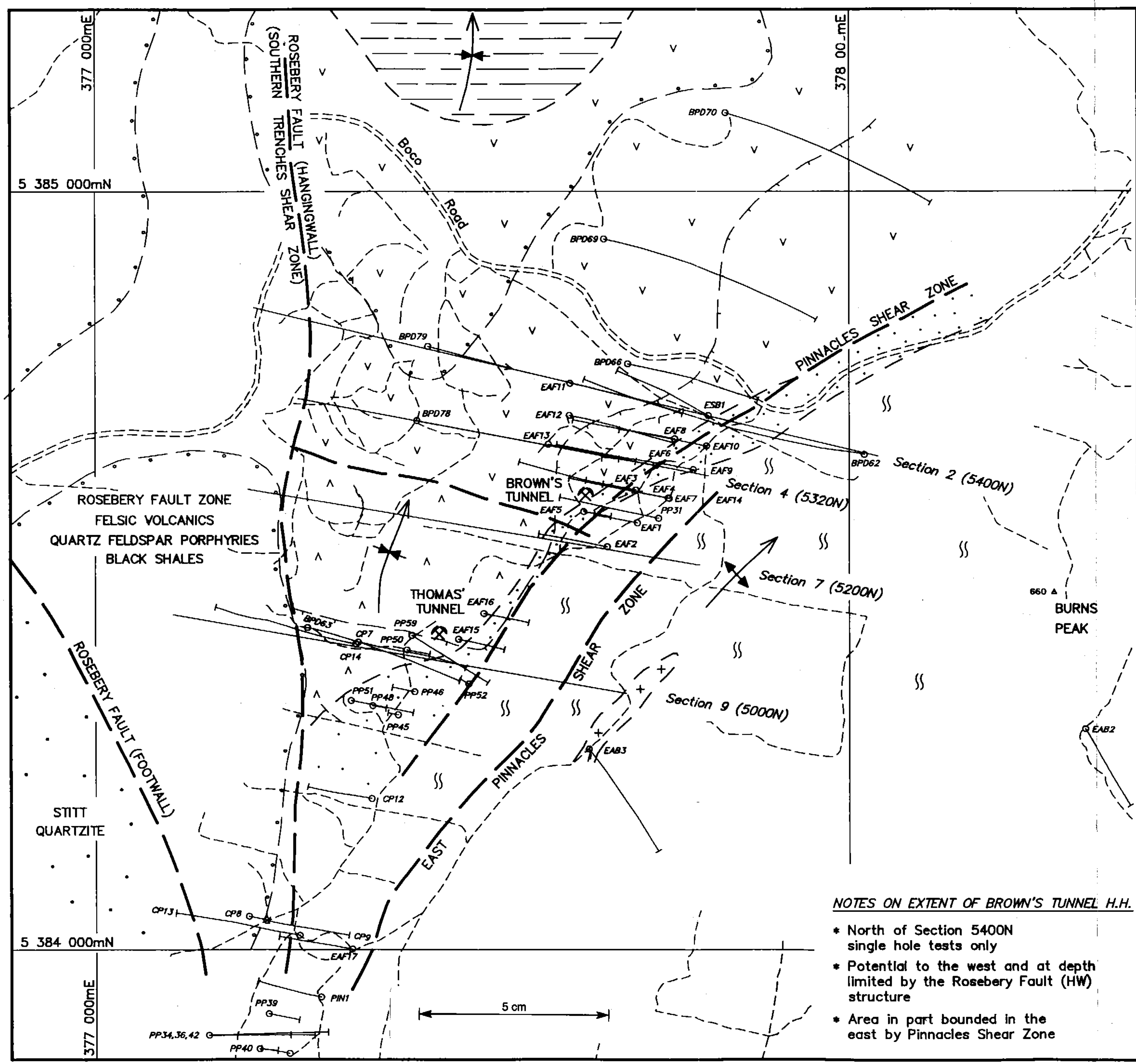
Features in common with VHMS include:

- hosted in a lithogeochemically distinct volcanic horizon, the "andesites".
- asymmetric alteration development, footwall pervasive sericite +- pyrite and localised chlorite pyrite.
- asymmetric metal zonation in some massive sulphide lenses (EAF9 165–182m), with chalcopyrite/pyrite underlying lead zinc dominated mineralisation.
- correlation between greatest Pb Zn and Cu accumulations see long section. The copper association indicates proximity to a feeder zone on section 4 and long section.



500mR.L.
377 750mE
377 500mE
500mR.L
PROPOSED DRILLHOLE BPD78
6.8m @
9.9% Zn, 2.8% Pb
0.6% Cu, 0.3g/t Au
24.1m @
9.3% Zn, 3.8% Pb,
0.5% Cu, 2.5g/t Au
EAF6
EAF9
EAF13
400m
LEGEND
Pinnacles Rhyolite
Andesite
Brown's-Thomas' Host Horizon
Pumiceous mass flows
Massive sulfide
250mR.L.
ROSEBERY FAULT (HANGINGWALL)
(SOUTHERN TRENCHES SHEAR ZONE ?)
ZONE
PINNACLES SHEAR
ROSEBERY FAULT
ZONE
Felsic volcanics/
porphyries/black shales
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: R.A.P.
DATE: Sept. '93
DRAWN:
REF.:
REVISIONS:
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
BROWN'S TUNNEL
SECTION 4
PROPOSED DDH
BPD78
SCALE 1:2500
FIG. No

953079



NOTES ON EXTENT OF BROWN'S TUNNEL H.H.

* North of Section 5400N single hole tests only
* Potential to the west and at depth limited by the Rosebery Fault (HW) structure
* Area in part bounded in the east by Pinnacles Shear Zone

LEGEND

QUATERNARY

- Fluvioglacials

CAMBRIAN

- White Spur Formation
- Pinnacles Rhyolite
- Andesite
- Brown's Tunnel Host Horizon
- Pumiceous mass flows
- Quartz feldspar porphyries
- Rosebery Fault Zone
- Stitt Quartzite
- Geological boundary
- Thrust fault
- Fault
- Syncline – anticline and plunge
- Brown's Tunnel Host Horizon area tested/established by drilling. (Projected to surface)

1992/93 Burns Peak Review
Section 2 (5320N)
Comstaff EAF Grid

Interpretive Geology
From Gregory (1987), A.N.L., L.W.K., R.A.P.

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : R.A.P.	E.L. 44/88 – BURNS PEAK JV
DATE : Nov., 1993	PINNACLES
DRAWN : G.M.B.	INTERPRETIVE GEOLOGY
REFERENCE :	
REVISIONS :	
DRAWING No. BTT_GEOL	SCALE 1:5000 0 100 m
FIG. No.	

APPENDIX 5

BPD78 Drill Log

HOLE No.	BPD 78

PASMINCO EXPLORATION
DIAMOND DRILL CORE RECORD

Page 1 of

LOCATION	TASMANIA
PROJECT	BURNS PEAK
PROSPECT	BROWNS TUNNEL
DESIGNED BY	R. POLTOCK
LOGGED BY	R. POLTOCK
RELOGGED	—
COMMENCED	27-9-'93
COMPLETED	18-10-'93
DRILLED BY	FRED ORTNER
DRILL RIG	MINDRILL F 52

OBJECTIVE

Drill section 4 (EAF 6 & 9) is associated with the best Cu Pb Zn grades intersected to date at Browns Tunnels.
BPD 78 was designed to test the down dip extent of the Brown's Tunnel host sequence on this section.

RESULT

The steep west dipping BROWNS TUNNEL Host sequence was intersected from 265.00 - 454.30m, and comprises siltstone, chert, felsic mass flows and andesite lavas. The sequence is pervasively sericite - chlorite - carbonate - silica pyrite altered and includes a pyrite chalcopyrite stringer zone and massive pyrite lens.

LOCATION/SURVEY DATA (AMG)

Grid	AMG			
Northing m	5384 700		RL Collar m	445 m
Easting m	377 425		Bearing Collar	101.50°
DH Survey Type	EASTMAN CAMERA		Dip Collar	-55°
			Length Hole m	466.30

Depth m	Bearing	Dip	Depth m	Bearing	Dip
51	102.5°	-56.25°			
100	102.5°	-55°			
154	103.5°	-54.75°			
202	104°	-54°			
250	103.5°	-51°			
301	105.5°	-49°			
355	106.5°	-47.75°			
409	107.5°	-46.75°			
460	107.5°	-46°			

SIGNIFICANT INTERSECTIONS

From m	To m	Interval m	Cu	Zn	Ag			Comments
286.00	295.00	9.00	2.47%	0.21%	98 g/t			Pyrite chalcopyrite stringer
322.90	333.00	10.10	1.39%	2.19%	53 g/t			Massive pyrite.

SIGNIFICANT CORE LOSS

From m	To m	% Lost

POOR GROUND CONDITION ZONES

From m	To m	Condition

HOLE SIZE

Size	Depth m
HW	0-3
HQ	3-66
NQ	66-466.3

HOLE CONDITIONS AFTER COMPLETION

Collar	
Steel Casing	HN 0-6m
PVC Casing	0-466.30m
Ground Water	
Wedge	
Drill Pad	

038001

953082

BPD78 (sampled intervals)

FROM	TO	SAMPLE
42.00	44.00	37397
44.00	46.00	37398
54.00	56.00	37399
56.00	58.00	37400
58.00	60.00	37501
60.00	62.00	37502
62.00	64.00	37503
64.00	66.00	37504
124.60	126.30	37344
264.60	266.60	37366
266.60	268.60	37367
268.60	270.60	37368
270.60	272.60	37369
272.60	275.00	37370
275.00	277.00	37371
277.00	279.00	37372
279.00	281.00	37373
281.00	283.00	37374
283.00	285.00	37375
285.00	286.00	37345
286.00	287.00	37346
287.00	288.00	37347
288.00	289.00	37348
289.00	290.00	37349
290.00	291.00	37350
291.00	292.00	37351
292.00	293.00	37352
293.00	294.00	37353
294.00	295.00	37354
295.00	296.00	37355
296.00	298.00	37376
298.00	300.00	37377
300.00	302.00	37378
302.00	304.40	37379
304.40	306.00	37380
306.00	308.00	37381
308.00	310.00	37382
310.00	312.00	37383
312.00	314.00	37384
314.00	316.00	37385
316.00	318.00	37386
318.00	320.00	37387
320.00	322.00	37388
322.00	322.90	37389
322.90	323.80	37356
323.80	325.00	37357
325.00	326.00	37358
326.00	327.00	37359
327.00	328.00	37360
328.00	329.00	37361
329.00	330.00	37362

FROM	TO	SAMPLE
330.00	331.00	37363
331.00	332.00	37364
332.00	333.00	37365
333.00	335.00	37390
335.00	337.00	37391
337.00	339.00	37392
339.00	341.00	37393
341.00	343.00	37394
355.00	357.00	37395
357.00	359.00	37396
400.00	402.00	37505
402.00	404.00	37506
404.00	406.00	37507
406.00	408.00	37508
408.00	410.00	37509
410.00	412.00	37510
412.00	414.00	37511
414.00	416.00	37512
416.00	419.20	37513
419.20	421.20	37514
421.20	423.90	37515
423.90	426.00	37516
426.00	428.00	37517
428.00	430.00	37518
430.00	432.00	37519
432.00	434.00	37520
434.00	436.00	37521
436.00	438.00	37522
438.00	440.00	37523
440.00	442.00	37524
442.00	444.00	37525
444.00	446.00	37526
446.00	448.00	37527
448.00	450.00	37528
450.00	452.00	37529
452.00	454.00	37530
454.00	456.00	37531

BPD78 MAGNETIC SUSCEPTIBILITY

depth	value (10-3cgs)	formation code	lithology code
2.50	0.02	PR	La
5.00	0.04	PR	La
7.50	0.03	PR	La
8.90	0.06	PR	La
11.30	0.08	PR	La
15.20	0.03	PR	La
18.30	0.01	PR	La
20.80	0.02	PR	La
21.80	0.03	PR	La
22.90	0.01	PR	La
24.30	0.01	PR	La
27.40	0.01	PR	La
30.60	0.02	PR	La
33.40	0.02	PR	La
35.50	0.01	PR	La
38.60	0.05	PR	La
42.80	0.15	PR	La
45.80	0.02	PR	La
48.00	0.06	PR	La
51.10	0.04	PR	La
54.20	0.06	PR	La
56.00	0.09	PR	La
59.10	0.02	PR	La
62.20	0.01	PR	La
65.30	0.03	PR	La
66.00	0.06	PR	La
70.30	0.05	PR	La
76.30	0.01	PR	La
82.30	0.02	PR	La
94.30	0.04	PR	La
100.30	0.01	PR	La
106.30	0.10	PR	La
124.30	0.01	PR	La
130.30	0.01	PR	La
130.90	0.01	PR	La
136.30	0.17	PR	La
142.30	0.03	PR	La
178.30	0.01	PR	cht
202.30	0.01	PR	La
214.30	0.10	PR	La
220.30	0.14	PR	La
226.30	0.08	PR	La
232.30	7.00	PR	La
238.30	0.12	PR	La
244.30	0.11	PR	La
250.30	0.10	PR	La
256.30	0.12	PR	La
262.30	0.18	PR	La
267.60	7.00	BTS	Va
274.10	0.12	BTS	Va
280.30	0.26	BTS	Va

286.30	0.09	BTS	Va
292.30	0.10	BTS	Va
298.30	0.26	BTS	Va
302.20	0.30	BTS	Va
307.30	0.14	BTS	Va
313.30	0.11	BTS	Va
319.30	0.06	BTS	cht
323.30	0.04	BTS	Va
328.30	0.43	BTS	Va
332.90	0.80	BTS	Va
337.30	0.08	BTS	t
343.30	0.36	HA	Ln
349.30	0.27	HA	Ln
355.30	0.61	HA	mf
360.00	0.11	BTS	mf
364.30	0.10	BTS	mf
370.30	0.08	BTS	pmf
376.30	0.09	BTS	pmf
378.70	0.15	BTS	pmf
380.80	0.11	BTS	mf
383.40	0.08	BTS	mf
388.30	0.16	BTS	mf
394.30	0.15	BTS	mf
394.60	0.05	BTS	mf
397.00	0.08	BTS	mf
399.30	0.11	BTS	mf
402.80	0.07	BTS	mf
409.30	0.05	BTS	mf
414.70	0.11	BTS	mf
421.20	0.09	CVC	Ia
425.30	0.08	BTS	slt
430.30	0.08	BTS	mf
434.00	0.06	BTS	slt
438.50	0.04	BTS	slt
441.80	0.08	BTS	mf
448.30	0.16	BTS	slt
454.30	0.08	CVC	pmf
460.30	0.08	CVC	pmf
466.00	0.05	CVC	pmf

BPD78 SPECIFIC GRAVITY

depth	value	formation code	lithology code
82.30	2.57	PR	La
114.10	2.69	PR	La
130.90	2.52	PR	La
163.60	2.50	PR	cht
214.20	2.59	PR	La
262.00	2.61	PR	La
303.00	2.54	BTS	Va
319.90	2.55	BTS	cht
346.00	2.68	HA	Ln
360.20	2.62	BTS	mf
421.10	2.59	CVC	Ia
460.30	2.68	CVC	pmf

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
0.00	24.40	ACID LAVA Cream, Orange, Fine grained, Feldspar phyric, Quartz phyric, Oxidised, Core very broken, poor recovery.	on fractures. Limonite and manganese on joints and fractures..	0 10 20				L La		ox
24.40	62.00	ACID LAVA Cream, Orange, Flow brecciated, Feldspar phyric, Quartz phyric, Oxidised, Slightly Silicified, Breccia blocks all quartz feldspar phyric but variable textures from massive to flowbanded.						L La		ox sil

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD78**

PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
				30						
				40						
			STRINGER, minor pyrite Fine grained silica pyrite in breccia matrix..							
				50						
			STRINGER, minor pyrite Fine grained silica pyrite in breccia matrix, from 61.5-69.4 associated with cherty stringers. Trace of sphalerite at 61.2m..							

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PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD78**

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		60						
62.00	111.70	ACID LAVA Cream, Grey, Brecciated, Feldspar phyric, Quartz phyric, Silicified, Slightly Sericitised, Brecciation hydrothermal(breccia scale 1-20cm), silica/sericite/carbonate/pyrite alteration in matrix and block margins(locally intense). Sparsely quartz feldspar phyric <2mm.		70 80			FAULT. Shear.	L La	flt	sil ser

PASMINCO EXPLORATION

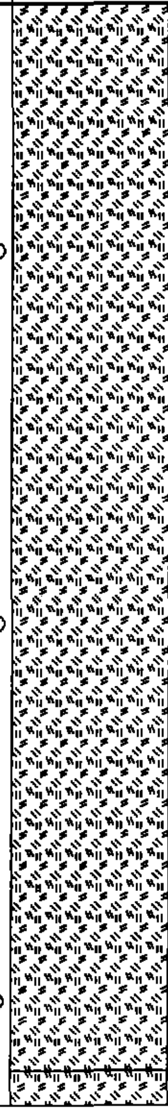
DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD78**

PROJECT: BURNS PEAK

5 cm

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
										
			STRINGER, minor pyrite Fine grained silica pyrite in breccia matrix..	90						
				100						
			STRINGER, very minor pyrite Fine grained silica pyrite in breccia matrix..	110						
111.70	119.00	ACID LAVA						L La		ser

953088

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD78**

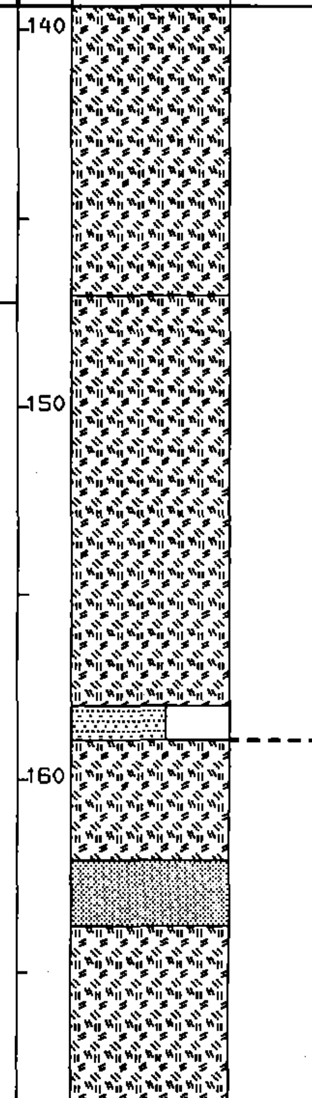
PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
111.70	119.00	ACID LAVA Cream, Yellow, Flow banded, Feldspar phyric, Quartz phyric, Stylolites, Moderately Sericitised, Sericitized patches are feldspar>quartz phyric as for the surrounding material, the sericite may be alteration stylolites or after glass. MIXED WITH CHERT Grey, Cherty material as matrix to breccia, associated with fine pyrite.	pyrite in breccia matrix.. STRINGER, abundant pyrite Pyrite fine grained associated with cherty peperite?.			L La		ser
119.00	129.00	ACID LAVA Cream, Yellow, Flow banded, Feldspar phyric, Sericitised, Moderately Silicified, Alternating sericitized and unaltered bands defining glass and devitrified material. 5 cm	DISSEMINATED, 1% sphalerite galena in veinlets. sphalerite galena DISSEMINATED, sphalerite galena in veinlets. sphalerite galena Sphalerite> galena disseminated to sparsely spotted. possibly replacing feldspar phenocrysts. Widest vein between 136.2 -136.3. mainly sphalerite associated with a shear..	120	D 60.	L La		ser sil
129.00	147.00	ACID LAVA Cream, Fine grained, Flow banded, Feldspar phyric, Quartz phyric, Moderately Sericitised, Sericite zones are sparsely feldspar/quartz phyric to aphyric, sericite may be after glass or alteration stylolites.		130 140	D 45.	L la		ser

5 cm

From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
147.00	158.00	ACID LAVA Pink, Grey, Flow banded, Flow brecciated, Feldspar phyric, Moderately Sericitised. Sericitic domains are feldspar phyric, represent chilled glass bands. Flow brecciation below 155m. CONTACT: Gradational.			L La		ser
158.00	158.90	SILTSTONE Pale, Grey, Brecciated. CONTACT: Faulted, at 30 degrees to LCA. MIXED WITH SANDSTONE Lithic, Siltstone siliceous cherty. Sandstone pebbly, mainly siliceous siltstone fragments.			S slt		
158.90	162.10	ACID LAVA Cream, Grey, Fine grained, Massive, Feldspar phyric, Quartz phyric, Slightly Sericitised, Feldspar >quartz phyric (<2mm), feldspar sericitized. CONTACT: Conformable abrupt, Contact sharp and irregular, rhyolite sericitized possibly after chilled glassy contact.			L La	flt	ser
162.10	163.80	CHERT Pale, Grey, Fine grained, Massive. CONTACT: Conformable abrupt, at 10 degrees to LCA.			S cht		
163.80	175.30	ACID LAVA Cream, Grey, Fine grained, Massive, Feldspar phyric, Quartz phyric. at 50 degrees to LCA. Margins of flow weakly flowbanded.		D 50. FAULT. D 30.	L La		

GRAPHIC (Depth / Lithology / Structures)



PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. **BPD78**

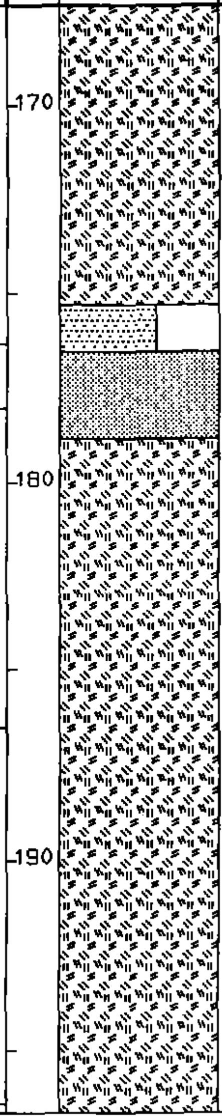
PROJECT: BURNS PEAK

Vertical Scale 1 : 200

From	To	LITHOLOGY & ALTERATION	MINERALISATION	STRUCTURES	LITH	STR	ALT
		at 30 degrees to LCA. Margins of flow weakly flowbanded.		FAULT, D 30.			
175.30	176.50	SILTSTONE Grey, Fine grained, Bedded. INTERBEDDED WITH SANDSTONE			S slt		
176.50	178.80	CHERT Fine grained pyrite concentrated on margins of cherty siltstone fragments. CONTACT: Gradational.	STRINGER, pyrite Cherty peperite..		S cht		
178.80	265.00	MIXED WITH ACID LAVA Peperitic. ACID LAVA Cream, Grey, Fine grained, Massive, Feldspar phyric, Quartz phyric, Localized flow banding at 216 (0-40LCA) and 217.7 (30LCA). Feldspar>quartz phyric <2mm, feldspars carbonatised. Contact zone 178.8-182.3m peperitic. CONTACT: Faulted, at 50 degrees to LCA.	VEIN, quartz in veinlets, carbonate Trace sphalerite galena pyrite..		L La		

5 cm

GRAPHIC — Depth / Lithology / Structures



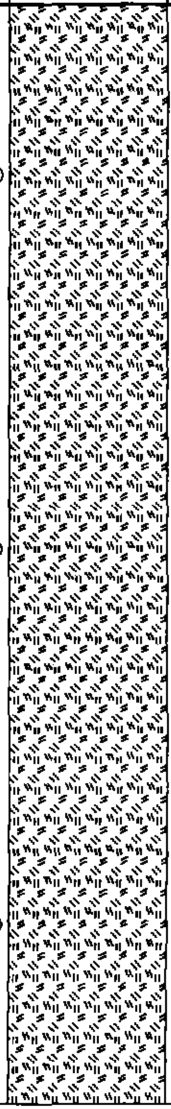
1 0 0 5 2 0 6

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. **BPD78**

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

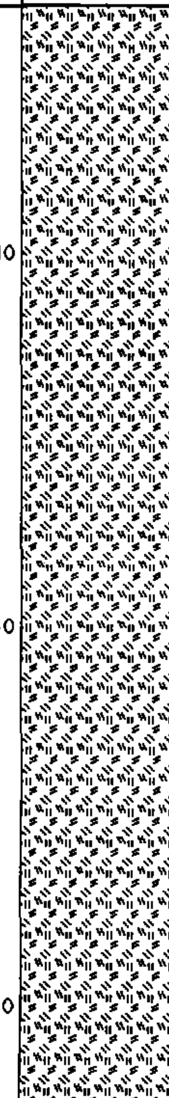
DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		200 210 220			D 20. Flow banding varying from 0 - 40LCA.			

953092

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG
Vertical Scale 1 : 200

HOLE No. BPD78

PROJECT: BURNS PEAK

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
		5 cm		230						
				240						
				250						

953093

5 cm

DESCRIPTION				GRAPHIC				CODES		
From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
				260						
265.00	285.00	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Green, Cream, Medium grained, Pumiceous, Feldspar phyric, Highly Sericitised, Slightly Carbonatised, Massive to weakly banded, sparsely feldspar phyric (carbonate sulfide altered), apparent lithological variability due to varying styles and intensities of alteration.	DISSEMINATED. trace pyrite trace galena trace sphalerite chalcopyrite disseminated.				FAULT. D 50.	V Va pmf	flt	ser co
							BROKEN CORE. Fault.		bk	
				270						
							FAULT. Sericitic gouge and pale pink carbonate vein.		flt	
			DISSEMINATED. pyrite	280						

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

HOLE No. BPD78

5 cm

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
			DISSEMINATED, pyrite DISSEMINATED, pyrite Sphalerite galena as blebs.. DISSEMINATED, pyrite	280			pink carbonate vein. D 60, Pug. Sericite pyrite and carbonate vein.			
285.00	293.80	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Green, Cream, Medium grained, Pumiceous, Feldspar phyric, Intensely Silicified.	STRINGER, pyrite 1% chalcopyrite On contact at 286.45 approx 10cm of spotty pale brown sphalerite rimmed by dark brown sph..	290				V Va pmf		sil
293.80	297.70	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Cream, Medium grained, Pumiceous, Feldspar phyric, Intensely Chloritised.						V Va pmf		chl
297.70	304.10	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Cream, Medium grained, Pumiceous, Feldspar phyric, Moderately Sericitised.	DISSEMINATED, pyrite	300				V Va pmf		ser
304.10	306.80	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Green, Medium grained, Pumiceous, Feldspar phyric, Highly Chloritised.						V Va pmf		chl
306.80	311.50	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Cream, Medium grained, Pumiceous, Feldspar phyric, Highly Sericitised, Highly Silicified.						V Va pmf		ser sil

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

5 cm

HOLE No. BPD78

PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	LITH	STR	ALT
		Cream, Medium grained, Pumiceous, Feldspar phyric, Highly Sericitised, Highly Silicified.	DISSEMINATED, pyrite	pmf		sil
311.50	316.30	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Cream, Green, Medium grained, Pumiceous, Feldspar phyric, Moderately Chloritised, Moderately Silicified.		V Va pmf		chl sil
316.30	321.40	CHERT PUMICEOUS MASS FLOW Pale, Grey, May be an intensely silicified fine to medium grained volcaniclastic.	DISSEMINATED, pyrite as stringers, pyrite Localized veins of sph>ccp..	V cht pmf		
321.40	323.90	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Green, Yellow, Fine grained, Medium grained, Intensely Sericitised, Texturally variable, weakly banded to massive. Scattered pale grey siliceous clasts to 12mm.	DISSEMINATED, 1% sphalerite Sphalerite disseminated and blebs <10mm..	V Va pmf		ser
323.90	332.90	MASSIVE PYRITE	MASSIVE, pyrite 1% chalcopyrite disseminated, Pyrite massive to interbanded with chlorite, several generations of pyrite may occur varying from fine grained to 5mm cubes. Disseminated to blebby chalcopyrite occurs throughout 0.5 - 1.0%Cu. Pale brown sphalerite as scattered blebs to 20mm occur between 328.5 - 328.7 and 332.0 - 332.2m..			
332.90	333.40	ACID VOLCANICLASTIC PUMICEOUS MASS FLOW Yellow, Green, Highly Chloritised, Intense sericitization makes protolith difficult to establish.				
333.40	333.90	CHERT PUMICEOUS MASS FLOW Pale, Grey, Highly Silicified, Highly Sericitised.	DISSEMINATED, pyrite Minor veinlets of sph gna ccp..			
333.90	335.00	ACID VOLCANICLASTIC UNASSIGNED Yellow, Green, Highly Silicified, Highly Sericitised.		V Va		sil
335.00	338.90	TURBIDITE UNASSIGNED		S t ?		ser

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG

HOLE No. **BPD78**

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STA	ALT
[illegible]	[illegible]	Yellow, Green, Highly Silicified, Highly Sericitised. TURBIDITE UNASSIGNED Fine grained, Coarse grained, Bedded, Lithic, Slightly Sericitised, Ambient sedimentation fine siliceous siltstone and sandstone with thin turbidite/mass flows derived from felsic volcanics, ripup clasts of mudstone and abundant sericitized glass/pumice. Grading probably up hole.	VEIN, 2% sphalerite pyrite disseminated, pyrite Veins also with a trace of gna ccp..					ser
338.90	355.20	ANDESITE UNASSIGNED Grey, Green, Fine grained, Massive, Amygdales, Moderately Carbonatised. WITH MINOR CHERT LIMESTONE Cherty laminated mudstone between 345.40-345.50 and possible limestone pepperite between 347.50-347.60m.	VEIN, quartz carbonate Veins with a trace of sph ccp..	340 350		L Ln ?		co
355.20	365.50	MASS FLOW LIMESTONE Grey, Brown, Fine grained, Medium grained, Lithic, Feldspar phyric, Quartz phyric, Slightly Sericitised, Contacts with enclosing sediments appear gradational with localized blocky texture in the andesite. Abundant sericitized glass/pumice clasts and ripup clasts of grey vitric siltstone <50mm. Graded beds and load castes indicate uphole facing at 360.2m.	VEIN, 5% sphalerite pyrite Veins subparallel to core axis.. VEIN, trace sphalerite Veins and blebs of sphalerite, locally more abundant in siltstones adjacent to the quartz feldspar porphyry (419.15-423.90m)..	360	FAULT, D 10, Shear. Annealed with sphalerite/pyrite/chalcopyrite. BEDDING, D 70.	S mf lst	flt ss	ser

5 cm

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

HOLE No. **BPD78**

PROJECT: BURNS PEAK

Vertical Scale 1 : 200

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
							BEDDING, 0 70.		ss	
							BEDDING, 0 90.		ss	
365.50	379.00	PUMICEOUS MASS FLOW ACID VOLCANICLASTIC Pink, Grey, Coarse grained, Blocky, Slightly Sericitised, Increasing size and abundance of grey cherty pyritic ripup clasts downhole. 5 cm		370				V pmf Va		ser
379.00	392.50	MASS FLOW ACID VOLCANICLASTIC Grey, Cream, Fine grained, Medium grained, Bedded, Vitric, Feldspar phyric, Quartz phyric, Scattered dark grey cherty siltstone ripup clasts.		380 390			FAULT. Sericitic	S mf Va	flt	

953098

PASMINCO EXPLORATION
DIAMOND DRILL CORE LOG
Vertical Scale 1 : 200

HOLE No. **BPD78**

PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	Lithology	Structures	STRUCTURES	LITH	STR	ALT
392.50	403.70	MASS FLOW ACID VOLCANICLASTIC Grey, Fine grained, Coarse grained, Bedded, Polymict, Feldspar phyric, Quartz phyric, Cherty siltstone top to coarse grained polymict base. Clasts include siliceous siltstone, crystal sandstone, quartz feldspar porphyry and minor fine massive pyrite. 5 cm		400				S mf Va		
403.70	406.50	SILTSTONE ACID VOLCANICLASTIC Dark, Grey, Interlayered with vitric siltstone and felsic mass debris flows.						S slt Va		
406.50	407.40	MASS FLOW ACID VOLCANICLASTIC Cream, Grey, Medium grained, Contact at 407.4 load castes indicating up hole facing.						S mf		
407.40	408.30	SILTSTONE ACID VOLCANICLASTIC Grey, Massive, Laminated, With minor vitric siltstone.						S slt		
408.30	411.90	MASS FLOW ACID VOLCANICLASTIC Fine grained, Coarse grained, Massive, Lithic, Feldspar phyric, Quartz phyric.		410				S mf Va		
411.90	416.40	MASS FLOW ACID VOLCANICLASTIC Fine grained, Coarse grained, Polymict, Graded unit from coarse base to sandstone top. Clasts include sericitized crystal rich glass/pumice, quartz feldspar porphyry and siltstone ripup clasts.						S mf Va		
416.40	419.15	SILTSTONE ACID VOLCANICLASTIC Dark, Grey, Laminated, Lamina frequently soft sediment deformed. WITH MINOR SILTSTONE ACID VOLCANICLASTIC Cream, Vitric. WITH MINOR MASS FLOW ACID VOLCANICLASTIC					BEDDING, 0 79.	S slt Va	ss	
419.15	423.90	ACID INTRUSIVE ACID VOLCANICLASTIC Cream, Grey, Medium grained, Massive, Feldspar phyric, Quartz phyric, Moderately Silicified, Groundmass fine grained.		420				I la Va		sil

690039

ASMINCO EXPLORATION
AMOND DRILL CORE LOG
ertical Scale 1 : 200

HOLE No. **BPD78**

5 cm

PROJECT: BURNS PEAK

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
419.15	423.90	Cream, Grey, Medium grained, Massive, Feldspar phyric, Quartz phyric, Moderately Silicified, Groundmas fine grained, phenocrysts 4-7mm. Uphole contact sericitized after glassy chilled margin (100mm), lower contact faulted. Shallow synsedimentary intrusive?		420		I Ia Va		sil
423.90	426.65	SILTSTONE ACID VOLCANICLASTIC Dark, Grey. MIXED WITH SANDSTONE ACID VOLCANICLASTIC Quartz phyric, Feldspar phyric, Soft sediment brecciation and shearing disrupts bedding.				S slt Va		
426.65	427.35	ACID LAVA ACID VOLCANICLASTIC Quartz phyric, Feldspar phyric, Upper margin sericitized. May be lava tongue or clast.				L La		
427.35	429.50	SILTSTONE ACID VOLCANICLASTIC Dark, Grey, Laminated. GRADING TO SILTSTONE ACID VOLCANICLASTIC Cream, Vitric.			A 65.	S slt Va		
429.50	433.90	MASS FLOW ACID VOLCANICLASTIC Medium grained, Coarse grained, Bedded, Pumiceous, Feldspar phyric, Quartz phyric, Lithics include dark grey siltstone ripup clasts and sericitized glass/pumice.		430	PRIMARY FABRIC. D 67.	S mf Va	so	
433.90	441.20	SILTSTONE ACID VOLCANICLASTIC Dark, Grey, Laminated. GRADING WITH CHERT ACID VOLCANICLASTIC Pale, Grey, Massive, 434-434.3m grey-green sandstone with abundant chlorite veins, may be andesite derived?		440	BEDDING. D 55. BEDDING. A 80.	S slt Va	ss ss	
441.20	445.70	MASS FLOW ACID VOLCANICLASTIC Grey, Brown, Feldspar phyric, Quartz phyric, Lithic, Lithics include fine grained felsic, pumice/glass.				S mf Va		
445.70	451.75	SILTSTONE ACID VOLCANICLASTIC Dark, Grey. INTERBEDDED WITH SILTSTONE ACID VOLCANICLASTIC Pale, Grey, Vitric.			BEDDING. D 55.	S slt Va	ss	

PASMINCO EXPLORATION

DIAMOND DRILL CORE LOG

Vertical Scale 1 : 200

HOLE No. **BPD78**

PROJECT: BURNS PEAK

Page 17 of 17

From	To	LITHOLOGY & ALTERATION	MINERALISATION	Depth	STRUCTURES	LITH	STR	ALT
		INTERBEDDED WITH SILTSTONE ACID VOLCANICLASTIC Pale, Grey, Vitric. WITH MINOR SANDSTONE ACID VOLCANICLASTIC Feldspar phyric, Quartz phyric.		450	BEDDING, D 55. BEDDING, D 45. BEDDING, D 60. BEDDING, D 53.		ss ss ss ss	
451.75	454.30	MASS FLOW ACID VOLCANICLASTIC Medium grained, Coarse grained, Lithic, Lithics include siltstone ripup clasts, vitric siltstone and sericitized crystal rich glass/pumice.				S mf Va		
454.30	466.30	PUMICEOUS MASS FLOW ACID VOLCANICLASTIC Cream, Pink, Fine grained, Medium grained, Feldspar phyric, Quartz phyric, Stylolites, Moderately Silicified, Slightly Sericitised. GRADING TO SILTSTONE ACID VOLCANICLASTIC Vitric.		460		V pmf Va		sil ser
				470				

5 cm

APPENDIX 6

BPD79 Drill Proposal

DIAMOND DRILL HOLE PROPOSAL BPD79

BROWNS TUNNEL

Collar: 5384795N 377440E

RL:	450m
Az:	102 AMG
Dip:	55
Total depth:	500m

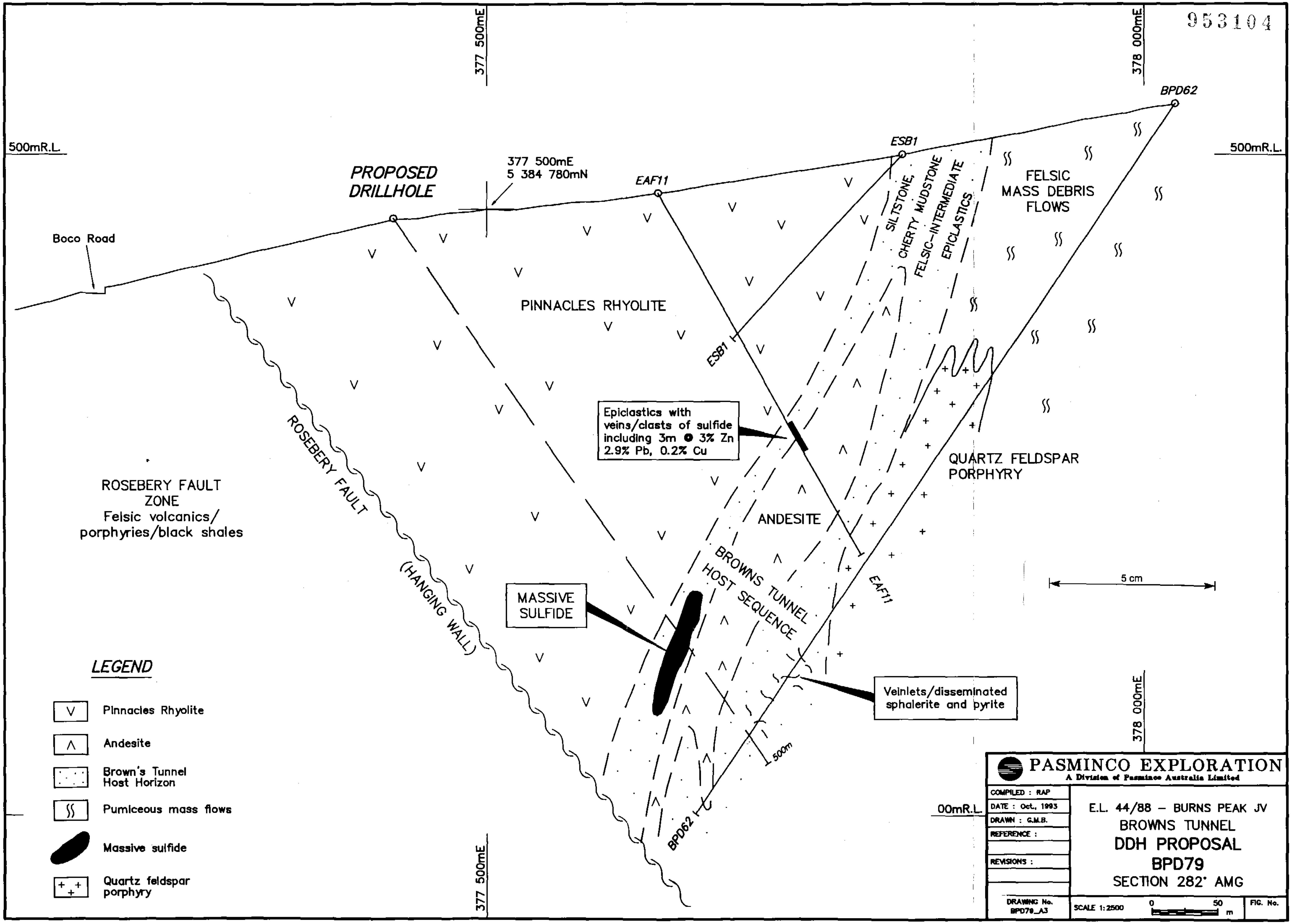
The proposed hole will be a further test of the massive sulphide horizons intersected in BPD78 and EAF9 (section line 4, located 90m to south) and the sulphidic horizon overlying the andesite in EAF11 (150m up dip from the proposed hole).

The occurrence of the Browns Tunnel host horizon (epiclastics, cherty sulphidic mudstones/siltstone and andesites) has been established on this section in EAF11. BPD62 is also on this section but is interpreted to have drilled the footwall and lower section of the Browns Tunnel host, the upper more prospective part which includes the andesite was not intersected except for a clast/lense of basalt at 643m.

The massive pyrite with disseminated chalcopyrite and the pyrite chalcopyrite stringer zone intersected in BPD78 confirmed the interpretation that this position at Browns Tunnel is within the hydrothermal feeder zone (see BPD78 drill proposal). The massive pyrite is interpreted to have been a massive Zn/Pb sulphide that has been refined/replaced by ongoing hydrothermal activity. Peripheral to this feeder zone it could be expected that the massive Zn/Pb sulphide may still exist.

The down dip potential on the proposed drill section and section 4 (BPD78) is limited by the hanging wall structure of the Rosebery Fault.

953104



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : RAP	E.L. 44/88 – BURNS PEAK JV
DATE : Oct., 1993	BROWNS TUNNEL
DRAWN : G.M.B.	DDH PROPOSAL
REFERENCE :	BPD79
REVISIONS :	SECTION 282° AMG
DRAWING No. BPD79_A3	SCALE 1:2500 0 50 m
FIG. No.	

APPENDIX 7

DDH Proposal for Summit

DIAMOND DRILL HOLE PROPOSAL

SUMMIT

Collar: 379250E 5384825N AMG	
	490m ASL
Az:	283 AMG
Dip:	-60
Total depth:	450m

The hole will be a further test of the massive sulphide clast bearing horizons in BPD77 at 103.3m (15cm clast @ 36%Pb 16.5%Zn) and 163-171m and the sericite/silica /pyrite stringer zone between 110-115m.

The prospective horizon in BPD77 is interpreted as being on the flanks of or distal to and overlying a massive sulphide body. The associated stringer zone indicating a proximal environment.

The clasts and alteration are hosted within a rhyolitic volcanic suite comprising mainly epiclastics with some lavas/intrusives.

Surface expression of the prospective package is masked by up to 28m of fluvioglacials and has possibly been displaced by the Burns Peak Shear Zone which was intersected in BPD77.

An off-hole DHEM response was detected in BPD77. The feature is at a high angle to the interpreted dip of the sequence and it is difficult to reconcile the EM source with the known geology as neither the black shales or pyritic alteration gave any response within the hole. The response is located between BPD77 and the proposed hole.

The proposed hole will intersect the prospective package 275m down dip of the BPD77 intercepts and will either intersect mineralisation or give a vector towards mineralisation ie abundance/size of massive sulphide clasts and alteration intensity.

In addition the hole will constrain the structure, ie is bedding in the potentially mineralised sequence conformable with the overlying siltstones in the Boco Syncline?

NOTES ON THE GEOLOGY OF THE SUMMIT AREA
SEQUENCE FROM EAST - WEST/Base - Top?

1 Hollway andesite

With the exception of one assay these andesites (Ti/Zr 20-60) are geochemically distinct from those at Browns Tunnels (Ti/Zr 10-20). The andesites are interlayered at their base with CVC and micaceous sandstones (Animal Creek Greywacke) see LWK 1992.

The andesites are exposed extensively on the eastern limb (coincident weak magnetic anomaly Leaman, 1993) and the exposed southern keel of the Boco Syncline but are unknown on the western limb. This asymmetry may be due to rapid westward thickening of the overlying felsic sequence (unit 2) or the presence of a major structure beneath the Boco Syncline.

2 Pinnacles Rhyolite??

Rhyolitic mass flows, feldspar and to a lesser extent quartz phyric, frequently with fine grained felsic lava ? clasts to 30cm. Scattered poddy vitric mudstone and black siltstone horizons occur between BPD76 and the Boco Road.

These felsic rocks dominate the geology on the western limb of the syncline and are lithologically similar to volcanics of the Pinnacles Ridge, particularly in BPD71 and 72.

The felsic rocks are sericitized, slightly pyritic and foliated, locally intense in shear zones. The alteration and foliation is in contrast to the pristine state of quartz feldspar porphyries which intrude these volcanics between Burns Peak and EAB1.

The massive sulphide clast bearing horizon and underlying stringer zone in BPD77 are hosted within this unit.

Contacts with overlying siltstone (unit 3) are gradational and are marked by white quartz porphyry sills and associated breccias at 5385800N and 5386100N (eastern contact of Pinnacles Rhyolite).

3 Siltstones in Boco Road syncline

The siltstones overlie and are interlayered with the Hollway andesite on the eastern limb of syncline (Kirsner, 1992 BPD76 and EAB 1) but conformable with the Pinnacles Rhyolite in the west. The apparent inconsistency suggesting the existence of a major structure (which is masked by and predates the overlying siltstones) and or a rapid thinning of either sequence to west and east.

Based on stratigraphic associations it is difficult to correlate these siltstones with those west of the Pinnacles Ridge. This western association is overlain by andesite derived clastics, the reverse being the case at Hollway.

4 Quartz feldspar porphyries lava/intrusive/clastics.

Strongly porphyritic, frequently flow ? banded. Rarely foliated, either post dating deformation or acted as competent units during deformation.

Two associations occur;

- sill or lava overlying siltstones in BPD76 and EAB 1, possibly similar setting to those in the Sawmill Creek area (EL 2/90).

- sills? within foliated felsic volcanics in the axis of the Burns Peak anticline and further west at Browns/Thomas's Tunnels.

5 Quartz feldspar crystal sandstones

These massive equigranular sandstones occur in the core of the Boco Syncline, primarily north of the Boco Road.

Similar crystal sandstones only occur in the basal section of the White Spur Formation? siltstones west of the Pinnacles Ridge.

6 Fluvioglacials

Clays/gravel up to 28m depth, the main area of cover is located east of the BPSZ in vicinity of BPD77 and the proposed hole. Two lines of Wacker/Diamond drilling tested some of this area.

STRUCTURE

Area dominated by N (BPSZ) and ENE (EPSZ) trending fault zones in the west and the Boco Syncline in the east.

The BPSZ is a 100m wide zone of faulting and shearing, striking 190 AMG and dipping at 85 east. The structure was intersected in BPD77 and is mappable in Boco Road cuttings but is more difficult to constrain in vicinity of BPD76.

EPSZ is a broad NE trending, moderate SE dipping zone which intersects the BPSZ on the Boco Road.

The Boco Syncline strikes NE, plunges north and is asymmetric.

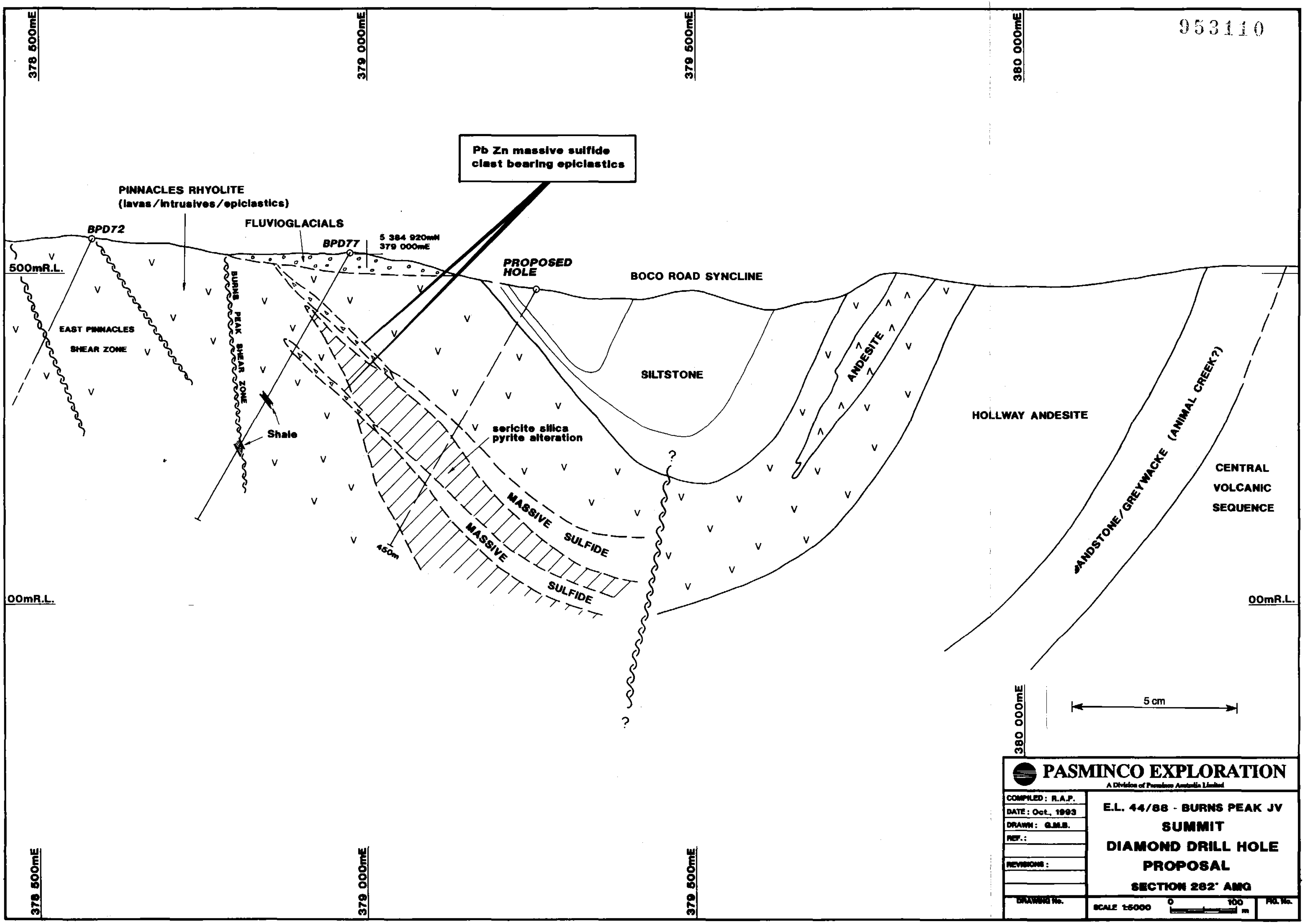
DRILLING TARGETS

Weak mineralisation has been located in several horizons in the area:

- andesite/shale EAB 1 and BPD76
- siliceous mudstone and shale BPD76 & 77 and outcrops on old Boco track
- stringer zone and sulphide clast in BPD77

It is difficult to define a well constrained drill target as there is a large potentially mineralised and untested area. The optimum hole is to test the down dip extent of the massive sulphide clast and underlying stringer zone in BPD77, a hole on this section will also establish the structure (west limb of syncline) and possibly test the DEM anomaly.

953110


378 500mE
379 000mE
379 500mE
380 000mE
Pb Zn massive sulfide
clast bearing epiclastics
PINNACLES RHYOLITE
(lavas/intrusives/epiclastics)
FLUVIOGLACIALS
BPD72
BPD77
5 384 920mN
379 000mE
PROPOSED
HOLE
BOCO ROAD SYNCLINE
500mR.L.
EAST PINNACLES
SHEAR ZONE
BURNS PEAK SHEAR ZONE
Shale
SILTSTONE
ANDESITE
HOLLWAY ANDESITE
sericite silica
pyrite alteration
MASSIVE SULFIDE
MASSIVE SULFIDE
450m
SANDSTONE/GREYWACKE (ANIMAL CREEK?)
CENTRAL
VOLCANIC
SEQUENCE
00mR.L.
00mR.L.
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: R.A.P.
DATE: Oct., 1993
DRAWN: G.M.B.
REF.:
REVISIONS:
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
SUMMIT
DIAMOND DRILL HOLE
PROPOSAL
SECTION 282° AMG
SCALE 1:5000
0
100
m
FIG. No.

APPENDIX 8

DHEM Surveys at Burns Peak, BPD76, BPD77

953112

MEMORANDUM

PASMINCO
EXPLORATION

A Division of Pasminco Australia Limited,
A.C.N. 004 074 962

Level 7
380 St Kilda Road
Melbourne, Australia 3004
G.P.O. Box 1291K
Melbourne, Australia 3001

TO: LW Kirsner

FROM: NA Hughes

DATE: 14 April 1993

FILE: EP/02/3006

SUBJECT: **DHEM Survey at Burns Peak, BPD76, BPD77**

Burns Peak

BPD76

Drill-hole BPD76 was surveyed during November 1992 with the Crone 3D DHEM system. Two transmitter loops were used to excite the ground (Figure 1). The primary field excitation along the section of the drill-hole for both loops is shown in Figures 2 and 3. The positive sign convention for the 3 orthogonal components of the decay of the secondary magnetic field is shown in Figure 2.

Both loops show/give a complicated response for the shale unit at 200 to 250m in the hole. BPD76 was drilled to intersect the hinge axis of the syncline (Figures 1 and 2). Re-evaluation of the geology using oriented core from BPD76 indicates the hole intersected the east limb of the syncline. Modelling of the Crone z and x components using Multiloop, an EM modelling programme produced by Lamontagne Geophysics, supports this interpretation. Modelling results indicate that for the transmitter loops used, the dip of the west limb of the syncline (shale unit) is between 65 and 75, the hinge of the syncline is approximately 200 to 250m west of the drill collar. The negative peak response in Y is thought due to the fact that the hole is (drilled) proximal to the keel/closure of the syncline (shale unit).

A weak (3 channel) in-hole anomaly is recorded for the collar loop at a depth of 350m and correlates to an increase in shale and (probably) pyritic mineralisation in the epiclastics. The fact the anomaly is seen only in the collar loop is due to the stronger excitation field. The 2m intersection of semi-massive, very fine grained pyrite with sphalerite and galena at 510m did not show an anomalous EM response, indicating the mineralisation is strike limited and/or the bulk conductance of the zone is no greater than background.

BPD77

Drillhole BPD77 was surveyed during February 1993 with the Crone 3D DHEM system. Two loops were used to excite the ground (Figure 1). The positive sign convention for the three orthogonal components of the decay of the secondary magnetic field are the same as for BPD76.

Shale units were intersected in the drillhole at 250m and 350m down the hole. A massive sulphide clast was drilled at 100m. Neither of the shale units gave the expected "in-hole" type response as in BPD76. However, a distinct "off-hole" anomaly is detected for both loops at 370m down the hole. This indicates the topmost shale unit to be strike limited and/or have the same bulk conductance as the host. No "off-hole" or "in-hole" anomaly was detected at 100m indicating the sulphide clast is not proximal to a "larger" massive sulphide body, or if so the body has a similar bulk conductance to the host (probably unlikely). It is thought that the Burns Peak Shear was not intersected by the drillhole, however, it must be proximal to, and west of the hole, because there is no evidence for east-west continuity of the shale unit at 250m from the EM data.

Modelling of the east loop axial data (channels 2, 3, and 4) suggest a sheet like conductor with width of 400-500m, strike-length greater than the width, conductance 3 to 5 siemens, dip of 35° to 45° uphole and closest point to hole of 110m at 370m down the holes (125m west of the drill collar and 400m below). A slightly conductive cover (overburden) of 0.75 siemens was assumed to get the correct amplitude of response and the correct type of near surface response. Figure 2 is a comparison of the modelled and measured data. The change in gradient in the measured data at 320m indicates a possible conductor closer to the hole (<60m), possibly a parasitic fold!

It is interesting to note that the model as it is does not explain the response from the west loop. Qualitatively the response is due to a similar conductor but the response is shifted by a positive background. A possible/probable mechanism to explaining the positive shift is that of current channelling in the conductor. The geometry and placement of the hole between the loop and the shale would explain the positive current channelling response. Alternatively, if the coupling between the loop and conductor is poor the effect of the overburden/halfspace will dominate.

It is expected that the "off-hole" anomaly detected in BPD77 is due to the shale unit. However, why there is a conductance change from where intersected in the hole to where indicated by the off-hole response is unclear. Possible explanations are; a) there is a thickening of the shale to the east and as such an increase in conductance, b) the shale does not extend appreciably west of the drill hole because of the BP shear, and/or c) the shape of the shale is complex immediately east of the drill hole and as such would not couple effectively to either loop.

The cross component data indicates a conductor below the hole. The relative equality of amplitude for the X and Y components suggests the conductor either lies mostly to the south of the drill-hole, or more likely the strikes NE.

As a test of the AMIRA 3 component probe McSkimming Geophysics was commissioned to survey the hole using the same two loops as Crone. The surveys were undertaken in late February, 1993, under the supervision of Jim Cull, the designer of the probe. Preliminary results of the axial data suggest a similar response as the Crone probe for the east loop. The two data sets are quite different for the west loop. At this point I am more inclined to believe the Crone data as the spacial geometry of the anomaly is similar for the east and west loops. The X and Y data have not yet been processed by Jim Cull.

An important difference between the AMIRA probe and the Crone probe is that the AMIRA probe has no ferrite or mu metal core whereas the Crone probe uses a ferrite core to increase the signal to noise ratio. In fact all commercially available probes use either a ferrite or mu metal core. Preliminary work by Jim Cull indicates that a ferrite or mu metal core in an axial probe may give rise to "self-response".

In summary, the anomalous response measured in BPD77 is thought due to the shale unit, which lies below the hole and dips at 35° to 45°. Unexplained as yet is the fact that no in-hole type response was measured at the intersection point of the shales. There was no response due to the shale unit at 250m and no response at 100m, the intersection point of the sulphide clast.

Neil A Hughes

NAH_6.SAM/SR

953115

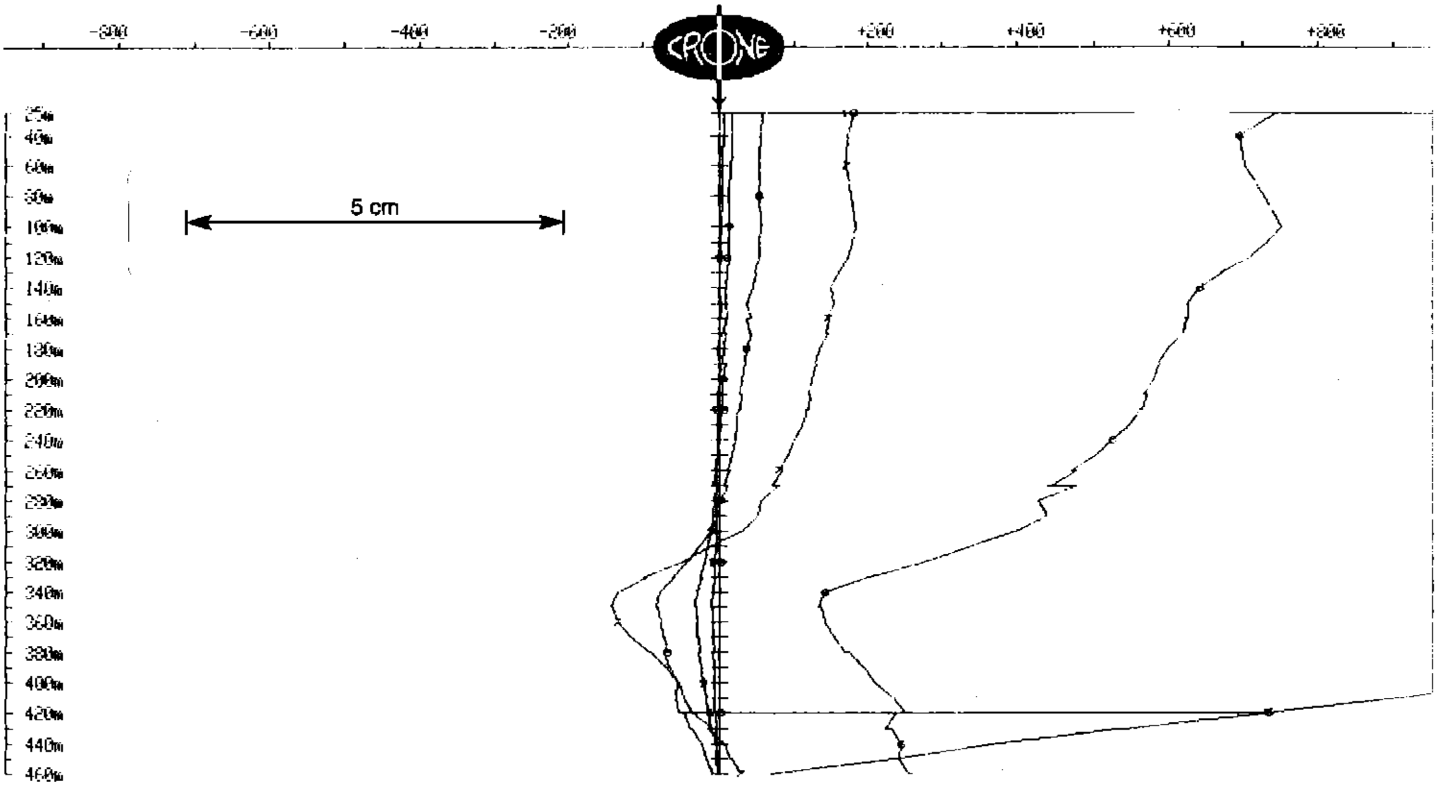
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: **Pasminco Exploration Ltd**	Hole	: **BPD77**
Grid	: **Burns Peak EL 3006**	Tx Loop	: **EAST**
Date	: Feb 28, 1993	File name	: BPDH77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM

Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000 Unit Scale: 1cm = 100



953116

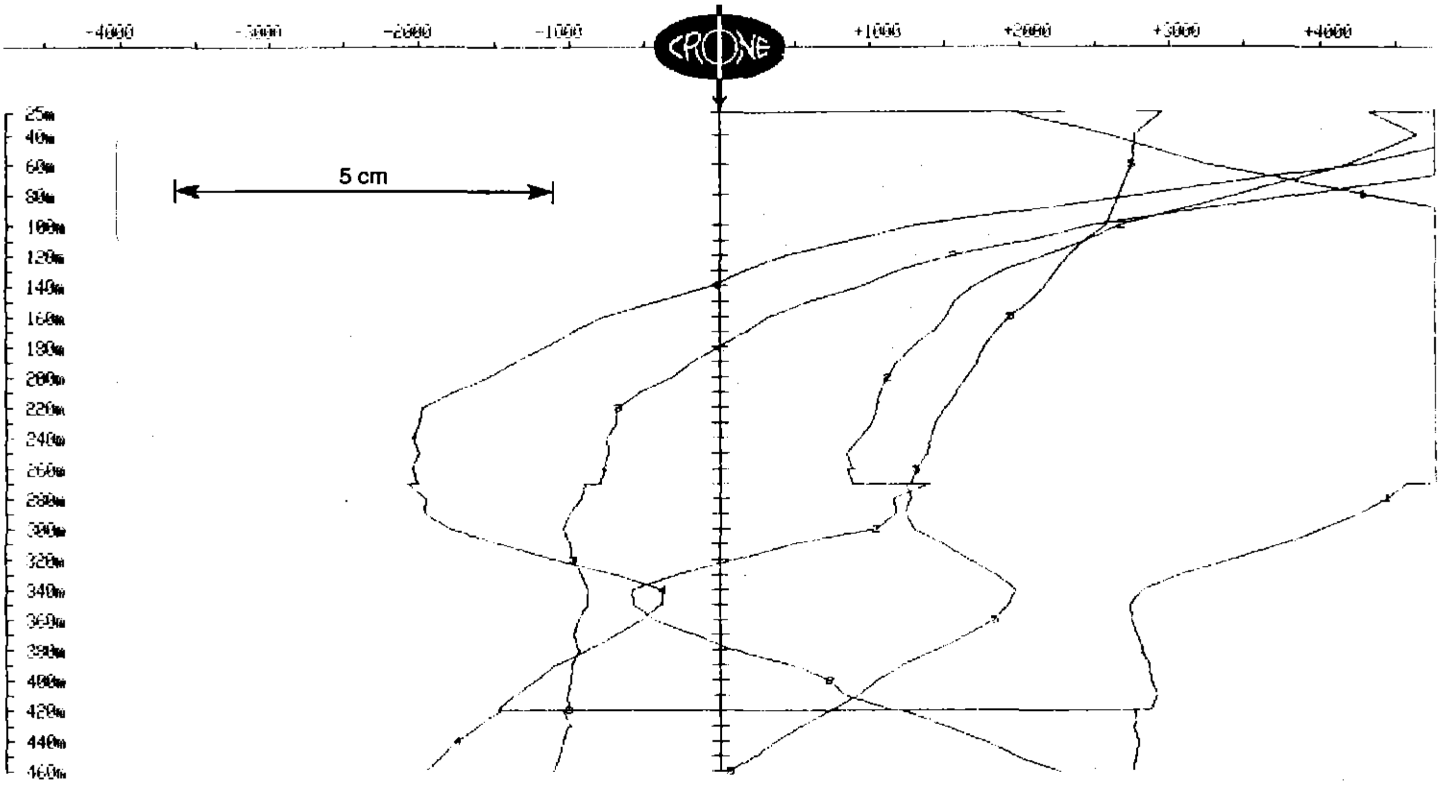
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration Ltd	Hole	: BPD77
Grid	: Burns Peak EL 3006	Tx Loop	: EAST
Date	: Feb 28, 1993	File name	: BPDH77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM

Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000 Unit Scale: 1cm = 500



953117

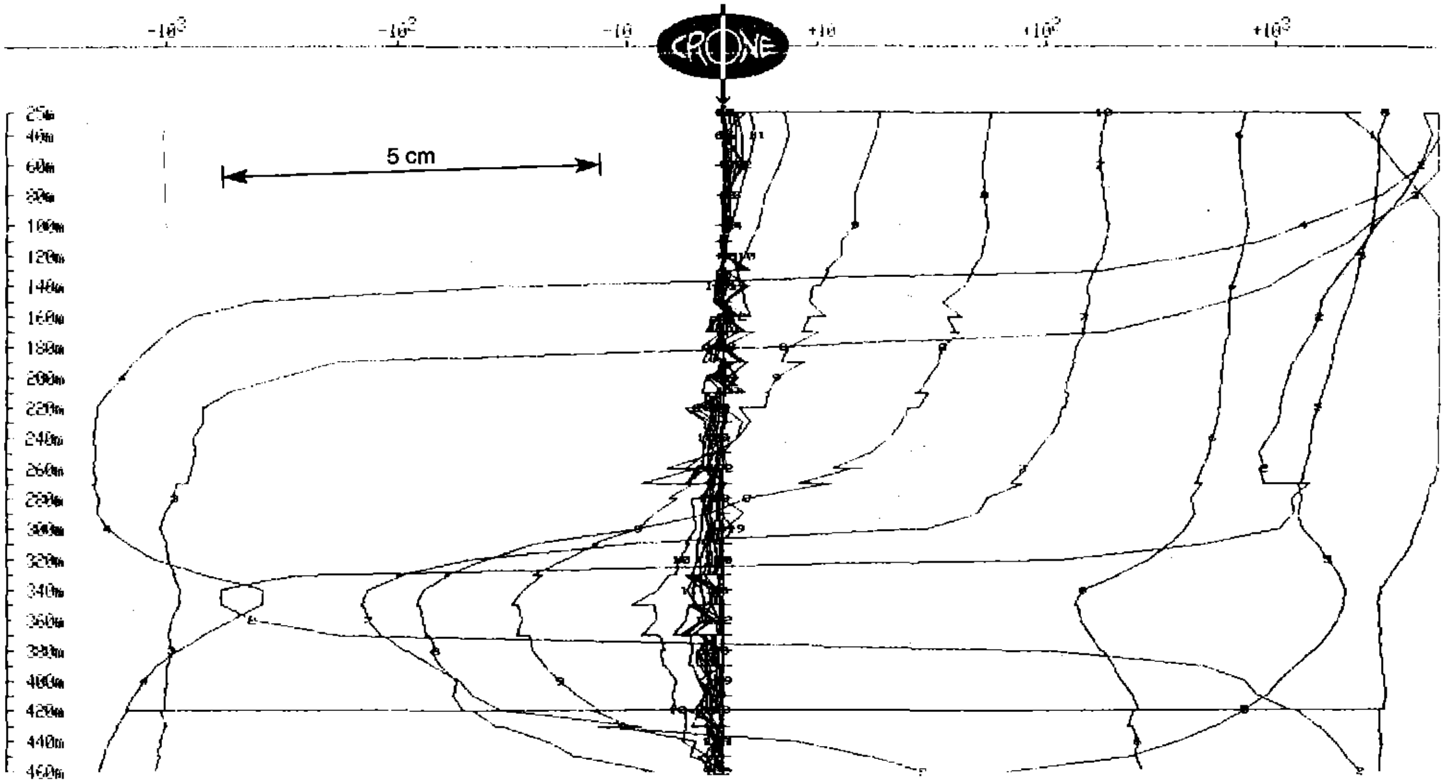
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration Ltd	Hole	: BPD77
Grid	: Burns Peak EL 3006	Tx Loop	: EAST
Date	: Feb 28, 1993	File name	: BPDH77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM

Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000



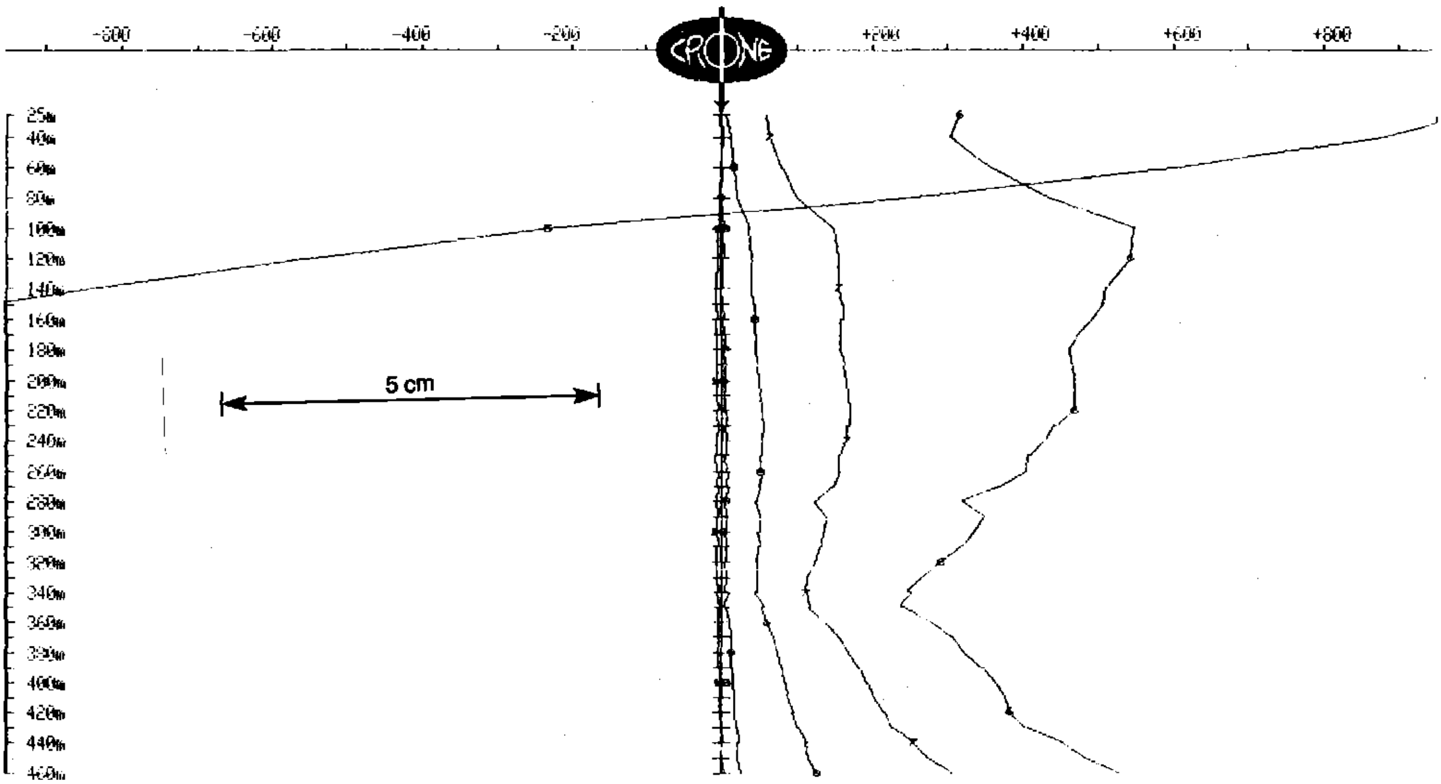
953118

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: **Pasminco Exploration Ltd**	Hole	: **BPD77**
Grid	: **Burns Peak EL 3006**	Tx Loop	: **WEST**
Date	: Feb 28, 1993	File name	: 2BPE77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM
Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000 Unit Scale: 1cm = 100

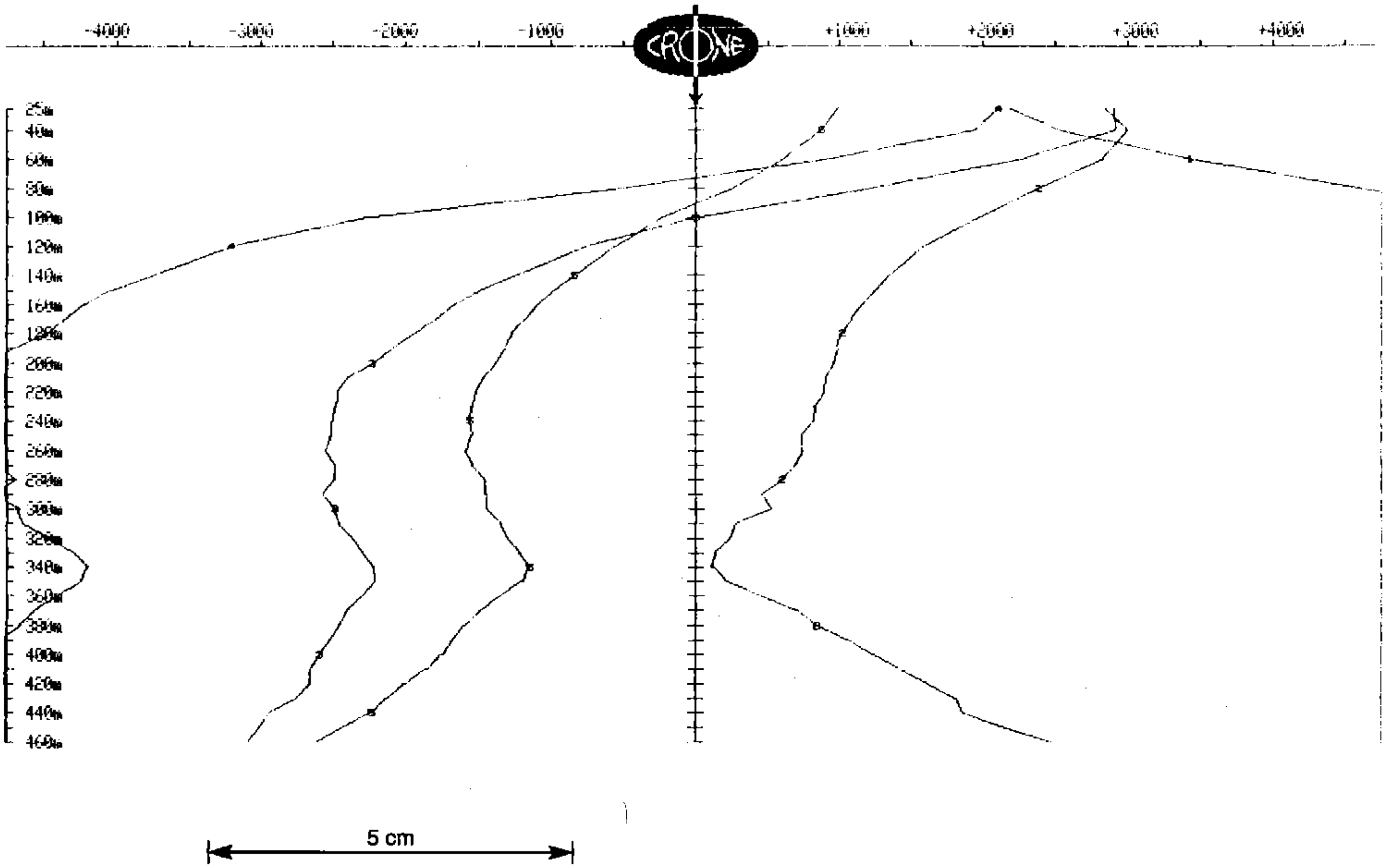


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration Ltd	Hole	: BPD77
Grid	: Burns Peak EL 3006	Tx Loop	: WEST
Date	: Feb 28, 1993	File name	: 2BPE77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM
Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000 Unit Scale: 1cm = 500



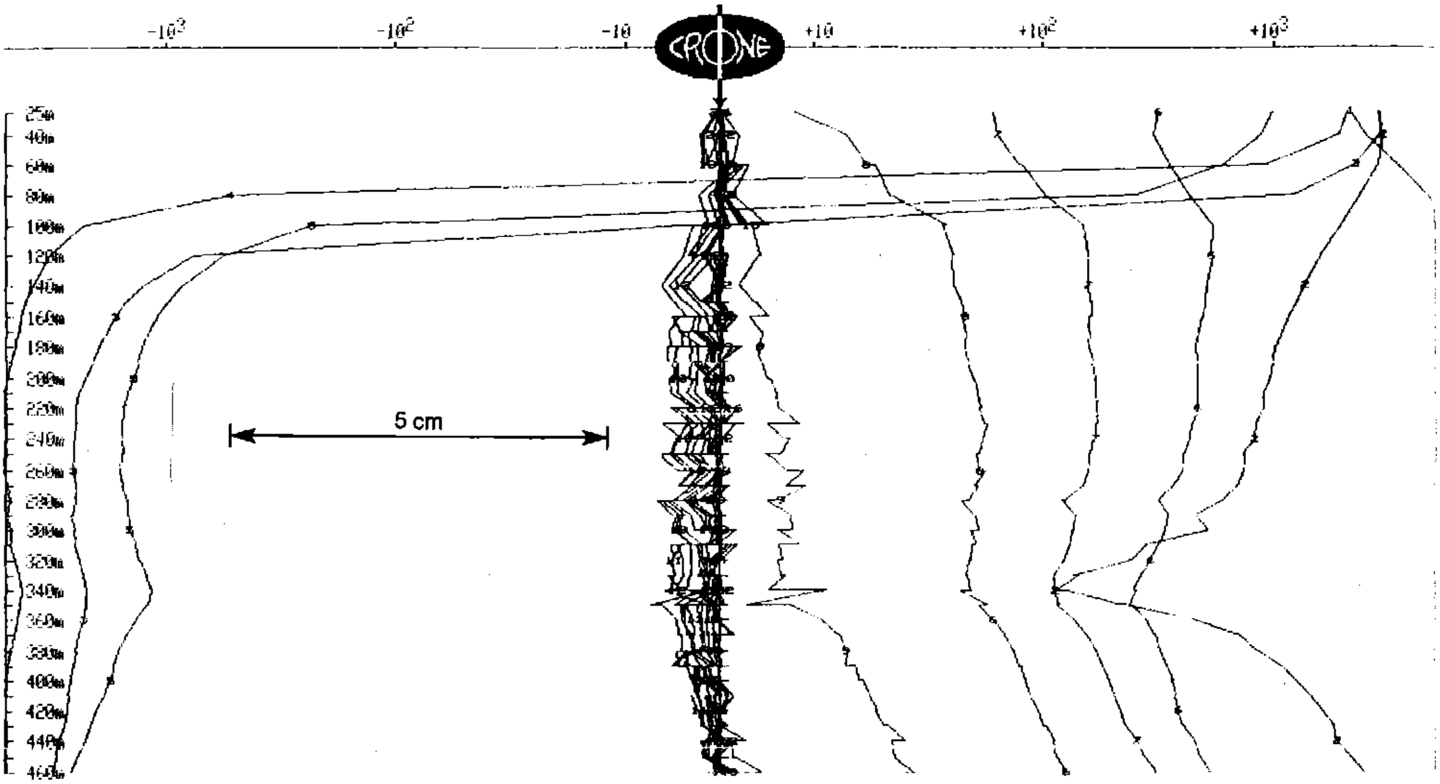
953120

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration Ltd	Hole	: BPD77
Grid	: Burns Peak EL 3006	Tx Loop	: WEST
Date	: Feb 28, 1993	File name	: 2BPE77.PEM

SIROTEM 3D Probe Test
Contractor : McSkimming, MK2 SIROTEM
Z COMPONENT dBz/dt microVolt/Amp - 22 channels

Scale: 1:5000



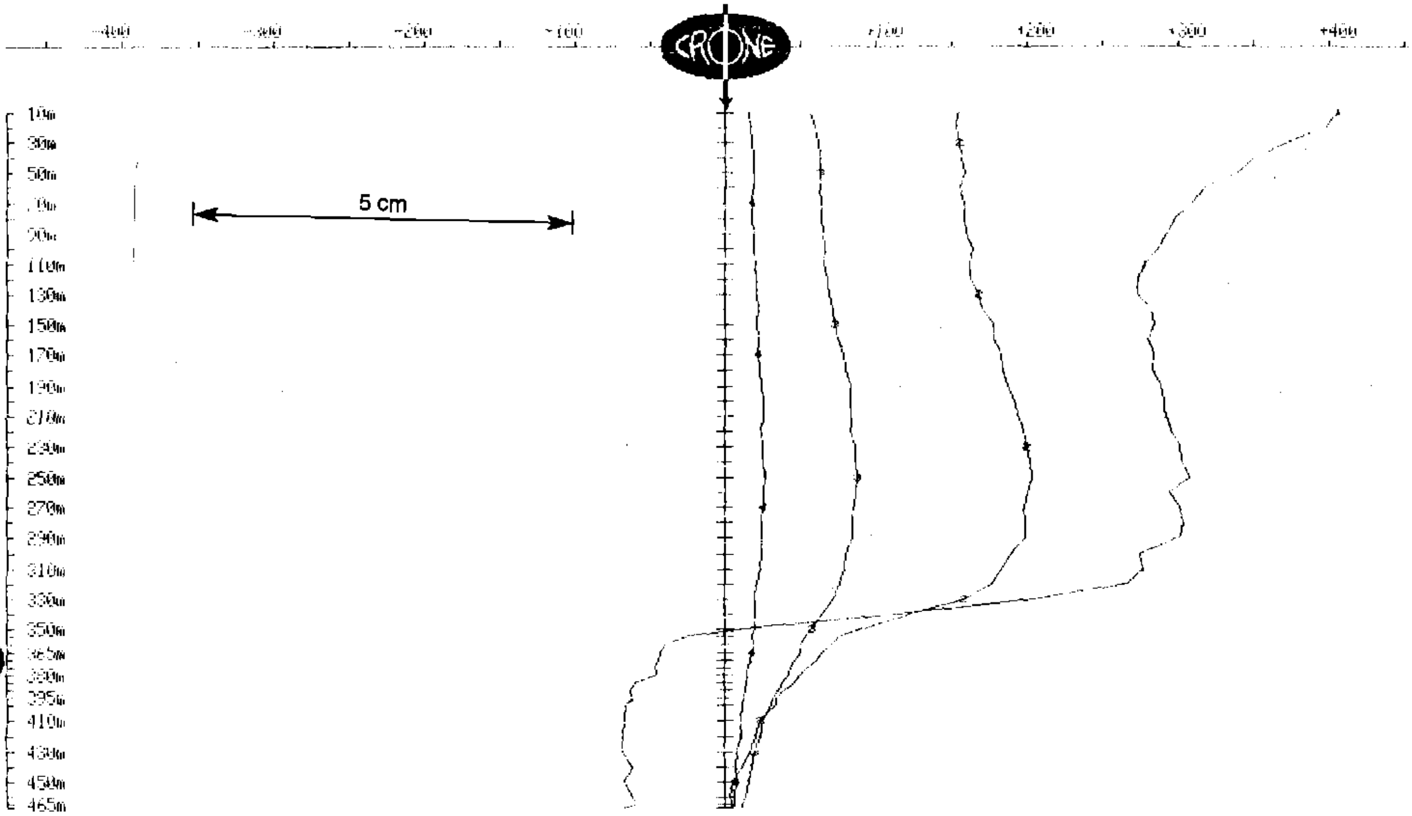
953121

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: East
Date	: Feb 1, 1993	File name	: BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

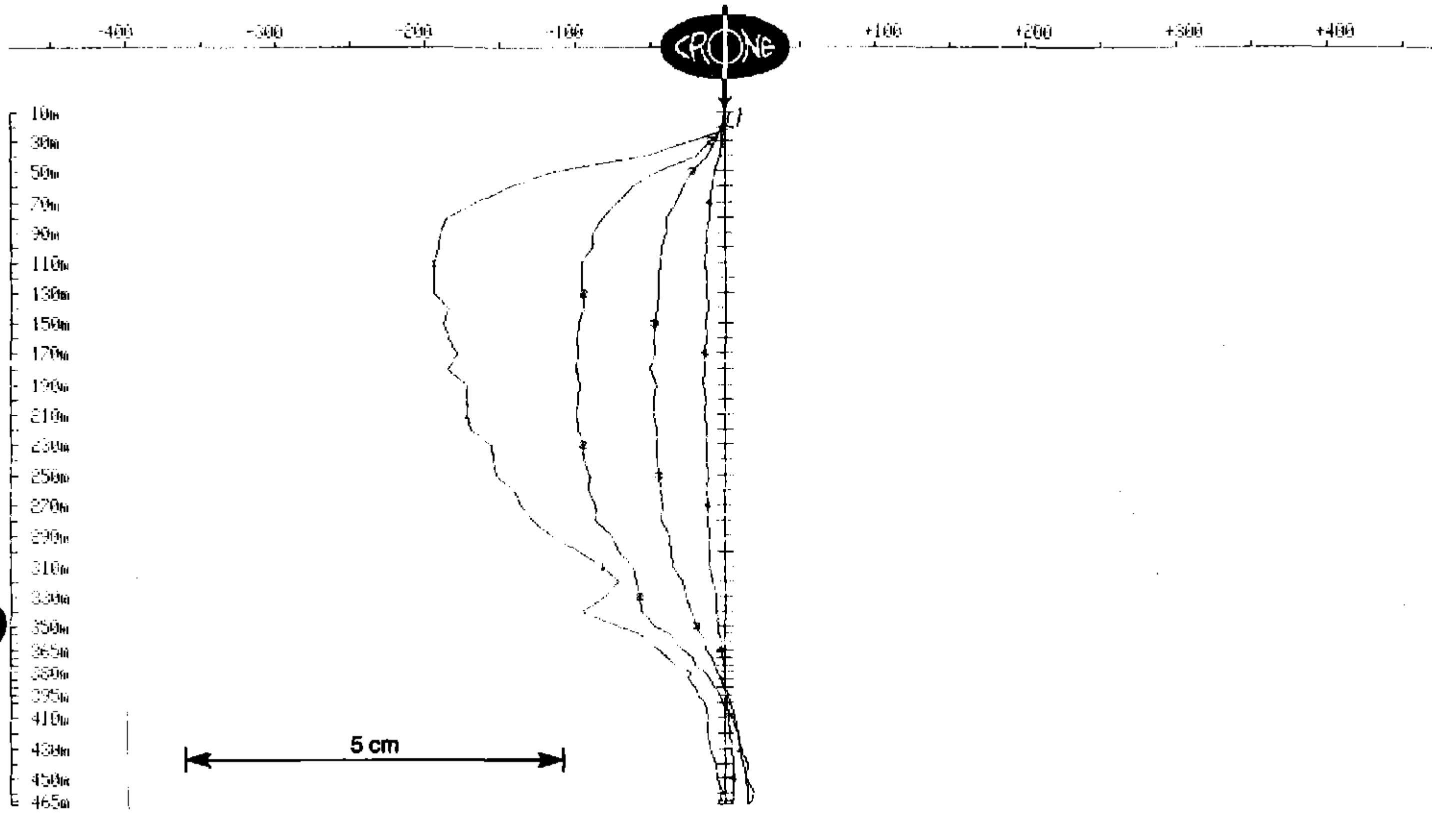


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: *Pasminco Exploration*	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: East
Date	: Feb 1, 1993	File name	: BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

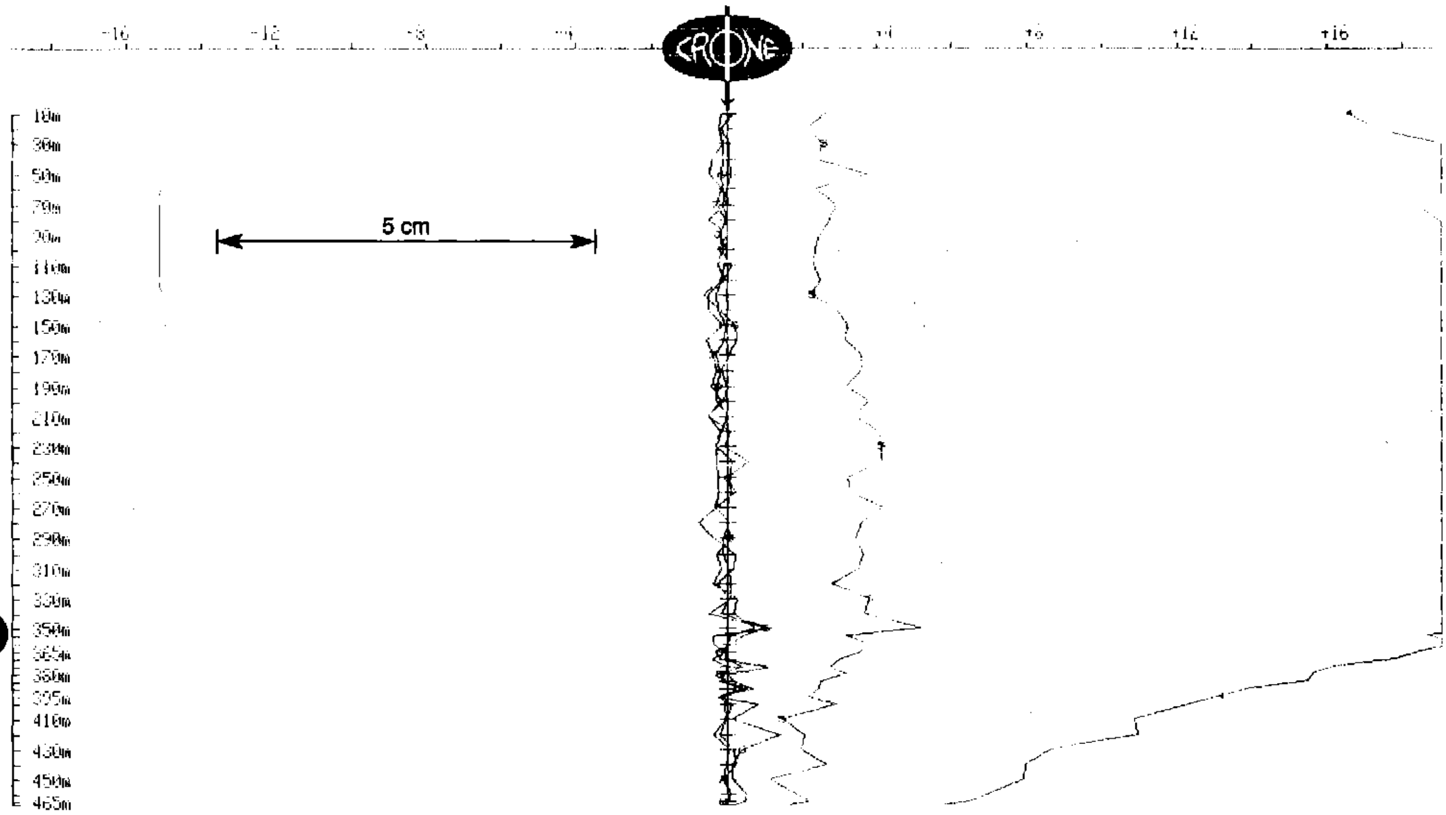


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: East
Date	: Feb 1, 1993	File name	: BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



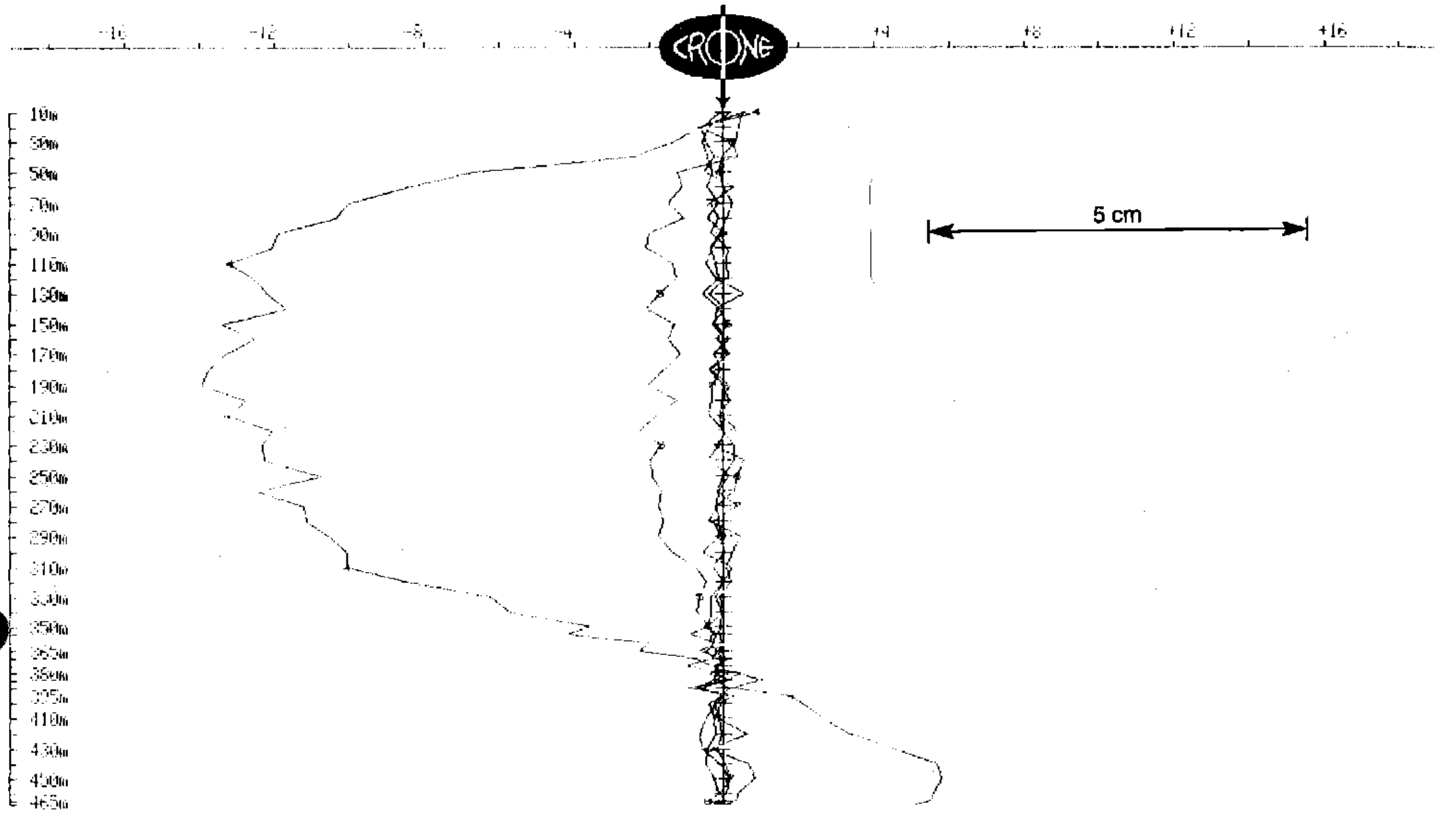
953124

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: **Pasminco Exploration**	Hole	: **BPD77**
Grid	: **Burns Peak**	Tx Loop	: **East**
Date	: Feb 1, 1993	File name	: BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



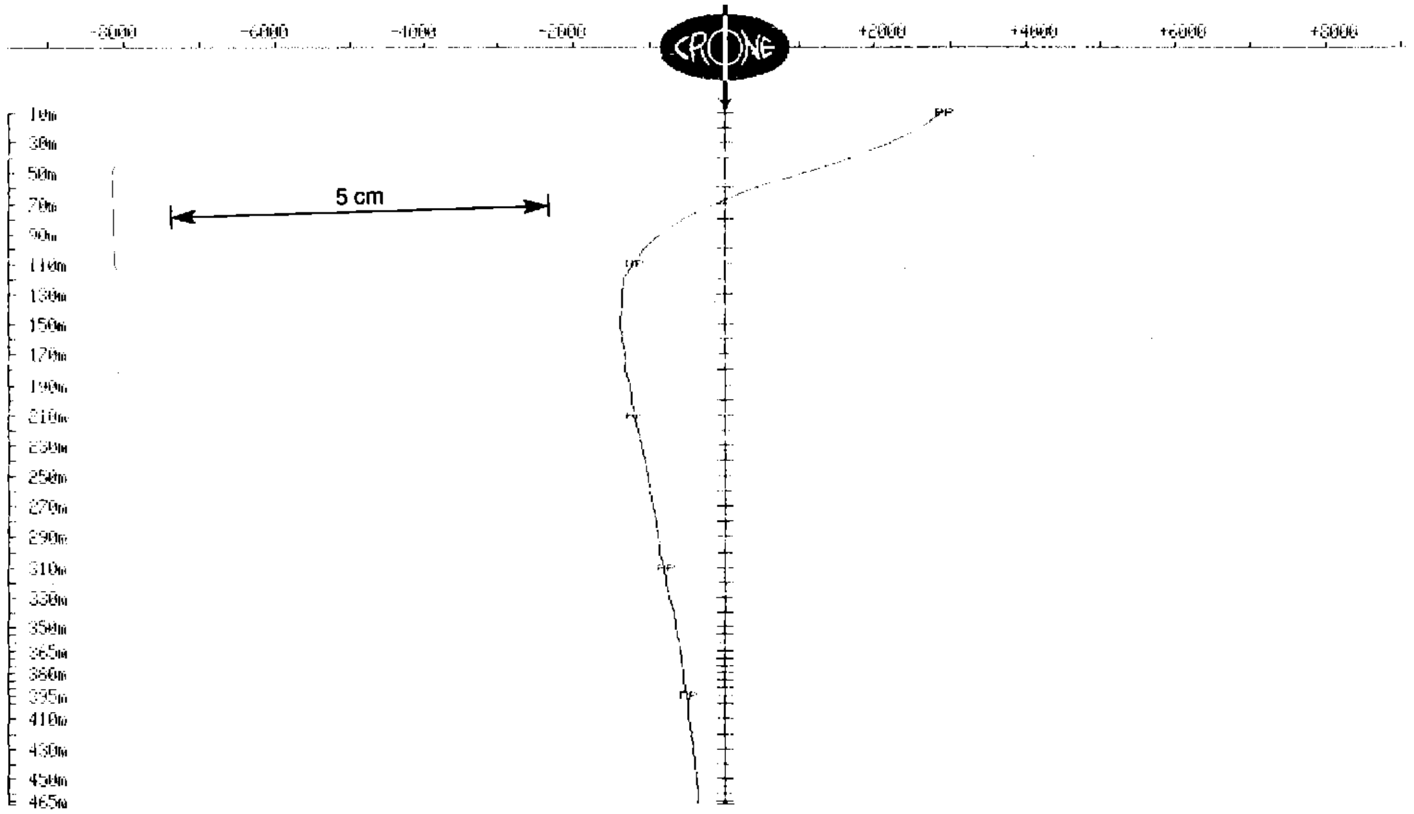
953125

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: East
Date	: Feb 1, 1993	File name	: BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



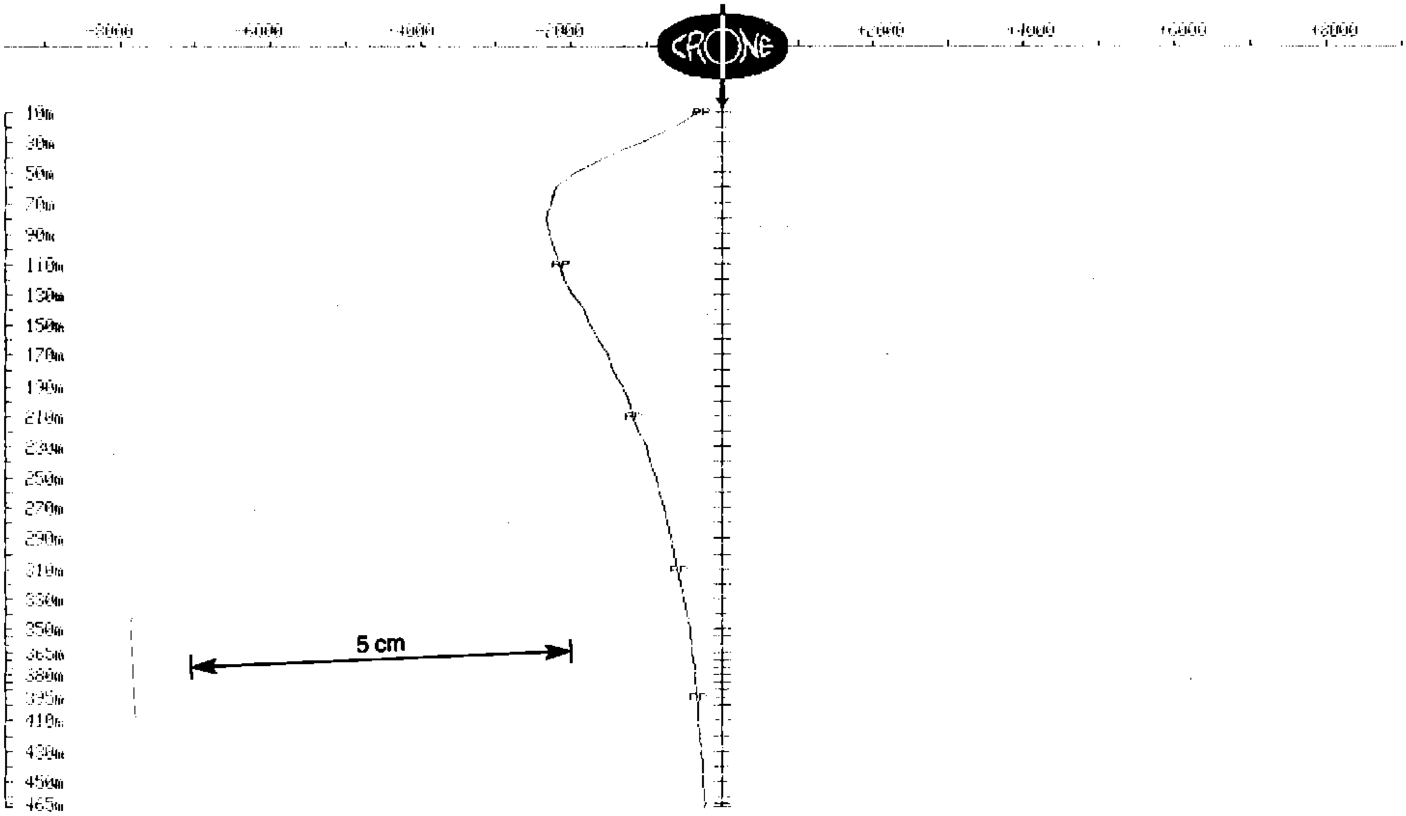
953126

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	:	Pasminco Exploration	Hole	:	BPD77
Grid	:	Burns Peak	Tx Loop	:	East
Date	:	Feb 1, 1993	File name	:	BPD77XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



953127

CRONE GEOPHYSICS & EXPLORATION LTD

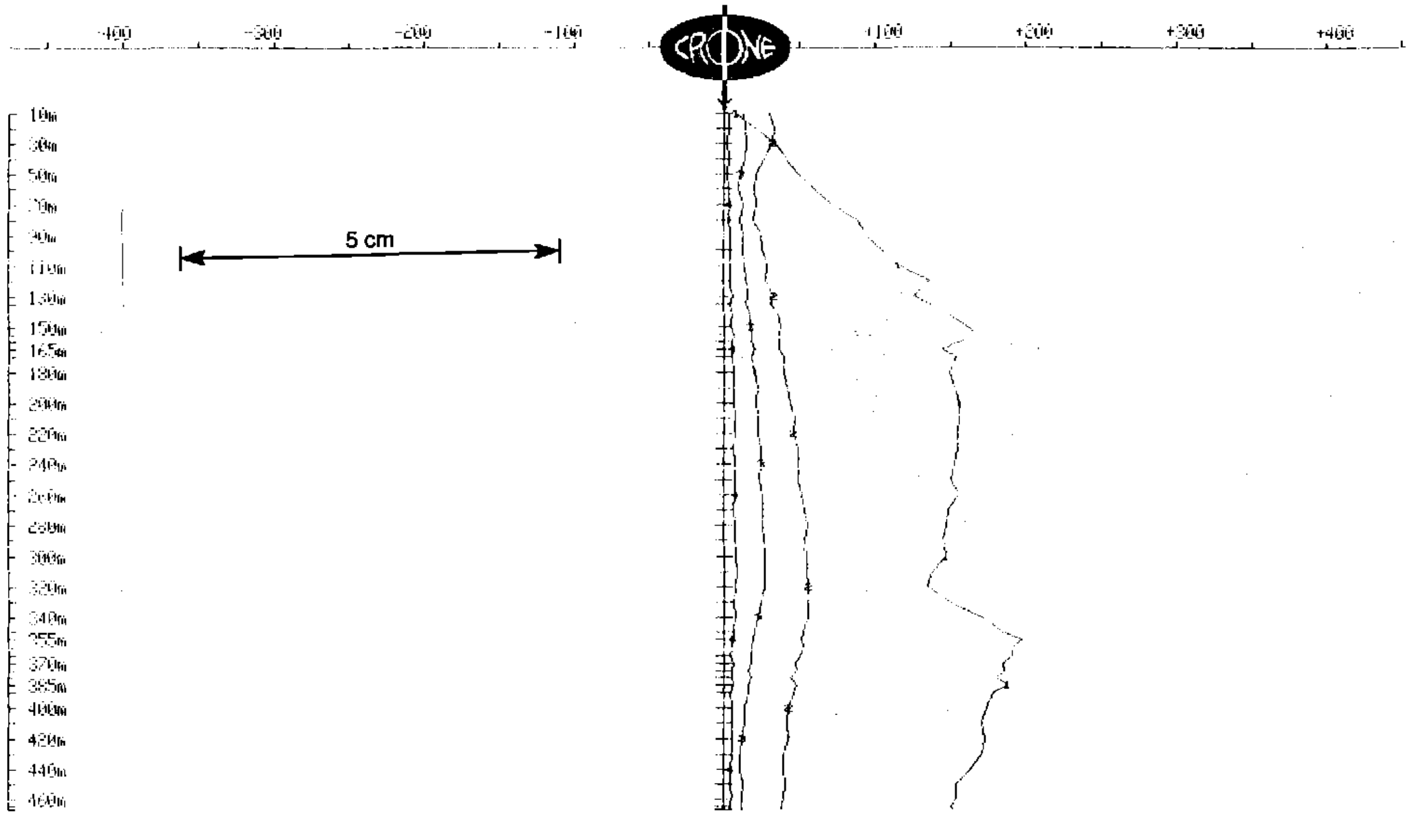
BOREHOLE PEM

Client	: **Pasminco Exploration**	Hole	: **BPD77**
Grid	: **Burns Peak**	Tx Loop	: **West**
Date	: Feb 1, 1993	File name	: BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP

X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50



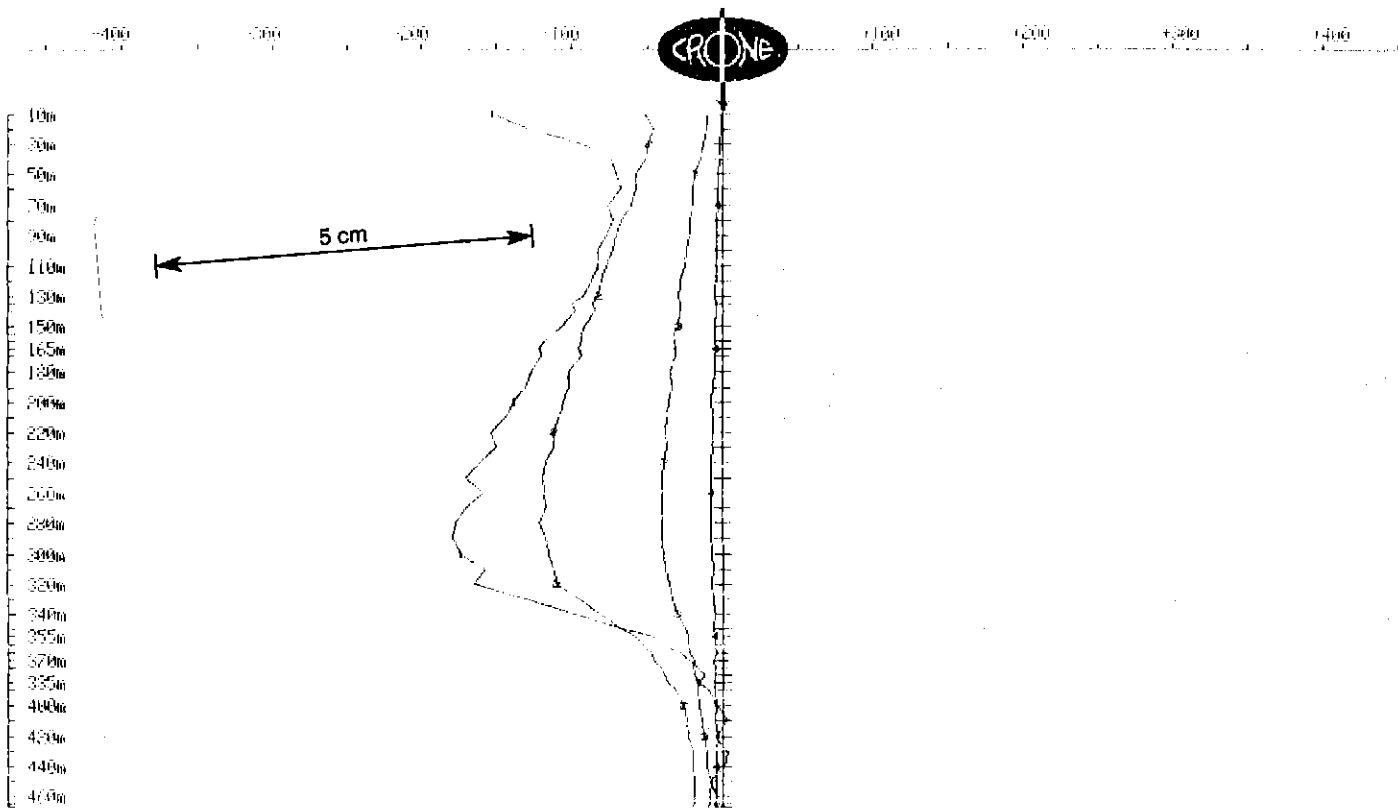
953128

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: **BPD77**
Grid	: **Burns Peak**	Tx Loop	: **West**
Date	: Feb 1, 1993	File name	: BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

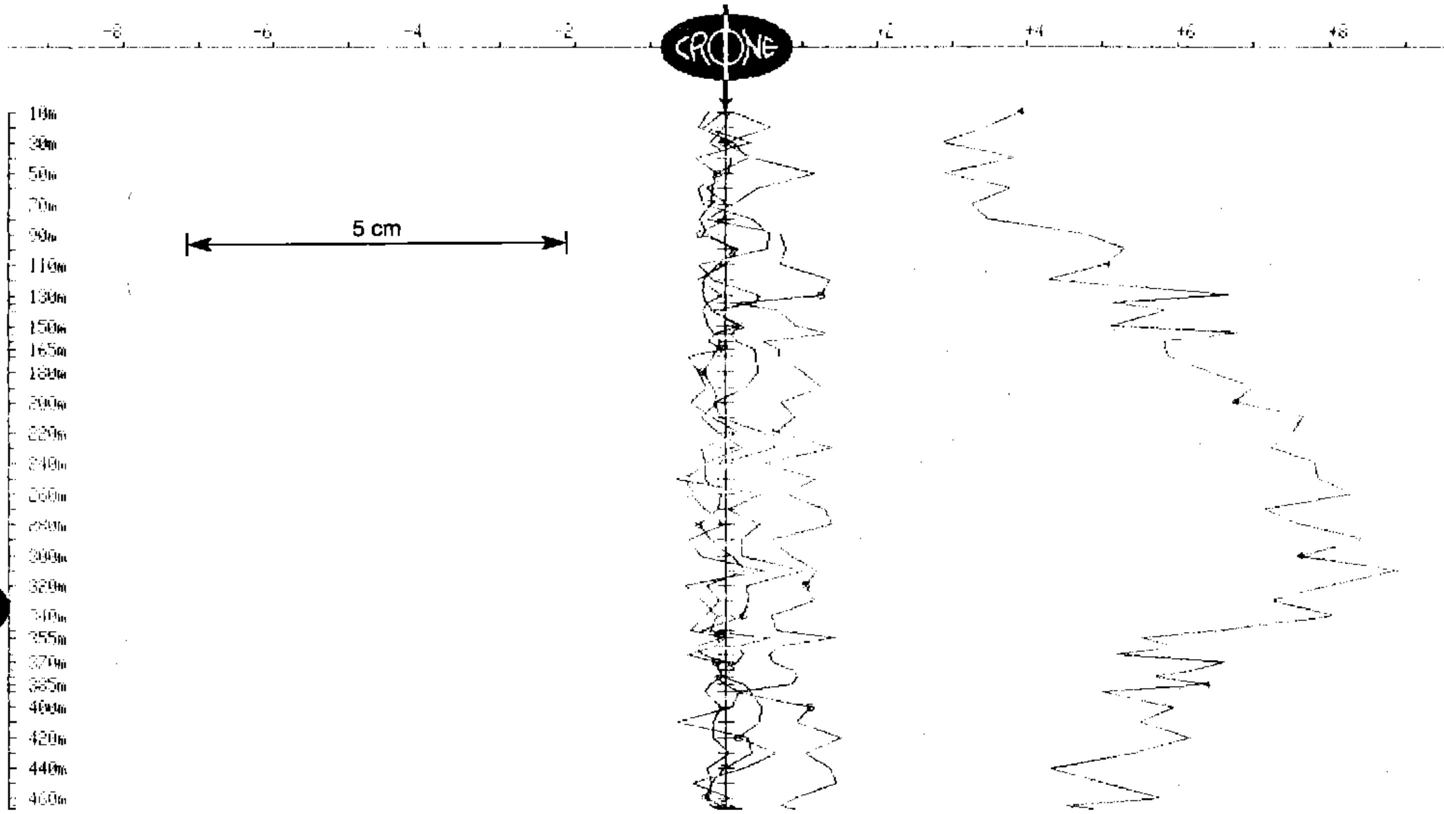


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 1



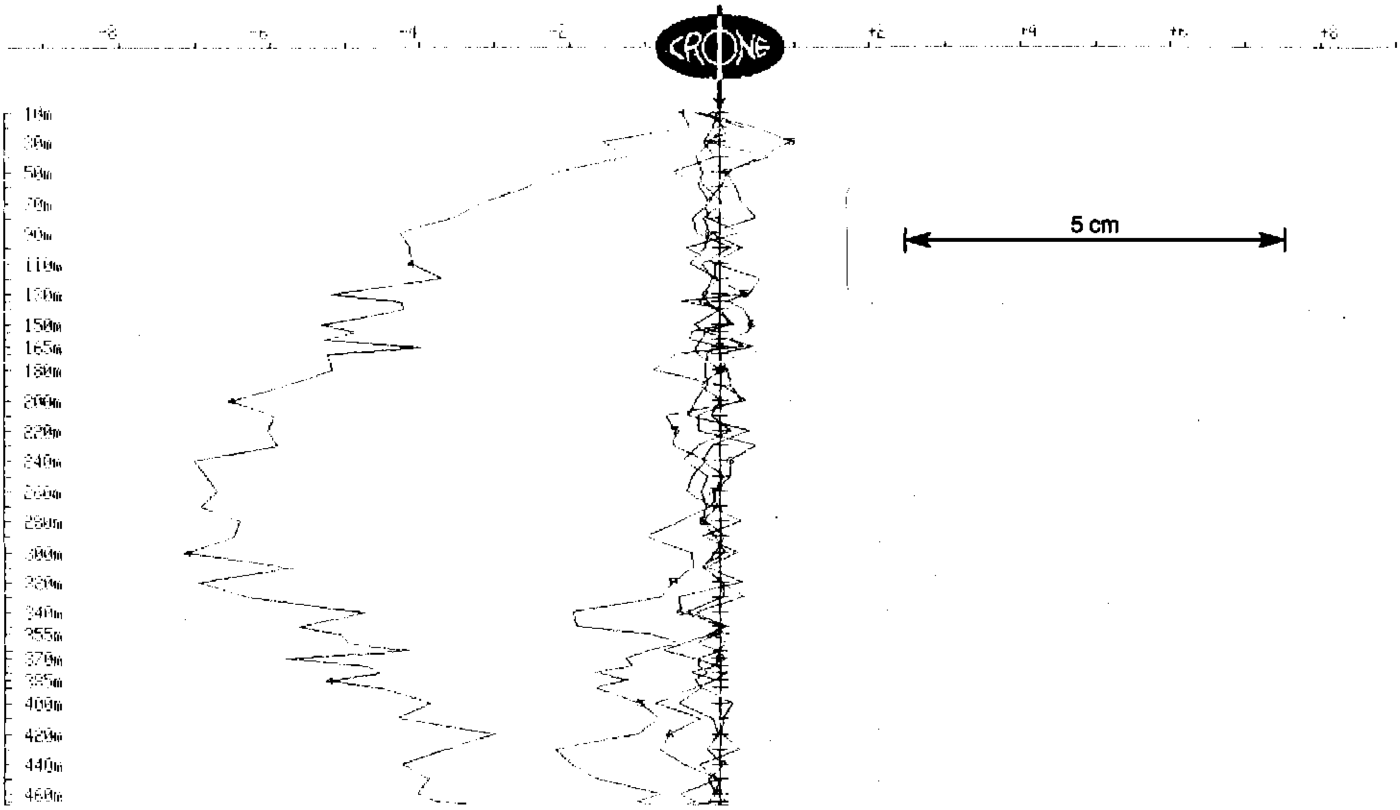
953130

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 1



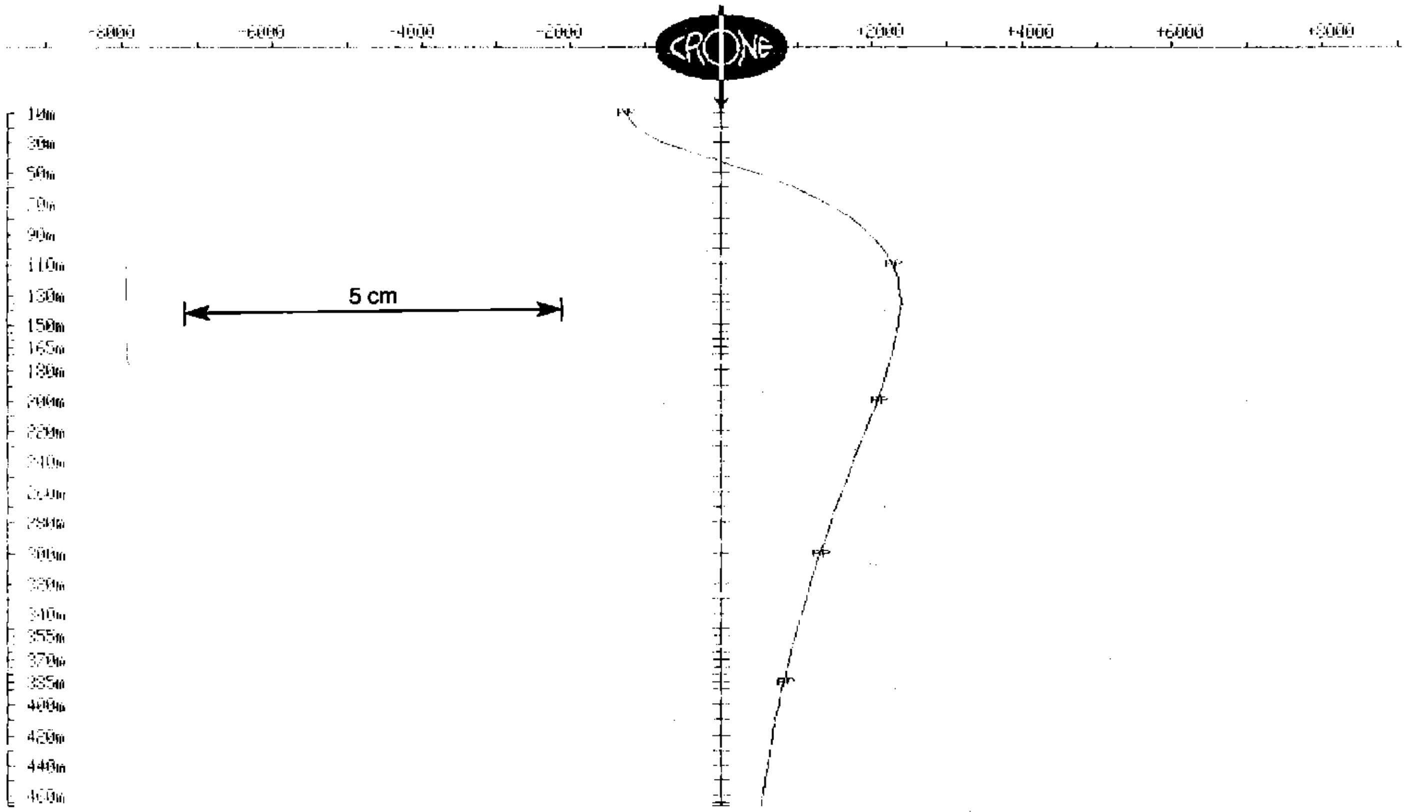
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP

X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



953132

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

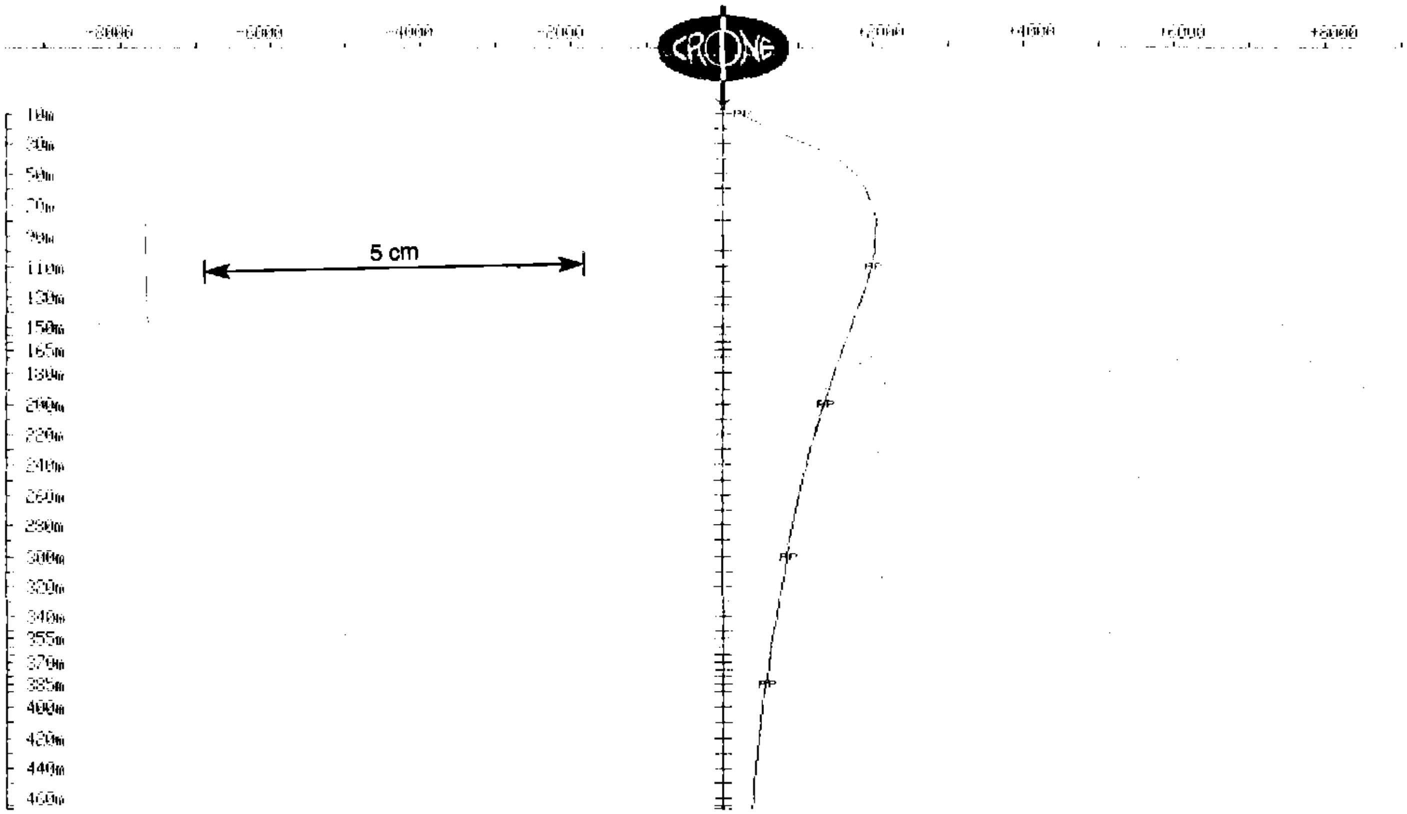
Client : Pasminco Exploration
Grid : Burns Peak
Date : Feb 1, 1993

Hole : BPD77
Tx Loop : West
File name : BPD77XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000

Unit Scale: 1cm = 1000



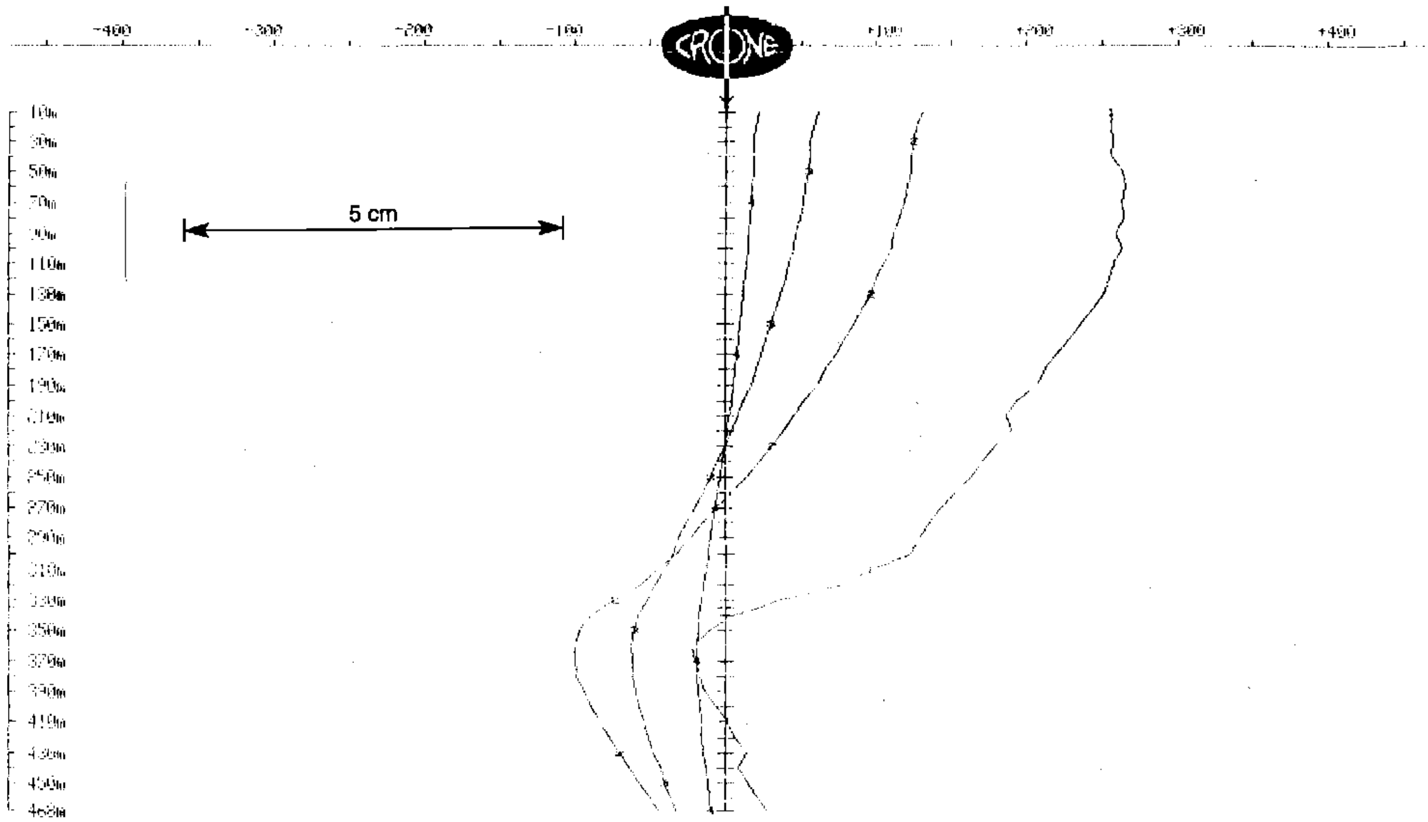
953133

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: **Pasminco Exploration**	Hole	: **BPD77**
Grid	: **Burns Peak**	Tx Loop	: **East**
Date	: Feb 1, 1993	File name	: BPD77ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50



953134

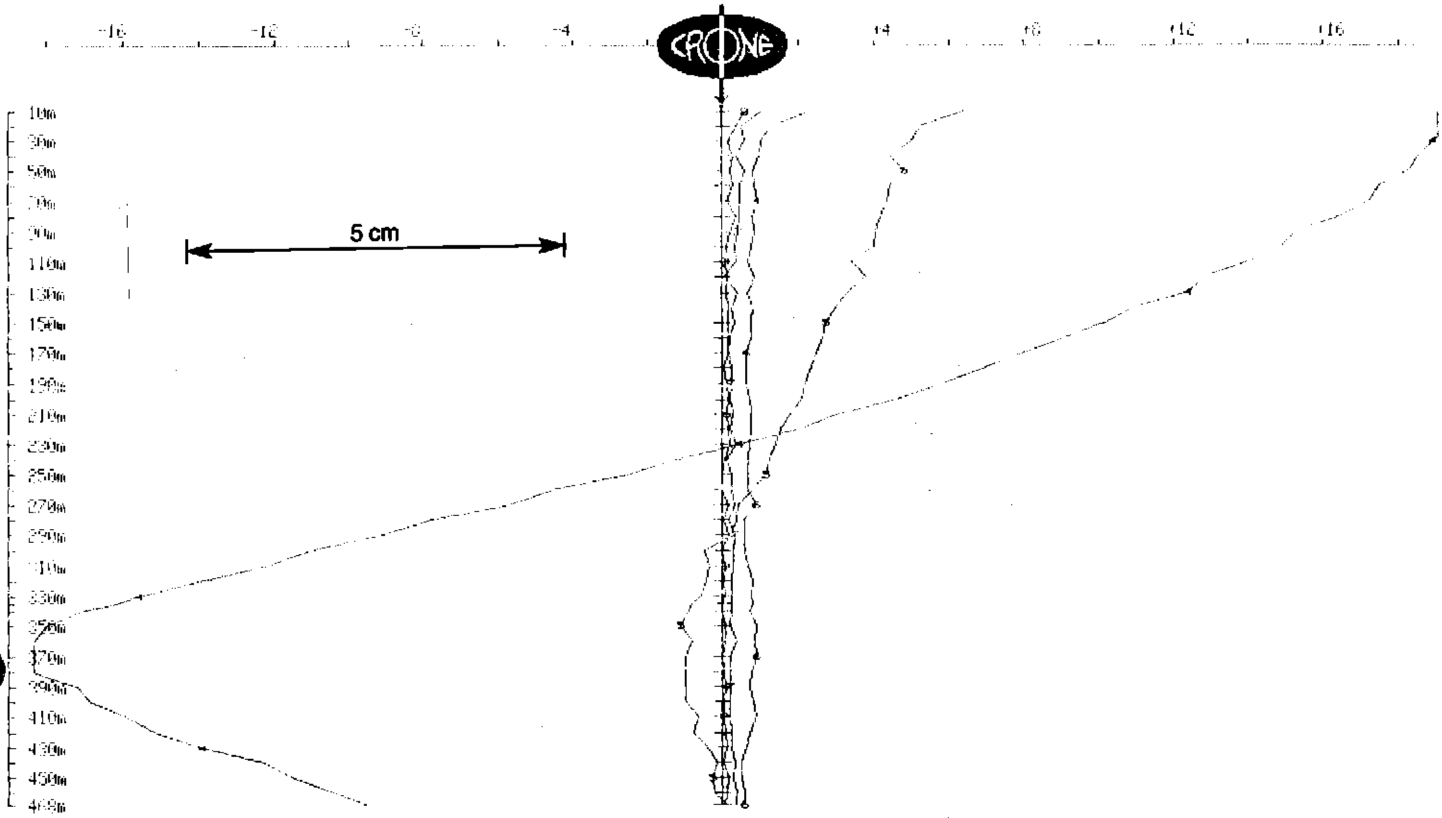
CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	:	Pasminco Exploration	Hole	:	BPD77
Grid	:	Burns Peak	Tx Loop	:	East
Date	:	Feb 1, 1993	File name	:	BPD77ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000

Unit Scale: 1cm = 2



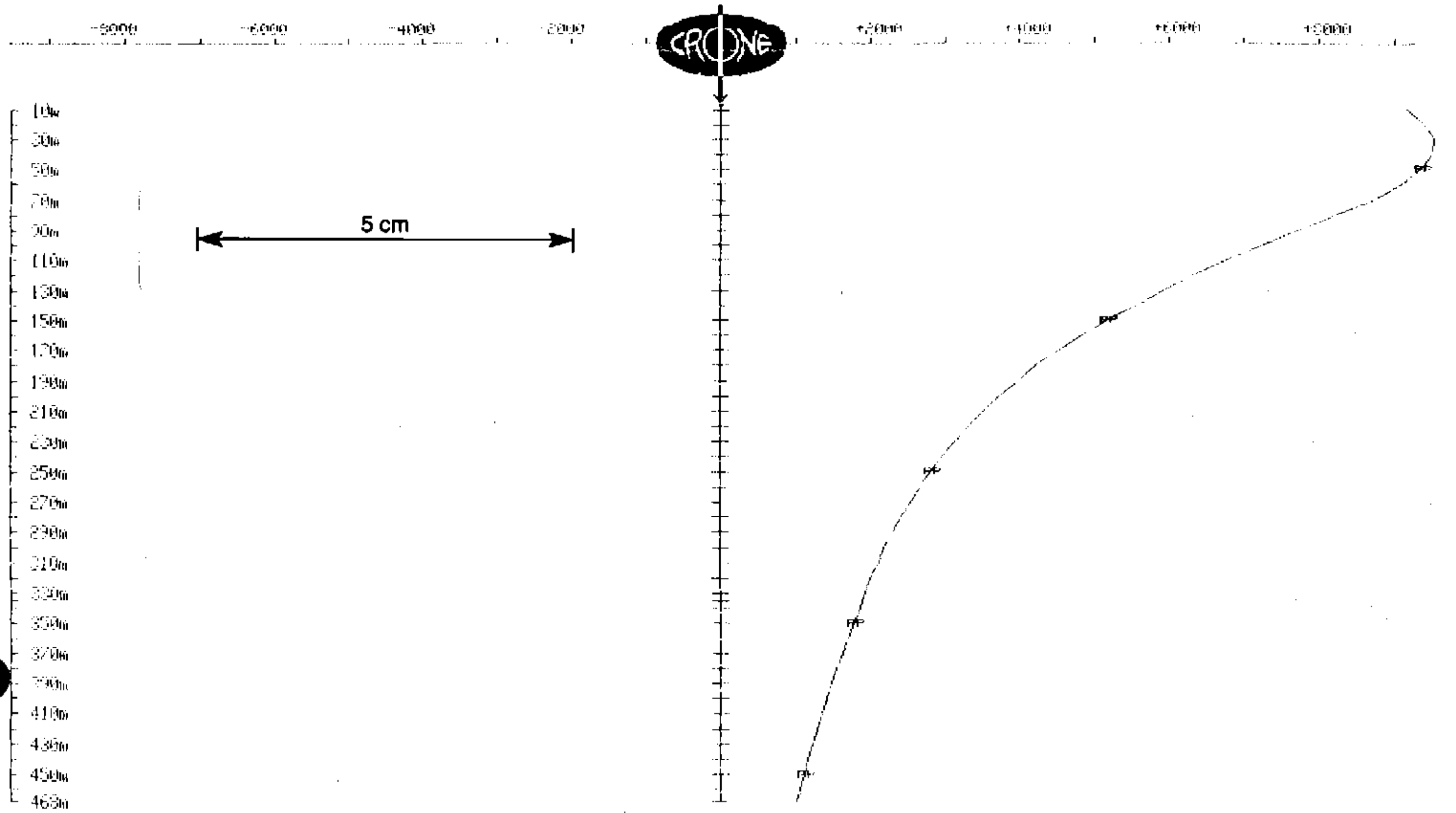
953135

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: East
Date	: Feb 1, 1993	File name	: BPD77ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000

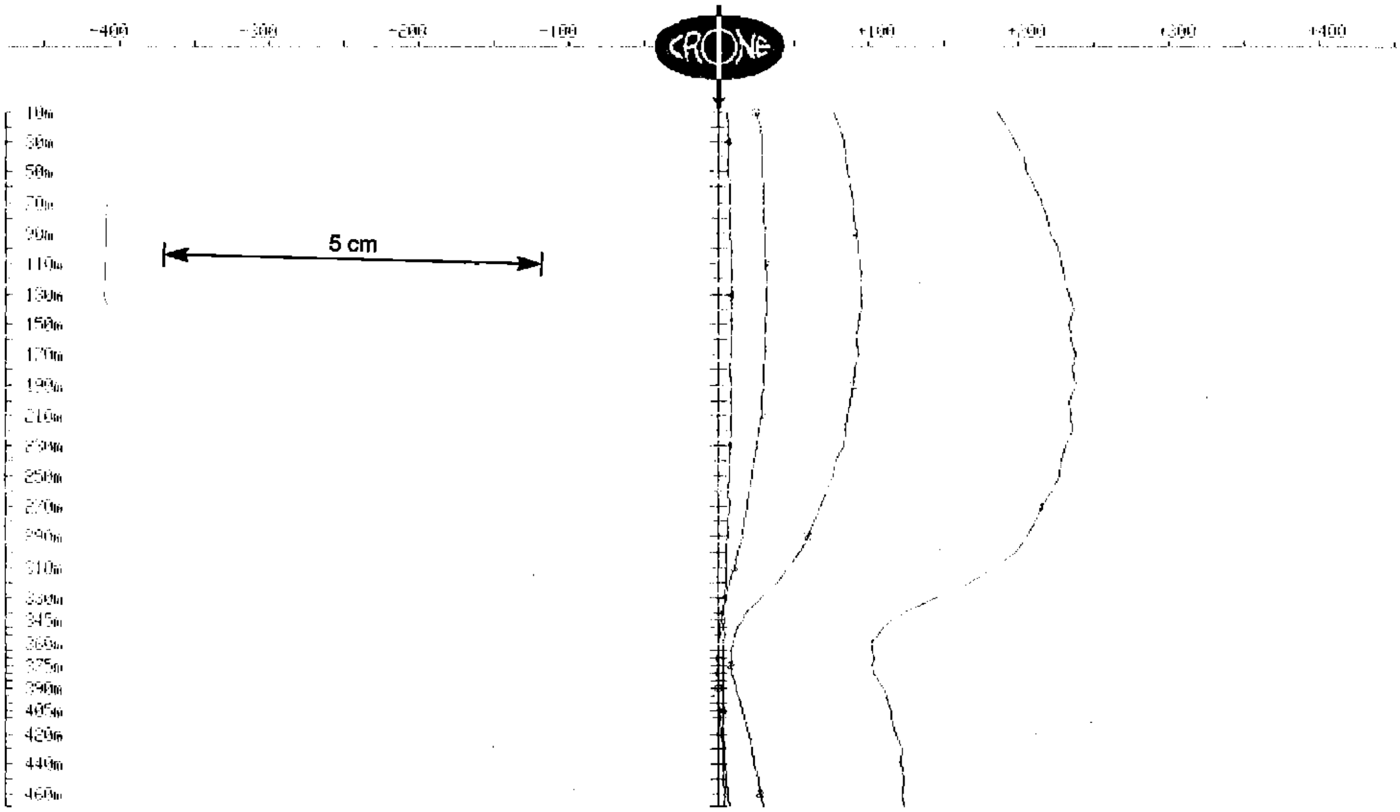


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

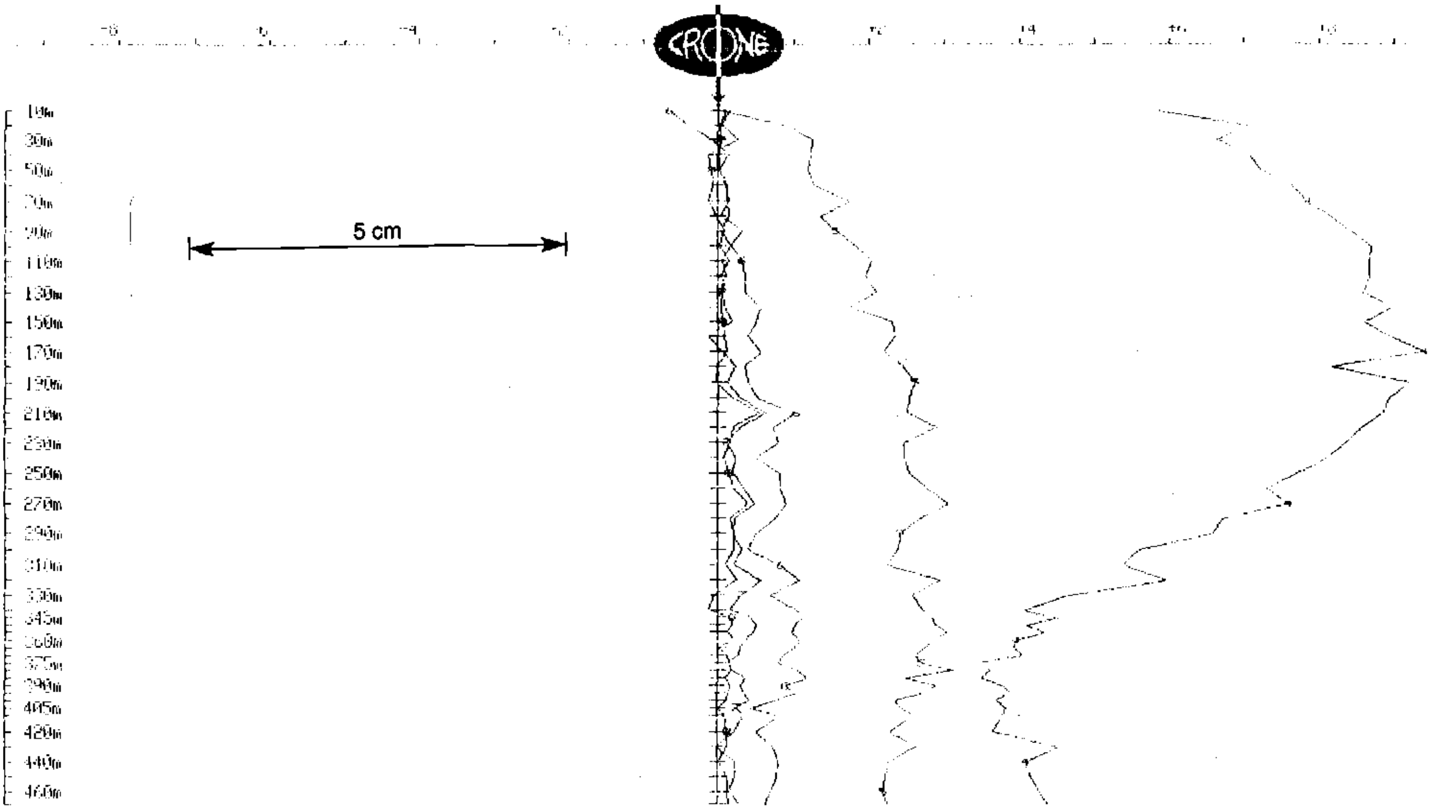


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 1

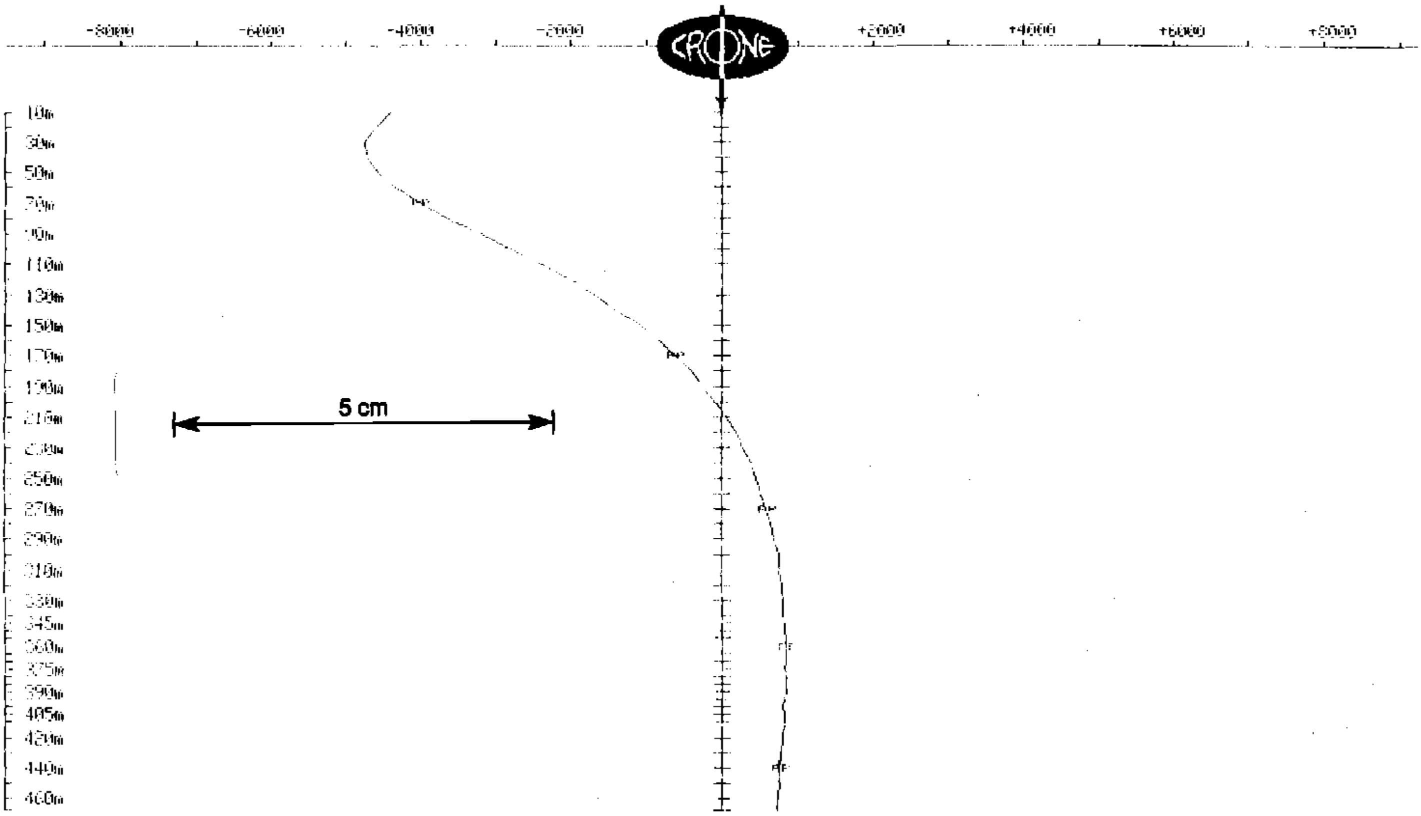


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD77
Grid	: Burns Peak	Tx Loop	: West
Date	: Feb 1, 1993	File name	: BPD77ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000

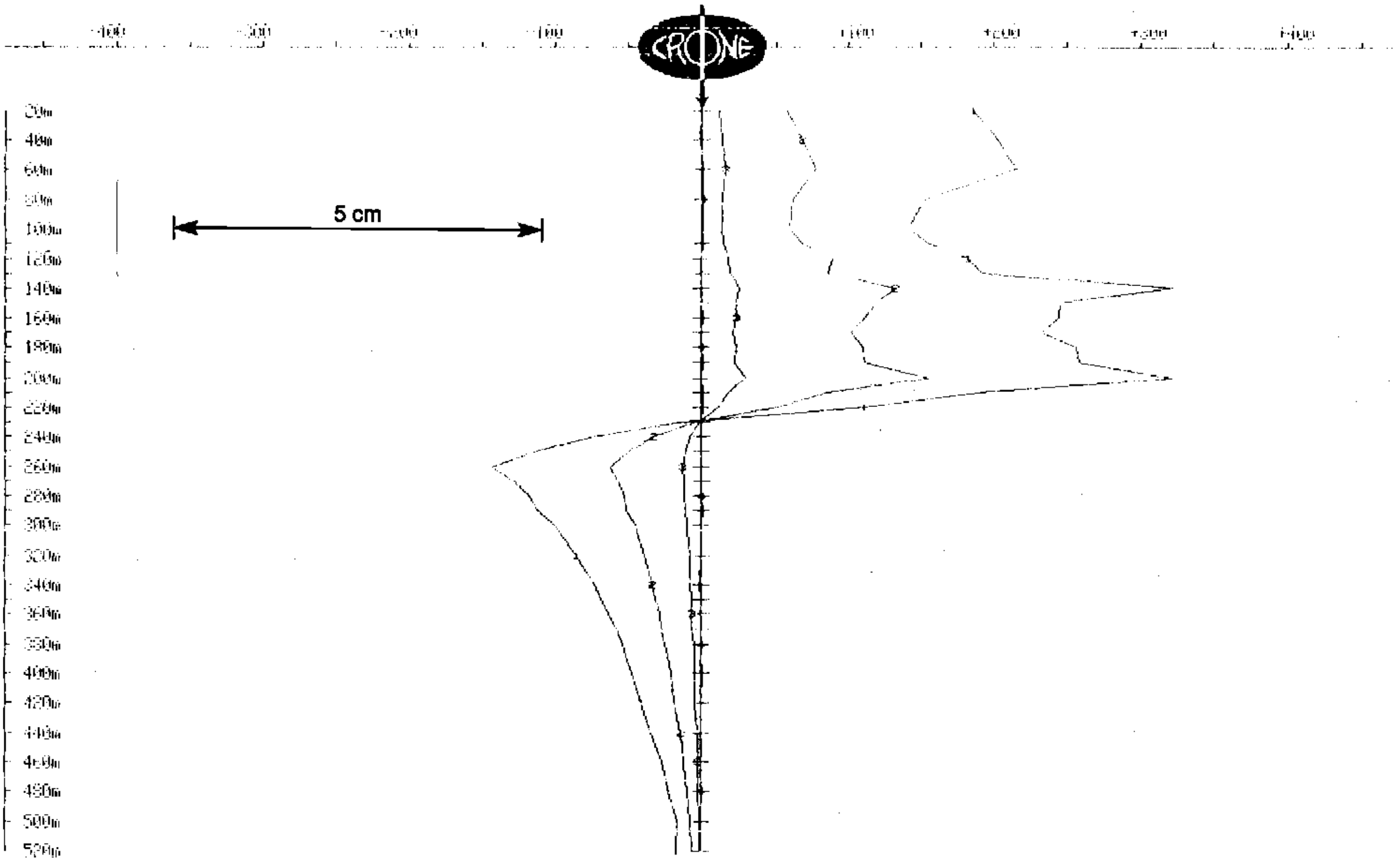


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

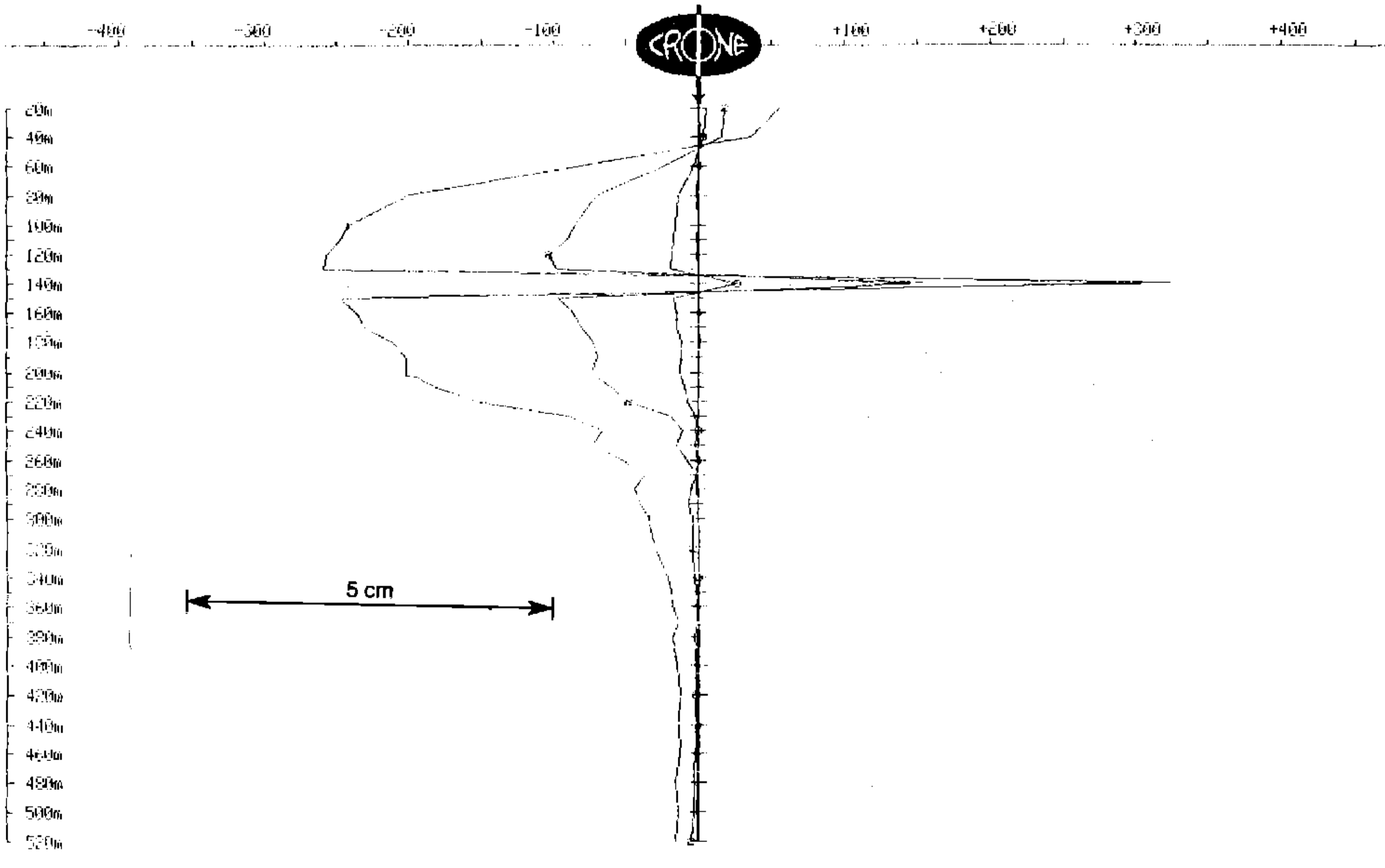


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50



953141

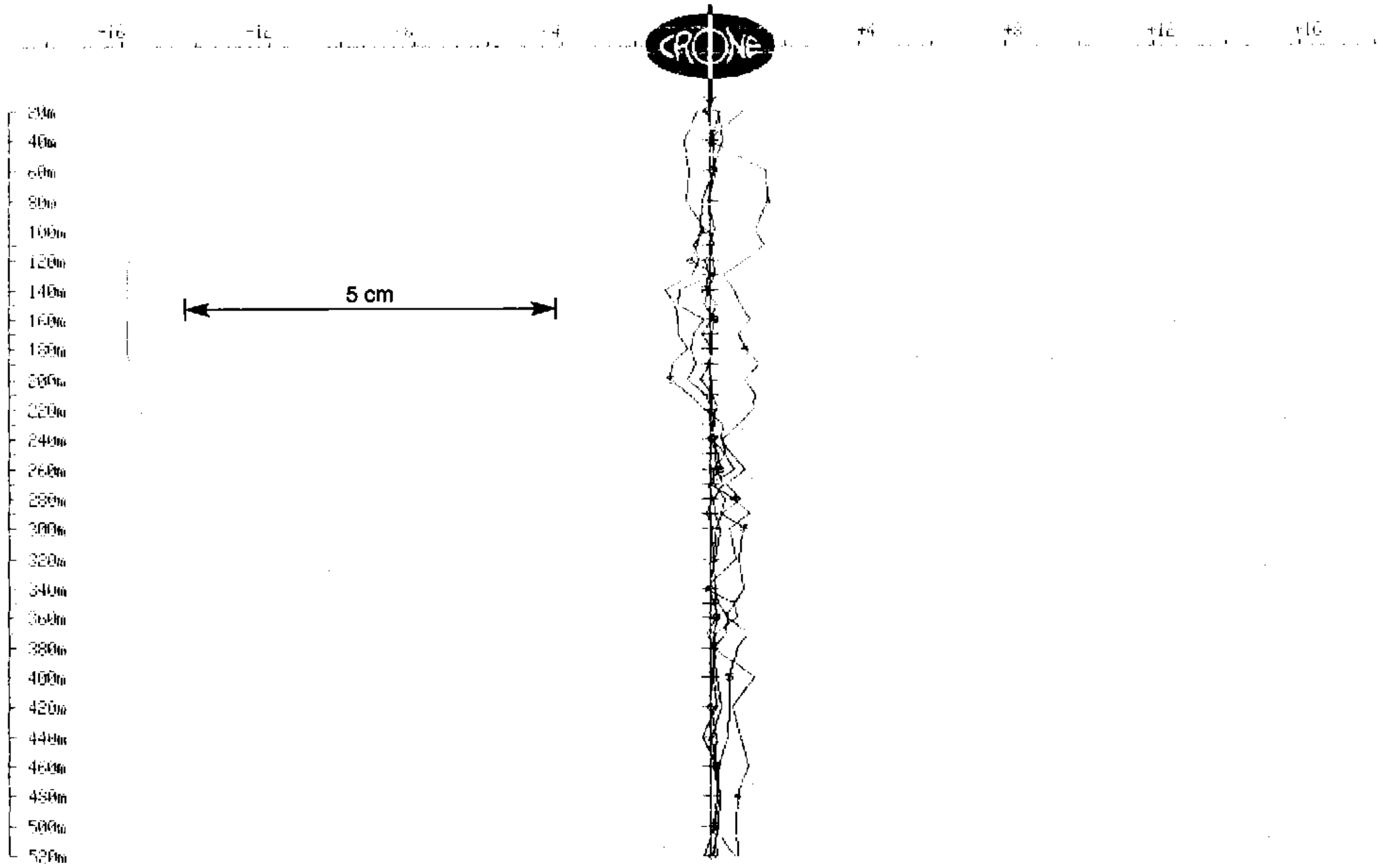
CRONE GEOPHYSICS & EXPLORATION LTD

BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



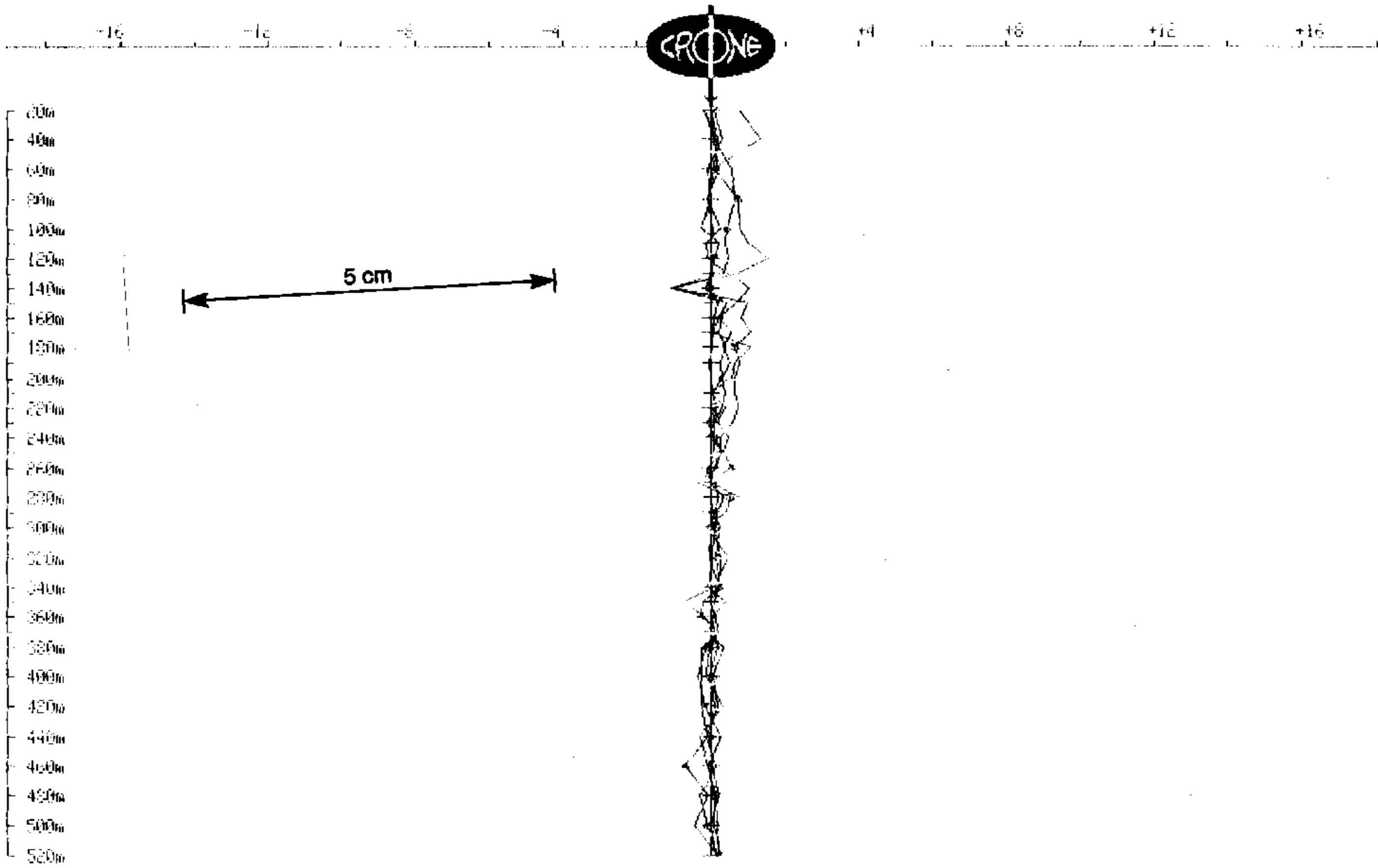
953142

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2

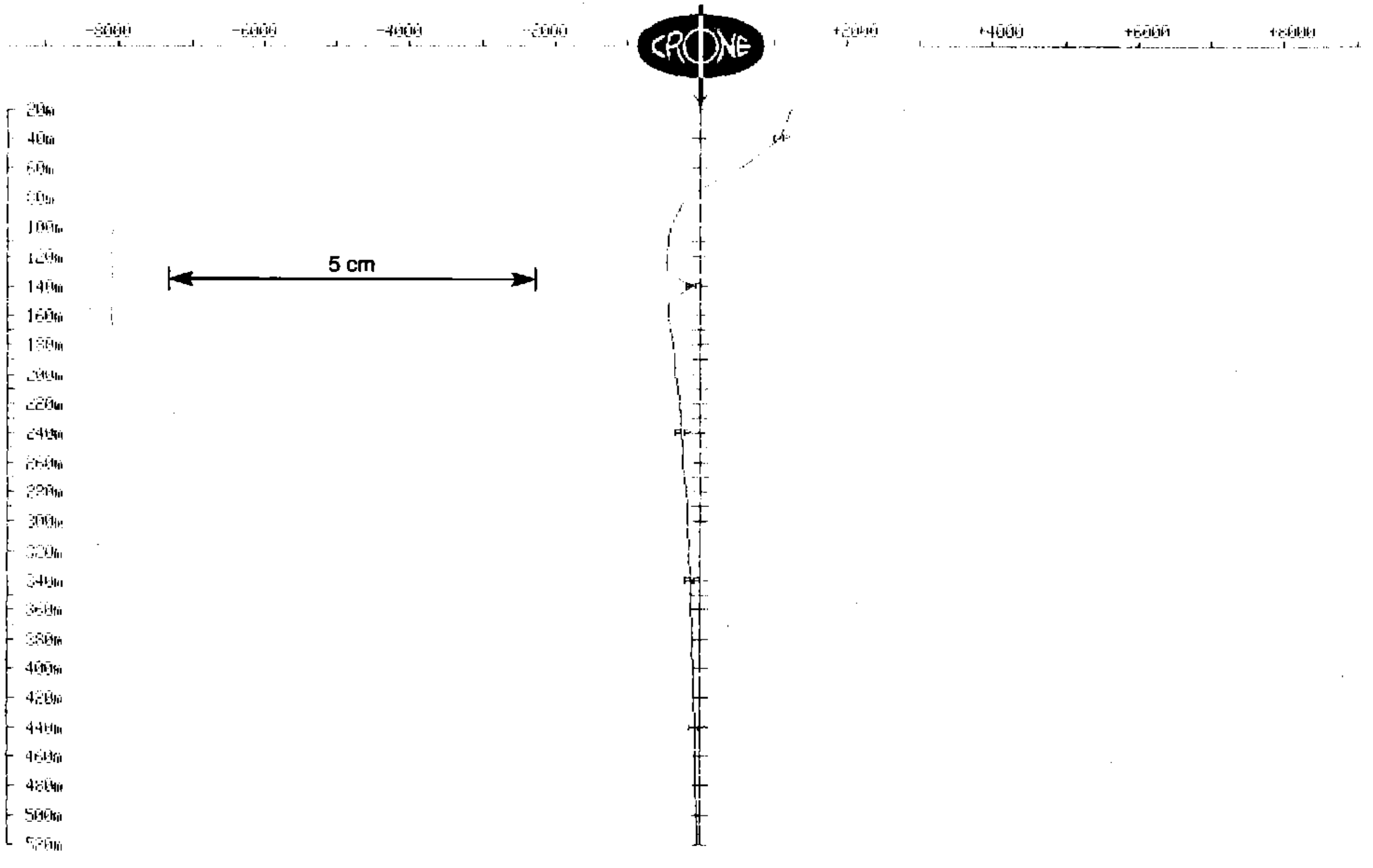


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



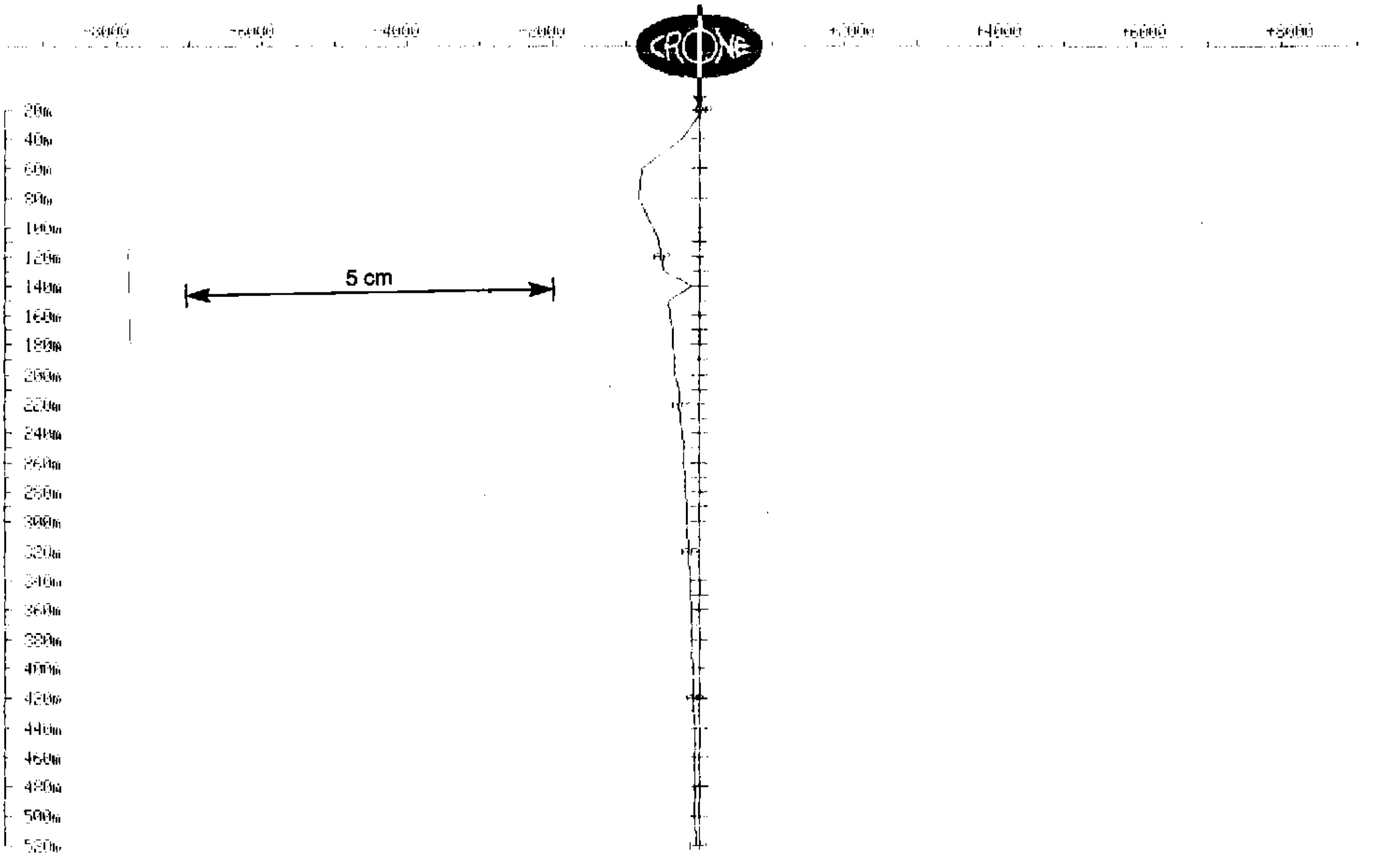
953144

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: Collar #27
Date	: Nov 21, 1992	File name	: BPD76XYE.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000

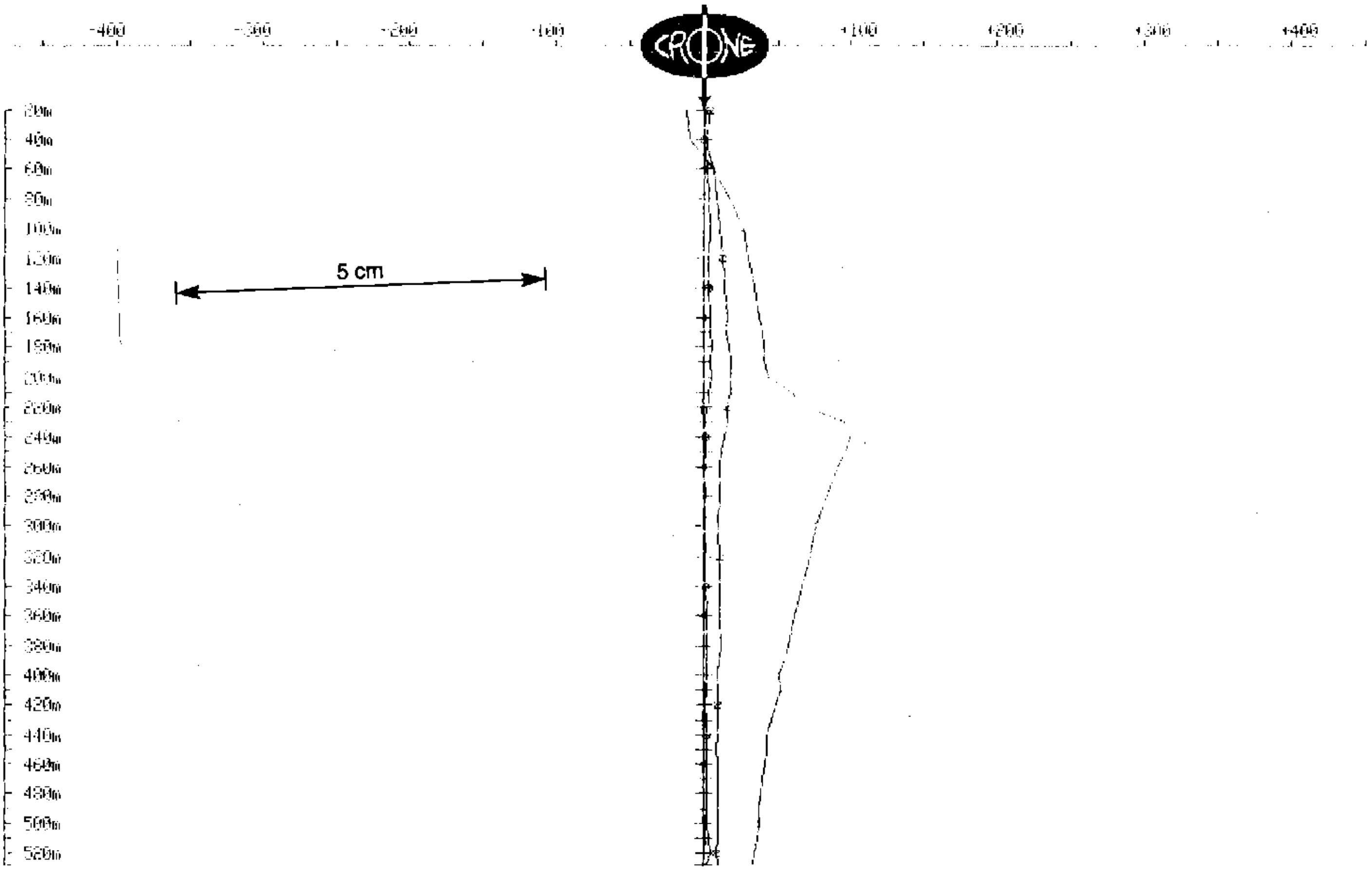


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West #26
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

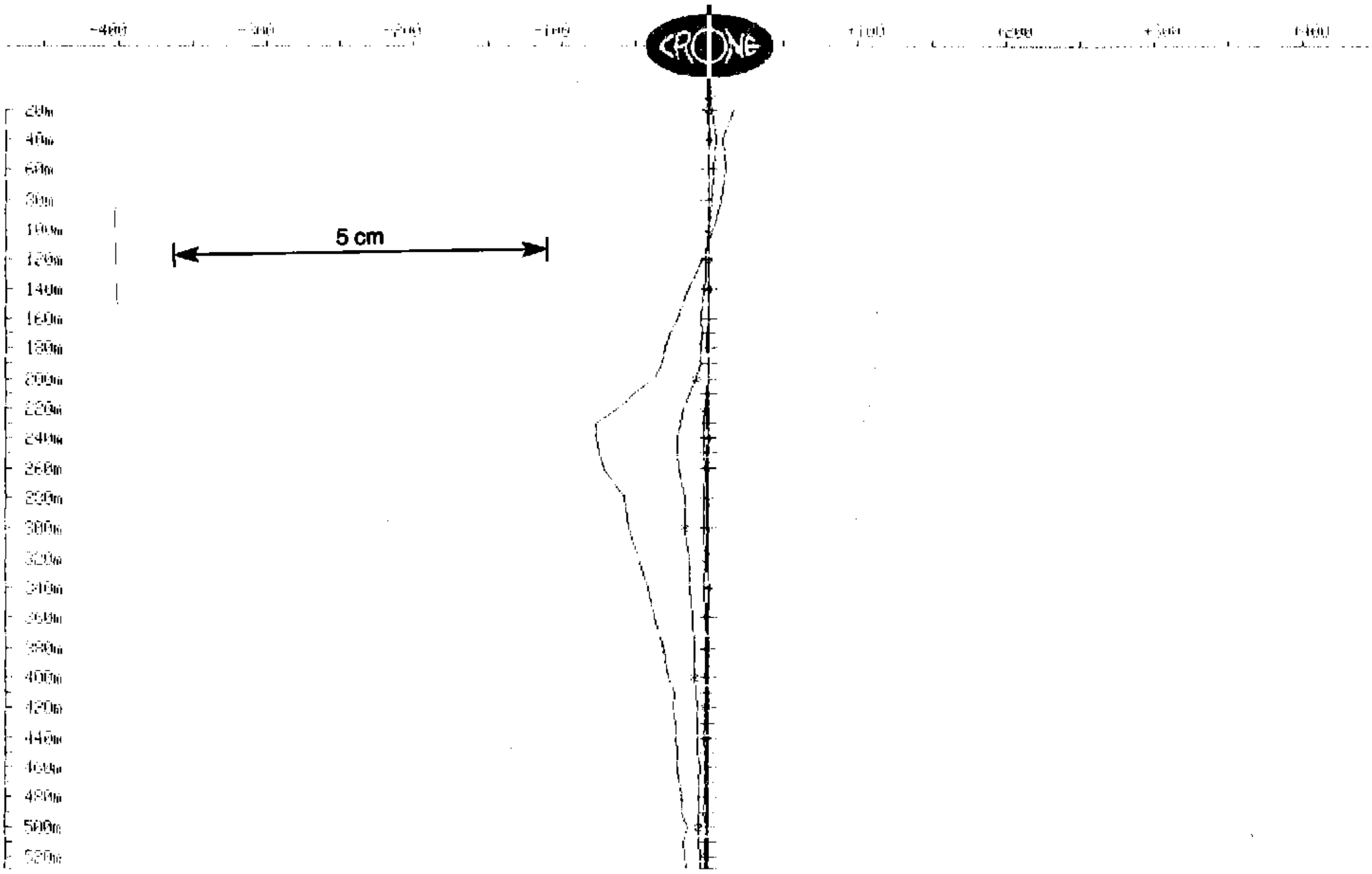


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: **Pasminco Exploration**	Hole	: **BPD-76**
Grid	: **Burns Peak**	Tx Loop	: **West #26**
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50



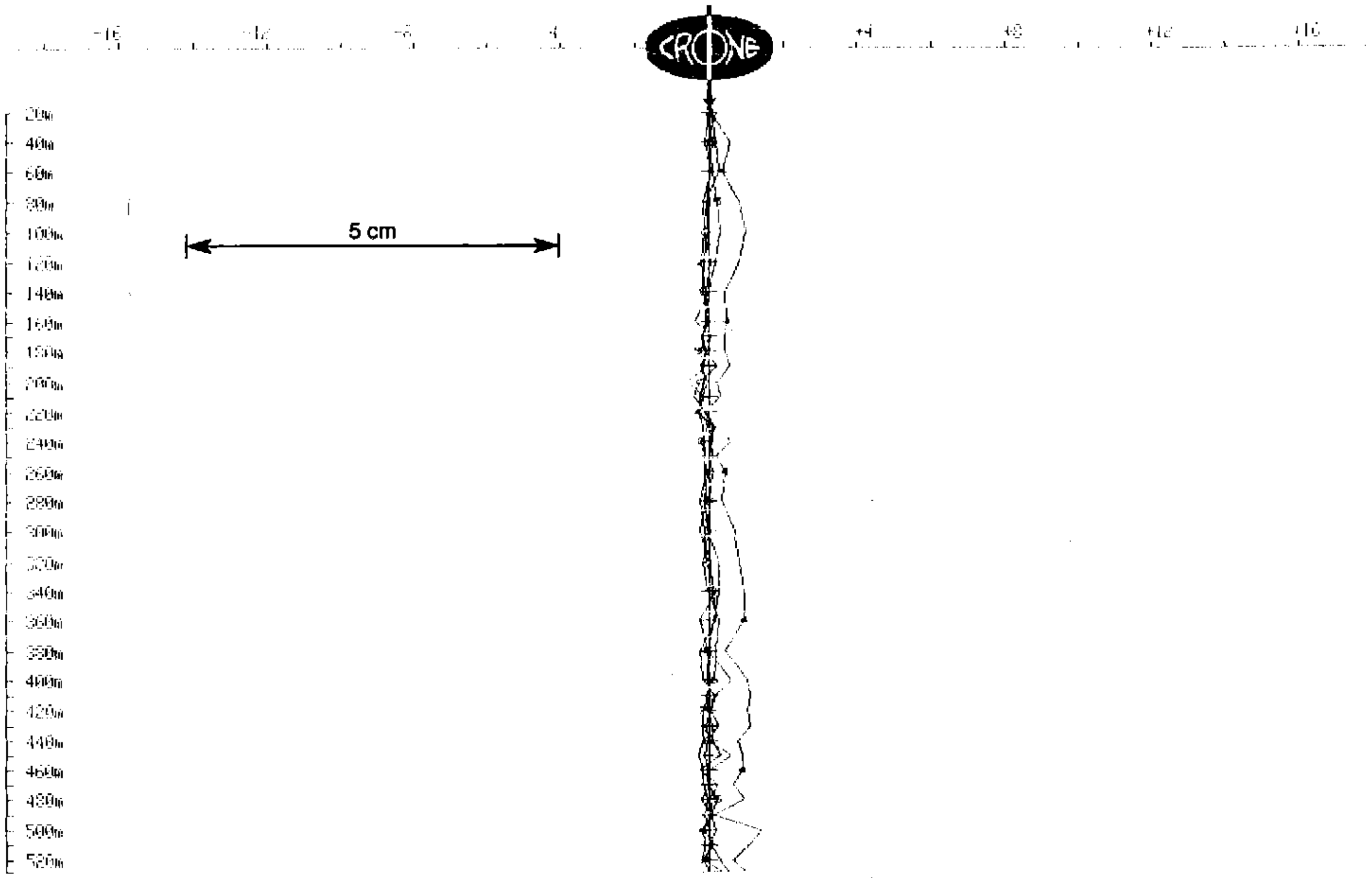
953147

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West #26
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



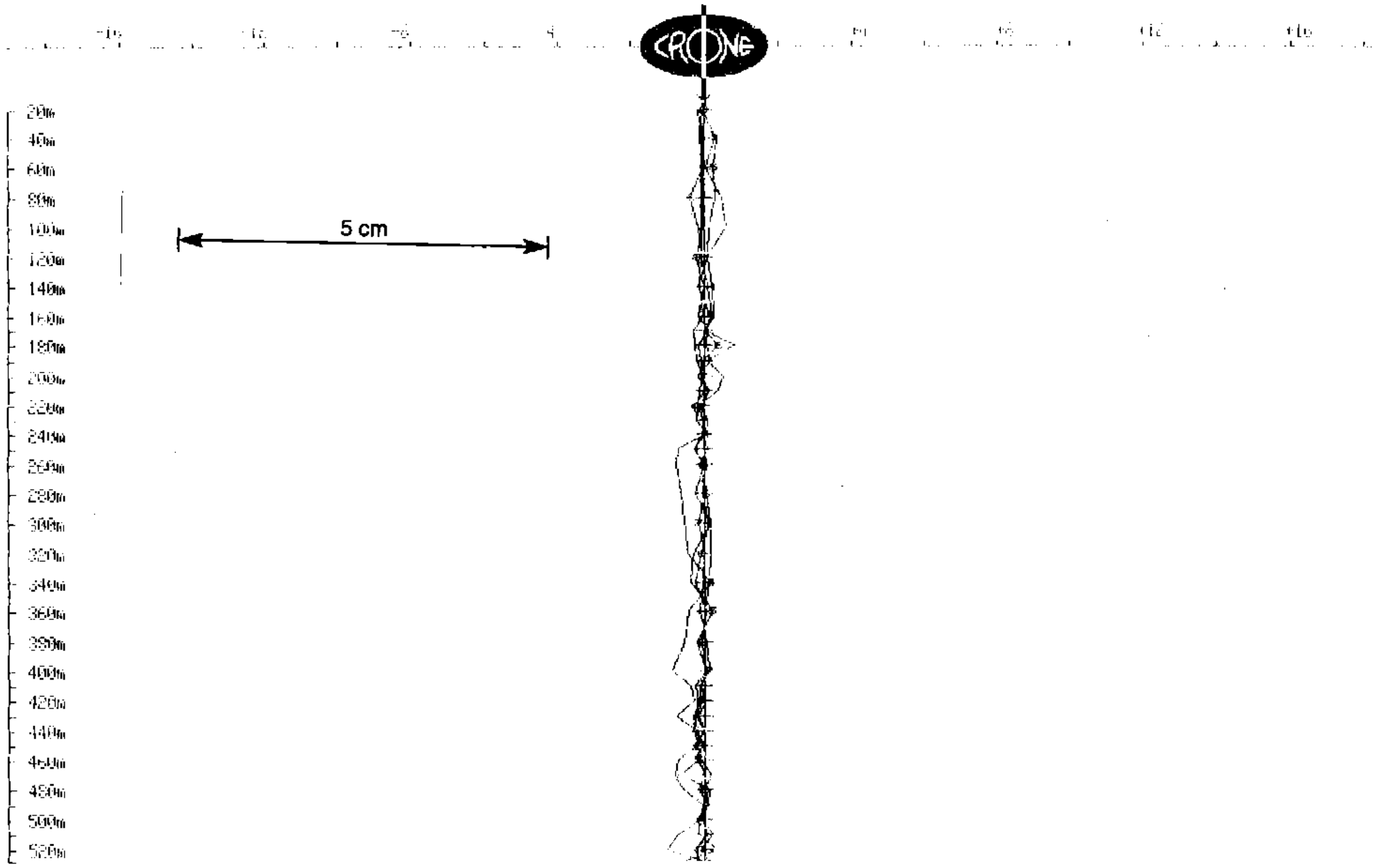
953148

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West #26
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



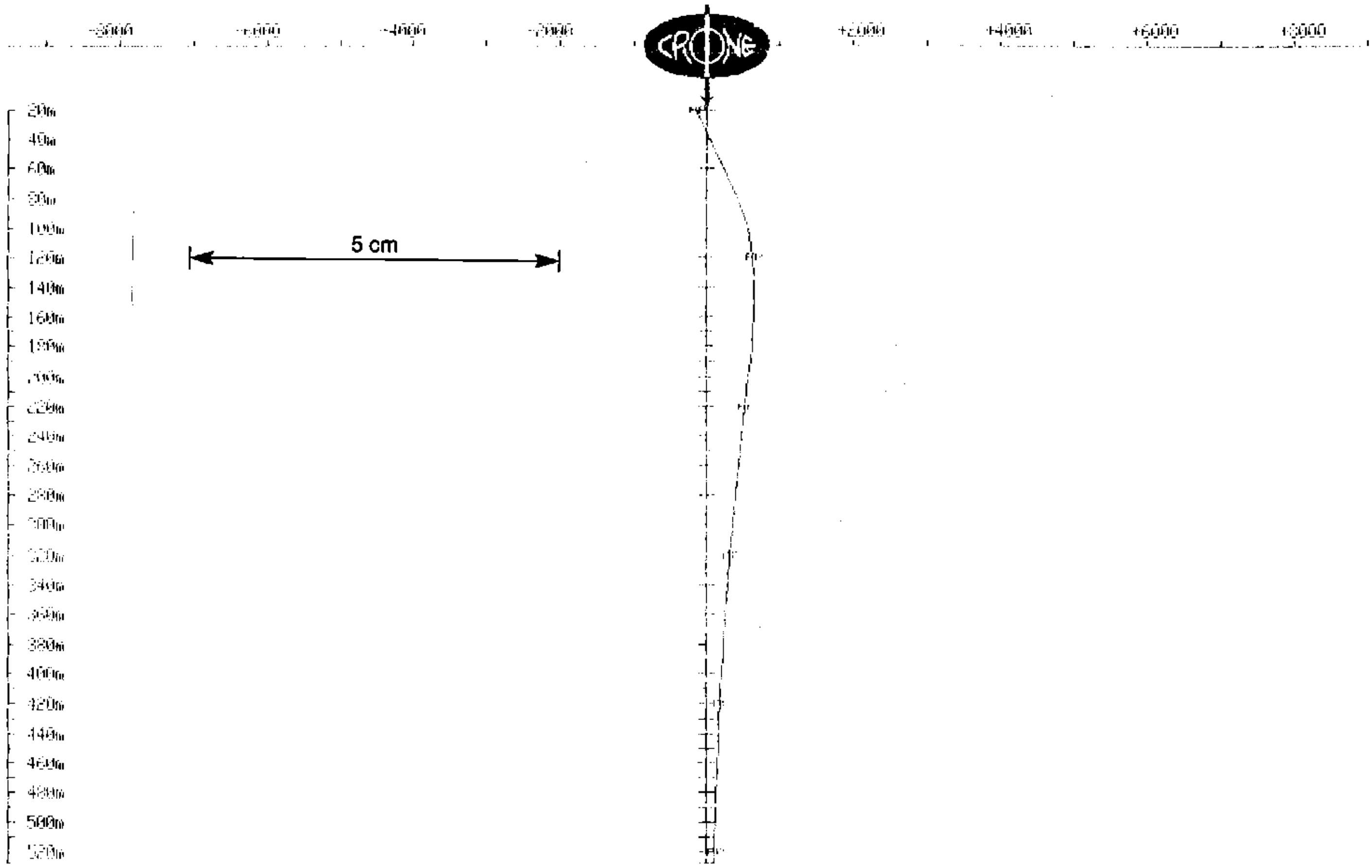
953149

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West #26
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP
X COMPONENT dBx/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



953150

CRONE GEOPHYSICS & EXPLORATION LTD

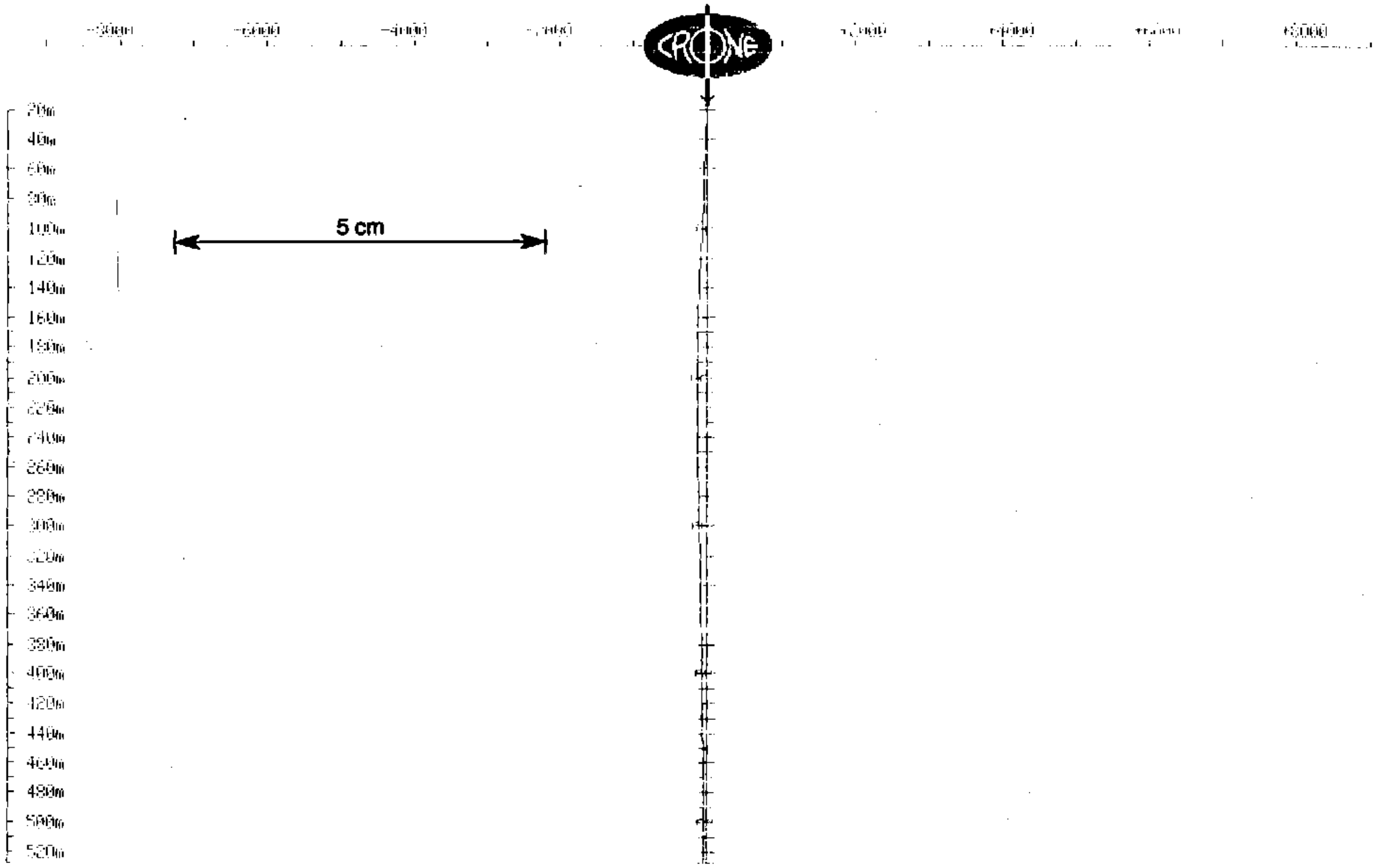
BOREHOLE PEM

Client	: **Pasminco Exploration**	Hole	: **BPD-76**
Grid	: **Burns Peak**	Tx Loop	: **West #26**
Date	: Nov 20, 1992	File name	: BPD76XYW.AM2

Data Corrected for Probe Rotation using Cleaned PP

Y COMPONENT dBy/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000

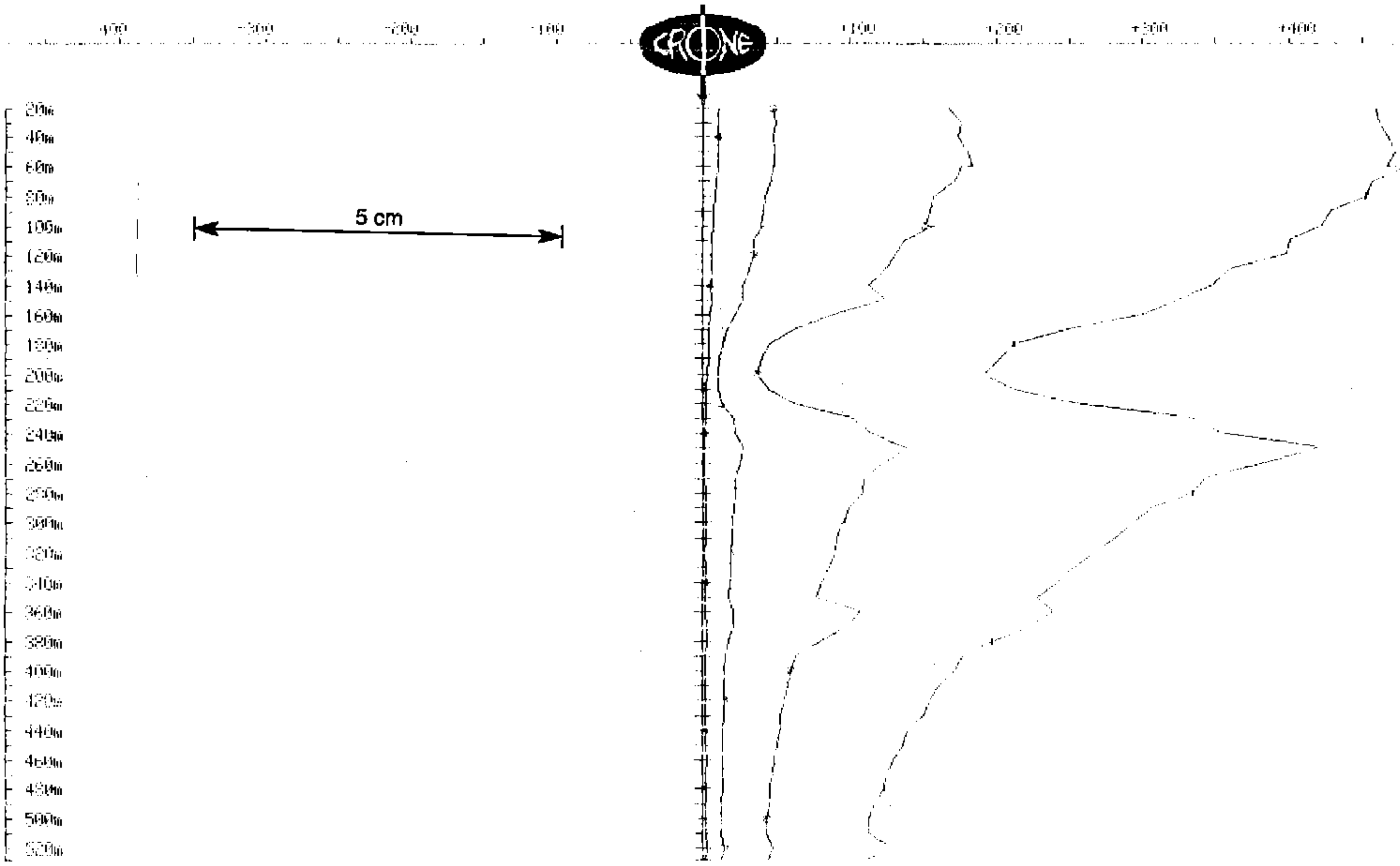


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: East - 27
Date	: Nov 21, 1992	File name	: BPD76ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50

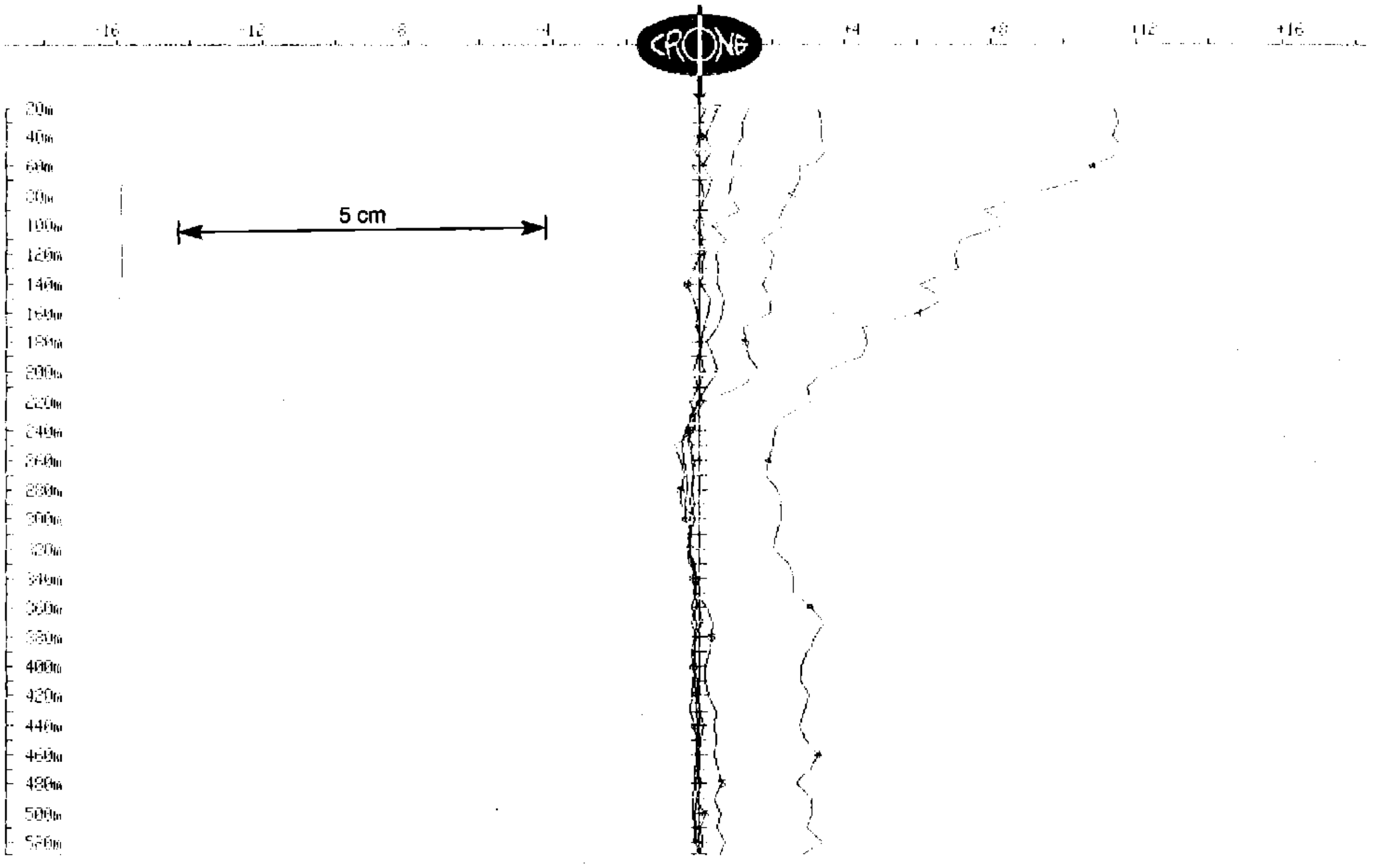


CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: East - 27
Date	: Nov 21, 1992	File name	: BPD76ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

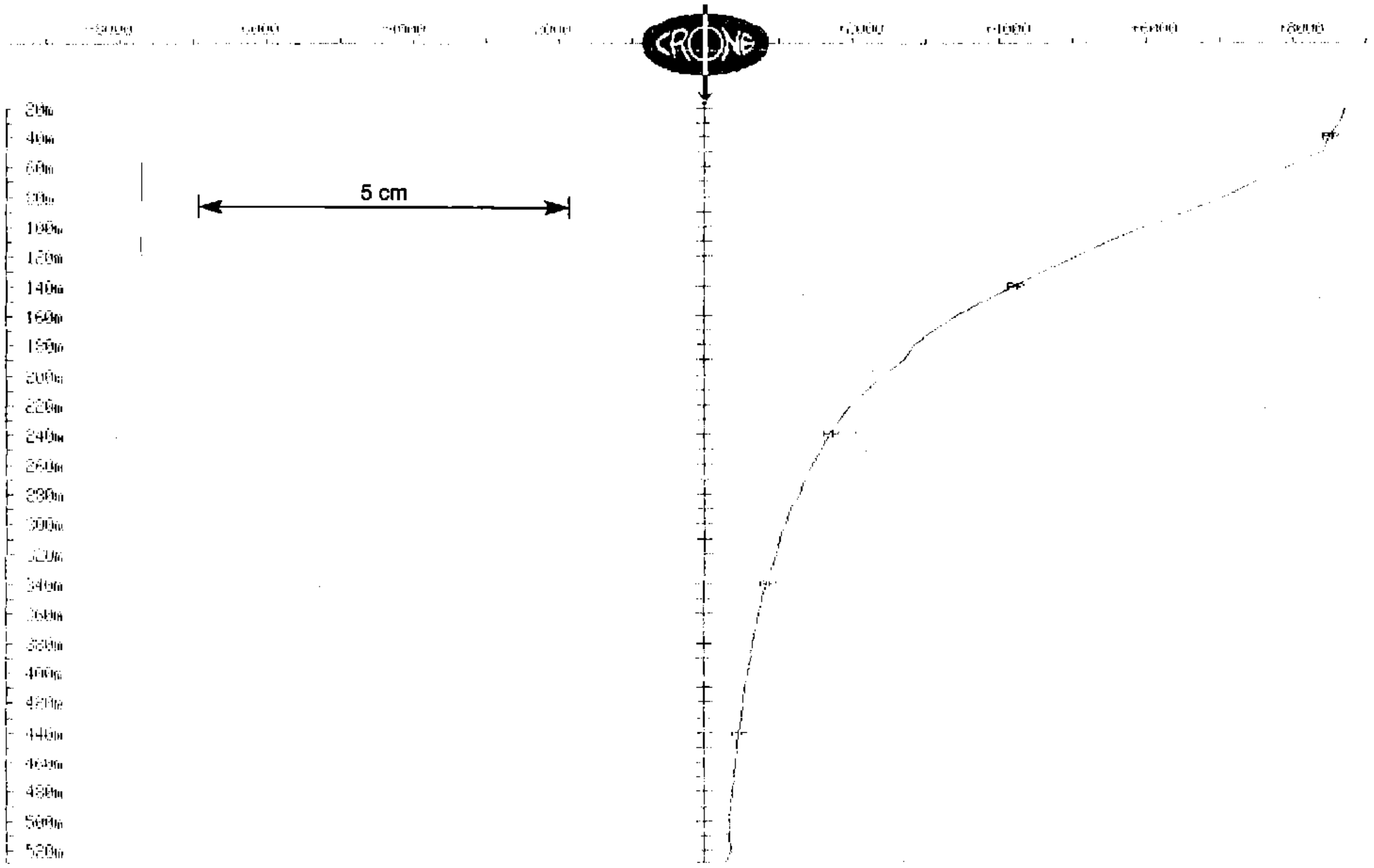
Client : Pasminco Exploration
Grid : Burns Peak
Date : Nov 21, 1992

Hole : BPD-76
Tx Loop : East - 27
File name : BPD76ZE.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000

Unit Scale: 1cm = 1000



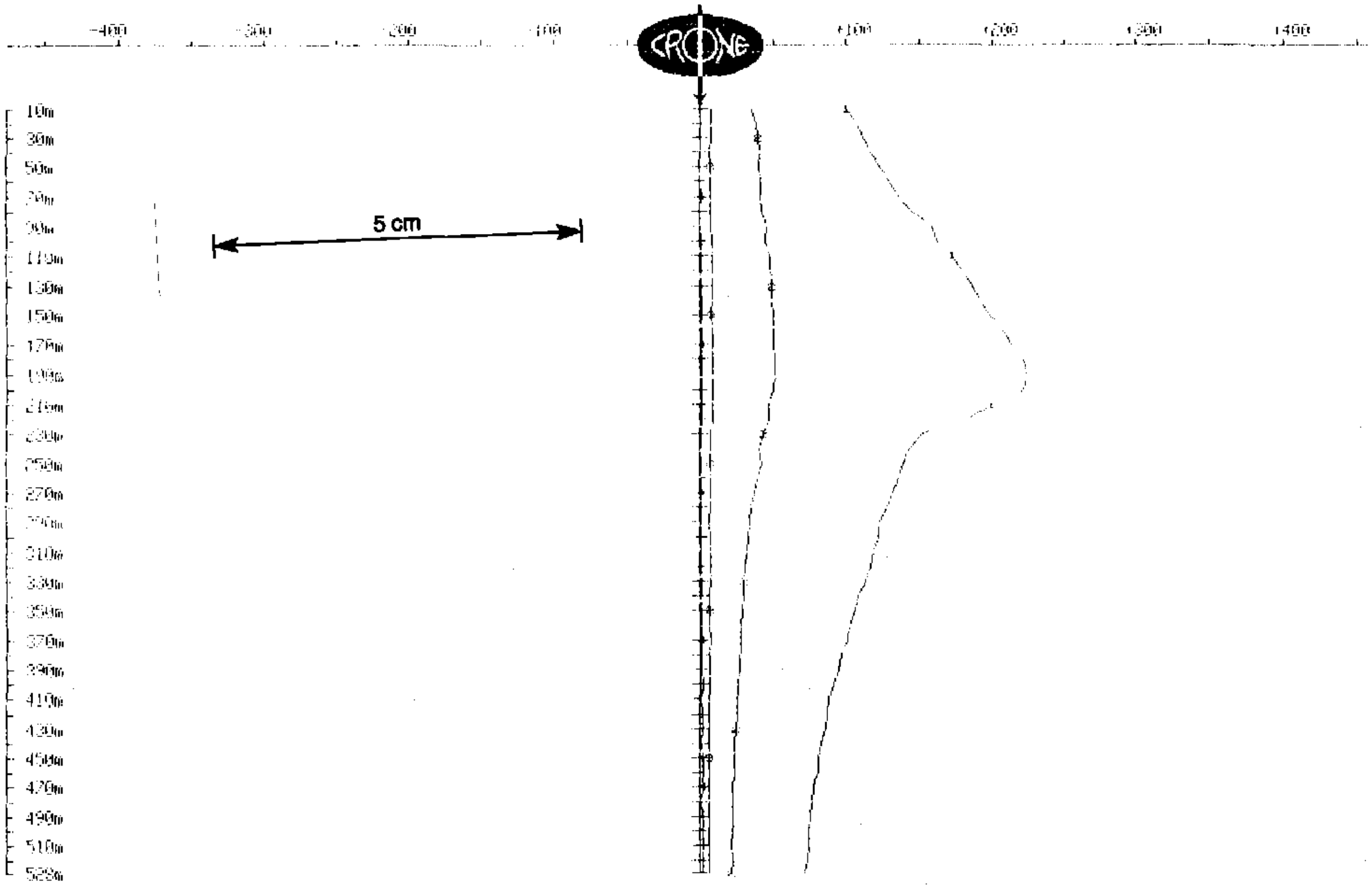
CRONE GEOPHYSICS & EXPLORATION LTD

BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West - 26
Date	: Nov 20, 1992	File name	: BPD76ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 50



953155

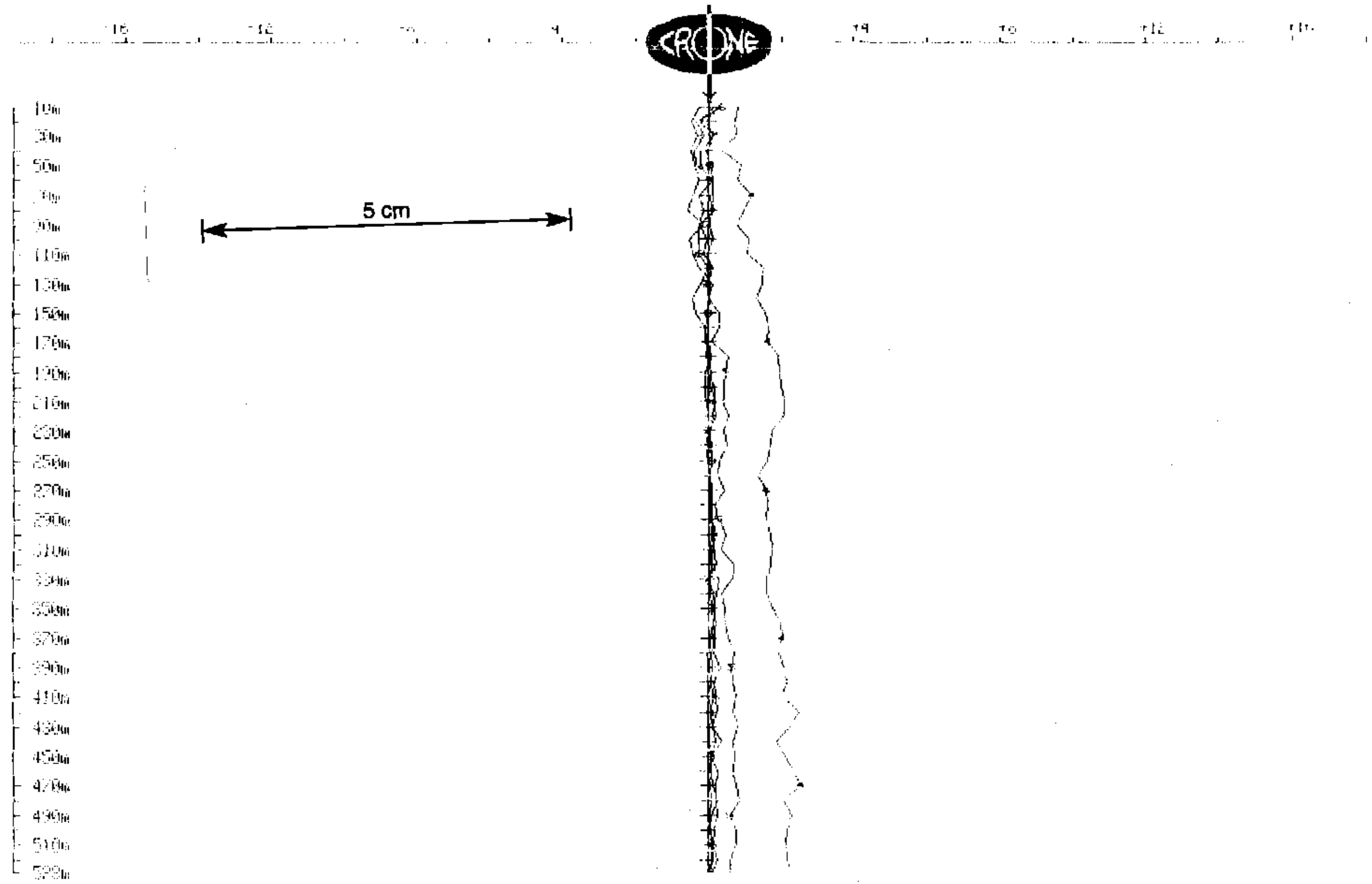
CRONE GEOPHYSICS & EXPLORATION LTD

BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: **BPD-76**
Grid	: **Burns Peak**	Tx Loop	: **West - 26**
Date	: Nov 20, 1992	File name	: BPD76ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels

Scale: 1:5000 Unit Scale: 1cm = 2



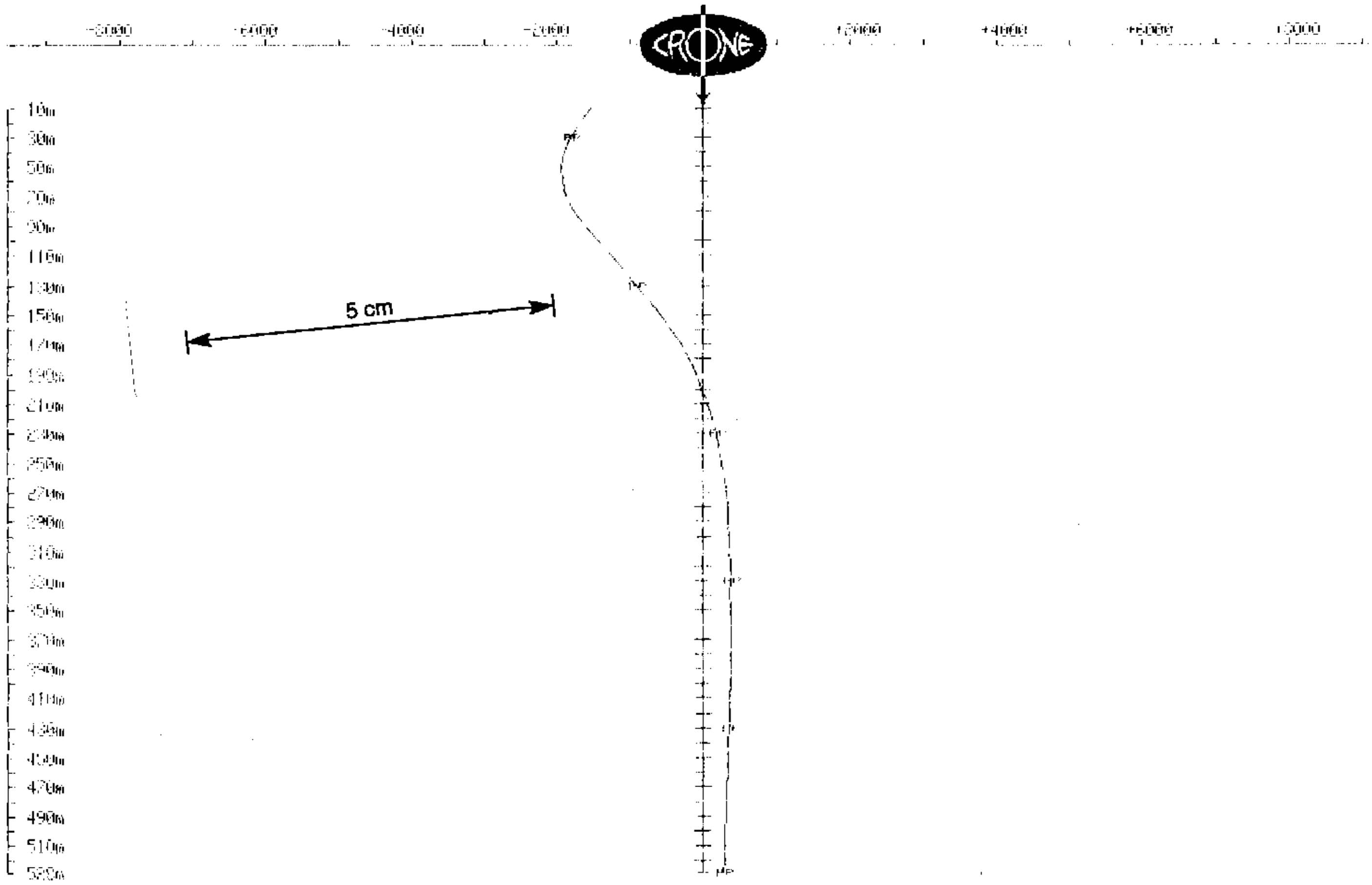
953156

CRONE GEOPHYSICS & EXPLORATION LTD
BOREHOLE PEM

Client	: Pasminco Exploration	Hole	: BPD-76
Grid	: Burns Peak	Tx Loop	: West - 26
Date	: Nov 20, 1992	File name	: BPD76ZW.AM2

Z COMPONENT dBz/dt nanoVolt/amp-m² - 8 channels and PP

Scale: 1:5000 Unit Scale: 1cm = 1000



APPENDIX 9

Rock Sample Descriptions and Locations

PASMINCO EXPLORATION
GEOCHEMICAL ANALYSES RECORD

Sample Type Rock

PROSPECT L 44/88
PROJECT BURNS PEAK
SOUTH CHESTER — HOLLWAY.

Sample No.	Sample Type	Location		METAL CONTENT (ppm unless specified)	COMMENTS
34801		$ 378225 E	5380115N	ORE + LITHOLOGY SUITE	Chloritic feldsp phyric rhyodac??
34818		377265 E	5379925N		Sericitized volcanic, mottled pale pink - green
34827		378940E	5379520N		Feld crystal rich lava/intrusive
34829		378630E	5379530N		Aphyric — < qtz phyric lava
34832		377240E	5379545N		Massive silic volc, feld phyric
34834		377400E	5379300N		Chloritized lava ē ~~Fx~~ ≤ 3% py
34835		377630E	5379290N		Felsic volc cleaved & chloritized
34836		377820E	5379285N		Sericitized aphyric volc
34838		378235E	5379100N		Qtz sandstone, chl matrix, abundant py
34841		377815E	5379100N		Felsic volc? massive, < pink
34842		377705E	5379100N		" " " "
34844		377530E	5379100N		Massive chlorite / quartz alteration
34845		377815E	5378900N		Felsic lava?? pyrite sericite altered
34848		377930E	5378920N		Pumiceous volcanic aphyric
34852		378020E	5379165N		" " ? " " silic
34854		378260E	5379430N		" " sericite - chlorite
34859		377660E	5381700N		Mafic - intermed lava, feld phyric
34864		378710E	5381700N		Felsic lava, massive, columnar jointed
34866		378880E	5381705N		Lava vesicular (carbonate filled), aphyric, silic
34867		379070E	5381705N		Volcanic - magnetite bearing, rare feldsp phenos
34872		378155E	5379720N		Felsic volcanic, pumiceous?? sericitized
34873		378075E	5379725N		" " " "
34874		378025E	5379725N		" " " " + sulfides
34875		377850E	5379740N		Schist
34876		377545E	5379720N		Chloritic volc, feldsp phyric
34877		377790E	5379860N		Sericite schist
34878		378125E	5379540N		Pumiceous pyroclastic, seric
34879		378045E	5379550N		" " < chloritic
34880		377780E	5379550N		" " "
34881		377960E	5379550N		Sericitic schist
34882		377730E	5379520N		Sericite silica altered volcanic
34883		377675E	5378525N		" " " "
34884		377575E	5379535N		Volcanic - siliceous

A 18625

PASMINCO EXPLORATION
GEOCHEMICAL ANALYSES RECORD

Sample Type Rock

PROSPECT EL 44/88
PROJECT BURNS PEAK
SOUTH CHESTER – HOLLWAY

Sample No.	Sample Type	Location		METAL CONTENT (ppm unless specified)	COMMENTS
34885		377 780 E	5379 645 N	ORE + LITHOLOGY SUITE Volcanic silica / sericite altered	
34886		377 745 E	5379 645 N	Volcanic – weathered – vuggy	
34887		377 570 E	5379 645 N	" sericitic, feld phyric	
34888		377 925 E	5379 620 N	Schist silica pyrite	
34889		377 915 E	5379 415 N	Weathered volcanic – boxworks after py?	
34890		377 865 E	5379 415 N	" " limonite spotting	
34891		377 830 E	5379 415 N	Massive felsic volcanic??	
34892		377 805 E	5379 415 N	" " "	
34893		377 655 E	5379 415 N	Sericitic volcanic	
34894		377 905 E	5379 335 N	Felsic volcanic – Mn staining	
34895		377 905 E	5379 285 N	Aphyric volcanic	
34896		Shale Basin		Siltstone + trace py	
34897		" "		Sandstone laminated	
34898		" "		Volcaniclastic – coarse qtz xtals + py	
34899		" "		Sandstone	
34900		Hollway.		" micaceous	
35801		"		Micaceous sed'	
35802		379 280 E	5383 675 N	Andesite vesicular	
35803		Hollway.		Sandstone – mudstone	
35804		379 450 E	5383 720 N	Andesite vesicular	
35805		Boco Road		Micaceous sediment	
35806		Railway.		Pumiceous / feldspathic volcaniclastic	
35807		"		Vesicular lava andesite – dacite	
35808		381 190 E	5382 020 N	Dacite – andesite??	
35809		381 330 E.	5382 120 N	" feldsp phyric	
35810		381 090 E	5382 795 N	" volcaniclastic?	
35811		Powerline track		Feldsp phyric rhyolite	
35812		" "		Feldsp xt sst	
35813		" "		" " " or dacite lava?	
35814		" "		Dacite lava? feldsp phyric	
35815		382 465 E	5382 260 N	" " ?	
35816		382 640 E	5382 575 N	Volcaniclastic feldsp xt	
35817		382 535 E	5383 100 N	Dacite lava	

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PASMINCO EXPLORATION
GEOCHEMICAL ANALYSES RECORD

PROSPECT EL 44/88
PROJECT BURNS PEAK

Sample Type Rock + 1/2 CORE

Sample No.	Sample Type	Location		Cu	Pb	Zn	Ag	Au		COMMENTS
34763		BPD 77 250.5m								Felsic mass debris flow
34764		" " 253.0 – 255.0m		38	2850	9800		·025		Black pyritic siltstone
34765		" " 255.0 – 257.0 m		106	1803	6100		·025		" " "
34766		" " 261.4m		ORE + LITHOLOGY SUITE						Felsic qtz feld phyric breccia
34767		" " 277.7m								Rhyolite - qtz feld porph
34768		" " 472.0m								Felsic mass debris flow
34769		BPD 71 516.0m								Andesite vesic - amygdaloidal, lava
34770		EAF 11 259.5								" " " "
34771		EAF 13 113.3m								Dacite lava.
34772		EAF 7 186.6m								Andesite lava
34773		EAF 2 100.5m								Basaltic andesite lava.
34774		CP 14 33–37.6m								Rhyodacite lava?
34967		BPD 66 36.2 m								Rhyolite qtz feld phyric
34968		" " 60.6m								Felsic volc, sorted fine grained, feld phyric
34969		" " 78.5m								" " " " " "
34970		" " 90.4m								Rhyolite fg, ± feld phyric
34971		NPP 215 67.5m								" " " "
34972		5384680N 377270E								Andesite, feldsp + mafic phyric (or all felds?)
34973		5384630N 377270E								" fg chloritized.
34974		5384680N 377450E		396	2128	149		0·905		Qtz phyric rhyolite, weathered, py – gossanous.
34975		BPD 62 552m		ORE + LITHOLOGY SUITE						Pumiceous mass debris flow
34976		BPD 63 57.2m								Qtz porphyry.
34977		" " 149.7m								Feld qtz phyric rhyolite
34978		BPD 70 378.6m								Pumiceous mass debris flow
34979		" " 459.8m								" " " "
34980		" " 489.7m								" " " "
34981		BPD 62 634.2m								Rhyolite
34982		" " 640.2m								Basaltic - andesite amygdaloidal
34983		" " 645.4m								Rhyolite - feldsp phyric
34984		CP 13 86.00m								Andesite
34985		5385080N 378890E		130	1438	1716		·053		Felsic epiclastic seric silic py alt.
34986		"	"	72	2374	4536		·013		Chert – mudstone sph. gna veinlets
34987		"	"	97	1259	2148		·06		Felsic epiclastic seric silic altered, blebs sph. gna
34988		5385195N 378910E		88	1564	202		·048		Gossanous – limonitic felsic

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PASMINCO EXPLORATION
GEOCHEMICAL ANALYSES RECORD

Sample Type Rock

PROSPECT …CHESTER - HOLLWA…
PROJECT EL 44/88 BURNS PEA…

Sample No.	Sample Type	Location	METAL CONTENT (ppm unless specified)	COMMENTS
35818		EAB 4 98-100m	LITHOLOGY SUITE Micaceous sediment	
35819		EAB.1 168-169m	Shale dk grey.	
32398		EAB 1 253.15-253.45	Hollway andesite	
32399		EAB 2 124.85-125.25	Dacite	
32400		EAB 2 213.77-214.50	Hollway andesite	
34499		EAB 4 137.8-138.3m	Hollway andesite qtz carb veins	and amygdales
34500		" " 177.0-177.2m	Cve pumice breccia	

APPENDIX 10

BPD76 Sample Intervals and Analytical Data

BPD76 (values in ppm)

FROM	TO	SAMPLE	Cu	Pb	Zn	Ag	Au	Ba	Mn
98.00	99.00	34401	9	110	310	<1	<0.008	1301	1050
99.00	100.00	34402	19	205	640	<1	<0.008	2209	990
100.00	101.00	34403	9	83	295	<1	<0.008	3139	630
101.00	103.00	34404	5	5	25	<1	0.01	316	175
103.00	105.00	34405	6	73	59	<1	<0.008	878	295
105.00	107.00	34406	7	67	480	<1	<0.008	694	190
107.00	109.00	34407	8	470	440	1.0	<0.008	1752	675
109.00	111.00	34408	9	110	660	1.0	<0.008	2071	500
111.00	113.00	34409	12	125	235	2.0	0.01	1448	260
113.00	115.00	34410	7	23	53	<1	<0.008	1027	205
115.00	117.00	34411	11	44	275	<1	<0.008	2645	350
117.00	119.00	34412	40	415	2700	4.0	0.02	1943	450
119.00	121.00	34413	25	280	2600	4.0	0.03	1639	465
121.00	123.00	34414	13	330	1050	1.0	<0.008	2082	555
123.00	125.00	34415	10	190	1100	<1	<0.008	2343	880
125.00	127.00	34416	13	26	125	<1	0.01	2141	690
127.00	129.00	34417	3	16	105	<1	<0.008	2089	660
129.00	130.00	34418	3	3	34	<1	<0.008	1579	1000
130.00	131.00	34419	6	16	37	<1	<0.008	1439	620
196.00	198.00	34420	3	15	59	<1	<0.008	969	480
198.00	200.00	34421	4	21	58	<1	<0.008	968	1300
202.00	203.00	34422	11	89	245	<1	<0.008	699	670
203.00	203.80	34423	29	34	49	<1	<0.008	1130	555
203.80	205.00	34424	60	880	2600	1.0	0.01	871	890
205.00	207.00	34425	72	250	395	<1	0.01	636	720
207.00	209.00	34426	87	76	175	3.0	0.01	512	660
209.00	211.00	34427	69	465	990	1.0	0.01	577	900
216.00	218.00	34428	82	93	185	<1	<0.008	627	800
218.00	220.00	34429	93	24	94	<1	<0.008	441	980
220.00	222.00	34430	69	475	870	<1	0.01	369	1850
222.00	224.00	34431	82	145	360	<1	<0.008	388	1550
232.00	234.00	34432	57	83	200	<1	<0.008	591	670
234.00	236.00	34433	60	80	265	<1	<0.008	619	605
236.00	238.00	34434	55	7800	4900	5.0	<0.008	336	6150
244.00	246.00	34435	18	28	68	<1	<0.008	755	480
250.00	251.50	34436	54	2700	4650	2.0	<0.008	765	1200
251.50	253.00	34437	61	6150	4650	5.0	<0.008	755	4000
253.00	255.00	34438	11	360	615	<1	<0.008	984	410
255.00	257.00	34439	9	360	1050	<1	<0.008	644	720
257.00	258.00	34440	23	390	850	<1	<0.008	591	1100
258.00	259.00	34441	8	55	200	<1	<0.008	724	360
259.00	261.00	34442	6	120	245	<1	<0.008	486	250
275.00	277.00	34443	5	64	135	<1	<0.008	844	800
277.00	279.00	34444	5	70	190	<1	<0.008	1765	890
279.00	281.00	34445	4	190	560	<1	<0.008	667	840
281.00	283.00	34446	24	1950	2850	1.0	<0.008	480	1050
283.00	285.00	34447	15	890	2200	<1	<0.008	272	1000
285.00	287.00	34448	24	2150	2200	2.0	<0.008	368	1400
287.00	289.00	34449	4	1200	1100	<1	<0.008	538	3900
290.00	291.00	34451	22	840	1150	1.0	<0.008	852	960
291.00	293.00	34452	41	1050	1200	<1	<0.008	1017	700

FROM	TO	SAMPLE	Cu	Pb	Zn	Ag	Au	Ba	Mn
293.00	295.00	34453	6	280	800	<1	<0.008	1380	655
300.00	302.00	34454	9	435	1100	<1	<0.008	1095	720
302.00	304.00	34455	13	315	780	<1	<0.008	1132	685
304.00	306.00	34456	17	175	675	<1	<0.008	1055	900
306.00	308.00	34457	4	140	260	<1	<0.008	1282	685
314.00	316.00	34458	12	420	940	<1	<0.008	1345	860
316.00	318.00	34459	13	550	1600	<1	<0.008	1625	690
318.00	320.00	34460	9	135	320	<1	<0.008	1873	585
320.00	322.00	34461	12	185	260	<1	<0.008	1747	695
334.00	336.00	34462	6	180	1000	2.0	<0.008	628	820
336.00	338.00	34463	4	380	705	<1	<0.008	811	270
338.00	340.00	34464	4	265	910	<1	<0.008	634	270
340.00	342.00	34465	2	290	490	<1	0.01	782	680
354.00	356.00	34466	6	255	880	<1	<0.008	602	1700
356.00	358.00	34467	15	595	2900	<1	<0.008	521	1050
358.00	360.00	34468	22	180	940	<1	<0.008	1182	690
391.00	393.00	34469	54	110	500	<1	<0.008	832	830
393.00	395.00	34470	23	290	1750	<1	<0.008	1275	1600
395.00	397.00	34471	19	39	580	<1	<0.008	998	790
409.00	411.00	34472	8	17	525	<1	<0.008	691	1100
411.00	413.00	34473	11	35	350	<1	<0.008	803	2050
413.00	415.00	34474	16	205	560	<1	<0.008	542	2150
456.00	458.00	34475	5	390	2150	<1	<0.008	1548	10200
458.00	460.00	34476	4	285	970	<1	<0.008	5556	14200
465.00	466.00	34477	60	920	5750	<1	<0.008	290	5850
466.00	467.00	34478	32	30	1450	<1	<0.008	135	1750
467.00	467.90	34479	45	180	2550	<1	<0.008	125	1700
467.90	469.00	34480	710	14300	27900	5.0	0.01	664	5000
469.00	470.00	34481	18	1250	2300	<1	<0.008	2081	6550
470.00	471.00	34482	23	320	880	<1	<0.008	2026	6750
471.00	472.00	34483	465	140	820	1.0	<0.008	2443	7500
472.00	473.00	34484	58	470	2400	<1	<0.008	1442	6800
492.00	493.00	34485	25	350	920	<1	<0.008	2342	7650
499.00	500.00	34486	120	4050	6500	2.0	<0.008	1200	7250
500.00	501.00	34487	19	4200	4750	2.0	<0.008	1299	4200
507.00	508.00	34488	24	450	1850	2.0	0.01	767	1850
508.00	509.00	34489	30	790	2150	3.0	0.02	1176	1300
509.00	510.00	34490	11	260	840	<1	<0.008	1253	1300
510.00	511.00	34491	10	235	580	1.0	0.01	1701	920
511.00	512.00	34492	60	1400	3500	4.0	0.02	1319	1050
512.00	513.00	34493	5	425	710	<1	<0.008	1894	920
513.00	514.00	34494	<2	320	1250	<1	<0.008	1572	1200
514.00	515.00	34495	2	130	405	<1	<0.008	1871	1050
515.00	516.00	34496	2	100	520	<1	0.02	1243	1050
530.00	531.00	34497	2	9	145	<1	<0.008	773	360
531.00	532.00	34498	2	13	47	<1	<0.008	720	210

BPD76 (values in %)

FROM	TO	SAMPLE	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5	Na2O	SO3	LOI
98.00	99.00	34401	11.17	78.30	0.18	2.25	0.14	0.25	2.43	0.89	0.03	2.55	0.07	1.42
99.00	100.00	34402	16.26	69.30	0.30	2.53	0.13	0.21	4.89	1.31	0.05	1.87	0.41	2.52
100.00	101.00	34403	18.10	66.30	0.35	2.44	0.08	0.23	5.61	1.06	0.06	3.20	0.89	2.15
101.00	103.00	34404	11.91	77.80	0.22	1.39	0.02	0.35	0.36	0.17	0.09	6.24	1.10	0.63
103.00	105.00	34405	12.21	75.20	0.24	2.54	0.03	0.32	1.75	0.53	0.13	3.95	1.90	1.45
123.00	125.00	34415	14.24	70.80	0.25	2.98	0.11	1.34	2.78	1.11	0.06	3.39	0.69	2.30
125.00	127.00	34416	15.05	69.30	0.28	3.39	0.09	0.86	3.30	1.23	0.05	3.38	0.60	2.24
127.00	129.00	34417	12.17	74.50	0.22	2.38	0.09	1.54	2.64	0.71	0.04	3.46	0.39	1.88
129.00	130.00	34418	10.89	73.00	0.21	2.20	0.13	3.85	1.49	0.53	0.04	4.08	0.15	3.57
130.00	131.00	34419	12.77	74.60	0.24	2.27	0.07	1.12	1.87	0.57	0.04	4.72	0.33	1.47
259.00	261.00	34442	12.73	77.50	0.14	2.42	0.04	0.07	4.01	0.62	0.02	0.05	0.63	1.97
275.00	277.00	34443	14.86	70.40	0.19	2.67	0.10	1.34	2.12	0.36	0.02	5.75	0.63	2.04
277.00	279.00	34444	11.65	73.20	0.14	1.85	0.11	2.39	4.77	0.36	0.04	1.75	0.63	2.77
279.00	281.00	34445	12.65	73.00	0.15	2.04	0.11	1.92	1.85	0.39	0.02	4.38	0.84	2.66
281.00	283.00	34446	12.88	72.20	0.17	2.52	0.13	1.68	1.84	0.42	0.03	4.25	1.16	2.50
283.00	285.00	34447	13.39	73.00	0.16	2.37	0.14	1.47	1.72	0.41	0.02	4.34	0.67	2.28
285.00	287.00	34448	12.62	72.20	0.16	3.10	0.18	1.88	3.01	0.60	0.02	1.82	0.68	3.43
287.00	289.00	34449	12.10	67.60	0.17	6.96	0.52	1.41	3.62	0.75	0.02	0.91	0.41	5.31
456.00	458.00	34475	16.49	49.60	1.01	9.42	1.35	6.74	1.45	3.12	0.31	4.92	0.27	5.48
458.00	460.00	34476	17.51	48.00	0.77	10.75	1.87	4.30	5.42	4.26	0.22	1.90	0.09	4.86
469.00	470.00	34481	16.78	51.00	0.87	8.35	0.99	6.82	1.33	3.89	0.23	5.13	0.54	4.03
470.00	471.00	34482	16.93	48.90	0.90	8.91	1.03	8.59	1.22	4.42	0.23	4.43	0.27	4.24
471.00	472.00	34483	16.73	46.50	0.86	9.37	1.03	7.93	1.94	3.83	0.24	4.41	0.46	6.77
472.00	473.00	34484	17.02	50.40	0.95	9.55	0.89	3.84	1.36	3.36	0.25	5.43	2.21	5.09
492.00	493.00	34485	16.19	44.40	0.71	9.06	1.09	10.71	2.70	4.84	0.23	1.78	0.13	7.95
509.00	510.00	34490	18.94	55.80	0.55	5.56	0.19	2.00	5.32	2.56	0.11	1.41	5.47	6.30
510.00	511.00	34491	18.90	51.80	0.38	9.73	0.13	0.63	5.91	2.95	0.04	0.57	13.08	8.04
511.00	512.00	34492	17.30	57.90	0.50	7.14	0.16	1.42	5.44	2.54	0.15	0.74	9.58	6.85
512.00	513.00	34493	20.14	59.70	0.54	2.51	0.14	1.57	6.87	2.59	0.08	0.14	1.05	5.65
530.00	531.00	34497	14.28	73.80	0.33	1.99	0.05	0.51	3.71	0.81	0.04	1.70	0.26	2.66
531.00	532.00	34498	14.10	75.50	0.33	1.85	0.03	0.13	4.20	0.73	0.04	0.27	0.19	2.92

BPD76 (values in ppm)

FROM	TO	SAMPLE	Rb	Sr	V	Y	Zr
471.00	472.00	34483	50	410	210	19	70
472.00	473.00	34484	35	320	220	20	80
530.00	531.00	34497	200	140	<5	35	270
531.00	532.00	34498	200	70	<5	40	270

APPENDIX 11

Analytical Reports

BPD 76 . 953167

ANALABS

A Division of Inchcape Inspection and
Testing Services Australia Pty. Ltd.
A.C.N. 004 591 684

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09138

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

ORDER No.	PROJECT
0233	3006

DATE RECEIVED	RESULTS REQUIRED
25/11/92	ASAP

INVOICE TO:

Pasminco Exploration
P.O. Box 986
BURNIE TAS 7320

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
12	31/12/92	1	98

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
34401/49 344051/98	SC Prep : GP029,P1	Cu,Pb,Zn,Ag,Mn/GA140 Pb,Zn,Mn/GA104 Au,Au(P),Au(S)/GG309 Ba/GX401
34401/05,15/19,42/49,75/76,81/85 90/93,97/98		Whole Rock Analysis/GX408
34463/64,97/98		Rb,Sr,V,Y,Zr/GX401
34447/49,31/64		Cr/GX401

RESULTS TO

[illegible]
Pasminco Exploration
P.O. Box 986
BURNIE TAS 7320

RESULTS TO

[illegible]
Pasminco Exploration
P.O. Box 986
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

BPD 76 . 953168

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	1 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Mn	Mn	Au
1	34401	9	110	-	310		<1	1050	-	<0.008
2	34402	19	205	-	640	-	<1	990	-	<0.008
3	34403	9	83	-	295	-	<1	630	-	<0.009
4	34404	5	5	-	25	-	<1	175	-	<0.008
5	34405	6	73		59	-	<1	295	-	<0.008
6	34406	7	67	-	480	-	<1	190	-	<0.008
7	34407	8	470	-	440	-	1	675	-	<0.008
8	34408	9	110	-	660	-	1	500	-	<0.008
9	34409	12	125		235	-	2	260	-	<0.008
10	34410	7	23	-	53	-	<1	205	-	<0.008
	34411	11	44	-	275	-	<1	350	-	<0.008
12	34412	40	415	-	2700	-	4	450	-	0.024
13	34413	25	280	-	2600	-	4	465	-	0.031
14	34414	13	330	-	1050	-	1	555	-	<0.008
15	34415	10	190	-	1100	-	<1	880	-	<0.008
16	34416	13	26	-	125	-	<1	690	-	0.009
	34417	3	16		105	-	1	[illegible]	-	[illegible]
18	34418	7	[illegible]	-	[illegible]	-	[illegible]	[illegible]		[illegible]
19	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]
20	34420	[illegible]	15		[illegible]	-	1	[illegible]	-	[illegible]
21	34421	4	21	-	58	-	<1	1300	-	<0.008
22	34422	11	89	-	245	-	<1	670		<0.008
23	34423	29	34	-	49	-	<1	555	-	<0.008
	34424	60	880	-	2600	-	1	890	-	0.011
25	34425	72	250	-	395	-	<1	720	-	0.012

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

BPD 76 . 953169

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	2 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Mn	Mn	Au
1	34426	87	76	–	175	–	3	660	–	0.008
2	34427	69	465	–	990	–	1	900	–	0.008
3	34428	82	93	–	185	–	<1	800	–	<0.008
4	34429	93	24	–	94	–	<1	980	–	<0.008
5	34430	69	475	–	870	–	<1	1850	–	0.014
6	34431	82	145	–	360	–	<1	1550	–	<0.008
7	34432	57	83	–	200	–	<1	670	–	<0.008
8	34433	60	80	–	265	–	<1	605	–	<0.008
9	34434	55	7800	–	4900	–	5	6150	–	<0.008
10	34435	18	28	–	68	–	<1	480	–	<0.008
	34436	54	2700	–	4650	–	2	1200	–	<0.008
12	34437	61	6150	–	4650	–	5	4000	–	<0.008
13	34438	11	360	–	615	–	<1	410	–	<0.008
14	34439	9	360	–	1050	–	<1	720	–	<0.008
15	34440	23	390	–	850	–	<1	1100	–	<0.008
16	34441	8	55	–	200	–	<1	360	–	<0.008
	34442	6	120	–	245	–	<1	250	–	<0.008
18	34443	5	64	–	135	–	<1	800	–	<0.008
19	34444	5	70	–	190		<1	890	–	<0.008
20	34445	4	190	–	560	–	<1	840	–	<0.008
21	34446	24	1950	–	2850	–	1	1050	–	<0.008
22	34447	15	890	–	2200	–	<1	1000	–	<0.008
23	34448	24	2150	–	2200	–	2	1400	–	<0.008
	34449	4	1200	–	1100	–	<1	3900	–	<0.008
25	34451	22	840	–	1150	–	1	960	–	<0.008

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

EPD 76 . 953170

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	3 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Mn	Mn	Au
1	34452	41	1050	-	1200	-	<1	700	-	<0.008
2	34453	6	280	-	800	-	<1	655	-	<0.008
3	34454	9	435	-	1100	-	<1	720	-	<0.008
4	34455	13	315	-	780	-	<1	685	-	<0.008
5	34456	17	175	-	675	-	<1	900	-	<0.008
6	34457	4	140	-	260	-	<1	685	-	<0.008
7	34458	12	420	-	940	-	<1	860	-	<0.008
8	34459	13	550	-	1600	-	<1	690	-	<0.008
9	34460	9	135	-	320	-	<1	585	-	<0.008
10	34461	12	185	-	260	-	<1	695	-	<0.008
	34462	6	180	-	1000	-	2	820	-	<0.008
12	34463	4	380	-	705	-	<1	270	-	<0.008
13	34464	4	265	-	910	-	<1	270	-	<0.008
14	34465	2	290	-	490	-	<1	680	-	<0.008
15	34466	6	255	-	880	-	<1	1700	-	<0.008
16	34467	15	595	-	2900	-	<1	1050	-	<0.008
	34468	22	180		940	-	<1	670	-	<0.008
18	34469	54	110	-	500		<1	830	-	<0.008
19	34470	13	290	-	1750	-	<1	1600	-	<0.008
20	34471	19	39		580	-	<1	790	-	<0.008
21	34472	8	17		525	-	<1	1100	-	<0.008
22	34473	11	35	-	350	-	<1	2050	-	<0.008
23	34474	16	205	-	560	-	<1	2150	-	<0.008
	34475	5	390	-	2150	-	<1	>10000	1.02	<0.008
25	34476	4	285	-	970	-	<1	>10000	1.42	<0.008

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	4 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Mn	Mn	Au
1	34477	60	920	-	5750	-	<1	5850	-	<0.008
2	34478	32	30	-	1450	-	<1	1750	-	<0.008
3	34479	45	180	-	2550	-	<1	1700	-	<0.008
4	34480	710	>10000	1.43	>10000	2.79	5	5000	-	0.008
5	34481	18	1250	-	2300	-	<1	6550	-	<0.008
6	34482	23	320	-	880	-	<1	6750	-	<0.008
7	34483	465	140	-	820	-	1	7500	-	<0.008
8	34484	58	470	-	2400	-	<1	6800	-	<0.008
9	34485	25	350	-	920	-	<1	7650	-	<0.008
10	34486	120	4050	-	6500	-	2	7250	-	<0.008
[illegible]	34487	19	4200	-	4750	-	2	4200	-	<0.008
12	34488	24	450		1850	-	2	1850	-	0.008
13	34489	30	790	-	2150	-	3	1300	-	0.016
14	34490	11	280	-	840	-	<1	1300	-	<0.008
15	34491	10	235	-	580	-	1	920	-	0.014
16	34492	60	1400	-	3500	-	4	1050	-	0.024
1[illegible]	34493	5	425	-	710	-	<1	920	-	<0.008
18	34494	<2	320		1250	-	<1	1200	-	<0.008
19	34495	2	130	-	405	-	<1	1050	-	<0.008
20	34496	2	100	-	520	-	<1	1050	-	0.023
21	34497	2	9	-	145	-	<1	360	-	<0.008
22	34498	2	13	-	47	-	<1	210	-	<0.008
[illegible]	DETECTION	2	3	0.01	2	0.01	1	3	0.01	0.008
24	UNITS	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm
25	METHOD	GA140	GA140	GA104	GA140	GA104	GA140	GA140	GA104	GG309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

7 . 953172

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	5 OF 12

TUBE No.	SAMPLE No.	Au(R)	Au(S)	Ba	Rb	Sr	V	Y	Zr	Cr
1	34401	–	–	1301	–	–	–	–	–	–
2	34402	–	–	2209	–	–	–	–	–	–
3	34403	–	–	3139	–	–	–	–	–	–
4	34404	–	–	316	–	–	–	–	–	–
5	34405	–	–	878	–	–	–	–	–	–
6	34406	–	–	694	–	–	–	–	–	–
7	34407	–	–	1752	–	–	–	–	–	–
8	34408	–	–	2071	–	–	–	–	–	–
9	34409	–	0.008	1448	–	–	–	–	–	–
10	34410	–	–	1027	–	–	–	–	–	–
	34411	–	–	2645	–	–	–	–	–	–
12	34412	0.025	–	1943	–	–	–	–	–	–
13	34413	–	–	1639	–	–	–	–	–	–
14	34414	–	–	2082	–	–	–	–	–	–
15	34415	–	–	2343	–	–	–	–	–	–
16	34416	–	–	2141	–	–	–	–	–	–
1	34417	–	–	2089	–		–	–	–	–
18	34418	–	–	1579	–	–	–	–		
19	34419	–	–	1439	–		–	–	–	–
20	34420	–	–	969	–	–	–	–	–	–
21	34421	–	–	968	–	–	–	–	–	–
22	34422	<0.008	–	699	–	–	–	–	–	–
23	34423	–	–	1130	–	–	–	–	–	–
24	34424	–	–	871	–	–	–	–	–	–
25	34425	–	–	636	–	–	–	–	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	6 OF 12

TUBE No.	SAMPLE No.	Au(R)	Au(S)	Ba	Rb	Sr	V	Y	Zr	Cr
1	34426	–	–	512	–	–	–	–	–	–
2	34427	–	–	577	–	–	–	–	–	–
3	34428	–	–	627	–	–	–	–	–	–
4	34429	–	–	441	–	–	–	–	–	–
5	34430	–	–	369	–	–	–	–	–	–
6	34431	–	–	388	–	–	–	–	–	–
7	34432	–	–	591	–	–	–	–	–	–
8	34433	–	–	619	–	–	–	–	–	–
9	34434	–	–	336	–	–	–	–	–	–
10	34435	–	–	755	–	–	–	–	–	–
	34436	–	–	765	–	–	–	–	–	–
12	34437	0.008	–	755	–	–	–	–	–	–
13	34438	–	<0.008	984	–	–	–	–	–	–
14	34439	–	–	644	–	–	–	–	–	–
15	34440	–	–	591	–	–	–	–	–	–
16	34441	–	–	724	–	–	–	–	–	–
	34442	–	–	486	–	–	–	–	–	–
18	34443	–	–	844	–	–	–	–	–	–
19	34444	–	–	1765	–	–	–	–	–	
20	34445	–	–	667	–	–	–	–	–	–
21	34446	–	–	480	–	–	–	–	–	–
22	34447	<0.008	–	272	–	–	–	–	–	<5
23	34448	–	–	368	–	–	–	–	–	<5
	34449	–	–	538	–	–	–	–	–	<5
25	34451	–	–	852	–	–	–	–	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

953174

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	7 OF 12

TUBE No.	SAMPLE No.	Au(R)	Au(S)	Ba	Rb	Sr	V	Y	Zr	Cr
1	34452	-	<0.008	1017	-	-	-	-	-	-
2	34453	-	-	1380	-	-	-	-	-	-
3	34454	-	-	1095	-	-	-	-	-	-
4	34455	-	-	1132	-	-	-	-	-	-
5	34456	-	-	1055	-	-	-	-	-	-
6	34457	-	-	1282	-	-	-	-	-	-
7	34458	-	-	1345	-	-	-	-	-	-
8	34459	-	-	1625	-	-	-	-	-	-
9	34460	-	-	1873	-	-	-	-	-	-
10	34461	-	-	1747	-	-	-	-	-	-
11	34462	<0.008	-	628	-	-	-	-	-	-
12	34463	-	-	811	-	-	-	-	-	-
13	34464	-	-	634	-	-	-	-	-	-
14	34465	-	-	782	-	-	-	-	-	-
15	34466	-	-	602	-	-	-	-	-	-
16	34467	-	-	521	-	-	-	-	-	-
[illegible]	34468	-	-	1192	-	-	-	-	-	-
18	34469	-	-	832	-	-	-	-	-	-
19	34470		-	1275	-		-	-	-	-
20	34471	-	-	998	-	-	-	-	-	-
21	34472	<0.008	-	691	-	-	-	-	-	-
22	34473	-	-	803	-	-	-	-	-	-
23	34474	-	<0.008	542	-	-	-	-	-	-
[illegible]	34475	-	-	1548	-	-	-	-	-	-
25	34476	-	-	5556	-	-	-	-	-	-

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	8 OF 12

TUBE No.	SAMPLE No.	Au(R)	Au(S)	Ba	Rb	Sr	V	Y	Zr	Cr
1	34477	–	–	290	–	–	–	–	–	–
2	34478	–	–	135	–	–	–	–	–	–
3	34479	–	–	125	–	–	–	–	–	–
4	34480	–	–	664	–	–	–	–	–	–
5	34481	–	–	2081	–	–	–	–	–	110
6	34482	–	–	2026	–	–	–	–	–	110
7	34483	–	–	2443	50	410	210	19	70	65
8	34484	–	–	1442	35	320	220	20	80	60
9	34485	–	–	2342	–	–	–	–	–	–
10	34486	–	–	1200	–	–	–	–	–	–
11	34487	<0.008	–	1299	–	–	–	–	–	–
12	34488	–	–	767	–	–	–	–	–	–
13	34489	–	0.017	1176	–	–	–	–	–	–
14	34490	–	–	1253	–	–	–	–	–	–
15	34491	–	–	1701	–	–	–	–	–	–
16	34492	–	–	1319	–	–	–	–	–	–
	34493	–	–	1894	–	–	–	–	–	–
18	34494	–	–	1572	–	–	–	–	–	–
19	34495	–	–	1971	–	–	–	–	–	–
20	34496	–	–	1243	–	–	–	–	–	–
21	34497	<0.008	–	773	200	140	<5	35	270	–
22	34498	–	–	720	200	70	<5	40	270	–
23	DETECTION	0.008	0.008	10	5	5	5	5	5	5
	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GG309	GG309	GX401	GX401	GX401	GX401	GX401	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

953176

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	9 OF 12

TUBE No.	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
1	34401	11.17	79.3	0.18	2.25	0.14	0.25	2.43	0.89	0.033
2	34402	16.26	69.3	0.30	2.53	0.13	0.21	4.89	1.31	0.050
3	34403	18.10	66.3	0.35	2.44	0.08	0.23	5.61	1.06	0.057
4	34404	11.91	77.8	0.22	1.39	0.02	0.35	0.36	0.17	0.085
5	34405	12.21	75.2	0.24	2.54	0.03	0.32	1.75	0.53	0.128
6	34415	14.24	70.8	0.25	2.98	0.11	1.34	2.78	1.11	0.062
7	34416	15.05	69.3	0.28	3.39	0.09	0.86	3.30	1.23	0.045
8	34417	12.17	74.5	0.22	2.38	0.09	1.54	2.64	0.71	0.035
9	34418	10.89	73.0	0.21	2.20	0.13	3.85	1.49	0.53	0.035
10	34419	12.77	74.6	0.24	2.27	0.07	1.12	1.87	0.57	0.040
11	34442	12.73	77.5	0.14	2.42	0.04	0.07	4.01	0.62	0.020
12	34443	14.86	70.4	0.19	2.67	0.10	1.34	2.12	0.36	0.024
13	34444	11.65	73.2	0.14	1.85	0.11	2.39	4.77	0.36	0.035
14	34445	12.65	73.0	0.15	2.04	0.11	1.92	1.85	0.39	0.017
15	34446	12.88	72.2	0.17	2.52	0.13	1.68	1.84	0.42	0.025
16	34447	13.39	73.0	0.16	2.37	0.14	1.47	1.72	0.41	0.023
17	34448	12.62	72.2	0.16	3.10	0.18	1.88	3.01	0.60	0.021
18	[illegible]	12.10	67.6	0.17	6.96	0.52	1.41	3.62	0.75	[illegible]
19	34475	16.49	49.6	1.01	9.42	[illegible]	6.74	1.45	[illegible]	0.312
20	34476	17.51	48.0	0.77	10.75	1.87	4.30	5.42	4.26	0.215
21	34481	16.78	51.0	0.87	8.35	0.99	6.82	1.33	3.89	0.228
22	34482	16.93	48.9	0.90	8.91	1.03	8.59	1.22	4.42	0.226
23	34483	16.73	46.5	0.86	9.37	1.03	7.93	1.94	3.83	0.237
24	34484	17.02	50.4	0.95	9.55	0.89	3.84	1.36	3.36	0.246
25	34485	16.19	44.4	0.71	9.06	1.09	10.71	2.70	4.84	0.234

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	10 OF 12

TUBE No.	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
1	34490	18.94	55.8	0.55	5.56	0.19	2.00	5.32	2.56	0.108
2	34491	18.90	51.8	0.38	9.73	0.13	0.63	5.91	2.95	0.044
3	34492	17.30	57.9	0.50	7.14	0.16	1.42	5.44	2.54	0.154
4	34493	20.14	59.7	0.54	2.51	0.14	1.57	6.07	2.59	0.080
5	34497	14.28	73.8	0.33	1.99	0.05	0.51	3.71	0.81	0.043
6	34498	14.10	75.5	0.33	1.85	0.03	0.13	4.20	0.73	0.039
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21										
22										
	DETECTION	0.05	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.005
24	UNITS	%	%	%	%	%	%	%	%	%
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	11 OF 12

TUBE No.	SAMPLE No.	SO3	Na2O	LOI	Total					
1	34401	0.07	2.55	1.42	99.71					
2	34402	0.41	1.87	2.52	99.73					
3	34403	0.89	3.20	2.15	100.47					
4	34404	1.10	6.24	0.63	100.29					
5	34405	1.90	3.95	1.45	100.24					
6	34415	0.69	3.39	2.30	100.07					
7	34416	0.60	3.38	2.24	99.76					
8	34417	0.39	3.46	1.88	100.01					
9	34418	0.15	4.08	3.57	100.14					
10	34419	0.33	4.72	1.47	100.10					
	34442	0.63	0.05	1.97	100.14					
12	34443	0.63	5.75	2.04	100.44					
13	34444	0.63	1.75	2.77	99.68					
14	34445	0.84	4.38	2.66	99.98					
15	34446	1.16	4.25	2.50	99.75					
16	34447	0.67	4.34	2.28	99.97					
	34448	0.68	1.82	3.43	99.72					
18	34449	0.41	0.91	5.31	99.72					
19	34475	0.27	4.92	5.48	100.18					
20	34476	0.09	1.90	4.86	99.96					
21	34481	0.54	5.13	4.03	99.98					
22	34482	0.27	4.43	4.24	100.07					
23	34483	0.46	4.41	6.77	100.03					
	34484	2.21	5.43	5.09	100.33					
25	34485	0.13	1.78	7.95	99.79					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09138	31/12/92	0233	12 OF 12

TUBE No.	SAMPLE No.	SO3	Na2O	LOI	Total					
1	34490	5.47	1.41	6.30	104.18					
2	34491	13.08	0.57	8.04	112.21					
3	34492	9.58	0.74	6.85	109.71					
4	34493	1.05	0.14	5.65	100.94					
5	34497	0.26	1.70	2.66	100.13					
6	34498	0.19	0.27	2.92	100.24					
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22										
23	DETECTION	0.01	0.05	0.01	0.01					
24	UNITS	%	%	%	%					
25	METHOD	OX408	OX408	OX408	OX408					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

Hollway - EM81,2,4.

953180

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 316890

ANALYTICAL REPORT No. 111310.60.09204

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
0196	3006

DATE RECEIVED	RESULTS REQUIRED
04/01/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	20/01/93	1	5

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
032398/400,034499/500	DC Prep : 6P029,P1	WHOLE ROCK ANALYSIS/OX408 Ba,Rb,Sr,Y,Zr,V,Nb/GX401

RESULTS TO
Mr L Kirnser
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

√ RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

Hollway - EXB1, 2, 4.

953181

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09204	20/01/93	0196	1 OF 3

TUBE No.	SAMPLE No.	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O	MgO	P2O5
1	032398	16.60	52.30	0.92	10.20	0.16	6.05	0.72	4.20	0.450
2	032399	15.00	69.60	0.31	2.43	0.10	1.59	4.85	0.68	0.040
3	032400	18.40	49.50	0.80	9.86	0.20	9.07	2.62	3.00	0.219
4	034499	14.90	46.40	0.95	10.20	0.67	7.11	0.93	5.00	0.510
5	034500	20.30	63.50	0.37	2.57	0.02	0.37	5.75	1.04	0.020
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22										
23	DETECTION	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.05	0.005
24	UNITS	%	%	%	%	%	%	%	%	%
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

Holloway - EXB1, 2, 4.

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09204	20/01/93	0196	2 OF 3

TUBE No.	SAMPLE No.	SO3	Na2O	LOI	Total	Ba	Rb	Sr	Y	Zr
1	032398	0.08	3.33	4.50	99.51	1050	20	600	30	160
2	032399	0.14	2.31	2.51	99.56	1750	240	260	35	270
3	032400	0.06	2.00	4.24	99.97	1900	75	640	20	90
4	034499	0.34	4.38	8.36	99.75	1050	20	310	25	100
5	034500	0.48	2.24	3.31	99.97	860	300	60	55	340
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22										
23	DETECTION	0.01	0.05	0.01	0.01	10	5	5	5	5
24	UNITS	%	%	%	%	ppm	ppm	ppm	ppm	ppm
25	METHOD	OX408	OX408	OX408	OX408	GX401	GX401	GX401	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

Holloway - EXBC 2, 4.

953183

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09204	20/01/93	0196	3 OF 3

TUBE No.	SAMPLE No.	V	Nb							
1	032398	250	7							
2	032399	11	10							
3	032400	280	7							
4	034499	280	4							
5	034500	14	20							
6										
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21										
22										
23	DETECTION	5	3							
24	UNITS	ppm	ppm							
25	METHOD	GX401	GX401							

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

953184 L

BPD 77

(sulfide clast 103m)

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09243

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
0199	3006

DATE RECEIVED	RESULTS REQUIRED
29/01/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	11/02/93	1	1

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
34840	RO Prep : 6P029,P1	Cu,Ag,Fe,Mn,Mo,Cd,Co,Bi/GA140
	RO Prep :	Cu,Pb,Zn,Ag,Fe,Mn,Mo,Cd,Co,Bi/GA104
	RO Prep :	Au,Au(R),Au(S)/GG309
	RO Prep :	As/GA114,Sb/GA117
	RO Prep :	Hg/GA122

RESULTS TO
Mr L Kirnser
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

95?185 [

BPD 77

(sulfide clast 103m)

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09243	11/02/93	0199	1 OF 3

TUBE No.	SAMPLE No.	Cu	Cu	Pb	Zn	Ag	Ag	Fe	Fe	Mn
1	34840	2250	2500	36.00	16.50	>50	300	2.10	2.15	650
2										
3										
4										
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23	DETECTION	2	20	0.01	0.01	1	10	0.01	0.01	3
	UNITS	ppm	ppm	%	%	ppm	ppm	%	%	ppm
25	METHOD	GA140	GA104	GA104	GA104	GA140	GA104	GA140	GA104	GA140

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

BPD 77
(sulfide clast 103m)

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09243	11/02/93	0199	2 OF 3

TUBE No.	SAMPLE No.	Mn	Mo	Mo	Cd	Cd	Co	Co	Bi	Bi
1	34840	815	55	50	1100	1050	6	<25	<10	<100
2										
3										
4										
5										
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22										
23	DETECTION	25	5	50	1	10	3	25	10	100
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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BPD 77

(sulfide dust 103m)

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09243	11/02/93	0199	3 OF 3

TUBE No.	SAMPLE No.	As	Sb	Sb	Hg	Au	Au(R)	Ba	Sn	
1	34840	16	>10.0	220	6.600	0.948	0.905	154	<50	
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23	DETECTION	1	0.5	50	0.005	0.008	0.008	35	50	
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
25	METHOD	GA114	GA117	GX401	GA122	GG309	GG309	GX401	GX401	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09385

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
1403	3006

DATE RECEIVED	RESULTS REQUIRED
19/03/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	13/04/93	1	22

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
34718/739	SC Prep : GP029,P1	Cu,Pb,Zn,Ag,Mn/GA140
	SC Prep :	Au,Au(R),Au(S)/GG309
	SC Prep :	Ba,Sb,Sn/GX401

RESULTS TO:
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO:

RESULTS TO:

REMARKS

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09385	13/04/93	J403	1 OF 2

TUBE No.	SAMPLE No.	Cu	Pb	Pb	Zn	Zn	Ag	Mn	Au	Au(R)
1	34718	15	174	-	701	-	<1	1186	<0.008	-
2	34719	31	2660	-	2090	-	2	900	0.015	-
3	34720	6	174	-	320	-	<1	1473	<0.008	-
4	34721	13	956	-	1503	-	1	1380	<0.008	-
5	34722	4	273	-	902	-	<1	1510	<0.008	-
6	34723	27	4640	0.52	>5000	0.80	4	1388	0.010	-
7	34724	47	>5000	0.70	>5000	0.98	7	673	0.016	-
8	34725	15	1750	-	1984	-	1	754	<0.008	-
9	34726	11	351	-	1015	-	<1	1106	<0.008	-
10	34727	22	99	-	109	-	<1	1274	<0.008	-
[illegible]	34728	4	609	-	240	-	<1	2040	<0.008	-
12	34729	10	2815	-	1052	-	1	1836	<0.008	<0.008
13	34730	12	719	-	2065	-	<1	1735	<0.008	-
14	34731	5	457	-	1046	-	<1	1455	<0.008	-
15	34732	7	1087	-	1294	-	1	1392	<0.008	-
16	34733	3	486	-	671	-	<1	801	<0.008	-
17	34734	7	883	-	2655	-	1	1409	<0.008	-
18	34735	6	383	-	610	-	<1	1505	<0.008	
19	34736	169	3730	0.40	>5000	0.77	4	1347	0.104	-
20	34737	59	1767	-	3630	-	2	1156	<0.008	-
21	34738	18	1916	-	2538	-	1	1253	0.009	-
22	34739	73	585	-	2119	-	1	1486	0.008	<0.008
23	DETECTION	2	3	0.01	2	0.01	1	3	0.008	0.008
24	UNITS	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm
25	METHOD	GA140	GA140	GA104	GA140	GA104	GA140	GA140	GG309	GG309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09385	13/04/93	1403	2 OF 2

TUBE No.	SAMPLE No.	Au(S)	Sn	Sb	Ba					
1	34718	-	<3	<3	776					
2	34719	-	8	4	690					
3	34720	<0.008	4	4	879					
4	34721	-	5	6	855					
5	34722	-	7	9	987					
6	34723	-	4	9	385					
7	34724	-	<3	9	514					
8	34725	-	4	<3	426					
9	34726	-	5	7	669					
10	34727	-	7	6	553					
11	34728	-	7	5	460					
12	34729	-	6	5	703					
13	34730	-	7	5	555					
14	34731	-	5	<3	615					
15	34732	-	3	<3	495					
16	34733	-	5	3	1140					
17	34734	-	6	<3	833					
18	34735	-	3	3	641					
19	34736	-	5	<3	592					
20	34737	-	5	<3	956					
21	34738	-	7	<3	1345					
22	34739	<0.008	5	18	397					
23	DETECTION	0.008	3	3	10					
24	UNITS	ppm	ppm	ppm	ppm					
25	METHOD	GG309	GX401	GX401	GX401					

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
- = element not determined

AUTHORISED OFFICER

Sth Kershaw / Chester

953191

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09425

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
1406	3006

DATE RECEIVED	RESULTS REQUIRED
02/04/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
12	04/05/93	1	68

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
34801/35819	RO Prep : GP029,P1,P4	Cu,Pb,Zn,Ag,Mn,Bi,Ni,Cr/GA140 Au,Au(R),Au(S)/GG309 As/HA101,S/OM613 Rb,Sr,Zr,V,Ba,Sb/GX401 Whole Rock Analysis/OX408

RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO
Mr M Saxon
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

N.B. S/OX408 IS NOT RECOMMENDED ON SULPHIDE SAMPLES AND WAS CHECKED BY METHOD OM613

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	1 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mn	Mn	Bi	Ni	Cr
1	34801	20	163	355	1	3306	–	16	–	–
2	34818	14	35	42	<1	87	–	<10	–	–
3	34827	5	4	95	<1	559	–	<10	–	–
4	34829	7	6	80	<1	641	–	<10	–	–
5	34832	5	3	34	<1	619	–	<10	–	–
6	34834	50	12	140	<1	560	–	11	–	–
7	34835	5	<3	84	<1	221	–	<10	–	–
8	34836	4	5	51	<1	65	–	<10	–	–
9	34838	7	8	147	<1	1065	–	10	–	–
10	34841	3	3	42	<1	99	–	10	–	–
	34842	3	3	60	<1	421	–	<10	–	–
12	34844	4	<3	132	<1	788	–	13	–	–
13	34845	4	<3	100	<1	1388	–	<10	–	–
14	34848	4	4	34	<1	1321	–	<10	–	–
15	34852	5	90	632	<1	417	–	<10	–	–
	34854	3	25	89	<1	452	–	<10	–	–
17	34859	8	10	128	<1	1187	–	10	–	–
18	34864	3	4	26	<1	556	–	<10	–	–
19	34866	2	3	28	<1	560	–	<10	–	–
20	34867	6	9	38	<1	169	–	16	–	–
21	34872	3	<3	45	<1	65	–	<10	–	–
22	34873	2	5	74	<1	211	–	<10	–	–
23	34874	2	<3	39	<1	44	–	<10	–	–
	34875	3	5	67	<1	61	–	<10	–	–
25	34876	4	6	56	<1	561	–	<10	–	–

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	2 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mn	Mn	Bi	Ni	Cr
1	34877	3	56	410	<1	1174	–	<10	–	–
2	34878	3	4	47	<1	83	–	<10	–	–
3	34879	6	15	59	<1	118	–	<10	–	–
4	34880	7	49	277	<1	412	–	<10	–	–
5	34881	3	5	32	<1	53	–	<10	–	–
6	34882	10	3	35	<1	74	–	<10	–	–
7	34883	4	4	38	<1	72	–	<10	–	–
8	34884	15	9	137	<1	2546	–	<10	–	–
9	34885	5	3	28	<1	109	–	<10	–	–
10	34886	4	3	26	<1	561	–	<10	–	–
11	34887	12	<3	31	<1	32	–	<10	–	–
12	34888	13	14	29	<1	62	–	10	–	–
13	34889	3	32	86	<1	1011	–	<10	–	–
14	34890	4	25	102	<1	567	–	<10	–	–
15	34891	3	5	49	<1	184	–	<10	–	–
16	34892	3	<3	38	<1	1024	–	<10	–	–
17	34893	4	3	15	<1	71	–	<10	–	–
18	34894	8	17	418	<1	>5000	0.77	<10	–	–
19	34895	3	7	33	<1	355	–	<10	–	–
20	34896	276	1770	643	3	76	–	<10	–	–
21	34897	43	255	254	1	2450	–	<10	–	–
22	34898	4	163	202	<1	2993	–	<10	–	–
23	34899	41	139	207	<1	2645	–	<10	–	–
24	34900	24	64	154	<1	395	–	<10	68	235
25	35801	17	56	161	<1	498	–	<10	89	174

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	3 OF 12

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Mn	Mn	Bi	Ni	Cr
1	35802	14	41	196	<1	1418	-	<10	-	-
2	35803	47	107	66	1	1513	-	<10	5	52
3	35804	21	182	794	<1	1899	-	<10	-	-
4	35805	23	20	54	<1	302	-	<10	71	161
5	35806	3	5	40	<1	303	-	<10	-	-
6	35807	14	<3	90	<1	1185	-	<10	-	-
7	35808	9	5	79	<1	986	-	<10	-	-
8	35809	7	15	59	<1	447	-	<10	-	-
9	35810	4	4	70	<1	560	-	<10	-	-
10	35811	3	8	46	<1	113	-	<10	-	-
11	35812	5	11	38	<1	308	-	<10	-	-
12	35813	4	8	46	<1	324	-	<10	-	-
13	35814	3	6	35	<1	238	-	<10	-	-
14	35815	4	7	27	<1	79	-	<10	-	-
15	35816	3	5	52	<1	418	-	<10	-	-
16	35817	4	4	63	<1	645	-	<10	-	-
17	35818	26	40	271	<1	1571	-	<10	116	192
18	35819	72	40	119	1	566	-	<10	54	120
19										
20										
21										
22										
23	DETECTION	2	3	2	1	3	0.01	10	3	7
24	UNITS	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
25	METHOD	GA140	GA140	GA140	GA140	GA140	GA104	GA140	GA140	GA140

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	4 OF 12

TUBE No.	SAMPLE No.	Au	Au(R)	Au(S)	As	Rb	Sr	Zr	V	Ba
1	34801	-	-	-	8	159	25	216	70	1019
2	34818		-	-	1	176	7	172	<5	657
3	34827	-	-	-	3	152	236	215	54	1026
4	34829	-	-	-	1	153	159	208	55	853
5	34832	-	-	-	1	99	87	240	<5	1092
6	34834	-	-	-	6	184	6	218	64	831
7	34835	-	-	-	<1	117	53	290	10	510
8	34836	-	-	-	<1	207	6	276	6	819
9	34838	-	-	-	4	171	9	214	61	704
10	34841	-	-	-	<1	132	41	268	9	620
[illegible]	34842	-	-	-	4	147	34	283	15	608
12	34844	-	-	-	5	157	<5	206	52	631
13	34845	-	-	-	4	162	11	270	6	640
14	34848	-	-	-	<1	140	71	261	6	756
15	34852	-	-	-	1	159	5	234	<5	729
[illegible]	34854	-	-	-	<1	139	104	287	<5	1050
17	34859	-	-	-	4	64	567	191	108	1255
18	34864	-	-	-	<1	150	121	232	<5	955
19	34866	-		-	<1	158	92	231	7	921
20	34867	-	-	-	1	190	106	267	43	1227
21	34872	<0.008	-	-	3	139	23	258	21	844
22	34873	<0.008	-	-	1	142	37	245	11	830
23	34874	<0.008	-	-	<1	159	14	283	10	826
[illegible]	34875	<0.008	-	-	<1	167	12	233	13	823
25	34876	<0.008	-	-	5	71	308	260	96	666

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	5 OF 12

TUBE No.	SAMPLE No.	Au	Au(R)	Au(S)	As	Rb	Sr	Zr	V	Ba
1	34877	<0.008	-	-	<1	144	23	245	6	995
2	34878	<0.008	-	-	<1	138	41	256	10	829
3	34879	<0.008	-	-	<1	133	62	297	9	664
4	34880	<0.008	-	-	<1	102	33	229	11	367
5	34881	<0.008	-	-	<1	192	27	306	11	1329
6	34882	<0.008	-	-	4	155	7	167	6	1104
7	34883	<0.008	<0.008	-	9	162	5	182	<5	1242
8	34884	<0.008	-	-	1	145	55	277	<5	1251
9	34885	<0.008	-	-	<1	149	7	184	7	1066
10	34886	0.020	-	-	<1	172	10	192	8	1046
[illegible]	34887	<0.008	-	-	<1	161	41	222	12	471
12	34888	<0.008	-	-	2	170	13	251	24	1367
13	34889	<0.008	-	<0.008	<1	155	37	210	12	725
14	34890	<0.008	-	-	<1	179	5	187	8	919
15	34891	<0.008	-	-	<1	146	79	217	10	799
[illegible]	34892	<0.008	-	-	4	122	85	195	6	619
17	34893	<0.008	<0.008	<0.008	<1	165	<5	255	9	641
18	34894	<0.008	-	-	2	184	13	195	<5	977
19	34895	<0.008	-	-	2	151	51	226	7	771
20	34896	<0.008	-	-	21	130	36	120	193	877
21	34897	<0.008	-	-	36	123	47	195	120	639
22	34898	<0.008	-	-	8	36	555	245	27	384
23	34899	<0.008	-	-	15	127	32	208	123	549
[illegible]	35802	-	-	-	9	75	350	124	185	1629
25	35804	-	-	-	5	43	610	118	171	1492

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	6 OF 12

TUBE No.	SAMPLE No.	Au	Au(R)	Au(S)	As	Rb	Sr	Zr	V	Ba
1	35806	<0.008	–	–	2	240	79	237	108	1080
2	35807	<0.008	–	–	3	26	280	78	290	430
3	35808	<0.008	–	–	8	8	354	87	302	169
4	35809	<0.008	–	–	3	115	282	272	72	697
5	35810	<0.008	–	–	2	138	272	213	86	797
6	35811	<0.008	–	–	1	113	96	272	12	1358
7	35812	<0.008	–	–	9	143	84	251	70	661
8	35813	<0.008	–	<0.008	4	167	84	225	55	471
9	35814	<0.008	<0.008	–	2	162	71	236	64	1365
10	35815	<0.008	–	–	<1	123	51	302	13	788
	35816	<0.008	–	–	1	187	168	264	73	1958
12	35817	<0.008	–	–	2	121	281	206	76	882
13										
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.008	0.008	0.008	1	5	5	5	5	10
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GG309	GG309	GG309	HA101	GX401	GX401	GX401	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	7 OF 12

TUBE No.	SAMPLE No.	Sb	S	S	LOI	Al2O3	SiO2	TiO2	Fe2O3	MnO
1	34801	<3	0.017	-	3.65	14.94	68.4	0.52	5.74	0.53
2	34818	<3	<0.005	-	2.13	11.80	79.3	0.21	1.57	0.02
3	34827	<3	<0.005	-	2.35	14.57	68.7	0.50	4.74	0.08
4	34829	<3	<0.005	-	3.40	14.22	68.6	0.47	4.06	0.10
5	34832	<3	<0.005	-	1.43	13.14	74.5	0.25	1.83	0.09
6	34834	5	0.242	0.250	3.59	14.13	69.0	0.52	6.43	0.09
7	34835	<3	<0.005	-	2.54	14.19	73.6	0.31	2.83	0.04
8	34836	<3	<0.005	-	2.34	14.59	75.5	0.34	1.80	0.02
9	34838	3	0.641	0.680	3.67	14.74	66.2	0.50	7.49	0.17
10	34841	<3	<0.005	-	1.97	13.97	76.0	0.32	1.92	0.02
	34842	<3	<0.005	-	2.24	13.10	76.1	0.32	2.71	0.05
12	34844	<3	0.104	-	3.17	13.31	70.7	0.42	6.31	0.12
13	34845	<3	0.881	0.940	3.71	13.45	69.2	0.29	6.79	0.20
14	34848	<3	0.031	-	3.42	14.24	71.5	0.30	2.06	0.20
15	34852	<3	0.040	-	1.93	11.59	79.0	0.25	2.53	0.07
	34854	<3	0.006	-	2.52	14.75	71.9	0.31	2.52	0.06
17	34859	<3	<0.005	-	3.83	17.42	57.2	0.77	8.69	0.19
18	34864	<3	<0.005	-	2.37	13.01	71.7	0.31	2.92	0.07
19	34866	<3	0.005	-	2.54	13.00	71.8	0.30	2.81	0.09
20	34867	<3	1.230	1.250	2.73	15.79	65.7	0.50	4.46	0.03
21	34872	<3	<0.005	-	2.47	12.61	76.4	0.32	3.15	0.01
22	34873	<3	0.181	-	2.26	12.82	74.8	0.29	3.77	0.03
23	34874	<3	<0.005	-	2.10	13.17	77.1	0.33	1.89	0.01
	34875	<3	0.008	-	2.05	12.82	78.5	0.29	1.46	0.02
25	34876	<3	0.007	-	2.23	15.38	64.0	0.69	5.54	0.09

Results in ppm unless otherwise specified
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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	8 OF 12

TUBE No.	SAMPLE No.	Sb	S	S	LOI	Al2O3	SiO2	TiO2	Fe2O3	MnO
1	34877	<3	0.050	-	2.27	12.70	76.6	0.28	2.53	0.18
2	34878	<3	<0.005	-	2.12	13.32	75.9	0.31	2.87	0.02
3	34879	<3	<0.005	-	1.88	14.57	74.2	0.32	2.14	0.02
4	34880	<3	<0.005	-	2.14	12.06	77.2	0.26	3.31	0.06
5	34881	<3	<0.005	-	2.47	15.99	72.6	0.37	1.76	0.02
6	34882	<3	0.011	-	2.28	11.96	77.7	0.21	3.15	0.01
7	34883	<3	0.020	-	2.29	12.58	76.6	0.23	2.54	0.02
8	34884	<3	0.026	-	1.91	13.30	74.3	0.23	2.59	0.38
9	34885	<3	0.010	-	2.18	12.65	77.9	0.24	2.38	0.03
10	34886	<3	0.005	-	2.34	13.05	77.2	0.24	2.39	0.08
	34887	<3	0.007	-	2.14	12.87	77.4	0.29	2.09	0.01
12	34888	<3	2.626	2.800	4.05	13.85	71.6	0.30	4.79	0.02
13	34889	<3	0.009	-	2.29	13.30	75.8	0.27	2.54	0.15
14	34890	3	0.007	-	2.18	13.05	76.9	0.23	2.17	0.08
15	34891	<3	0.006	-	1.61	13.79	75.5	0.26	2.21	0.03
	34892	<3	0.006	-	1.63	12.55	76.9	0.24	2.44	0.16
17	34893	<3	<0.005	-	2.11	13.49	78.0	0.28	1.11	0.02
18	34894	<3	0.008	-	2.73	13.46	73.9	0.26	2.93	1.03
19	34895	<3	0.006	-	1.80	13.96	75.8	0.27	1.78	0.05
20	34896	4	-	-	-	-	-	-	-	-
21	34897	6	-	-	-	-	-	-	-	-
22	34898	<3	-	-	-	-	-	-	-	-
23	34899	<3	-	-	-	-	-	-	-	-
24	35802	<3	0.010	-	3.74	17.76	58.2	0.94	10.23	0.22
25	35804	3	0.038	-	3.00	17.43	57.8	0.92	9.31	0.29

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
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A.C.N. 004 591 864

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	9 OF 12

TUBE No.	SAMPLE No.	Sb	S	S	LOI	Al2O3	SiO2	TiO2	Fe2O3	MnO
1	35806	<3	0.005	-	2.95	16.38	67.6	0.73	4.04	0.05
2	35807	<3	0.006	-	4.04	17.44	54.0	0.77	10.65	0.20
3	35808	<3	0.011	-	4.13	17.45	50.4	0.89	10.03	0.18
4	35809	<3	<0.005	-	2.09	15.66	68.2	0.54	4.04	0.07
5	35810	<3	0.005	-	2.79	13.85	69.8	0.49	5.08	0.07
6	35811	<3	0.007	-	2.03	14.55	72.4	0.37	3.01	0.02
7	35812	<3	0.007	-	2.36	14.81	71.0	0.46	3.48	0.04
8	35813	<3	<0.005	-	3.19	13.75	72.5	0.41	4.20	0.04
9	35814	<3	0.007	-	1.97	14.66	70.3	0.46	3.56	0.04
10	35815	<3	<0.005	-	3.18	14.97	73.8	0.40	1.98	0.02
	35816	3	0.008	-	2.62	16.19	67.1	0.50	3.79	0.06
12	35817	<3	<0.005	-	2.26	14.21	67.7	0.48	4.63	0.10
13										
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	3	0.005	0.005	0.01	0.05	0.1	0.01	0.01	0.01
24	UNITS	ppm	%	%	%	%	%	%	%	%
25	METHOD	GX401	OX408	OM613	OM615	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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953201 L

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	10 OF 12

TUBE No.	SAMPLE No.	CaO	K2O	MgO	P2O5	Na2O	TOTAL			
1	34801	0.05	4.13	1.37	0.116	0.51	99.99			
2	34818	0.02	3.90	0.48	0.016	0.10	99.58			
3	34827	0.66	4.35	1.38	0.121	2.65	100.09			
4	34829	1.86	3.60	1.21	0.111	2.57	100.21			
5	34832	0.51	4.07	0.30	0.028	3.79	99.97			
6	34834	0.11	4.23	1.50	0.103	0.05	100.00			
7	34835	0.04	2.74	1.10	0.027	2.49	99.88			
8	34836	0.01	4.93	0.63	0.010	0.06	100.24			
9	34838	0.26	3.96	2.06	0.124	0.31	100.14			
10	34841	0.04	3.26	0.52	0.012	2.29	100.33			
	34842	0.03	3.54	0.63	0.020	1.57	100.27			
12	34844	0.15	3.66	2.12	0.088	0.16	100.37			
13	34845	0.50	3.73	1.48	0.037	0.16	100.41			
14	34848	1.64	3.22	0.61	0.059	2.71	100.03			
15	34852	0.06	3.74	0.72	0.043	0.06	100.02			
	34854	1.15	3.18	0.63	0.048	3.10	100.21			
17	34859	1.70	2.85	3.52	0.386	3.31	99.84			
18	34864	1.51	4.69	0.69	0.039	2.56	99.86			
19	34866	1.61	5.25	0.85	0.044	1.66	100.01			
20	34867	0.14	6.96	0.74	0.097	1.97	100.34			
21	34872	0.02	3.43	0.62	0.032	0.93	99.94			
22	34873	0.02	3.18	0.61	0.016	1.73	99.73			
23	34874	0.01	3.97	0.46	0.013	0.61	99.69			
	34875	0.02	4.14	0.36	0.010	0.18	99.88			
25	34876	3.52	2.37	2.37	0.107	3.52	99.80			

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	11 OF 12

TUBE No.	SAMPLE No.	CaO	K2O	MgO	P2O5	Na2O	TOTAL			
1	34877	0.10	3.31	0.62	0.037	1.12	99.80			
2	34878	0.02	3.31	0.69	0.021	1.64	100.19			
3	34879	0.04	3.14	0.47	0.026	2.83	99.60			
4	34880	0.03	2.60	0.84	0.022	1.47	99.99			
5	34881	0.02	4.95	0.63	0.012	0.75	99.61			
6	34882	0.01	3.83	0.40	0.007	0.13	99.73			
7	34883	0.02	4.10	0.45	0.026	1.25	100.12			
8	34884	0.06	4.01	0.45	0.026	2.32	99.58			
9	34885	0.02	4.00	0.41	0.013	0.33	100.18			
10	34886	0.02	4.22	0.37	0.011	0.06	99.98			
[illegible]	34887	0.03	3.67	0.36	0.015	1.18	100.05			
12	34888	<0.01	4.44	0.44	0.015	0.10	102.25			
13	34889	0.02	3.73	0.41	0.024	1.27	99.80			
14	34890	0.01	4.46	0.47	0.022	0.22	99.84			
15	34891	0.04	3.51	0.33	0.026	2.87	100.21			
[illegible]	34892	0.03	2.89	0.32	0.020	2.74	99.91			
17	34893	0.01	4.46	0.51	0.014	0.08	100.08			
18	34894	0.03	4.58	0.50	0.029	0.37	99.80			
19	34895	0.04	3.48	0.43	0.025	2.12	99.75			
20	35802	0.50	2.68	2.00	0.239	3.64	100.14			
21	35804	1.55	2.06	2.72	0.283	4.65	100.09			
22	35806	0.22	5.10	1.44	0.054	1.46	100.04			
23	35807	2.60	1.07	4.68	0.084	4.61	100.20			
24	35808	4.79	0.34	6.68	0.091	5.24	100.24			
25	35809	2.04	2.60	1.00	0.106	3.59	99.93			

Results in ppm unless otherwise specified
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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09425	04/05/93	1406	12 OF 12

TUBE No.	SAMPLE No.	CaO	K2O	MgO	P2O5	Na2O	TOTAL			
1	35810	1.12	3.17	1.20	0.104	2.10	99.78			
2	35811	0.07	4.59	0.47	0.044	2.57	100.17			
3	35812	0.13	3.35	0.96	0.075	3.12	99.78			
4	35813	0.44	3.43	1.18	0.052	0.75	99.97			
5	35814	0.14	5.89	0.59	0.075	1.99	99.67			
6	35815	0.03	3.65	0.37	0.027	1.88	100.32			
7	35816	0.46	6.05	1.03	0.085	1.86	99.77			
8	35817	2.81	3.68	1.24	0.119	2.97	100.19			
9										
10										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.01	0.01	0.01	0.005	0.05	0.01			
24	UNITS	%	%	%	%	%	%			
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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953204

South Kershaw
Soil Geochemistry

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 31889

ANALYTICAL REPORT No. 111310.60.09474

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 986
BURNIE TAS 7320

ORDER No.	PROJECT
0238	3006

DATE RECEIVED	RESULTS REQUIRE
05/05/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
7	20/05/93	1	164

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
035686/035800	SO Prep : GP027,P2	Cu,Pb,Zn,Mn/GA140,Mo/GA104
037001/037054		Au,Au(R),Au(S)/GG309

RESULTS TO
Mr P Fitzgerald
Pasminco Exploration
P.O. Box 986
BURNIE TAS 7320

RESULTS TO

RESULTS TO

REMARKS

AUTHORISED OFFICER

17

South Kershaw
Soil Geochemistry

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	1 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	035686	9	30	115	1750	-	<0.008	-	-	
2	035687	13	29	131	1675	-	<0.008	-	-	
3	035688	22	66	207	>5000	0.72	<0.008	-	<0.008	
4	035689	16	914	1357	>5000	0.72	<0.008	-	-	
5	035690	27	112	556	>5000	1.95	<0.008	-	-	
6	035691	6	5	33	544	-	<0.008	-	-	
7	035692	2	<3	13	83	-	<0.008	-	-	
8	035693	2	<3	20	72	-	<0.008	-	-	
9	035694	2	<3	14	78	-	<0.008	-	-	
10	035695	3	3	22	61	-	<0.008	-	-	
	035696	3	5	19	159	-	<0.008	-	-	
12	035697	2	4	20	61	-	<0.008	<0.008	-	
13	035698	2	3	12	35	-	<0.008	-	-	
14	035699	2	3	11	34	-	<0.008	-	-	
15	035700	2	<3	9	26	-	<0.008	-	-	
	035701	3	3	11	32	-	<0.008		-	
17	035702	2	5	19	50	-	<0.008	-	-	
18	035703	3	6	15	65	-	<0.008		-	
19	035704	2	4	11	100	-	<0.008	-	-	
20	035705	3	4	17	53	-	<0.008	-	-	
21	035706	3	3	18	57	-	<0.008	-	-	
22	035707	3	<3	14	48	-	<0.008	<0.008	-	
23	035708	4	<3	24	72	-	<0.008	-	-	
	035709	22	52	120	1904	-	<0.008	-	-	
25	035710	7	24	37	1941	-	<0.008	-	-	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
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– = element not determined

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953206

South Lerslaw
Soil Geochemistry

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	2 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	035711	25	44	185	>5000	1.49	<0.008	-	-	
2	035712	18	43	118	>5000	1.20	<0.008	-	-	
3	035713	3	72	24	102	-	<0.008	-	-	
4	035714	8	27	74	523	-	<0.008	-	-	
5	035715	4	25	24	2029	-	<0.008	-	-	
6	035716	4	11	17	264	-	<0.008	-	-	
7	035717	3	6	8	28	-	<0.008	-	-	
8	035718	5	19	41	626	-	<0.008	-	-	
9	035719	2	6	9	16	-	<0.008	-	<0.008	
10	035720	2	5	17	26	-	<0.008	-	-	
	035721	3	6	17	44	-	<0.008	-	-	
12	035722	3	9	14	22	-	<0.008	<0.008	-	
13	035723	2	<3	10	14	-	<0.008	-	-	
14	035724	2	<3	18	36	-	<0.008	-	-	
15	035725	2	<3	17	20	-	<0.008	-	-	
	035726	4	15	51	62	-	<0.008	-	-	
17	035727	2	<3	7	16	-	<0.008	-	-	
18	035728	10	60	276	510	-	<0.008	-	-	
19	035729	3	5	11	40	-	<0.008	-	-	
20	035730	4	6	13	35	-	<0.008	-	-	
21	035731	4	7	45	175	-	<0.008	-		
22	035732	6	8	14	40	-	<0.008	<0.008	-	
23	035733	4	7	34	50	-	<0.008	-	-	
24	035734	5	7	30	54	-	<0.008	-	-	
25	035735	7	8	15	53	-	<0.008	-	-	

Results in ppm unless otherwise specified
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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	3 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	035736	7	4	20	63	-	<0.008	-	-	
2	035737	4	6	27	98	-	<0.008	-	-	
3	035738	5	5	23	61	-	<0.008	-	<0.008	
4	035739	5	6	28	97	-	<0.008	-	-	
5	035740	4	10	113	3640	-	<0.008	-	-	
6	035741	5	4	25	54	-	<0.008	-	-	
	035742	6	6	16	46	-	<0.008	-	-	
8	035743	3	5	30	64	-	<0.008	-	-	
9	035744	4	5	17	39	-	0.028	-	-	
10	035745	5	7	14	36	-	<0.008	-	-	
	035746	4	5	14	46	-	0.009	-	-	
12	035747	3	8	18	51	-	<0.008	<0.008	-	
13	035748	4	10	18	47	-	<0.008	-	-	
14	035749	6	62	72	223	-	<0.008	-	<0.008	
15	035750	4	23	28	106	-	<0.008	-	-	
	035751	4	26	43	120	-	<0.008	-	-	
17	035752	9	83	75	855	-	<0.008	-	-	
18	035753	46	294	223	>5000	0.60	<0.008	-	-	
19	035754	17	41	54	219	-	<0.008	-	-	
20	035755	9	37	70	1326	-	<0.008	-	-	
21	035756	5	36	33	120	-	<0.008	-	-	
22	035757	5	26	26	95	-	<0.008	<0.008	-	
23	035758	20	15	70	443	-	<0.008	-	-	
24	035759	4	15	21	84	-	<0.008	-	-	
25	035760	25	127	123	3448	-	<0.008	-	-	

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	4 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	035766	4	12	34	87	-	<0.008	-	-	
2	035767	2	6	32	17	-	<0.008	-	-	
3	035768	5	21	44	34	-	<0.008	-	-	
4	035769	5	16	43	41	-	<0.008	-	-	
5	035770	3	12	31	123	-	<0.008	-	-	
6	035771	2	5	22	29	-	<0.008	-	-	
7	035772	2	7	31	17	-	<0.008	-	-	
8	035773	4	21	37	33	-	<0.008	-	-	
9	035774	2	5	18	20	-	<0.008	-	-	
10	035775	2	7	23	28	-	<0.008	-	-	
[illegible]	035776	3	11	26	43	-	<0.008	-	-	
12	035777	3	9	26	46	-	<0.008	<0.008	-	
13	035778	4	11	33	66	-	<0.008	-	-	
14	035779	2	6	35	78	-	<0.008	-	<0.008	
15	035780	3	9	27	39	-	<0.008	-	-	
[illegible]	035781	4	10	25	74	-	<0.008	-		
17	035782	2	5	22	28	-	<0.008	-	-	
18	035783	3	<3	9	68	-	<0.008	-	-	
19	035784	3	<3	15	14	-	<0.008	-	-	
20	035785	4	4	11	30	-	<0.008	-	-	
21	035786	3	5	11	19	-	<0.008	-	-	
22	035787	3	5	18	32	-	<0.008	<0.008	-	
23	035788	3	5	20	38	-	<0.008	-	-	
24	035789	3	5	11	27	-	<0.008	-	-	
25	035790	3	5	14	29	-	<0.008	-	-	

Results in ppm unless otherwise specified
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– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	5 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	035791	3	5	13	31	-	<0.008	-	-	
2	035792	2	5	16	37	-	<0.008	-	-	
3	035793	3	5	19	42	-	<0.008	-	-	
4	035794	2	7	19	36	-	0.019	-	-	
5	035795	3	17	19	40	-	<0.008	-	-	
6	035796	3	16	17	41	-	<0.008	-	-	
7	035797	3	19	17	43	-	<0.008	-	-	
8	035798	3	21	19	38	-	<0.008	-	-	
9	035799	3	11	16	40	-	<0.008	-	-	
10	035800	4	23	26	53	-	<0.008	-	-	
	037001	3	13	24	62	-	<0.008	-	-	
12	037002	4	19	27	76	-	<0.008	<0.008	-	
13	037003	5	38	64	212	-	<0.008	-	-	
14	037004	4	24	25	57	-	<0.008	-	<0.008	
15	037005	3	30	27	83	-	<0.008	-	-	
	037006	3	36	24	85	-	<0.008	-	-	
17	037007	3	39	30	101	-	<0.008	-	-	
18	037008	4	20	27	77	-	0.029	-	-	
19	037009	3	12	23	76	-	<0.008	-	-	
20	037010	4	29	124	2919	-	<0.008	-	-	
21	037011	6	16	27	310	-	<0.008	-	-	
22	037012	5	10	21	65	-	0.009	<0.008	-	
23	037013	7	18	23	280	-	<0.008	-	<0.008	
24	037014	3	5	9	22	-	<0.008	-	-	
25	037015	2	37	22	53	-	<0.008	-	-	

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
– = element not determined

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	6 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	037016	2	12	17	27	-	<0.008	-	-	
2	037017	2	14	33	33	-	<0.008	-	-	
3	037018	3	5	11	16	-	<0.008	-	-	
4	037019	3	5	18	38	-	<0.008	-	-	
5	037020	2	4	28	28	-	<0.008	-	-	
6	037021	2	<3	17	17	-	<0.008	-	-	
7	037022	3	8	64	72	-	<0.008	-	-	
8	037023	4	66	109	237	-	<0.008	-	-	
9	037024	3	7	12	25	-	<0.008	-	-	
10	037025	3	5	16	34	-	<0.008	-	-	
	037026	3	42	47	89	-	<0.008	-	-	
12	037027	2	7	73	44	-	<0.008	<0.008	-	
13	037028	3	10	14	31	-	<0.008	-	-	
14	037029	7	<3	6	26	-	<0.008	-	-	
15	037030	5	11	23	62	-	<0.008	-	-	
	037031	7	8	10	38	-	<0.008	-	-	
17	037032	8	5	4	33	-	<0.008	-		
18	037033	8	5	5	33	-	<0.008	-	-	
19	037034	9	9	9	52	-	<0.008	-	-	
20	037035	6	7	9	43	-	<0.008	-	-	
21	037036	8	7	5	33	-	<0.008	-	-	
22	037037	6	5	6	28	-	<0.008	<0.008	-	
23	037038	7	15	6	27	-	<0.008	-	-	
24	037039	5	29	13	36	-	<0.008	-	-	
25	037040	4	34	10	37	-	<0.008	-	-	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09474	20/05/93	0238	7 OF 7

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Mn	Mn	Au	Au(R)	Au(S)	
1	037041	4	27	12	40	-	<0.008	-	-	
2	037042	4	27	24	36	-	<0.008	-	-	
3	037043	8	30	28	35	-	<0.008	-	-	
4	037044	3	57	16	37	-	<0.008	-	-	
5	037045	4	35	13	40	-	<0.008	-	-	
6	037046	4	38	15	42	-	0.008	-	-	
7	037047	4	30	15	37	-	<0.008	-	<0.008	
8	037048	3	42	13	46	-	<0.008	-	-	
9	037049	3	25	10	42	-	<0.008	-	-	
10	037050	4	50	14	40	-	<0.008	-	-	
	037051	9	31	43	103	-	<0.008	-	-	
12	037052	4	37	15	55	-	<0.008	<0.008	-	
13	037053	4	40	11	46	-	<0.008	-	<0.008	
14	037054	4	26	37	63	-	<0.008	-	-	
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	2	3	2	3	0.01	0.008	0.008	0.008	
	UNITS	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
25	METHOD	GA140	GA140	GA140	GA140	GA104	GG309	GG309	GG309	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Browns - Summit

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 313890

ANALYTICAL REPORT No. 111310.60.09711

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
0130	3006

DATE RECEIVED	RESULTS REQUIRED
05/07/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	26/07/93	1	10

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
034763,034766/74	RD Prep : BP026,P5	Cu,Pb,Zn,Cr,Ni/GA140
	RD Prep :	Rb,Sr,V,Nb,Y,Zr/GX401
	RD Prep :	Whole Rock Analysis/OX408

RESULTS TO
Roger Pollock Geological Pty Ltd
Mineral Exploration Contractor
C/- Post Office
WILMOT TAS 7310

RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

935213 1

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09611	26/07/93	0130	1 OF 3

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Cr	Ni	Rb	Sr	V	Nb
1	034763	21	1113	4931	36	<3	137	56	<5	10
2	034766	9	79	390	37	<3	159	184	<5	10
3	034767	4	271	44	44	<3	42	193	<5	4
4	034768	2	4	56	40	<3	194	75	10	13
5	034769	41	3	61	39	<3	186	56	34	6
6	034770	13	4	104	39	<3	194	49	20	8
7	034771	641	169	4264	44	<3	179	59	21	9
8	034772	166	<3	207	41	<3	158	95	65	13
9	034773	9	29	146	40	<3	180	101	26	8
10	034774	3	9	83	44	<3	53	175	37	20
11										
12	b2b									
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	2	3	2	7	3	5	5	5	3
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA140	GA140	GA140	GA140	GA140	GX401	GX401	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER Gary Lindberg

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09611	26/07/93	0130	2 OF 3

TUBE No.	SAMPLE No.	Y	Zr	Al2O3	SiO2	TiO2	Fe2O3	MnO	CaO	K2O
1	034763	25	144	10.97	75.1	0.12	2.02	0.18	2.09	3.59
2	034766	32	188	15.24	70.6	0.25	2.49	0.13	1.34	3.67
3	034767	37	155	11.55	78.9	0.17	1.35	0.04	0.50	1.49
4	034768	32	240	12.80	74.1	0.31	2.85	0.12	0.89	3.78
5	034769	29	162	14.19	66.1	0.53	3.57	0.21	2.17	6.40
6	034770	36	192	15.72	62.7	0.65	4.39	0.57	2.08	7.53
7	034771	23	165	14.03	66.8	0.38	1.35	0.33	2.64	8.73
8	034772	38	231	17.95	60.0	0.54	3.85	1.20	2.90	4.25
9	034773	46	223	18.83	52.8	0.76	4.67	0.90	4.71	4.69
10	034774	38	207	15.49	70.3	0.42	2.89	0.07	0.29	1.80
11										
12	b4									
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	0.05	0.1	0.01	0.01	0.01	0.01	0.01
24	UNITS	ppm	ppm	%	%	%	%	%	%	%
25	METHOD	GX401	GX401	OX408	OX408	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
T = element present but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER Gary Lindberg

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09611	26/07/93	0130	3 OF 3

TUBE No.	SAMPLE No.	MgO	P2O5	SO3	Na2O	TOTAL	LOI			
1	034763	0.85	0.017	1.00	0.17	99.93	3.85			
2	034766	0.92	0.033	0.13	2.56	100.41	3.01			
3	034767	0.10	0.025	0.02	4.95	99.89	0.78			
4	034768	1.75	0.041	0.02	0.55	100.46	3.31			
5	034769	1.47	0.172	0.10	0.57	99.75	4.24			
6	034770	1.30	0.173	0.25	0.12	99.69	4.19			
7	034771	0.30	0.098	1.29	0.45	100.01	3.59			
8	034772	0.92	0.135	0.22	3.07	100.44	5.35			
9	034773	2.07	0.210	0.94	2.25	100.34	7.47			
10	034774	0.82	0.109	0.26	6.08	99.89	1.38			
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.01	0.005	0.01	0.05	0.01	0.01			
24	UNITS	%	%	%	%	%	%			
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408			

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER Gary Lindberg

985210

Phone (004) 316837 | 14 Tairkell St. QUOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 11310.60.09670

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

Pasminco Exploration
P.O. Box 856
BURNIE TAS 7320

ORDER No.	PROJECT
0131	3006

DATE RECEIVED	RESULTS REQUIRED
05/08/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	03/09/93	1	16

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENTS/METHOD
34764,34765,34974	Prep : GP029,P1	Cu,Pb,Zn/GA140
		Au,Au(R),Au(S)/GG309
34767/73,34975/80	Prep : GP029,P5	Cu,Pb,Zn,Ni,Cr/GA140
		Rb,Sr,V,Nb,Y,Zr/GX401
		Whole Rock Analysis/OX408

RESULTS TO

Roger Poltock Geological Pty Ltd
Mineral Exploration Contractor
C/- Post Office
WILMOT TAS 7310

RESULTS TO

Mr P. Fitzgerald
Pasminco Exploration
P.O. Box 856
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

953217

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09670	03/09/93	0131	1 OF 3

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Zn	Ni	Cr	Au	Au(R)	Au(S)
1	34764	38	2850	>5000	0.98	-	-	0.025	-	-
2	34765	106	1803	>5000	0.61	-	-	0.025	-	0.026
3	34967	19	55	72	-	9	19	-	-	-
4	34968	6	123	383	-	<3	10	-	-	-
5	34969	4	20	234	-	3	10	-	-	-
6	34970	4	11	47	-	<3	14	-	-	-
7	34971	14	182	339	-	9	30	-	-	-
8	34972	42	88	871	-	16	29	-	-	-
9	34973	3	95	104	-	5	10	-	-	-
10	34974	396	2128	149	-	-	-	0.905	0.892	-
11	34975	749	44	>5000	2.71	<3	8	-	-	-
12	34976	7	17	164	-	5	12	-	-	-
13	34977	258	118	173	-	3	9	-	-	-
14	34978	7	33	47	-	5	10	-	-	-
15	34979	66	1310	3809	-	<3	10	-	-	-
16	34980	4	37	118	-	5	9	-	-	-
17										
18										
19										
20										
21										
22										
23	DETECTION	2	3	2	0.01	3	7	0.008	0.008	0.008
24	UNITS	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA140	GA140	GA140	GA104	GA140	GA140	GG309	GG309	GG309

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09670	03/09/93	0131	2 OF 3

TUBE No.	SAMPLE No.	Rb	Sr	V	Nb	Y	Zr	Al2O3	SiO2	TiO2
1	34967	123	97	<5	9	20	160	10.90	79.1	0.16
2	34968	127	119	<5	9	37	222	14.83	72.2	0.28
3	34969	138	108	8	14	42	231	15.43	70.2	0.32
4	34970	154	41	6	6	22	163	10.95	77.1	0.22
5	34971	57	130	<5	6	17	135	11.36	77.7	0.18
6	34972	35	86	266	3	33	172	21.53	49.1	1.57
7	34973	122	47	43	10	26	229	20.17	62.8	0.54
8	34975	132	<5	5	11	21	186	12.87	69.6	0.33
9	34976	109	140	26	5	29	184	14.25	71.7	0.32
10	34977	96	141	25	9	27	232	15.33	69.0	0.41
11	34978	206	15	11	38	24	237	12.50	76.0	0.33
12	34979	149	31	12	9	27	214	11.83	76.4	0.34
13	34980	203	32	12	10	32	278	15.48	69.8	0.39
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	3	5	5	0.05	0.1	0.01
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%
25	METHOD	GX401	GX401	GX401	GX401	GX401	GX401	DX408	DX408	DX408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09670	03/09/93	0131	3 OF 3

TUBE No.	SAMPLE No.	Fe2O3	MnO	CaO	K2O	MgO	P2O5	Na2O	LOI	TOTAL
1	34967	1.83	0.05	0.06	4.50	0.31	0.017	1.50	1.10	99.58
2	34968	2.85	0.24	0.14	2.74	1.07	0.064	3.15	2.16	99.95
3	34969	3.73	0.45	0.22	3.20	0.76	0.070	3.12	2.90	100.46
4	34970	1.71	0.62	1.04	5.66	0.29	0.049	0.27	2.24	100.24
5	34971	1.70	0.06	0.93	2.44	0.10	0.092	4.27	1.09	100.30
6	34972	11.61	0.26	0.06	1.20	3.51	0.041	1.37	9.66	99.94
~~7~~	~~34973~~	~~3.89~~	~~0.12~~	~~0.03~~	~~2.76~~	~~1.34~~	~~0.017~~	~~0.98~~	~~7.31~~	~~99.99~~
8	34975	4.80	0.32	0.25	3.97	0.87	0.045	0.92	3.79	100.91
9	34976	3.68	0.34	0.24	2.08	0.64	0.050	3.81	3.15	100.31
10	34977	3.04	0.21	1.16	2.02	0.96	0.068	4.45	2.72	99.55
11	34978	2.28	0.10	0.60	4.03	0.70	0.041	0.23	3.04	101.54
12	34979	2.56	0.33	0.37	2.99	0.93	0.057	1.60	2.33	101.22
13	34980	2.65	0.30	0.79	4.23	1.21	0.047	1.37	3.23	100.33
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	0.01	0.01	0.01	0.01	0.01	0.005	0.05	0.01	0.01
	UNITS	%	%	%	%	%	%	%	%	%
25	METHOD	0X408	0X408	0X408	0X408	0X408	0X408	0X408	0M615	0X408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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Summit - Bowns

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09736

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
0132	3006

DATE RECEIVED	RESULTS REQUIRED
13/09/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
3	30/09/93	1	8

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
34981/84	RO Prep : GP029,P5 - CHROME FREE	Cu,Pb,Zn,Ni,Cr/GA140
		Rb,Sr,V,Nb,Y,Zr/GX401
		Whole Rock Analysis/GX409
34985/88	RO Prep : GP029,P1	Cu,Pb,Zn/GA140
		Au,Au(S)/GG309

RESULTS TO
Roger Pollock Geological Pty Ltd
Mineral Exploration Contractor
C/- Post Office
WILMOT TAS 7310

RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

AUTHORISED OFFICER

955221

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09736	30/09/93	0132	1 OF 3

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ni	Cr	Au	Au(S)	Rb	Sr
1	34981	7	11	38	<3	43	–	–	111	107
2	34982	105	24	294	22	146	–	–	170	184
3	34983	11	33	103	<3	32	–	–	227	57
4	34984	2	4	161	<3	29	–	–	14	88
5	34985	130	1438	1716	–	–	0.053	0.058	–	–
6	34986	72	2374	4536	–	–	0.013	–	–	–
	34987	97	1259	2148	–	–	0.066	–	–	–
8	34988	88	1564	202	–	–	0.048	–	–	–
9										
10										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	2	3	2	3	7	0.008	0.008	5	5
	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA140	GA140	GA140	GA140	GA140	GG309	GG309	GX401	GX401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09736	30/09/93	0132	2 OF 3

TUBE No.	SAMPLE No.	V	Nb	Y	Zr	Al2O3	SiO2	TiO2	Fe2O3	MnO
1	34981	40	8	34	204	14.91	67.5	0.41	2.40	0.20
2	34982	256	<3	14	48	15.72	37.2	0.81	6.96	0.85
3	34983	8	14	30	253	16.32	67.8	0.20	2.39	0.10
4	34984	53	11	45	256	18.54	54.4	0.54	7.67	0.29
5										
6										
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17										
18										
19										
20										
21										
22										
23	DETECTION	5	3	5	5	0.05	0.1	0.01	0.01	0.01
24	UNITS	ppm	ppm	ppm	ppm	%	%	%	%	%
25	METHOD	GX401	GX401	GX401	GX401	OX408	OX408	OX408	OX408	OX408

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

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A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09736	30/09/93	0132	3 OF 3

TUBE No.	SAMPLE No.	CaO	K20	MgO	P205	SO3	Na20	TOTAL	LOI	
1	34981	2.46	2.99	0.80	0.107	0.24	4.17	100.03	3.81	
2	34982	14.25	4.21	2.80	0.147	0.13	0.95	99.78	15.80	
3	34983	0.77	5.56	1.29	0.030	0.52	1.38	99.96	3.63	
4	34984	0.69	0.34	6.52	0.137	0.01	5.98	99.89	4.74	
5										
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19										
20										
21										
22										
23	DETECTION	0.01	0.01	0.01	0.005	0.01	0.05	0.01	0.01	
24	UNITS	%	%	%	%	%	%	%	%	
25	METHOD	OX408	OX408	OX408	OX408	OX408	OX408	OX408	OM615	

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

BPD 78

ANALABS

A Division of Inchcape Testing Services (Australia) Pty. Ltd.
A.C.N. 004 591 664

Phone (004) 316837 | 14 Thirkell St. COOEE TAS 7320 | Fax (004) 318890

ANALYTICAL REPORT No. 111310.60.09822

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

ORDER No.	PROJECT
0241	3006

DATE RECEIVED	RESULTS REQUIRED
22/10/93	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
2	18/11/93	1	22

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
37344/65	SC Prep : GP029,P1	Cu,Pb,Zn,Ag,Mn,Bi/GA140
37344/65		Cu,Pb,Zn,Ag,Mn/GA104 Au,Au(R),Au(S)/GG309
[illegible]/65		As/HA140
37344/65		Ba/GX401
37344/65		

RESULTS TO
Roger Pollock Geological Pty Ltd
Mineral Exploration Contractor
C/- Post Office
WILMOT TAS 7310

RESULTS TO
Mr F Fitzgerald
Pasminco Exploration
P.O. Box 886
BURNIE TAS 7320

RESULTS TO

REMARKS

Cu result for sample 37349 and Zn result for sample 37356 are above recomended Upper Detection Limits for Method GA104 and were obtained by dilution.

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953225

ANALABS

A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09822	18/11/93	0241	1 OF 2

TUBE No.	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Mn
1	37344	533	-	>5000	0.71	>5000	1.19	5	-	1191
2	37345	46	-	53	-	228	-	3	-	1491
3	37346	>5000	1.18	360	-	>5000	1.45	>50	80	2631
4	37347	>5000	3.08	833	-	420	-	>50	449	2337
5	37348	>5000	6.85	316	-	752	-	>50	100	1769
6	37349	>5000	3.13	179	-	1827	-	>50	60	1776
7	37350	>5000	2.83	147	-	355	-	>50	54	1659
8	37351	>5000	0.75	70	-	102	-	14	-	1094
9	37352	>5000	1.13	232	-	206	-	42	-	1473
10	37353	>5000	1.67	131	-	416	-	34	-	3184
11	37354	>5000	1.63	149	-	697	-	>50	57	>5000
12	37355	266	-	122	-	945	-	19	-	>5000
13	37356	2743	-	838	0.10	>5000	14.70	23	-	1850
14	37357	731	-	528	-	>5000	0.78	18	-	>5000
15	37358	2523	-	1042	-	1758	-	44	-	3712
16	37359	>5000	1.27	1229	-	3491	-	43	-	3733
17	37360	>5000	3.44	840	-	>5000	0.69	50	77	3819
18	37361	>5000	3.60	558	-	>5000	1.32	>50	72	2997
19	37362	>5000	2.63	701	-	4625	-	>50	71	4585
20	37363	>5000	1.02	899	-	4797	-	>50	71	4434
21	37364	>5000	0.86	1220	-	>5000	0.75	>50	70	4377
22	37365	>5000	0.59	1068	0.12	>5000	3.74	45	-	>5000
23	DETECTION	2	0.01	3	0.01	2	0.01	1	10	3
24	UNITS	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm
25	METHOD	GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
~ = element not determined

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ANALABS

A Division of McPhar Testing Services (Australia) Pty Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE
	111310.60.09822	18/11/93	0241	2 OF 2

TUBE No.	SAMPLE No.	Mn	Bi	Au	Au(R)	Au(S)	Ba	As		
1	37344	-	<10	0.185	-	-	1905	3.0		
2	37345	-	14	0.026	-	-	942	12.0		
3	37346	-	286	0.065	-	-	1006	6.0		
4	37347	-	743	0.161	-	0.138	568	6.5		
5	37348	-	100	0.128	-	-	347	4.0		
6	37349	-	62	0.168	-	-	314	5.5		
[illegible]	37350	-	58	0.148	-	-	350	4.0		
8	37351	-	23	0.051	-	-	556	4.5		
9	37352	-	102	0.084	-	-	509	10.0		
10	37353	-	94	0.028	-	-	1162	8.0		
11	37354	1.47	180	0.016	-	-	867	1.5		
12	37355	1.96	133	<0.008	<0.008	-	557	10.0		
13	37356	-	38	0.104	-	-	3234	2.0		
14	37357	0.86	76	0.100	-	-	562	37.0		
15	37358	-	142	0.214	-	-	362	35.5		
16	37359	-	160	0.220	-	-	114	15.0		
17	37360	-	170	0.162	-	-	248	5.0		
18	37361	-	213	0.246	-	-	257	3.0		
19	37362	-	441	0.118	-	-	37	3.5		
20	37363	-	261	0.126	-	-	160	5.5		
21	37364	-	354	0.178	-	0.178	38	6.5		
22	37365	0.65	93	0.059	0.067	-	798	5.5		
23	DETECTION	0.01	10	0.008	0.008	0.008	10	0.5		
[illegible]	UNITS	%	ppm	ppm	ppm	ppm	ppm	ppm		
25	METHOD	GA104	GA140	GG309	GG309	GG309	GX401	HA140		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

APPENDIX 12

Interpretation of Induced Polarisation and Resistivity Data collected on Burns Peak EL 44/88, 1993

953228

PASMINCO EXPLORATION

INTERPRETATION OF INDUCED POLARISATION & RESISITIVTY DATA COLLECTED ON BURNS PEAK EL 44/88, 1993

AUTHOR: N A Hughes

DATE: November 1993

REPORT No.:

SUBMITTED TO: Roger Poltock

DISTRIBUTION: Pasminco Exploration - Burnie
- Melbourne

SUBMITTED BY:

ACCEPTED BY: R Poltock

Burnie
November 1993

CONTENTS

LIST OF PLANS

LIST OF FIGURES

1 SUMMARY

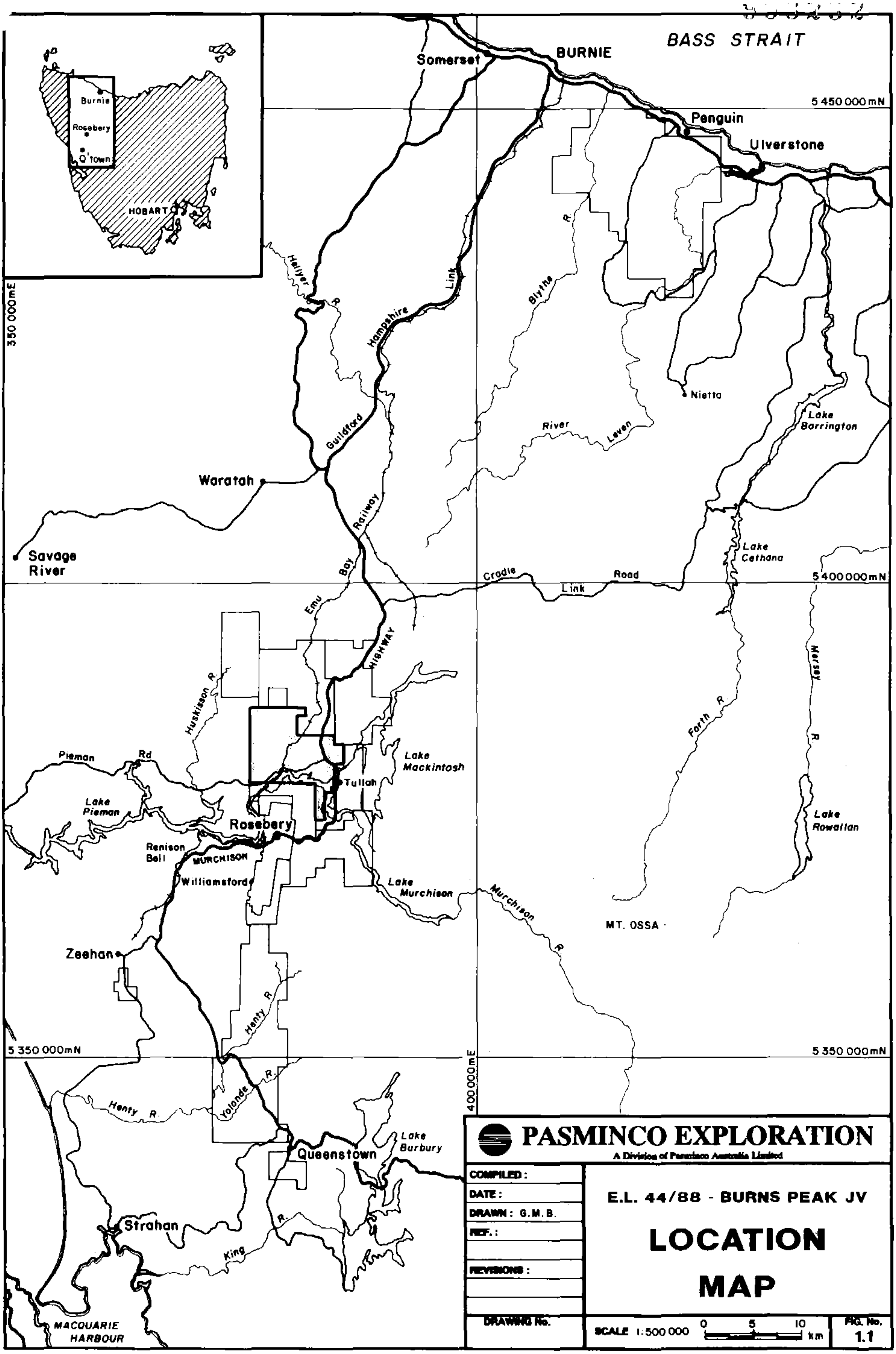
An IP and Resistivity Survey over Mt. Kershaw and Cone Hill on the Burns Peak EL 44/88 detected an isolated chargeability high zone south of the Chester Pyrite Zone, and also clearly mapped the Hollway Pyrite Zone as well as the Rosebery Fault. Several weaker chargeability highs were also detected.

2 INTRODUCTION

IP and Resistivity surveys were undertaken by Scintrex Limited, on behalf of Pasminco Exploration, over Mt. Kershaw and Cone Hill on the Burns Peak Exploration Licence (EL 44/88) in north west Tasmania during February and March 1993.

Most of the western part of the EL has been surveyed with the IP/Resistivity method during the past twenty years. The latest surveys fill the gaps south and north of the Chester Pyrite Zone, see MAP BP1.3.

Near blanket coverage of the EL with the UTEM method by Comstaff and BHP during 1984 to 1987 led to the detection of only two anomalies worthy of follow up, but did little to aid in the geological mapping of the area or detection of accumulations of disseminated massive sulphides or poorly conducting massive sulphides.

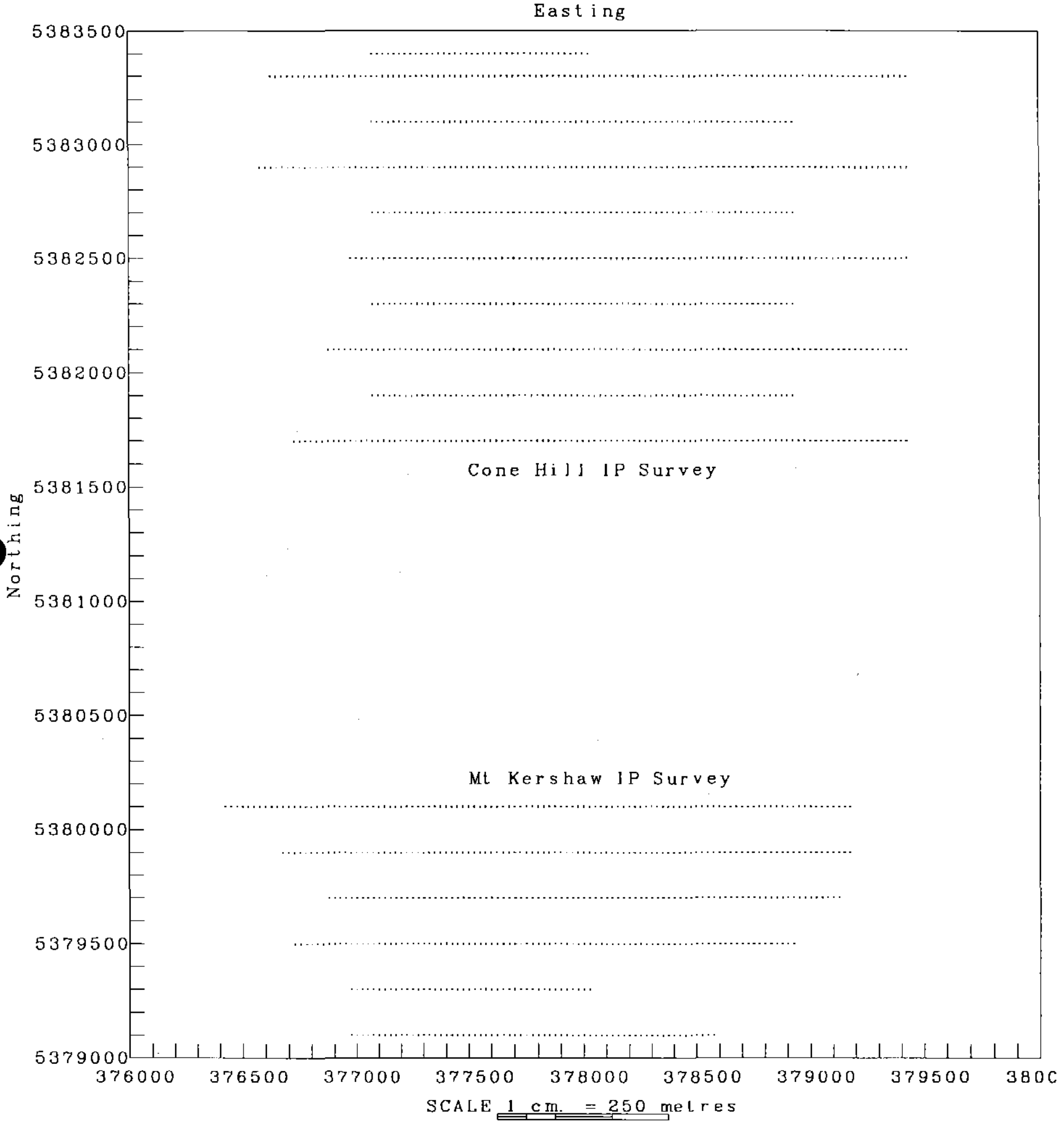


PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED :	E.L. 44/88 - BURNS PEAK JV
DATE :	LOCATION MAP
DRAWN : G.M.B.	
REF. :	
REVISIONS :	
DRAWING No.	SCALE 1:500 000 0 5 10 km
FIG. No. 1.1	

Burns Peak IP Survey Coverage, 1993



3 DATA ACQUISITION

Data was collected with a Scintrex IPR12 receiver and Scintrex TSQ3 transmitter. A 0.125 Hz bipolar interrupted square wave was used to excite the ground. This corresponds to 2 seconds of current injection, followed by 2 seconds of measurement, followed by 2 seconds of current injection of the opposite polarity, followed by 2 seconds of measurement and then the sequence is repeated. The transient IP response is measured in 10 time windows from 50 to 1770 milli seconds as shown in Table 1.

The value for each time window is normalised for the window width and also for the primary or steady state voltage. The response is then multiplied by 1000 to give the unitless value of mV/V.

The primary voltage measured at each dipole is used to calculated the apparent resistivity for that dipole. In order to do so a record of the current injected into the ground at each station must kept.

Table 1: Measuring Window Widths for a 2 Second Receive Time.
(all times in milli seconds)

Slice	**Width**	**Start**	**End**
1	*	*	*
2	*	*	*
3	*	*	*
4	20	50	70
5	40	70	110
6	40	110	150
7	80	150	230
8	80	230	310
9	140	310	450
10	140	450	590
11	230	590	820
12	230	820	1050
13	360	1050	1410
14	360	1410	1770

(* – slices 1, 2, 3 only measured with a 1 second receive time)

The IP survey over Mt. Kershaw used a pole–dipole array with a dipole separation of 50m. Five potential dipoles were measured for each current set up. The survey lines were traversed from east to west with the current injection point east of the measuring potential electrodes. The remote current was placed in the Boco River at AMG coordinates 379375mE, 5380300mN.

The IP survey over Cone Hill used a dipole–dipole array with a dipole separation of 50m. Five potential dipoles were measured for each current set up. The survey lines were traversed both from east to west and west to east about a north south access track at about 378000E. The current injection dipole trailed the measuring potential electrodes.

Choice of array and dipole separation depends on the anticipated depth to target, target size, target and host rock orientation and amount and conductivity of any cover, and of course survey economics.

Profiling arrays such as dipole–dipole and pole–dipole are less susceptible to overburden masking than the gradient array and also give a better depth resolution.

Specifications of the equipment used are attached.

4 INTERPRETATION

4.1 Overview

Data from the IP and Resistivity surveys are presented in the following formats to aid interpretation and correlation of anomalies:

1.) Stacked Pseudosections of Apparent Resistivity and the Tenth Slice of Chargeability (M10) for each line, BP2.1 to BP2.16.
2.) Offset Stacked Pseudosections of M10 for Mt. Kershaw and Cone Hill, BP1.6 and BP1.7.
3.) Fraser Filtered Contour Plan Maps of the first three dipoles (n=1 to 3) for Apparent Resistivity and M10 Chargeability, BP1.4 and BP1.5.

The stacked pseudosections of apparent resistivity and chargeability offer a means of comparing changes in chargeability and resistivity with dipole separation. It must be noted however that the pseudosection is not a depth section, except in the case of a homogeneous halfspace, rather a convenient way of viewing the data. Offset stacked sections offer a method of tracing anomalies from line to line and noting changes in anomaly strength and character.

The Fraser filtered contour maps offer a method of viewing the data in plan while still accounting for variations with dipole separation.

Anomaly strength classification is usually made relative to local background.

IP anomaly classification :

weak : 1.5 background
moderate : 2–3 background
strong : 3+ background with well developed signature

Increases in resistivity values with respect to background usually indicate a thinning of the cover or possibly areas of silicification. Decreases may indicate increase in cover thickness, presence of shear zones or graphite or sulphides.

Without exception all anomalous IP response are from sources near surface, within dipoles 1 or 2, reflecting the fact that there is very little cover in the survey areas.

4.2 Mt. Kershaw

The Rosebery Fault is clearly defined from the IP data and is also defined by a weak resistivity low. There is an apparent slight EW offset of the Rosebery Fault at approximately 5,379,300mN, defined by the IP values.

A broad area of elevated IP values with a NE strike correlates with the southern extension of the Chester Pyrite Zone. Within this elevated IP zone is a distinct IP anomaly with coincident weak resistivity low on lines 5,379500mN and 5,379700mN.

A weak north south resistivity low zone correlates to the Boco Shear Zone.

A weak IP anomaly on line 5,379100mN at 3788250mE is coincident with an overhead power line, but is also evident on survey lines to the south.

4.3 Cone Hill

Rosebery Fault is clearly defined by IP and also by a weak resistivity low. The strength of the signature increases to the north.

The Hollway Pyrite Zone is clearly outlined as an IP high, but there is no coincident resistivity low or high.

A resistive, weak to moderate anomalous IP zone east of Rosebery Fault, extending north of 5,382,900mN may outline disseminated sulphides in a silicified host.

Erratic (weakly) elevated IP to the north east of the grid may be due to the basic intrusives.

5 CONCLUSIONS AND RECOMMENDATIONS

The IP and Resistivity surveys have clearly delineated the Rosebery Fault. Two distinct anomalous IP zones have also been detected. One correlating to the Holloway Pyrite Zone and the other to a zone within Chester Pyrite zone.

The anomaly within the Chester Pyrite zone is probably due to an increase in pyrite content with respect to background, as is probably the case of the Hollway Pyrite Zone. Because both anomalies are close to surface it is recommended that they be geochemically sampled, if not already done so, and drill tested if anomalous.

The apparent EW offset in the Rosebery Fault at 5,379,300mN should be further investigated to ascertain if the effect is due to topography or real as this appear to be the southern extent of the Chester Pyrite Zone.

The data from the current surveys should be integrated with previous IP and Resistivity data and imaged as a base for further exploration (Whitaker,1991).

IP and Resistivity surveying of prospective horizons to the north of the EL should be investigated.

6 REFERENCES

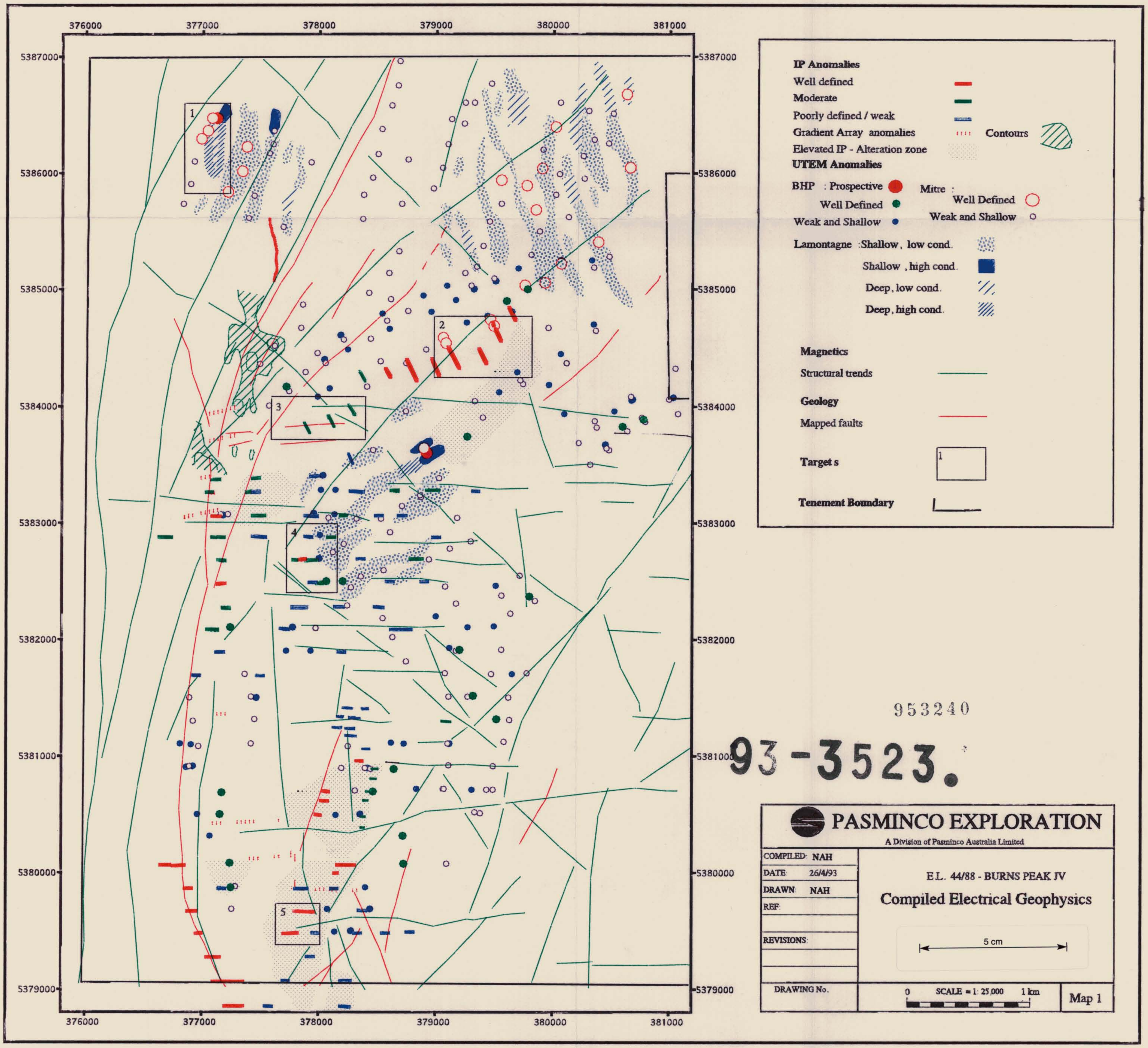
Fraser, D.C. 1981, Contour map presentation of dipole-dipole Induced Polarisation data: Geophysical Prospecting 29, 639-651.

Whitaker, S.A. 1991, Report on image processing and subsequent interpretation of various IP and resistivity surveys at Burns Peak exploration lease joint venture: Pasminco Exploration report BP70.

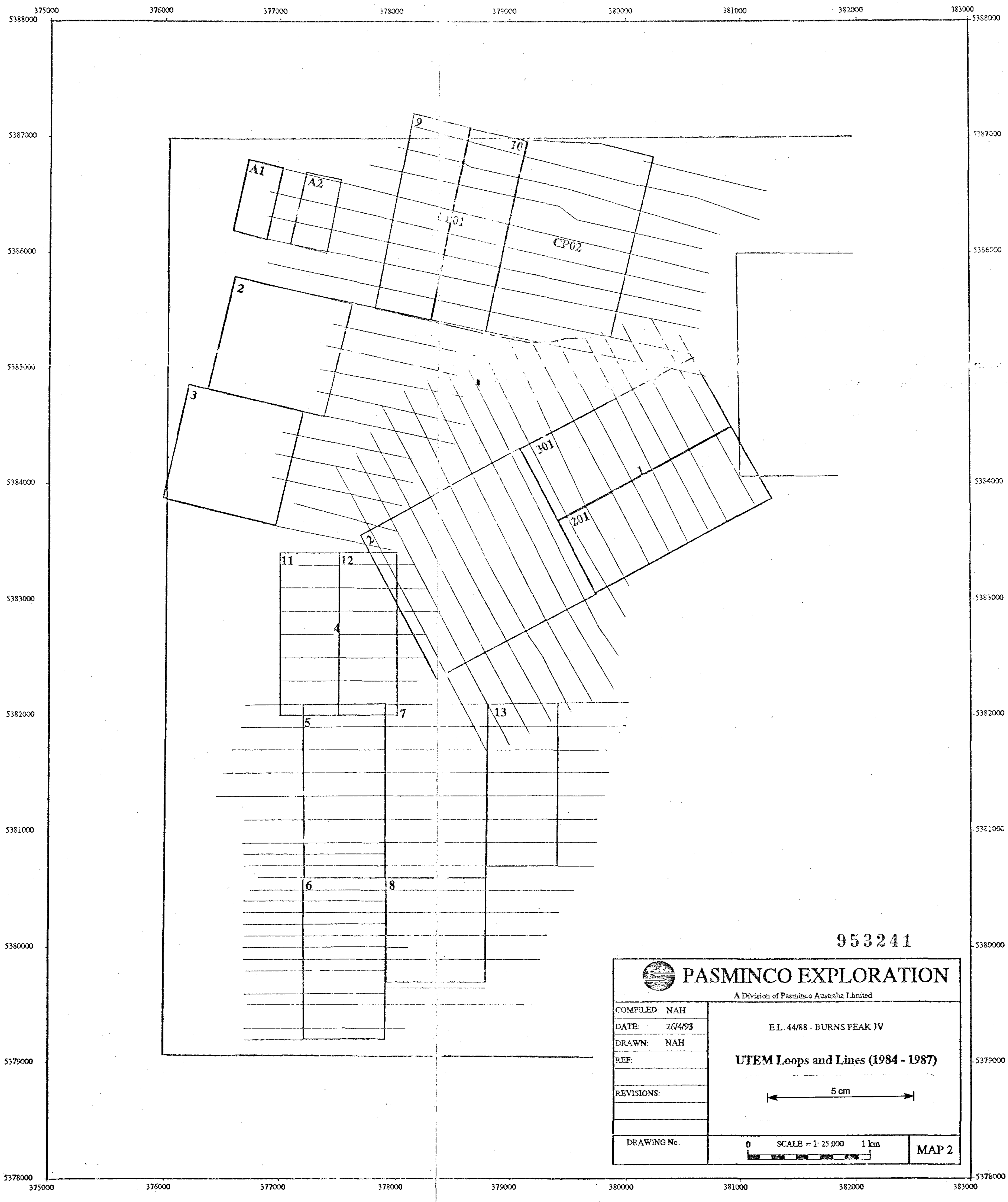
7 KEYWORDS AND LOCALITY

BLACK SHALE, DISSEMINATED SULPHIDES, INDUCED POLARISATION, RESISTIVITY, FRASER FILTER, TIME DOMAIN, ALTERATION,

BURNIE SK5503
BURNS PEAK, CHESTER, HOLLWAY, CONE HILL, MT. KERSHAW



IP Anomalies
Well defined
Moderate
Poorly defined / weak
Gradient Array anomalies
Contours
Elevated IP - Alteration zone
UTEM Anomalies
BHP : Prospective
Well Defined
Weak and Shallow
Mitre :
Well Defined
Weak and Shallow
Lamontagne :Shallow, low cond.
Shallow, high cond.
Deep, low cond.
Deep, high cond.
Magnetics
Structural trends
Geology
Mapped faults
Targets
Tenement Boundary
953240
93-3523.
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: NAH
DATE: 26/4/93
DRAWN: NAH
REF:
REVISIONS:
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
Compiled Electrical Geophysics
5 cm
SCALE = 1: 25,000
0
1 km
Map 1
376000
377000
378000
379000
380000
381000
5387000
5386000
5385000
5384000
5383000
5382000
5381000
5380000
5379000



375000
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380000
381000
382000
383000
5388000
5387000
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5384000
5383000
5382000
5381000
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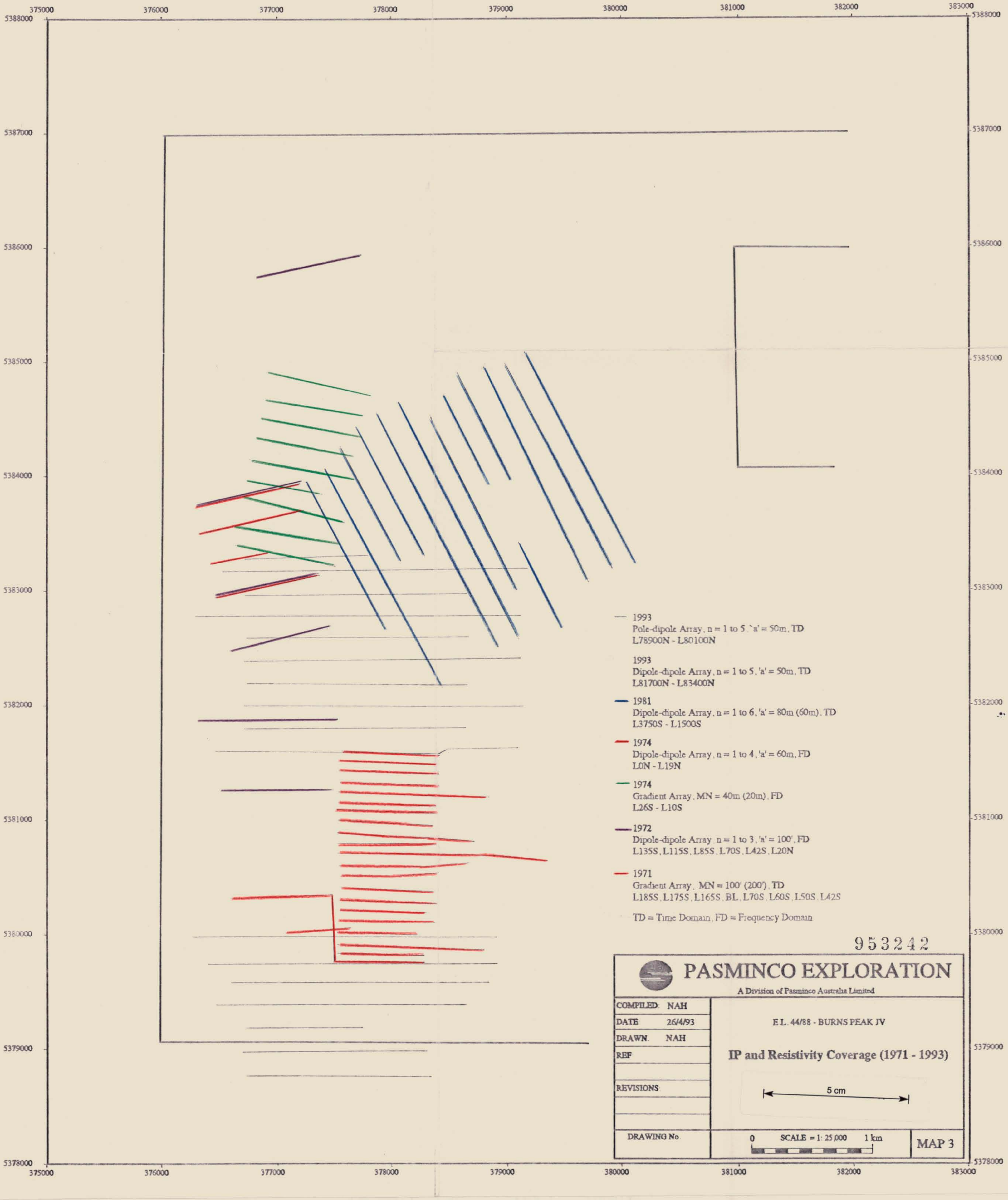
5379000
5378000
9
10
A1
A2
CP02
2
3
301
1
201
2
11
12
4
5
7
13
6
8
953241
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: NAH
DATE: 26/4/93
DRAWN: NAH
REF:
REVISIONS:
E.L. 44/88 - BURNS PEAK JV
UTEM Loops and Lines (1984 - 1987)
5 cm
DRAWING No.
0 SCALE = 1: 25,000 1 km
MAP 2



375000
376000
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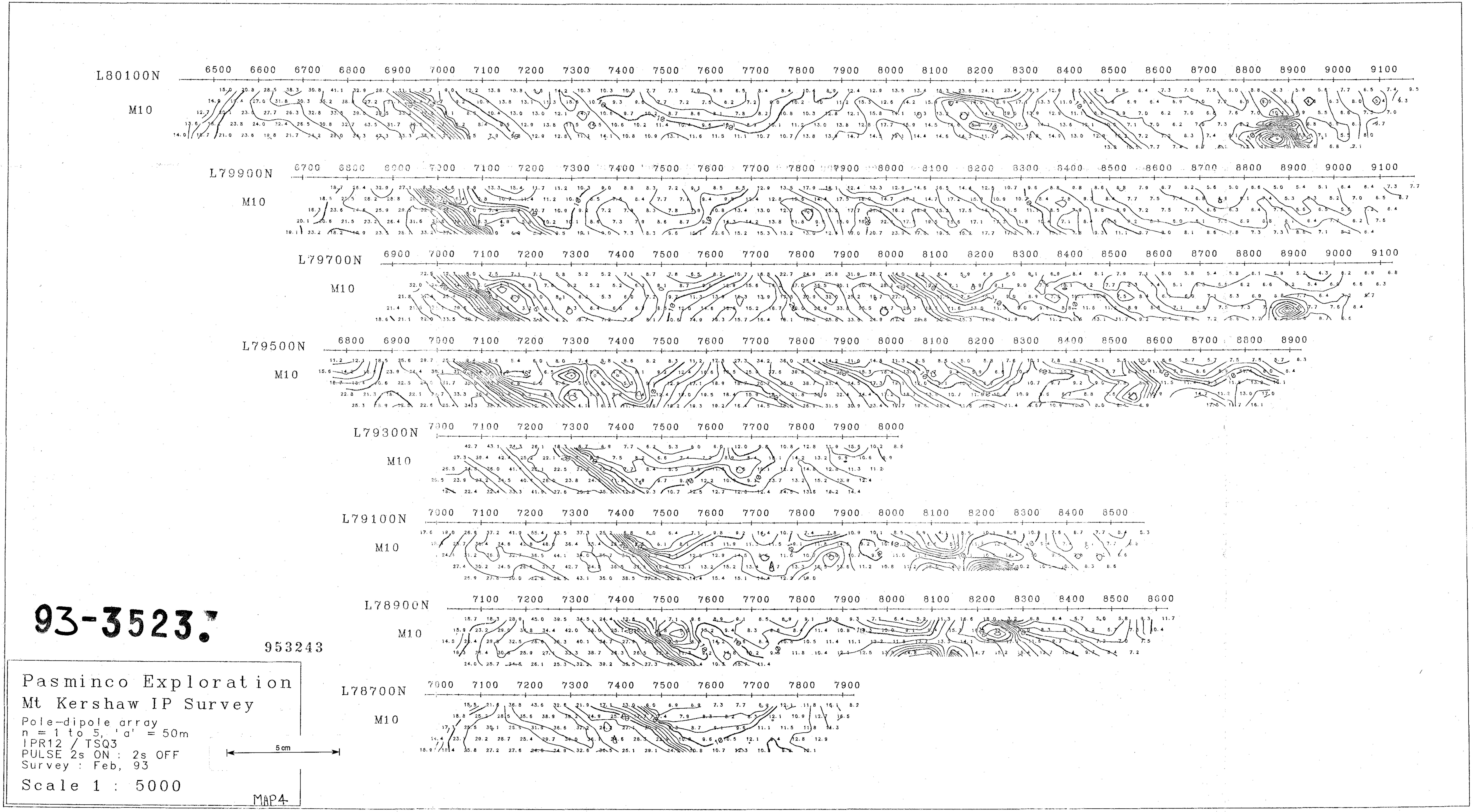
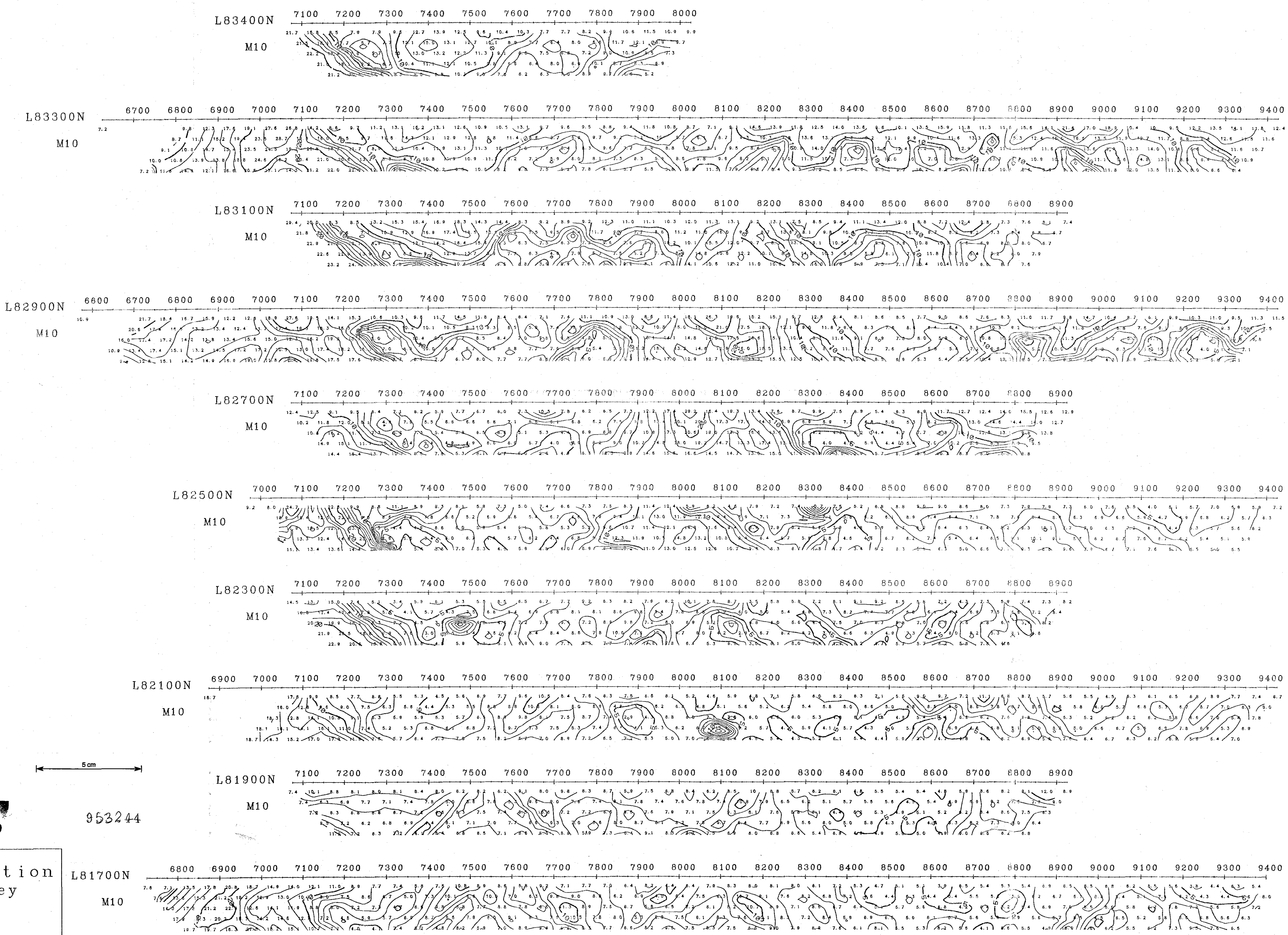
382000
383000
5388000
5387000
5386000
5385000
5384000
5383000
5382000
5381000
5380000
5379000
5378000
1993
Pole-dipole Array, n = 1 to 5, 'a' = 50m, TD
L78900N - L80100N
1993
Dipole-dipole Array, n = 1 to 5, 'a' = 50m, TD
L81700N - L83400N
1981
Dipole-dipole Array, n = 1 to 6, 'a' = 80m (60m), TD
L3750S - L1500S
1974
Dipole-dipole Array, n = 1 to 4, 'a' = 60m, FD
L0N - L19N
1974
Gradient Array, MN = 40m (20m), FD
L26S - L10S
1972
Dipole-dipole Array, n = 1 to 3, 'a' = 100', FD
L135S, L115S, L85S, L70S, L42S, L20N
1971
Gradient Array, MN = 100' (200'), TD
L185S, L175S, L165S, BL, L70S, L60S, L50S, L42S
TD = Time Domain, FD = Frequency Domain
953242
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED NAH
DATE 26/4/93
DRAWN NAH
REF
REVISIONS
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
IP and Resistivity Coverage (1971 - 1993)
5 cm
0 SCALE = 1: 25 000 1 km
MAP 3


L80100N
M10
L79900N
M10
L79700N
M10
L79500N
M10
L79300N
M10
L79100N
M10
L78900N
M10
L78700N
M10
93-3523.
953243
Pasminco Exploration
Mt Kershaw IP Survey
Pole-dipole array
n = 1 to 5, 'a' = 50m
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93
5 cm
Scale 1 : 5000
MAP4



93-3523

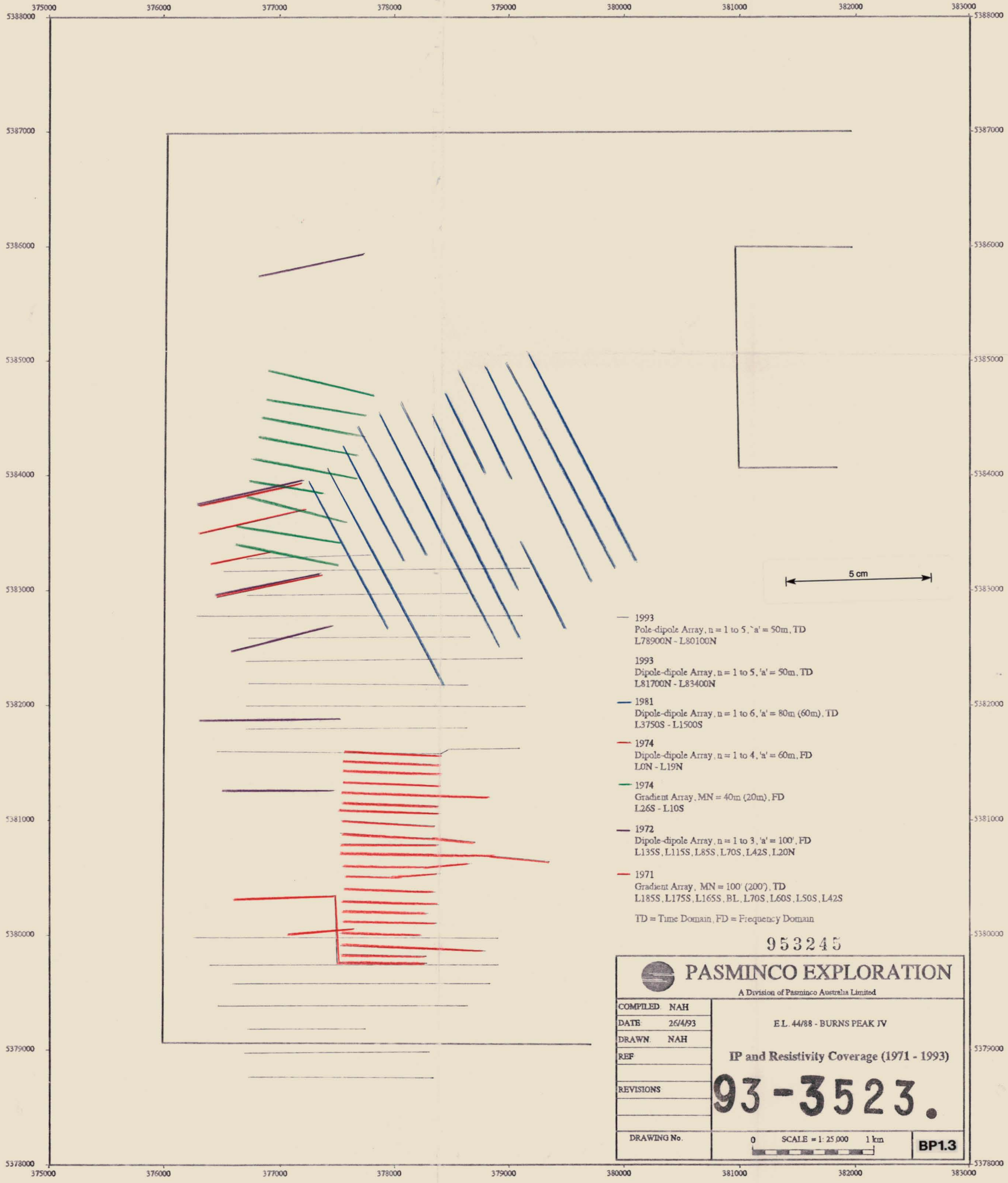
953244

Pasminco Exploration
Burns Peak IP Survey

Dipole-dipole array
n = 1 to 5, 'a' = 50m
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93

Scale 1 : 5000

MAP5



375000
376000
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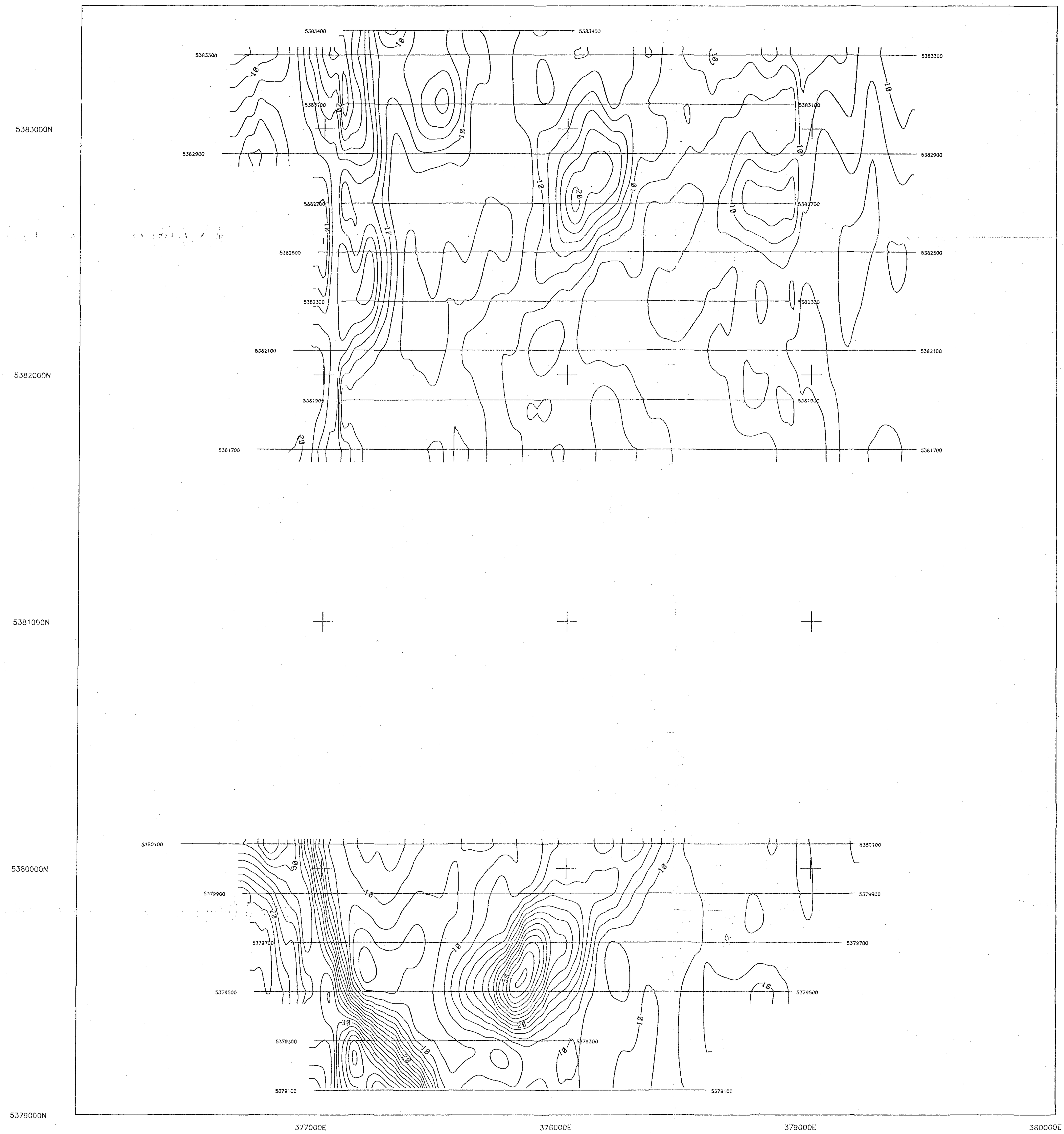
382000
383000
5388000
5387000
5386000
5385000
5384000
5383000
5382000
5381000
5380000
5379000
5378000
5 cm
1993
Pole-dipole Array, n = 1 to 5, `a' = 50m, TD
L78900N - L80100N
1993
Dipole-dipole Array, n = 1 to 5, 'a' = 50m, TD
L81700N - L83400N
1981
Dipole-dipole Array, n = 1 to 6, 'a' = 80m (60m), TD
L3750S - L1500S
1974
Dipole-dipole Array, n = 1 to 4, 'a' = 60m, FD
L0N - L19N
1974
Gradient Array, MN = 40m (20m), FD
L26S - L10S
1972
Dipole-dipole Array, n = 1 to 3, 'a' = 100', FD
L135S, L115S, L85S, L70S, L42S, L20N
1971
Gradient Array, MN = 100' (200'), TD
L185S, L175S, L165S, BL, L70S, L60S, L50S, L42S
TD = Time Domain, FD = Frequency Domain
953245
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED NAH
DATE 26/4/93
DRAWN NAH
REF
REVISIONS
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
IP and Resistivity Coverage (1971 - 1993)
93-3523.
0 SCALE = 1:25,000 1 km
BP1.3



N

Transverse Mercator
AMG Zone 54
CM 141
Datum AGD66
Major axis 6378160
Minor axis 6357002

1:10000

Survey Parameters

Contractor : Scintrex Limited
Equipment : IPR12 / TSQ3

Mt Kershaw
Pole–dipole Array
'a'=50m, n=1 to 5
Travel Direction : West, Current : Trailing
Cone Hill
Dipole–dipole Array
'a'=50m, n=1 to 5

93-3523.

953246

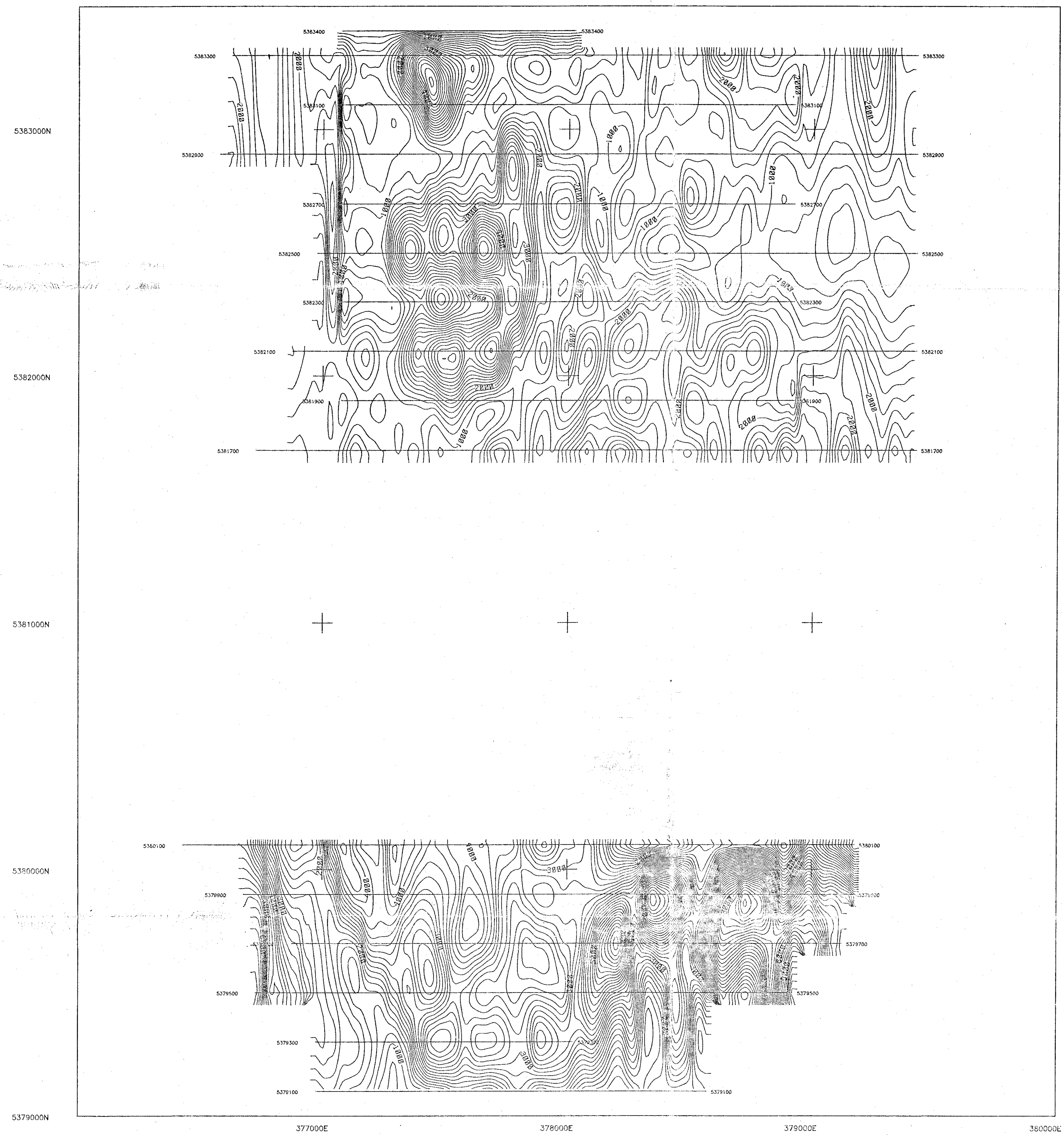
PASMINCO EXPLORATION LIMITED

BURNS PEAK EL 44/88

Fraser Filtered Chargeabilty Map

n=1 to 3, M10=450 to 590 ms, mV/V

SURVEY: Feb 1993	REPORT :
DRAWN : Nov 1993	PLAN NO : BP1.4



5 cm

93-3523.

953247

N

Transverse Mercator
AMG Zone 54
CM 141
Datum AGD66
Major axis 6378160
Minor axis 6357002

1:10000

Survey Parameters

Contractor : Scintrex Limited
Equipment : IPR12 / TSQ3

Mt Kershaw
Pole-dipole Array
'a'=50m, n=1 to 5
Travel Direction : West, Current : Trailing
Cone Hill
Dipole-dipole Array
'a'=50m, n=1 to 5

PASMINCO EXPLORATION LIMITED	
BURNS PEAK EL 44/88	
Fraser Filtered Resistivity Map	
n=1 to 3, ohm-m	
SURVEY: Feb 1993	REPORT :
DRAWN : Nov 1993	PLAN NO : BP1.5

953248

93-3523.

Pasminco Exploration
Mt Kershaw IP Survey

Pole-dipole array
n = 1 to 5, 'a' = 50m
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93

Scale 1 : 5000

BP1.6

953249

93-3523.

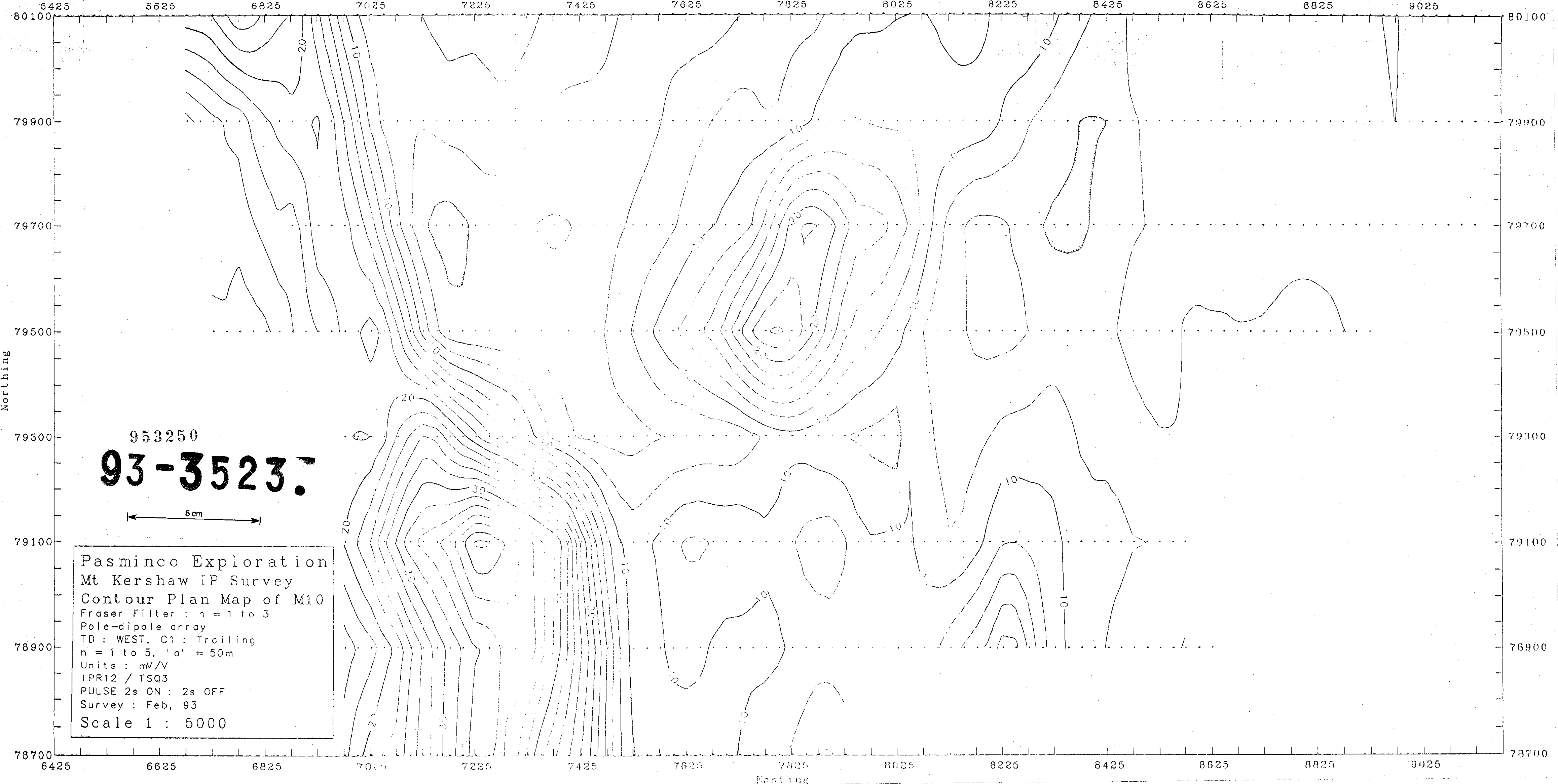
5 cm

Pasminco Exploration
Burns Peak IP Survey

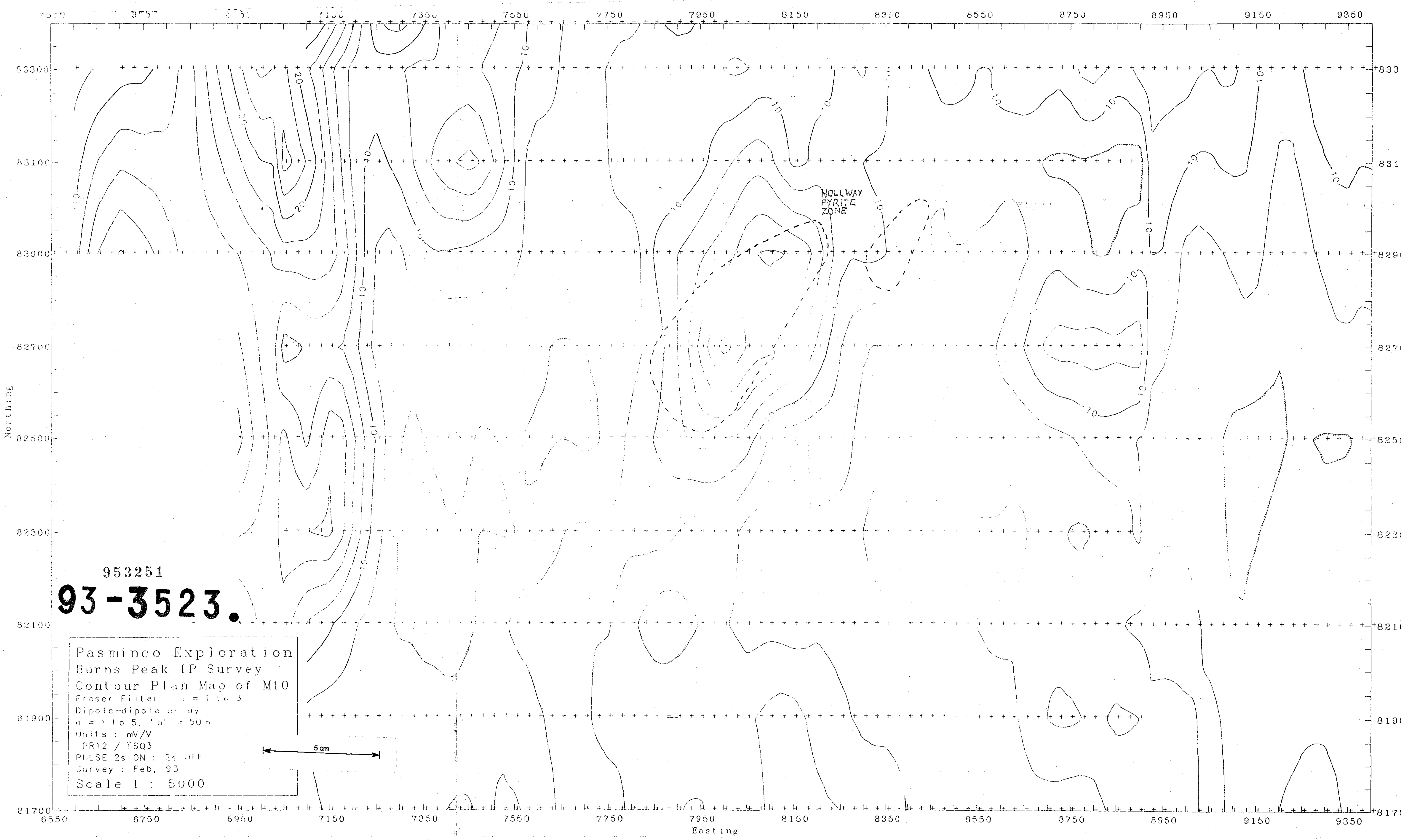
Dipole-dipole array
n = 1 to 5, 'a' = 50m
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93

Scale 1 : 5000

BP1.7



953250
93-3523
5 cm
Pasminco Exploration
Mt Kershaw IP Survey
Contour Plan Map of M10
Fraser Filter : n = 1 to 3
Pole-dipole array
TD : WEST, C1 : Trailing
n = 1 to 5, 'a' = 50m
Units : mV/V
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93
Scale 1 : 5000
Northing
Easting


953251
93-3523.
Pasminco Exploration
Burns Peak IP Survey
Contour Plan Map of M10
Fraser Filter n = 1 to 3
Dipole-dipole array
n = 1 to 5, 'a' = 50m
Units : mV/V
IPR12 / TSQ3
PULSE 2s ON : 2s OFF
Survey : Feb, 93
Scale 1 : 5000
5 cm
HOLLWAY PYRITE ZONE
Northing
Easting
6550
6750
6950
7150
7350
7550
7750
7950
8150
8350
8550
8750
8950
9150
9350
83300
83100
82900
82700
82500
82300
82100
81900
81700

953252

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

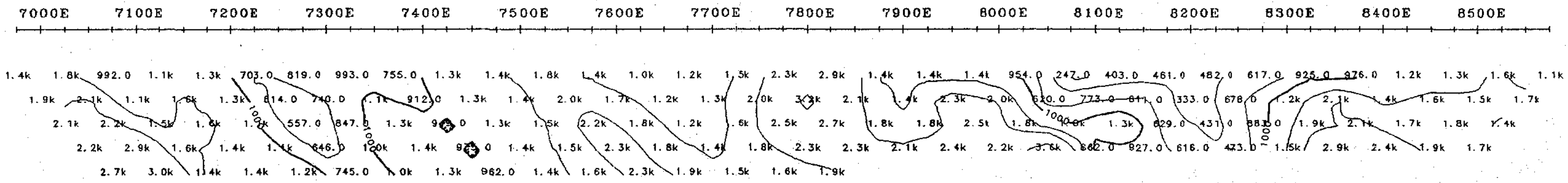
Line L79100N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

RHO



M10

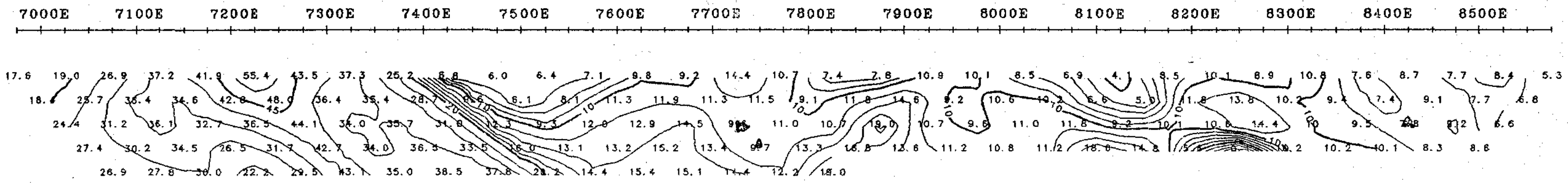


Figure BP2.1

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

953253

Line L79300N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

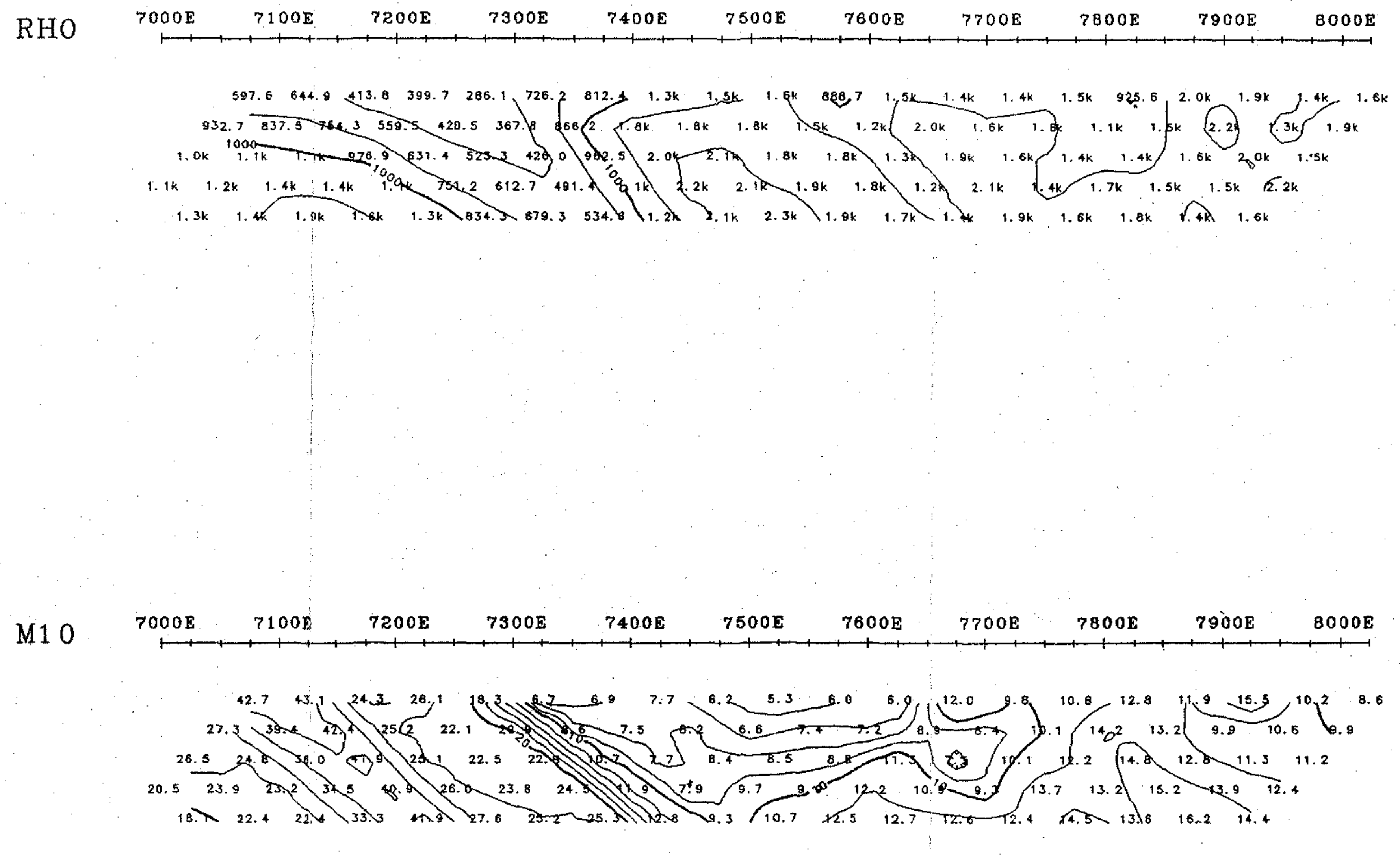


Figure BP2.2

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

953254

Line L79500N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

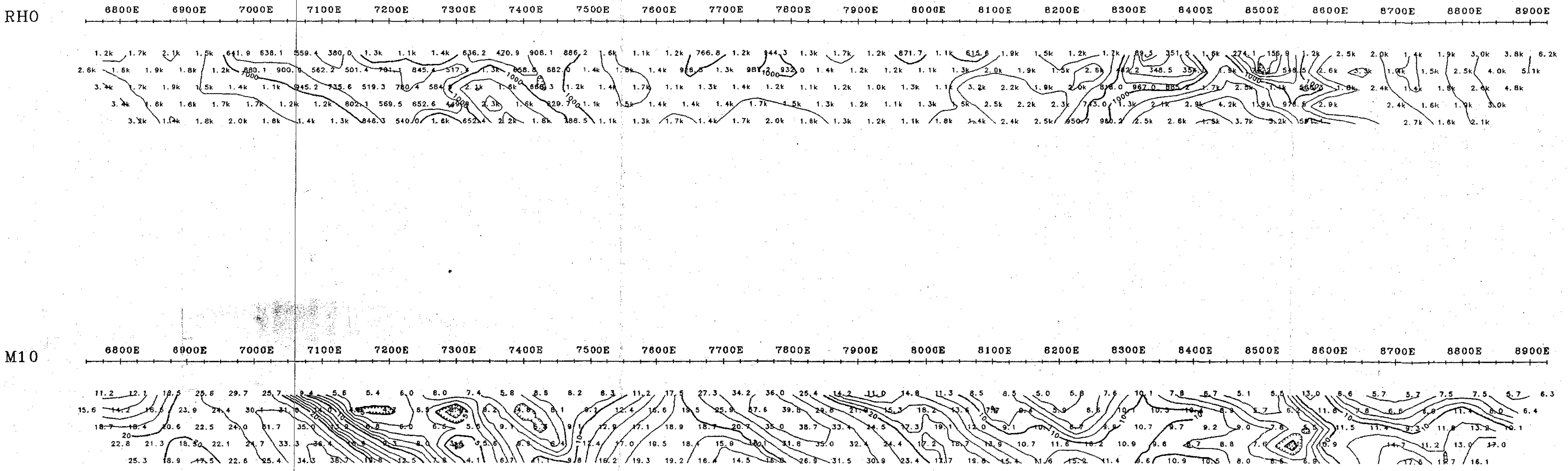


Figure BP2.3

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

953255

Line L79700N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

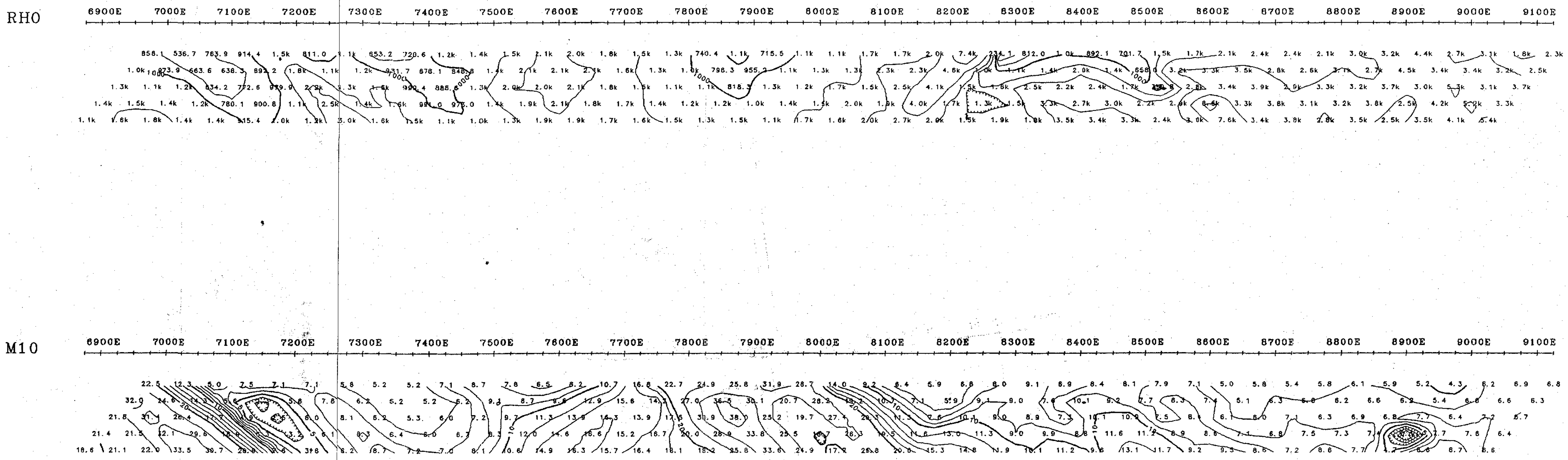


Figure BP2.4

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

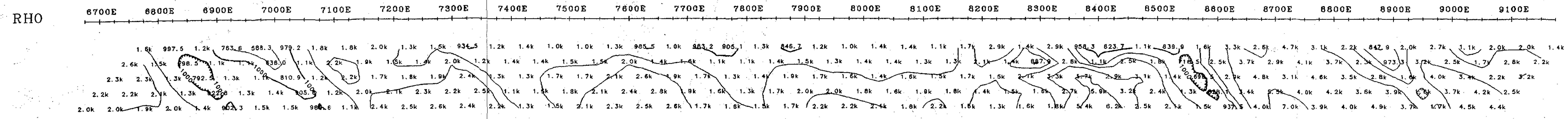
953256

Line L79900N

5 cm

Scale 1 : 5000

IP & Resistivity Survey



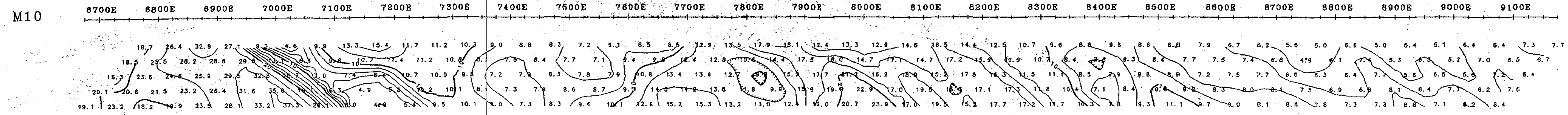


Figure BP2.5

Pasminco Exploration Ltd

EL 44/88
Mt Kershaw

Survey Parameters

Array : Pole-Dipole
'a' = 50m, n = 1 to 5
TD West : C1 East
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : February 1993

953257

Line L80100N

5cm

Scale 1 : 5000

IP & Resistivity Survey

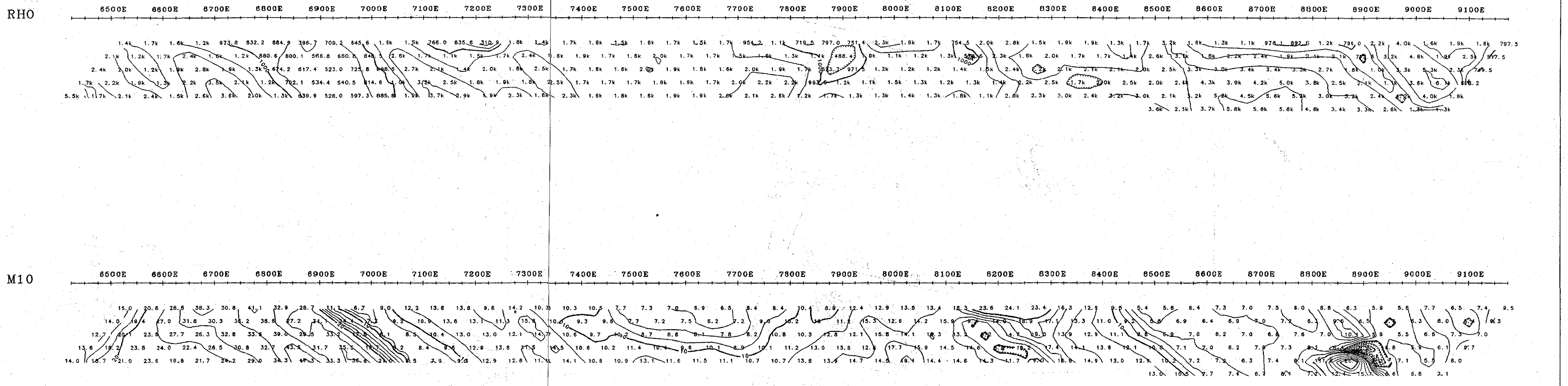


Figure BP2.6

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

953258

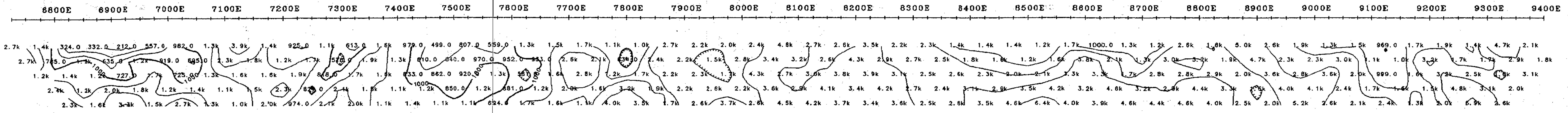
Line L81700N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

RHO



M10

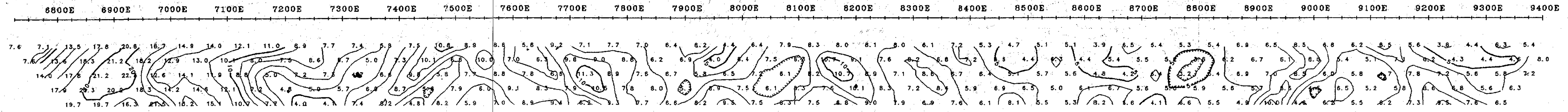


Figure BP2.7

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

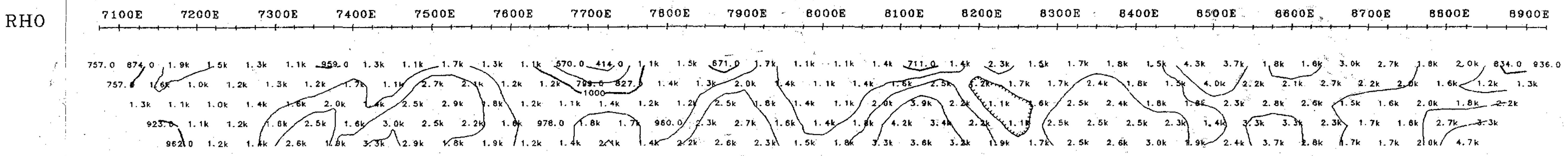
953259

Line L81900N

5 cm

Scale 1 : 5000

IP & Resistivity Survey



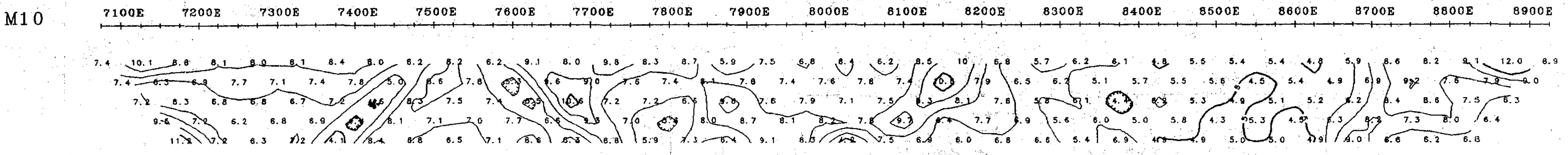


Figure BP2.8

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

953260

Line L82100N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

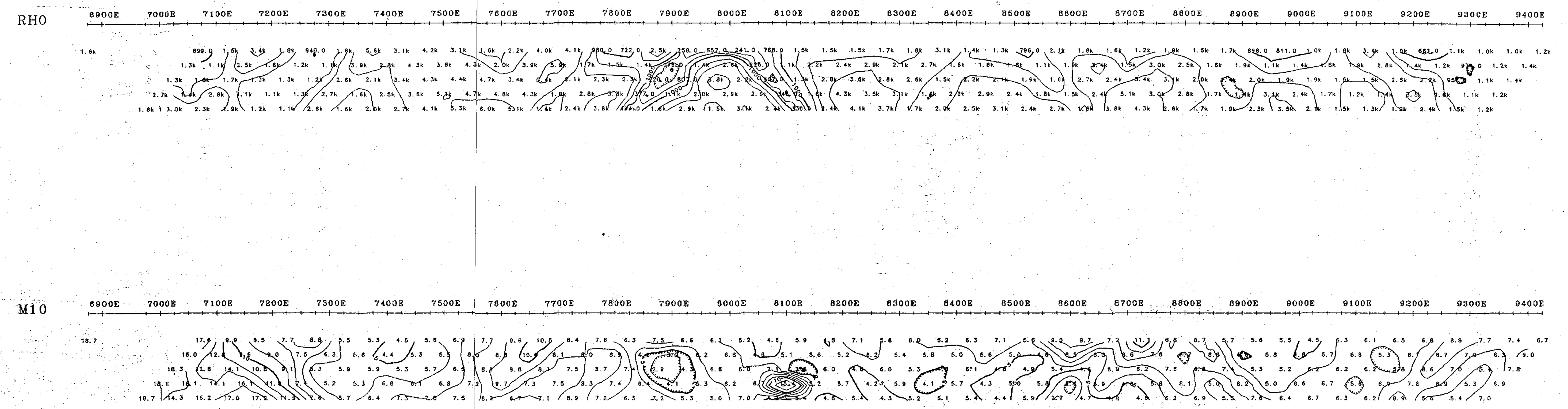


Figure BP2.9

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

953261

Line L82300N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

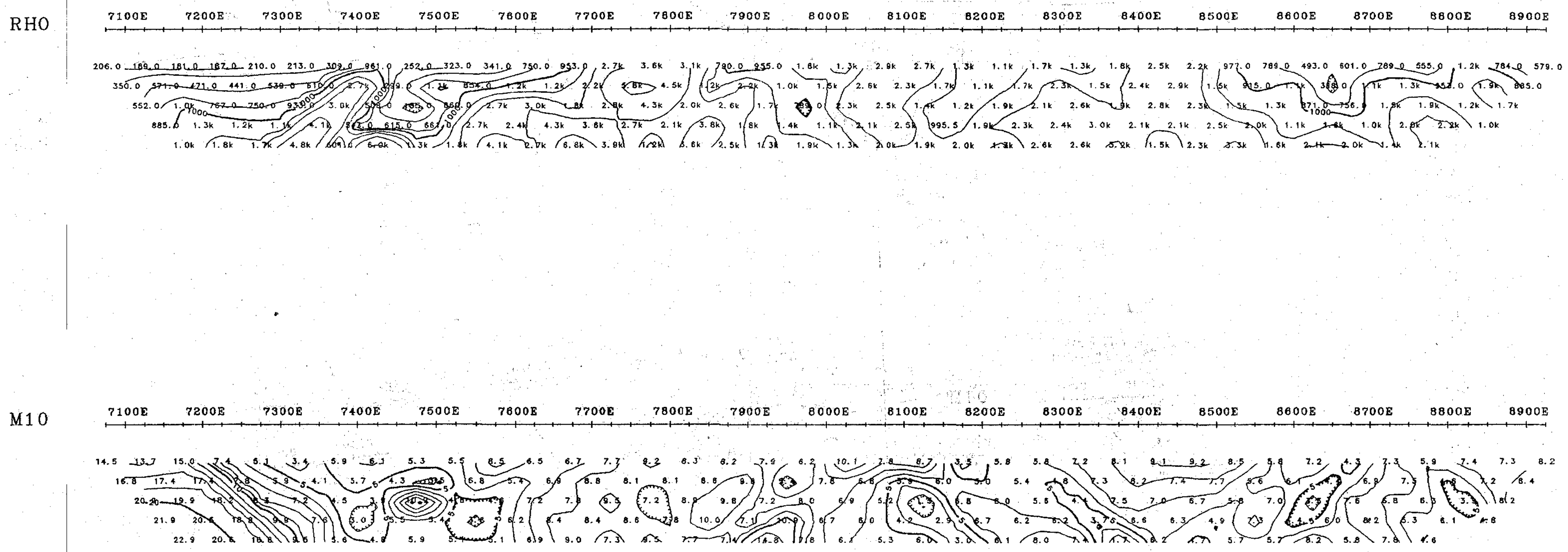


Figure BP2.10

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

953262

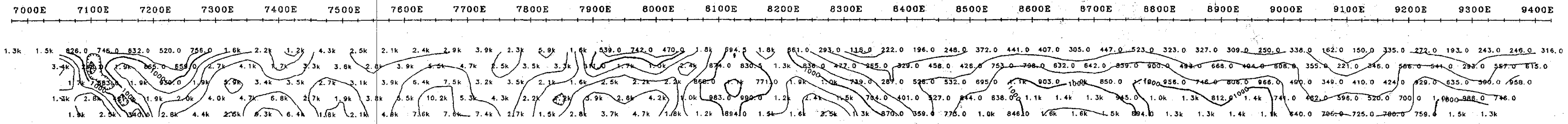
Line L82500N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

RHO



M10

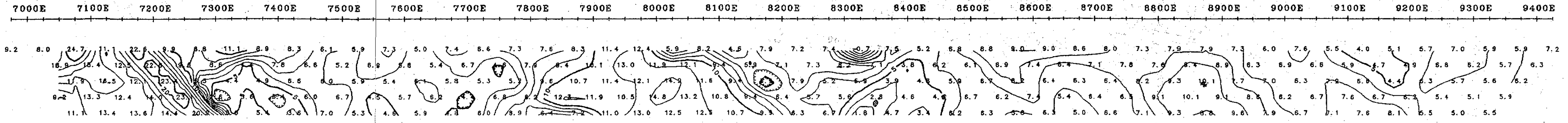


Figure BP2.11

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Array : Dipole-Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TSQ3
Timing : 2s cycle
Survey : Feb/March 1993

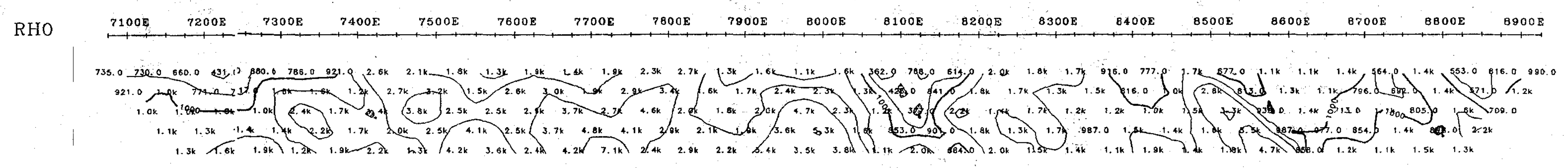
Line L82700N

5 cm

Scale 1 : 5000

53263

IP & Resistivity Survey



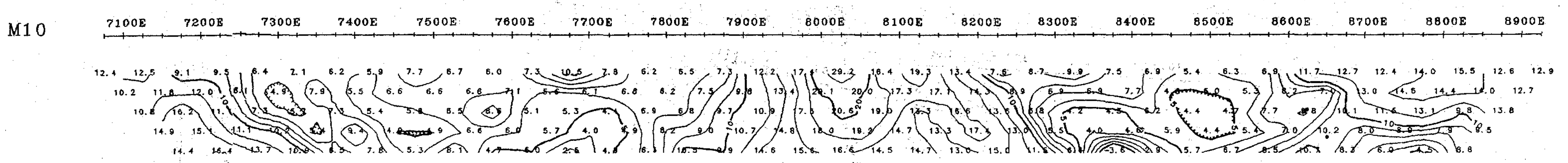


Figure BP2.12

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Dipole - Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TS
Timing : 2s cycle
Survey : Feruary 199

Line L82900N

5 cm

Scale 1 : 5000

953264

IP & Resistivity Survey

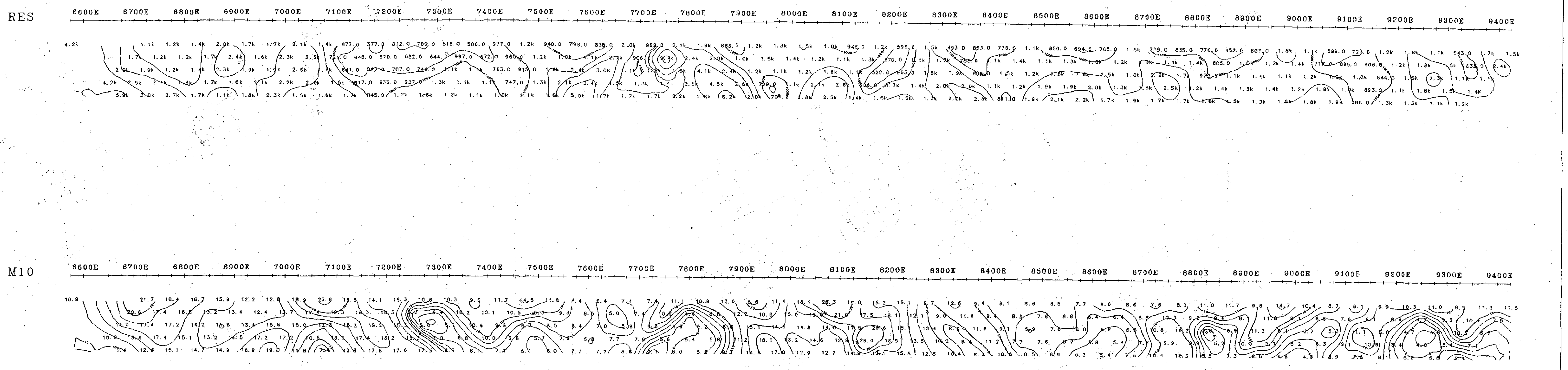


Figure BP2.13

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Dipole - Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TS
Timing : 2s cycle
Survey : Feruary 199

953265

Line L83100N

5cm

Scale 1 : 5000

IP & Resistivity Survey

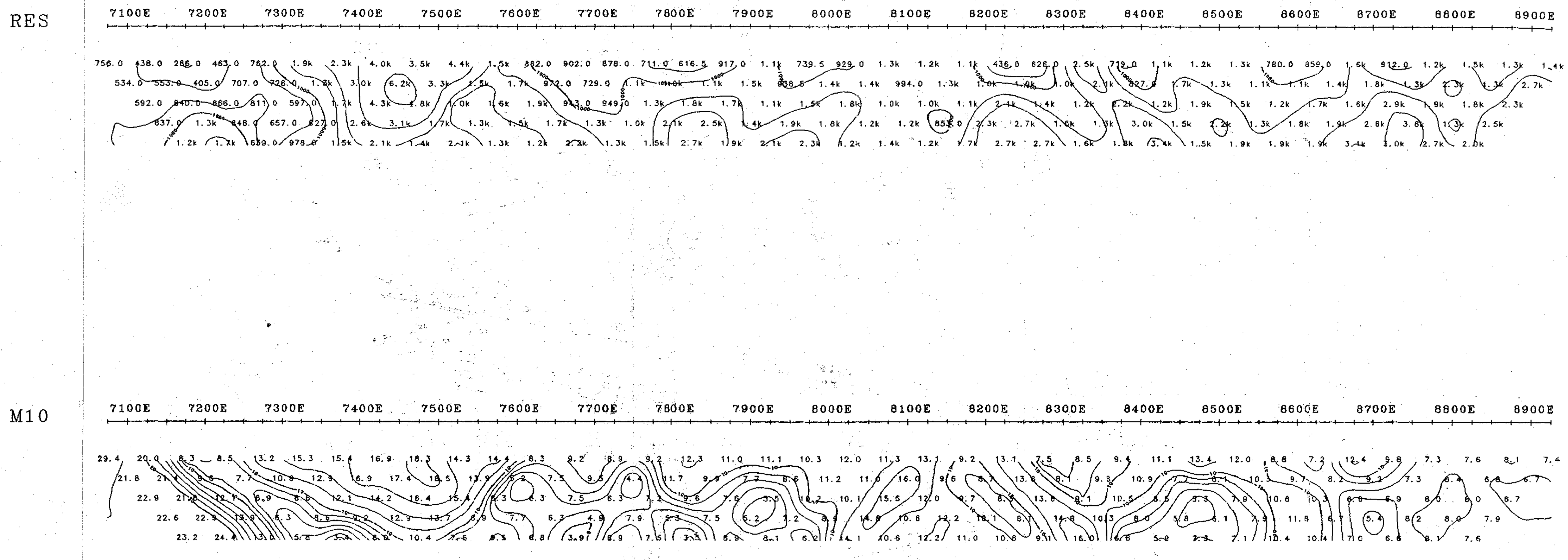


Figure BP2.14

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Dipole - Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TS
Timing : 2s cycle
Survey : Feruary 199

953266
Line L83300N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

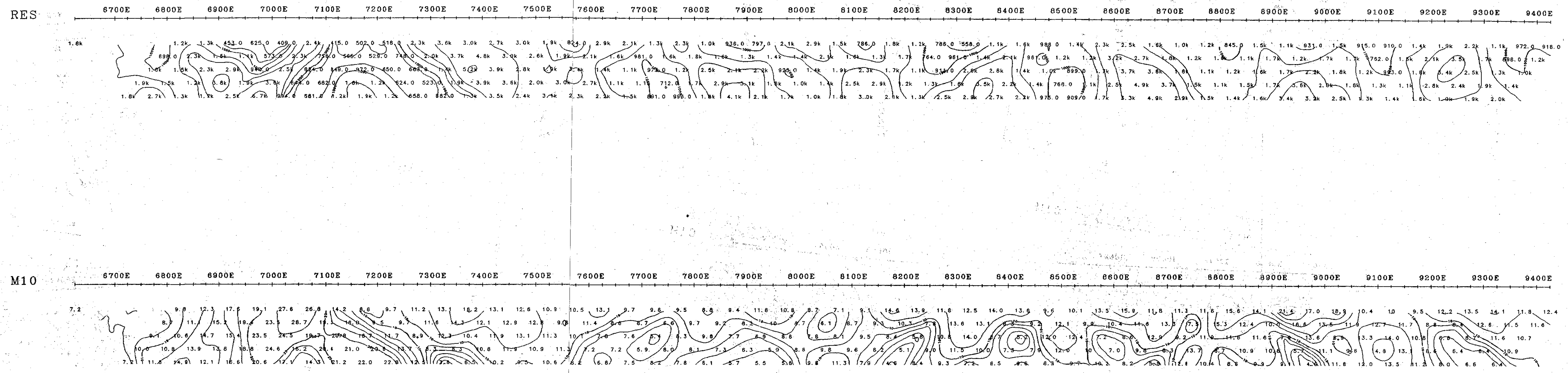


Figure BP2.15

Pasminco Exploration Ltd

EL 44/88
Burns Peak

Survey Parameters

Dipole - Dipole
'a' = 50m
n = 1 to 5
Equipment : IPR12/TS
Timing : 2s cycle
Survey : Feruary 199

953267

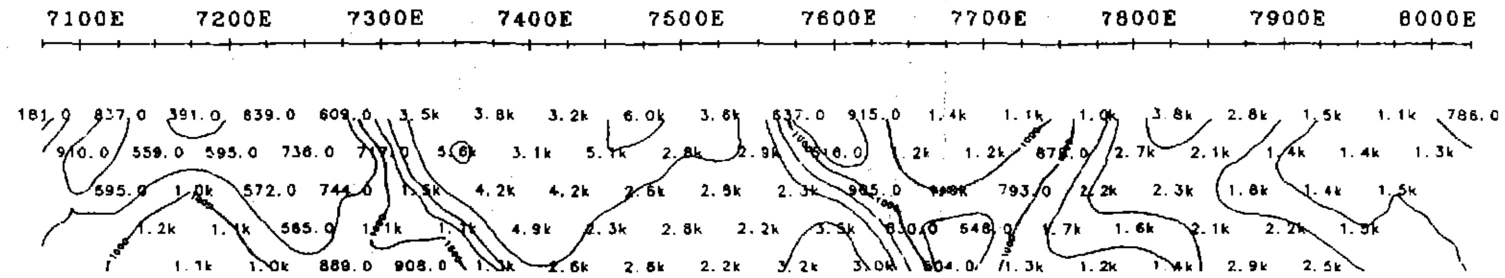
Line L83400N

5 cm

Scale 1 : 5000

IP & Resistivity Survey

RES



M10

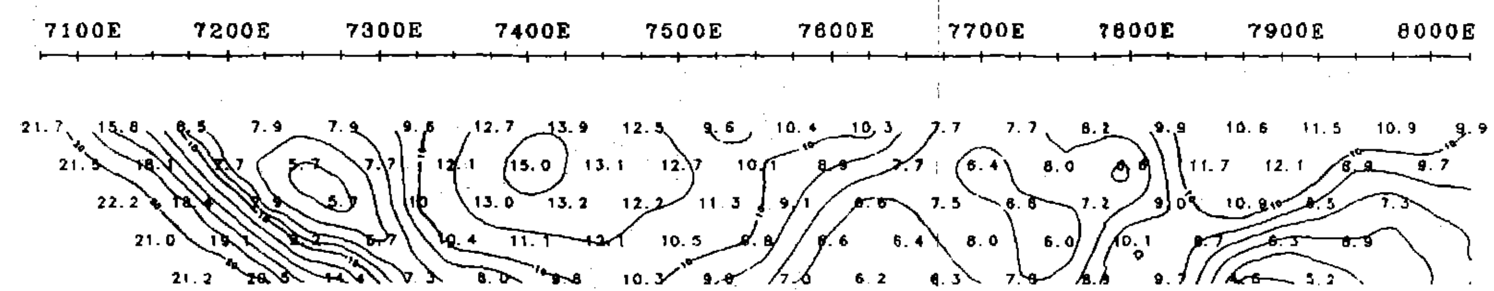


Figure BP2.16

8 EQUIPMENT SPECIFICATIONS

953269

SCINTREX

IPR-12 Time Domain Induced Polarization/Resistivity Receiver

Brief Description

The IPR-12 Time Domain IP/Resistivity Receiver is principally used in exploration for precious and base metal mineral deposits. In addition, it is used in geoelectrical surveying for groundwater or geothermal resources, often to great depths. For these latter targets, the induced polarization measurements may be as useful as the high accuracy resistivity results since it often happens that geological materials have IP contrasts when resistivity differences are absent.

Due to its integrated, lightweight, microprocessor based design and its large, 16 line display screen, the IPR-12 is a remarkably powerful, yet easy to use instrument. A wide variety of alphanumeric and graphical information can be viewed by the operator during and after the taking of readings. Signals from up to eight potential dipoles can be measured simultaneously and recorded in solid-state memory along with automatically calculated parameters. Later, data can be output to a printer or a PC (direct or via modem) for processing into profiles and maps.

The IPR-12 is compatible with Scintrex IPC and TSQ Transmitters, or others which output square waves with equal on and off periods and polarity changes each half cycle. The IPR-12 measures the primary voltage (Vp), self potential (SP) and time domain induced polarization (Mi) characteristics of the received waveform. Resistivity, statistical and Cole-Cole parameters are calculated and recorded in memory with the measured data and time.

Scintrex has been active in induced polarization research, development, manufacturing, consulting and surveying for over thirty years. We offer a full range of instrumentation, accessories and training.

The IPR-12 Receiver measures spectral IP signals from eight dipoles simultaneously then records measured and calculated parameters in memory.

Benefits

Speed Up Surveys

The IPR-12 saves you time and money in carrying out field surveys. Its capacity to measure up to eight dipoles simultaneously is far more efficient than older receivers measuring a single dipole. This advantage is particularly valuable in drillhole logging where electrode movement time is minimal.

The built-in, solid-state memory records all information associated with a reading, dispensing with the need for any hand written notes. PC compatibility means rapid electronic transfer of data from the receiver to a computer for rapid data processing.

Taking a reading is simple and fast. Only a few keystrokes are virtually needed since the IPR-12 features automatic circuit resistance checks, SP buckout and gain setting.

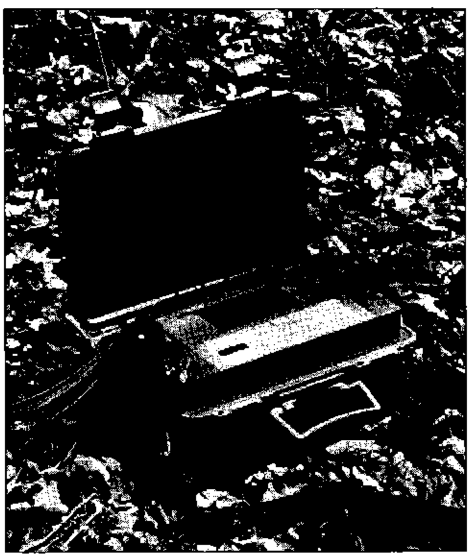
High Quality Data

One of the most important features of the IPR-12 in permitting high quality data to be acquired, is the large display screen which allows the operator easy real time access to graphic and alphanumeric displays of instrument status and measured data. The IPR-12 ensures that the operator obtains accurate data from field work.

The number and relative widths of the IP decay curve windows have been carefully chosen to yield the transient information required for proper interpretation of spectral IP data. Timings are selectable to permit a very wide range of responses to be measured.

Benefits

The IPR-12 stacks the information for each cycle and calculates a running average for Vp, SP and each transient window. This enhancement is equivalent to a noise decrease of √N or a transmitter power increase of N where N is the number of values averaged. Since values are mea-



The IPR-12 is fully portable and easy to use.

sured each few seconds, it does not take long for this signal enhancement technique to have great effect.

The automatic SP program bucks out and corrects completely for linear SP drift. Data are also kept noise free by: radio-frequency (RF) filters, low pass filters and statistical spheric noise spike rejection. To prevent mistriggering, the IPR-12 does not accept trigger-line signals at inappropriate times.

Eight Dipoles Simultaneously. The analog input section of the IPR-12 contains eight identical differential inputs to accept signals from up to eight individual potential dipoles. Any dipole can be disabled. The amplified analog signals are converted to digital form by a high resolution A/D converter and recorded with other pertinent information identifying each group of dipoles.

Features

Large Backlit Display. The 16 line by 42 character backlit Liquid Crystal Display (LCD) enhances the operator's understanding of the status and the accuracy of the measured data. Any one of thirteen different display screens are used for entering information, monitoring the progress of a reading and checking data before and after recording. An LCD heater is provided for low temperature operations.

Keyboard. Seventeen large keys control the instrument and permit input of alphanumeric information.

Solid State Memory. All instrument parameters as well as; entered, measured and calculated quantities are stored in the large capacity, fail-safe memory.

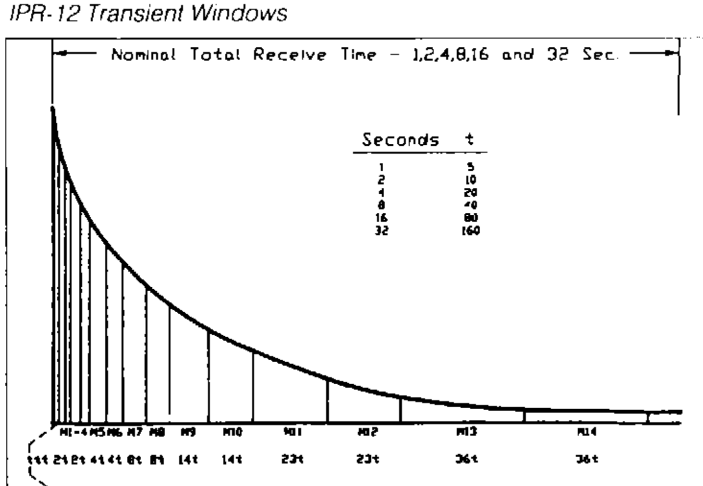
Memory Recall. Any observation recorded in memory can be recalled, by simple keypad entry, for inspection on the display.

Printed Data Listings. A simple digital printer can be connected to the IPR-12 to print out listings of data recorded in memory.

PC Compatibility. The IPR-12 uses an RS-232C, 7 or 8 bit ASCII high baud rate interface, compatible with most lap-tops or PC's. This permits data to be dumped on a line by line basis or all at once from the receiver's memory for archiving or processing.

Spectral Quality IP. Depending on receive time, 10 to 14 windows are mea-

IPR-12 Transient Windows



sured simultaneously for each dipole. Selectable total receive times are 1, 2, 4, 8, 16 and 32 seconds. After the current is shut off, there is a delay of t milliseconds. Then, the width of each window in the seven following pairs of windows is, respectively: t, 2t, 4t, 8t, 14t, 23t and 36t. This format provides a high density of information at early times where the decay of the curve is steepest.

Variable Chargeability Summing. By keyboard selection, you can choose an additional, summed transient window. This value, Mx, is recorded in memory along with the value for each of the measured transient windows. Summing can be done for the purpose of obtaining a parameter close to that measured with earlier receivers. The width of the Mx window ranges upwards from 10 milliseconds in 10 millisecond steps.

Signal Enhancement. Primary voltage, self potential and individual transient windows are continuously averaged and the display is updated every cycle so the operator is fully aware of signal improvement.

Calculates Cole-Cole Parameters. The IPR-12 calculates the Cole-Cole parameters; true chargeability (M) and time constant (Tau) for a fixed C of 0.25. These parameters, which are recorded in memory may be used to assist interpretation by distinguishing between different chargeable sources, based mainly on textural differences.

Features

Noise Rejection. Individual samples contaminated by noise can be automatically rejected.

Statistical Parameters. The IPR-12 calculates statistical error parameters for Mx. The RMS error of the deviation between the measured data and best fit of the Cole-Cole caculation is also derived.

Selectable Reading Termination. By keyboard selection the receiver can be set up to terminate readings by either a manual key press or when a preset number of cycles have been measured.

Normalizes for Time and Vp. The value recorded for each M window is in millivolt/volt, that is to say that normalization is automatically done for the width of each window and for the primary voltage, Vp is also normalized for time of integration.

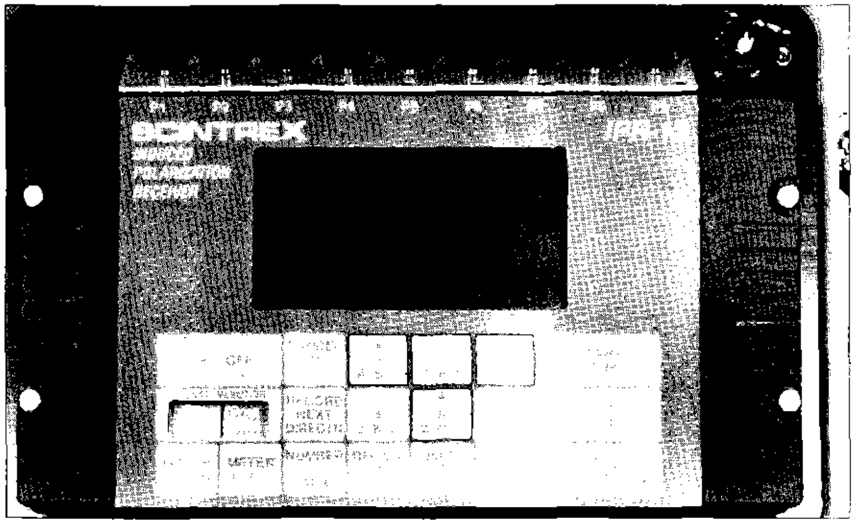
Automatic Resistivity Calculations. The IPR-12 calculates the geometrical (K) factors for standard arrays shown in the Info display based on electrode positions given in the Locations display. This feature is particularly helpful for arrays like the Gradient or Schlumberger in which the K-Factors change for every station. Then, using measured primary voltages with operator entered current values, the receiver calculates and records apparent resistivity values.

Automatic Vp Self Ranging. There is no manual adjustment for different primary voltages since the IPR-12 automatically adjusts the gain of its signal conditioning amplifiers for any Vp signal in the range of 50 microvolts to 14 volts full scale.

Automatic SP Correction. Self potential buckout is entirely automatic, both initially and throughout the measurement.

Synchronization. In normal operation, the IPR-12 synchronizes itself on the received waveform, and triggering is disabled until to within about 60 milliseconds before a signal transition. This reduces to a negligible level the possibility of false triggering.

A bulit-in AC ohmmeter avoids electrode polarization, while checking the ground resistance of electrodes and the continuity of field cables. The circuit resistance values are displayed and are automatically recorded in memory.



The IPR-12 features a large 16 line by 42 character, backlit liquid crystal display.

Self-Check Program. Each time the instrument is turned on, a verification of the program memory is automatically performed.

Out of Limit Checks. Messages appear on the display if any of the following errors occur: out of calibration or failed memory test, incorrect signal amplitude or excessive noise, signal input with respect to the reference electrode in excess of the permitted range, synchronization failure, previous station's data not filed and data memory full.

Analog Meter. While signals on up to eight dipoles are presented simultaneously on the digital display, one analog meter, easily switchable from dipole to dipole, has been provided for monitoring particularly noisy conditions.

Internal Test Generator. An internal signal generator is used to test the instrument periodically, to ensure that it is functioning properly.

Overload Detection. All analog signal levels are monitored to prevent measurements on individual dipoles for which limits are exceeded and appropriate messages are displayed. The affected samples are not added to the previous average.

Noise Filters. Radio frequency and 10Hz, 6 pole low pass filters enhance signal quality. The low cut off frequency and steep roll-off of the latter filters provide better powerline noise rejection than notch filters.

Noise Monitor. This monitor allows the display of noise and/or the received signal for any selected dipole in a similar manner to that of a digital oscilloscope.

Input Protection. If signals in excess of 14V and up to 60V are accidentally applied at the input, zener diode protection ensures that no damage will occur. For higher voltages fuse protection is used.

Binding Posts. To avoid inter-electrode leakage which may occur in humid conditions with small, multipin connectors, the IPR-12 has been designed with widely spaced binding posts.

Mueller Cable. The "Mueller IP/Resistivity Snake" is a potential cable set that has been designed by a geophysical field operator with several years of practical experience in conducting surveys in all types of terrain. Designed to be easily and quickly moved along the survey line to increase your survey efficiency results in significant cost savings made possible by the "Snake"

Software

A complete range of data processing, plotting and interpretation software is available to meet all requirements.

Specifications

Inputs
1 to 8 dipoles are measured simultaneously.

Input Impedance
16 Megohms

SP Bucking
±10 volt range. Automatic linear correction operating on a cycle by cycle basis.

Input Voltage (Vp) Range
50 μvolt to 14 volt

Chargeability (M) Range
0 to 300millivolt

Tau Range
1 millisecond to 1000 seconds

Reading Resolution of Vp, SP and M
Vp, 10 microvolt; SP, 1 millivolt; M, 0.01 millivolt/volt

Absolute Accuracy of Vp, SP and M
Better than 1%

Common Mode Rejection
At input more than 100db

Vp Integration Time
10% to 80% of the current on time.

IP Transient Program
Total measuring time keyboard selectable at 1, 2, 4, 8, 16 or 32 seconds. Normally 14 windows except that the first four are not measured on the 1 second timing, the first three are not measured on the 2 second timing and the first is not measured on the 4 second timing. (See diagram on page 2.) An additional transient slice of minimum 10 ms width, and 10ms steps, with delay of at least 40 ms is keyboard selectable.

Transmitter Timing
Equal on and off times with polarity change each half cycle. On/off times of 1, 2, 4, 8, 16 or 32 seconds. Timing accuracy of ±100 ppm or better is required.

External Circuit Test
All dipoles are measured individually in sequence, using a 10 Hz square wave. The range is 0 to 2 Mohm with 0.1kohm *resolution. Circuit resistances are dis-*played and recorded.

Synchronization
Self synchronization on the signal received at a keyboard selectable dipole. Limited to avoid mistriggering.

Filtering
RF filter, 10 Hz 6 pole low pass filter, statistical noise spike removal.

Internal Test Generator
1200 mV of SP; 807 mV of Vp and 30.28 mV/V of M.

Analog Meter
For monitoring input signals; switchable to any dipole via keyboard.

Keyboard
17 key keypad with direct one key access to the most frequently used functions.

Display
16 lines by 42 characters, 128 x 256 dots, Backlit Liquid Crystal Display. Displays instrument status and data during and after reading. Alphanumeric and graphic displays.

Display Heater
Available for below -15°C operation.

Memory Capacity
Stores approximately 400 dipoles of information when 8 dipoles are measured simultaneously.

Real Time Clock
Data is recorded with year, month, day, hour, minute and second.

Digital Data Output
Formatted serial data output for printer and PC etc. Data output in 7 or 8 bit ASCII, one start, one stop bit, no parity format. Baud rate is keyboard selectable for standard rates between 300 baud and 51.6 kBaud. Selectable carriage return delay to accommodate slow peripherals. Handshaking is done by X-on/X-off.

Standard Rechargeable Batteries
Eight rechargeable Ni-Cad D cells. Supplied with a charger, suitable for 110/230V, 50 to 60 Hz, 10W. More than 20 hours service at +25°C, more than 8 hours at -30°C.

Ancillary Rechargeable Batteries
An additional eight rechargeable Ni-Cad D cells may be installed in the console along with the Standard Rechargeable Batteries. Used to power the Display Heater or as back up power. Supplied with a second charger. More than 6 hours service at -30°C.

Use of Non-Rechargeable Batteries
Can be powered by D size Alkaline batteries, but rechargeable batteries are recommended for longer life and lower cost over time.

Field Wire Terminator
Used to custom make cables for up to eight dipoles, using ordinary field wire.

Operating Temperature Range
-30°C to +50°C

Storage Temperature Range
-30°C to +50°C

Dimensions
Console: 355 x 270 x 165 mm
Charger: 120 x 95 x 55mm

Weights
Console: 5.8 kg
Standard or Ancillary Rechargeable Batteries: 1.3 kg
Charger: 1.1 kg

SCINTREX

1031 WELLINGTON ST.
WEST PERTH, W.A. 6005
PHONE: (09) 321 6934

FAX: (09) 481 1201

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PHONE: (09) 321 6934

FAX: (09) 481 1201

SCINTREX TSQ-3 3000 W

Time and Frequency Domain IP and Resistivity Transmitter

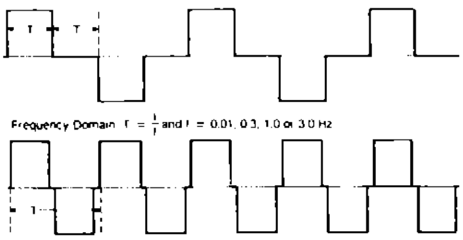
Function

The TSQ-3 is a multi-frequency, square wave transmitter suitable for induced polarization and resistivity measurements in either the time or frequency domain. The unit is powered by a separate motor-generator.

The favourable power/weight ratio and compact design of this system make it portable and highly versatile for use with a wide variety of electrode arrays. The medium range power rating is sufficient for use under most geophysical conditions.

The TSQ-3 has been designed primarily for use with the Scintrex Time Domain and Frequency Domain Receivers, for combined induced polarization and resistivity measurements, although it is compatible with most standard time domain and frequency domain receivers. It is also compatible with the Scintrex Commutated DC Resistivity Receivers for resistivity surveying. The TSQ-3 may also be used as a very low frequency electromagnetic transmitter.

Basically the transmitter functions as follows. The motor turns the generator (alternator) which produces 800 Hz, three phase, 230 V AC. This energy is transformed upwards according to a front panel voltage setting by a large transformer housed in the TSQ-3. The resulting AC is then rectified in a rectifier bridge. Commutator switches then control the DC voltage output according to the waveform and frequency selected. Excellent output current stability is ensured by a unique, highly efficient technique based on control of the phase angle of the three phase input power.



Waveforms output by the TSQ-3

Features

Current outputs up to 10 amperes, voltage outputs up to 1500 volts, maximum power 3000 VA.

Solid state design for both power switching and electronic timing control circuits.

Circuit boards are removable for easy servicing.

Switch selectable wave forms: square wave continuous for frequency domain and square wave interrupted with automatic polarity change for time domain.

Switch selectable frequencies and pulse times.

Overload, underload and thermal protection for maximum safety.

Digital readout of output current.

Programmer is crystal controlled for very high stability.

Low loss, solid state output current regulation over broad range of load and input voltage variations.

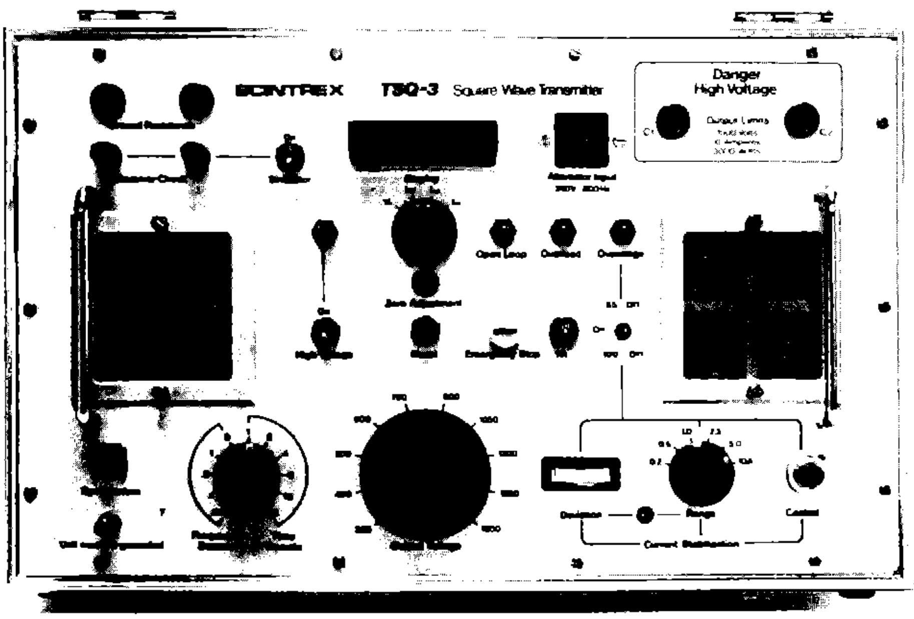
Rectifier circuit is protected against transients.

Excellent power/weight ratio and efficiency.

Designed for field portability; motor-generator is installed on a convenient frame and is easily man-portable. The transmitter is housed in an aluminum case.

The motor-generator consists of a reliable Briggs and Stratton four stroke engine coupled to a brushless permanent magnet alternator.

New motor-generator design eliminates need for time domain dummy load.



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Technical Description of TSQ-3/3000W Time and Frequency Domain IP and Resistivity Transmitter

TSQ-3 transmitter with portable motor generator unit

Transmitter Console	
Output Power	3000 VA maximum
Output Voltages	300, 400, 500, 600, 750, 900, 1050, 1200, 1350 and 1500 volts, switch selectable
Output Current	10 amperes maximum
Output Current Stability	Automatically controlled to within ±0.1% for up to 50% external load variation or up to ±10% input voltage variation
Digital Display	Light emitting diodes permit display up to 1999 with variable decimal point; switch selectable to read input voltage, output current, external circuit resistance. Dual current range, switch selectable
Absolute Accuracy	± 3% of full range
Current Reading Resolution	10 mA on coarse range (0-10A) 1 mA on fine range (0-2A)
Frequency Domain Waveform	Square wave, continuous with approximately 6% off time at polarity change
Frequency Domain Frequencies	Standard: 0.033, 0.1, 0.3, 1.0 and 3.0 Hz, switch selectable Optional: any number of frequencies in range 0 to 5 Hz.
Time Domain Cycle Timing	t:t:t:t,on:off:on:off;automatic
Time Domain Polarity Change	each 2t: automatic
Time Domain Pulse Durations	Standard: t = 1, 2, 4, 8, 16 or 32 seconds Optional: any other timings
Period Time Stability	Crystal controlled to better than .01%. An optional high stability clock provides stabilization to better than 1 ppm over -20/ + 50° C.
Efficiency	.78
Operating Temperature Range	-30° C to + 50° C
Overload Protection	Automatic shut-off at 3300 VA
Underload Protection	Automatic shut-off at current below 100 mA
Thermal Protection	Automatic shut-off at internal temperature of + 85° C
Dimensions	350 mm x 530 mm x 320 mm
Weight	25.0 kg.
Power Source	
Type	Motor flexibly coupled to alternator and installed on a frame with carrying handles
Motor	Briggs and Stratton, four stroke, 8 H.P.
Alternator	Permanent magnet type, 800 Hz, three phase 230 V AC.
Output Power	3500 VA maximum
Dimensions	520 mm x 715 mm x 560 mm
Weight	72.5 kg.
Total System	
Shipping Weight	150 kg includes transmitter console, motor generator, connecting cables and re-usable wooden crates.

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Geophysical and Geochemical Instrumentation and Services

PASMINCO EXPLORATION
PASMINCO - NORANDA - PLUTONIC JOINT VENTURE
BURNS PEAK EL 44/88 ANNUAL REPORT

NOVEMBER 1992 - OCTOBER 1993

volume 2 of 3

AUTHORS: RA Poltock, LW Kirsner, MS Saxon

DATE: November 1993

REPORT No.: T93-16

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- Melbourne
- Rosebery

Noranda Pty Limited - Toronto

Plutonic Resources Limited - Sydney

SUBMITTED BY: R Poltock

ACCEPTED BY:

Burnie
November 1993

953276

PASMINCO EXPLORATION
BURNS PEAK EL 44/88
REVIEW

PROJECT REVIEW

AUTHOR: LW Kirsner, FC Murphy, MS Saxon & NH Hughes

DATE: April, 1993

REPORT No.: T93-2

SUBMITTED TO: Regional Exploration Manager - Tasmania

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ACCEPTED BY:

Burnie
April, 1993

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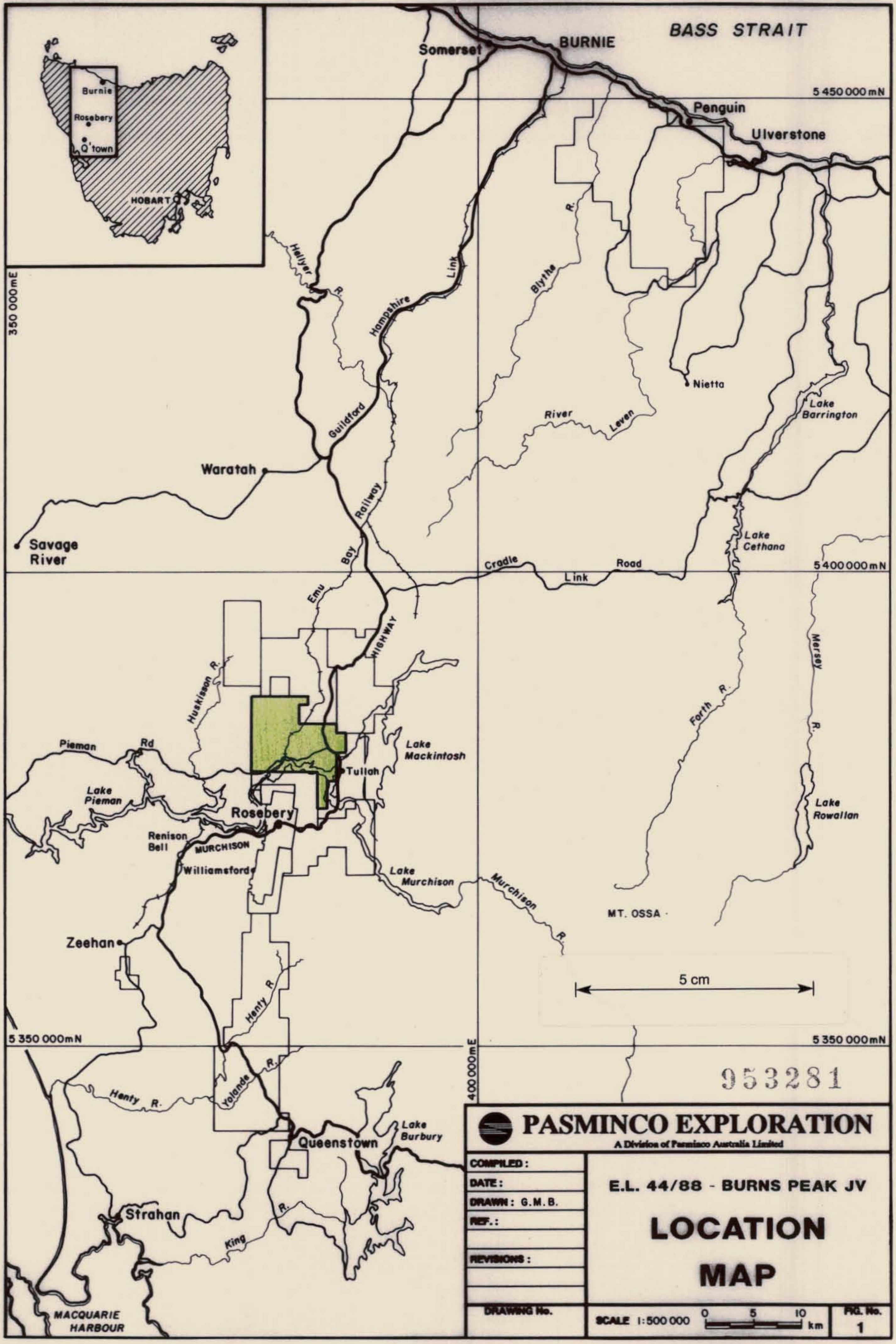
1 SUMMARY

A six member review team completed a four week study of core, outcrop, and previously gathered geophysical geochemical and remotely - sensed data on Burns Peak EL 44/88 during February and March 1993. Revised geological and geophysical interpretations for the main prospects (Chester and Pinnacles) and a mineralisation model have been produced. The regional structural setting of the main prospects and the tenement as a whole was assessed.

Ten target areas are outlined for follow-up work, with recommendations varying from immediate drilling to reconnaissance mapping to assess conceptual geophysical targets.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BURNIE
Somerset
Penguin
Ulverstone
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5 400 000 mN
5 350 000 mN
350 000 mE
400 000 mE
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Rosebery
Q'town
HOBART
Hellyer R.
Hampshire
Link
Blythe R.
Nietta
River Leven
Lake Barrington
Guildford
Waratah
Railway
Bay
Emu
Savage River
Cradle Link Road
Lake Cethana
HIGHWAY
Mersey R.
Huskisson R.
Forth R.
Pieman Rd
Lake Pieman
Tullah
Lake Mackintosh
Rosebery
Renison Bell
MURCHISON
Williamsford
Lake Murchison
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Lake Rowallan
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Henty R.
Henty R.
Yolande R.
Lake Burbury
Queenstown
Strahan
King R.
MACQUARIE HARBOUR
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PASMINCO EXPLORATION
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REVISIONS :
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E.L. 44/88 - BURNS PEAK JV
LOCATION MAP
SCALE 1:500 000
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FIG. No. 1

2 INTRODUCTION

2.1 Aims & Process

During February and March 1993, an intensive review of past exploration on Burns Peak EL 44/88 in the Mt Read Volcanics, Tasmania was completed over four weeks. The review team involved four Pasminco geoscientists (Lindsay Kirsner, Mark Saxon, Barry Murphy and Neil Hughes) and two Plutonic geoscientists (Kevin Tomlinson and Grant MacDonald) each to a different degree throughout. Ground covered included past reports, most existing drill core, some field mapping traverses, image processed geophysical data (aeromagnetics, gravity, Landsat TM, radiometrics), electrical geophysical surveys (IP, UTEM and others) and geochemical data (surface and drill core).

The review process culminated in a presentation of ideas generated by the team, to a technical meeting attended by three additional Pasminco geologists with many years of Tasmanian experience (Fergus FitzGerald, Terry Lees, Angela Lorrigan), Pasminco's Chief Geologist (Bob Haydon) and the review team (apart from Tomlinson). The meeting was designed to give the team a more regional context within which to base the final conclusions (which are contained in this report) and to "tap-into" the breadth of knowledge of the Mt Read Volcanics that Pasminco has developed.

This report summarises the conclusions reached by the review team and presents summary geological sections through the most intensely drilled belts (Chester and Pinnacles). Interpreted geology for the remainder of the tenement is included, as well as a number of specific drill targets and prospect areas worthy of follow-up. The regional context in which Burns Peak sits was also considered during the review, but data presented here is restricted to the area within the tenement boundaries, with minor discussion of areas external to the tenement.

2.2 Methodology

The methodology used by the review team was to complete "regional" traverses along the Pieman and Boco Roads, to summary log most drill holes and to compile data gathered for each drill section or mapping traverse onto 1:1 000 scale sections and plans. Early in the review most existing reports on the area were scanned and critical points noted. These reports were continually referred to during the review process. IP and EM data were reviewed by Neil Hughes (geophysicist) concurrently and in consultation with the rest of the review team, to keep a geological perspective on the geophysical data. Anomalism and general trends in the electrical geophysical data were discussed within the team. Image-processed gravity, aeromagnetic, radiometric and TM data were interpreted (principally by Murphy) on a regional (1:50 000) scale, covering the area from Hellyer in the northeast to Rosebery in the southwest (AMG375 000E to 394 000E and 5 373 000N to 5 397 000N) and on a tenement-scale (1:25 000) with a scanned geology interpretation (LWK 1992) as an overlay (AMG 375 500 to 382 500 and 5 379 000N to 5 386 000N). In addition five east-west regional sections were constructed with magnetic and gravity profiles used as interpretation aids.

Target generation evolved from round table discussion of all aspects of the review, using the integrated package of data sets as a reference.

3 REGIONAL SETTING OF BURNS PEAK EL 44/88

3.1 Introduction

The regional setting of EL 44/88 was examined through analysis and integration of multiple data sets. The objectives are to understand the relative importance of structural controls on known mineralisation and to discriminate target areas from areas of low prospectivity so as to rationalise tenement holding.

The area of interest for the regional setting of the EL was selected to extend from Rosebery in the SW to Hellyer in the NE. The 1:25,000 geological maps were photo–reduced and spliced together as a colour map @ 1:50,000 scale. Images of the digital data were produced @ 1:50,000 scale of the same area covered by the reduced scale geological map. From these, a series of interpretive maps @ 1:50,000 scale for each data set (except radiometrics) have been compiled for EL 44/88 (Maps 1 to 5). Five regional cross sections were constructed @ 1:25,000 scale and, for each section, gravity and magnetic profiles were produced to help constrain the sections (Figures 19 to 23). While this report is specific to the interpretation of the EL, it draws on regional scale information for some of its conclusions.

Data sets used were:

Geological Maps @ 1:25,000 scale

Landsat TM: Bands 742 (RGB) were processed (plate 1) and interpreted @ 1:50,000 scale. A grey scale Band 4 image with NW sun angle was also processed for hard copy.

Aeromagnetics: Hard copy was produced of Total Intensity, colour drape, with NW sun angle (plate 2) and grey scale, with NE and N–S sun angles and of First Derivative grey scale with ENE and E–W sun angles.

Gravity: Hard copy of Bouguer anomaly colour drape with NE sun angle (plate 3) and of A.G.C. derivative with a WNW sun angle were produced. A composite image of pseudocolour gravity with grey scale aeromagnetics was also produced.

Radiometrics: Imaged as a Total Count colour drape with NW sun angle (plate 4). It was also superimposed on grey scale aeromagnetic and gravity images.

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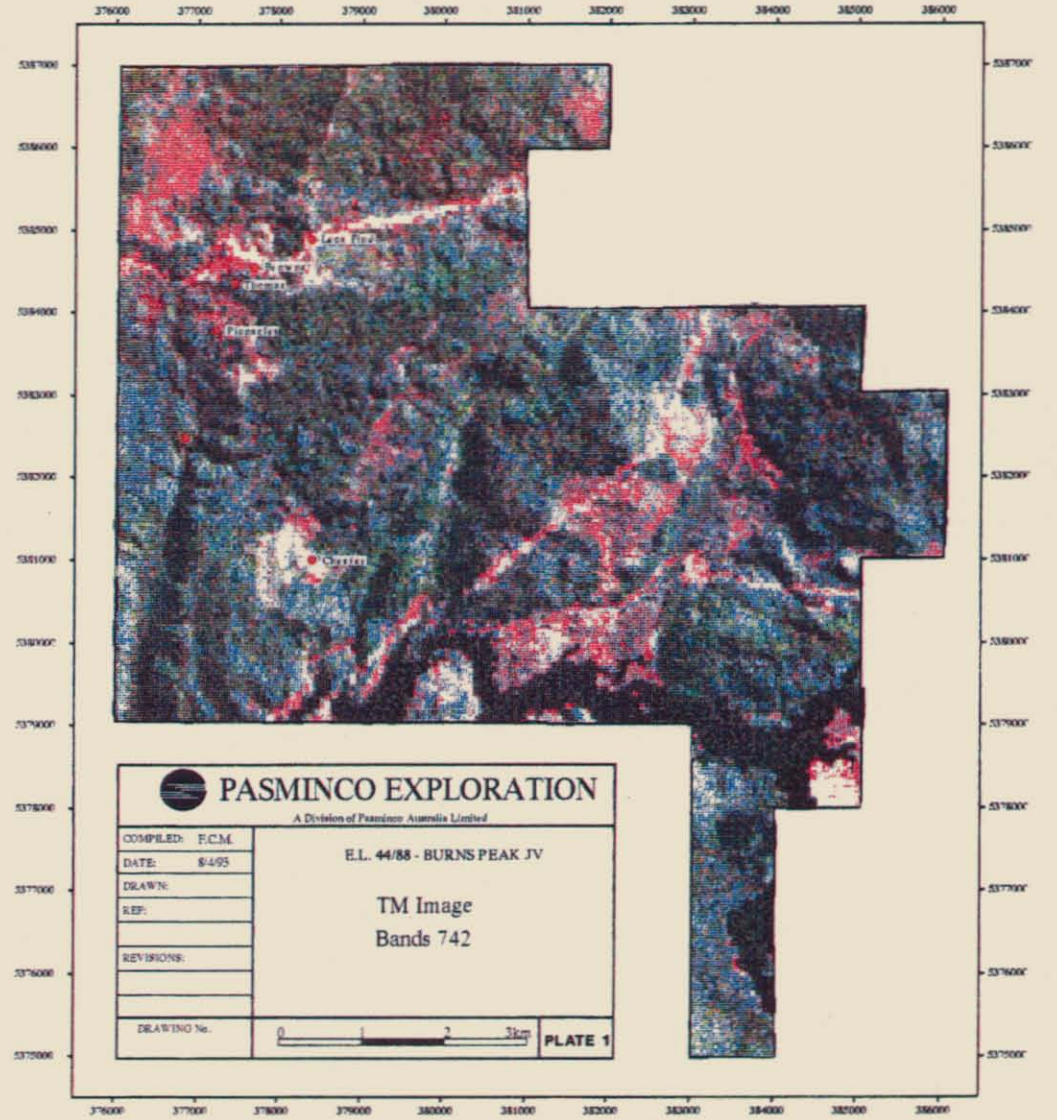

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PLATE 1

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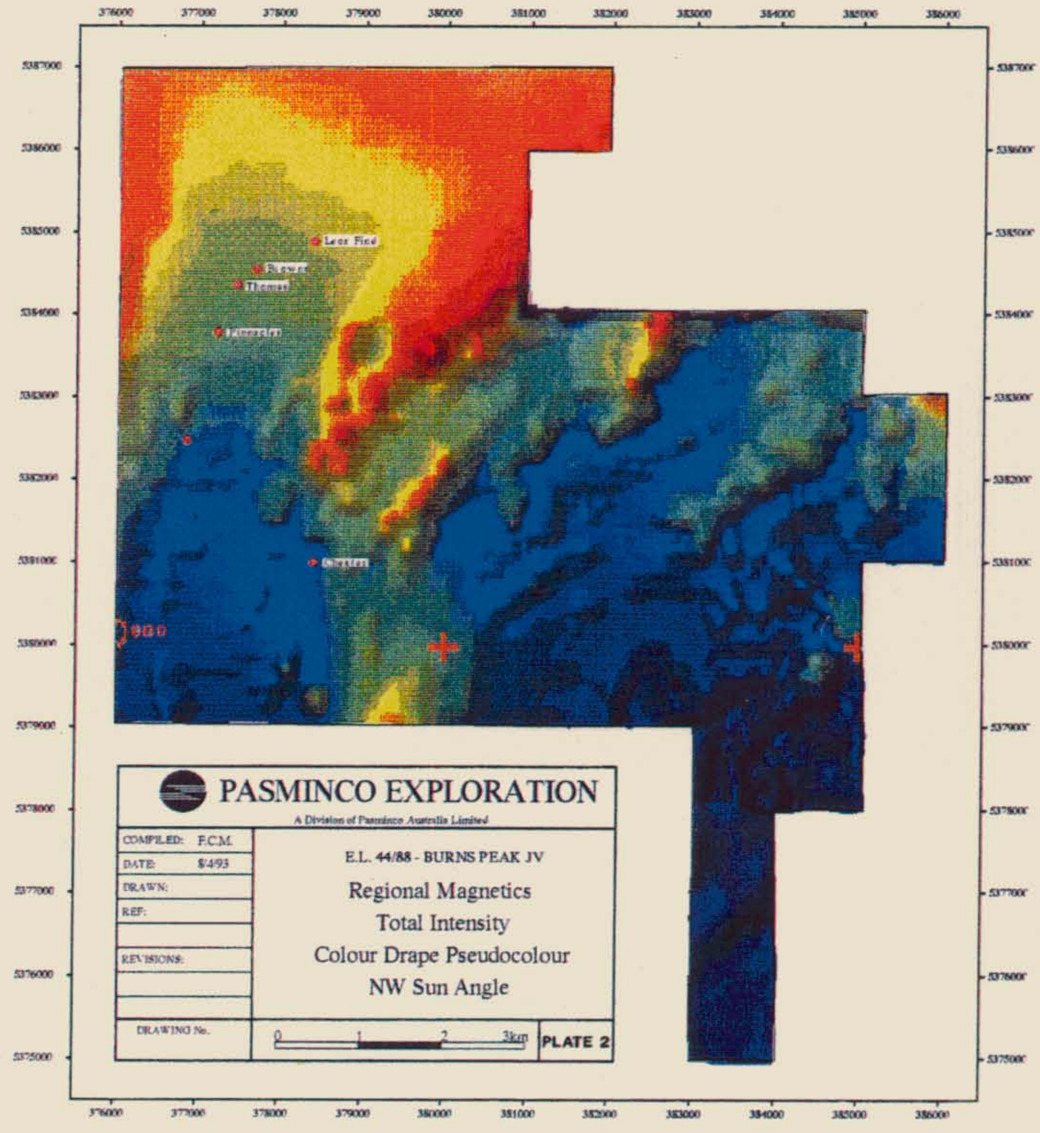

PLATE 2

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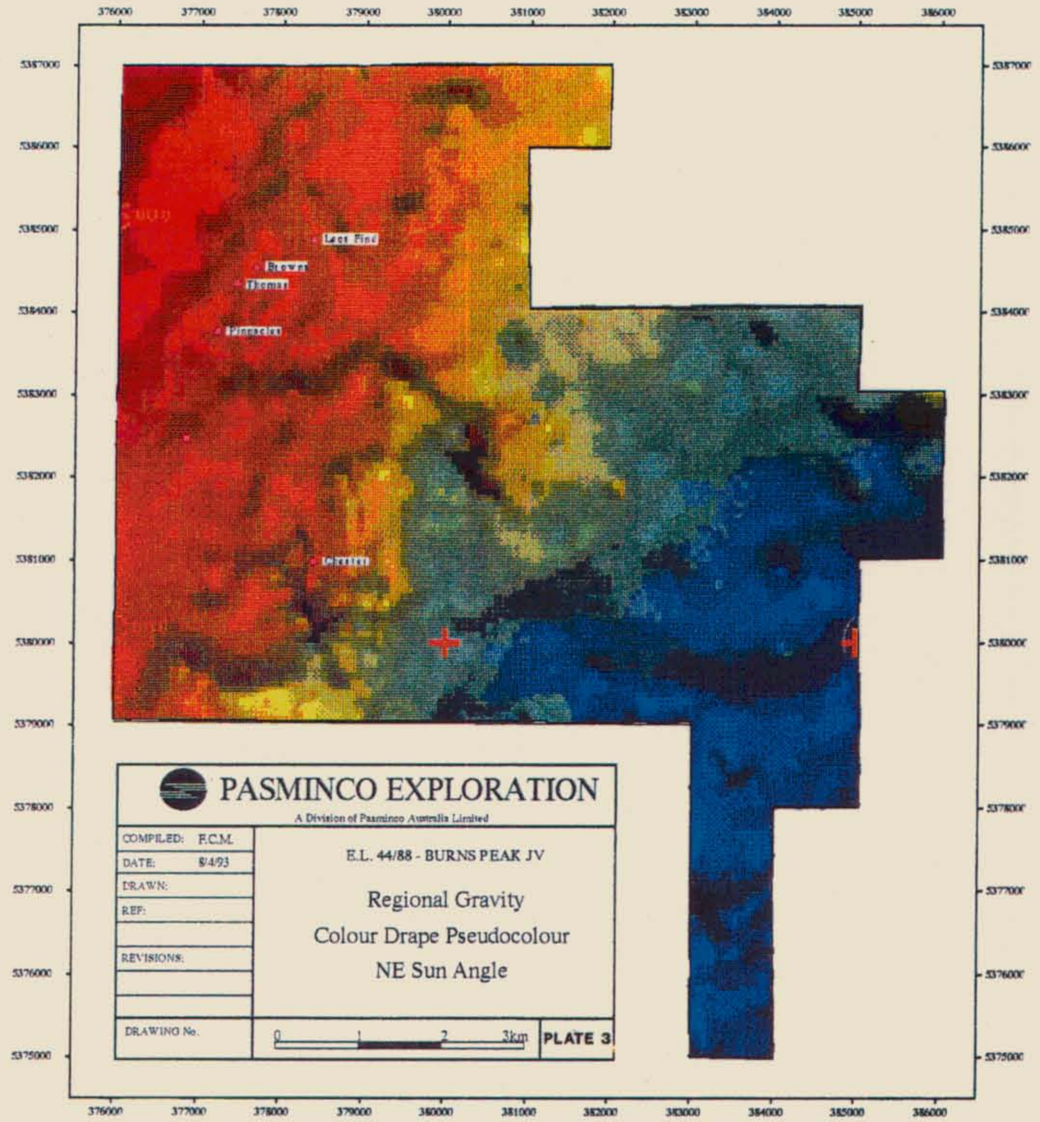

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PLATE 3

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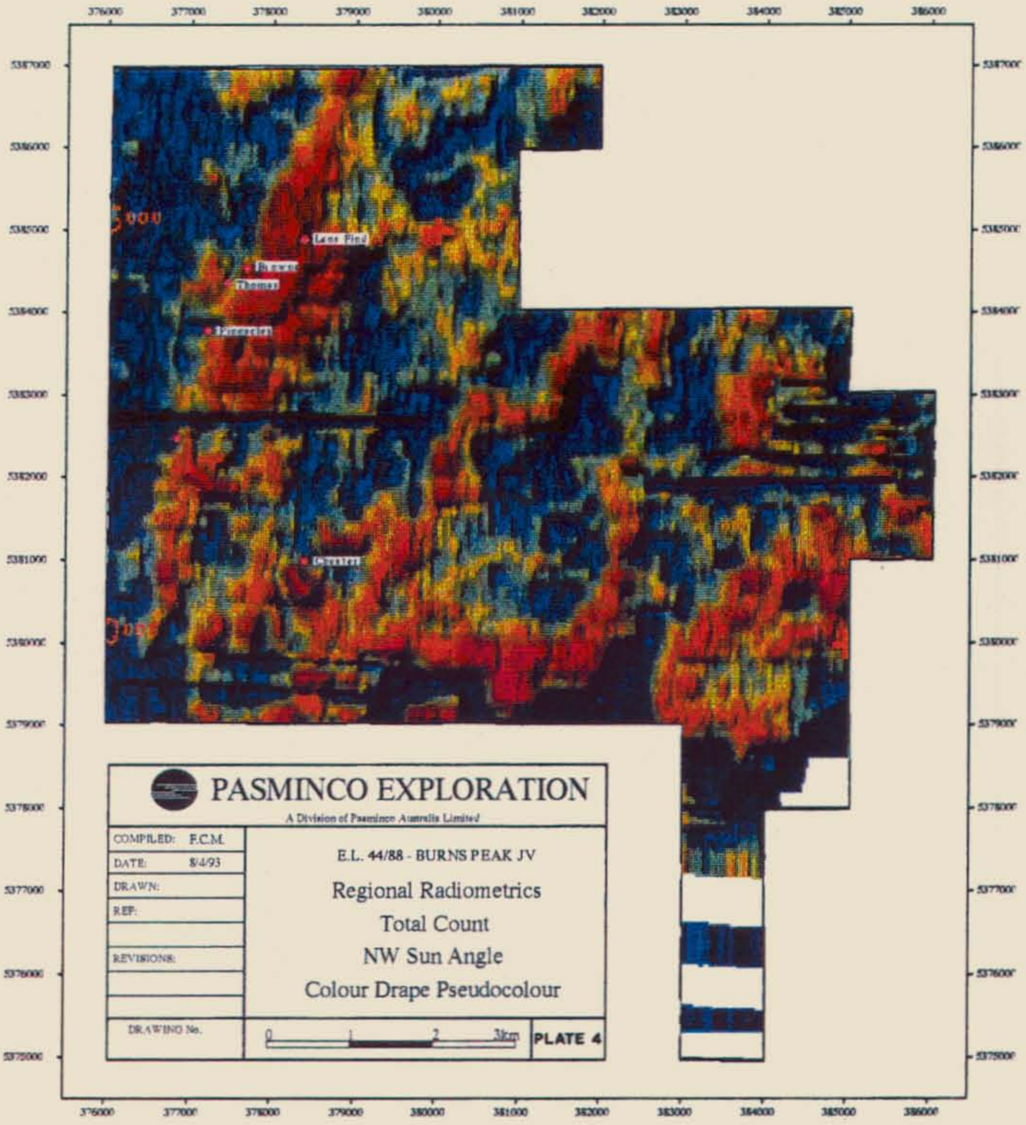

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PLATE 4

3.2 Mapped Geology and TM Imagery

In general terms, the EL is dominated by CVC in the east and by Dundas Group in the west. The boundary between these sequences is, in the SW, defined by the Rosebery Fault. Within the CVC, the distribution of lithostratigraphic units shows a prominent strike swing from north–south to NE–SW in the north. Most mineral occurrences within the EL are in the Pinnacles area, close to the western boundary of the CVC, in the hangingwall of the Rosebery Fault, and proximal to the intersection of the convergent regional trends. Combined with fertile lithostratigraphic components, these factors place the tenement, and the Pinnacles area in particular, at a prime position for hosting a major base metal deposit.

An important structural component is the fault and shear zone architecture, with the latter being a strong influence on the development, style and distribution of folds and cleavage. The regional orientation of these structures form four major trends : N–S, NE–SW, NW–SE, and E–W

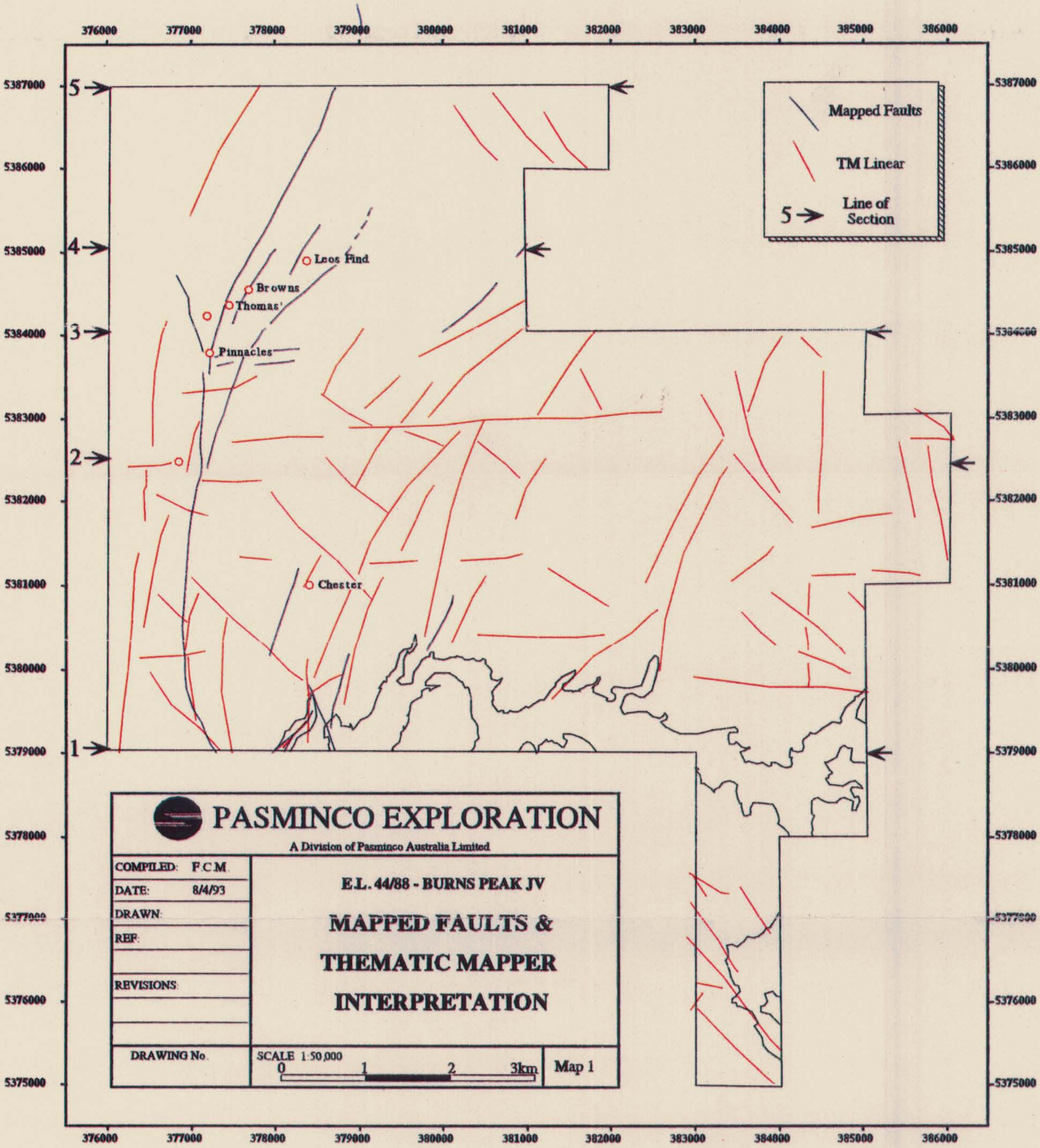
Map 1 shows the positions of mapped and interpreted faults and shears and the distribution of mineral occurrences.

N–S Trend

The Rosebery Fault is a Devonian thrust, dipping consistently east at up to 40°, that carried the CVC westwards over the Dundas Group. It defines the boundary between these two sequences in the south but it splays northwards to lie entirely within the Dundas Group. On the TM imagery, linears occur subparallel to the mapped trace of the Rosebery Fault.

Sericite–pyrite altered shear zones within Mt. Black volcanics, along the Pieman Road east of Boco Creek, have asymmetric augen showing east directed high angle reverse displacement and minor strike slip components. These shears are sub–parallel to and immediately west of the major Boco Creek Shear Zone. This is interpreted as a steep west dipping shear zone with east directed displacement.

Other north trending structures are seen in the TM data in the NE of the tenement, near Mt. Block.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A Division of Pasminco Australia Limited
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DATE: 8/4/93
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E.L. 44/88 - BURNS PEAK JV
MAPPED FAULTS &
THEMATIC MAPPER
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Map 1
Mapped Faults
TM Linear
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Pinnacles
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NE-SW Trend

The Pinnacles area contains a number of faults and shear zones, including the Burns Peak Shear Zone and the Pinnacles "Axis". The latter refers to an overall anticlinal structure which has been disrupted by a series of steep faults and shears. A close spatial association is observed between the distribution of mineral occurrences (Map 1) and the NE trending faults and shear zones along the Pinnacles "Axis".

The TM data shows a series of semi-continuous structures, east of Chester, particularly along Boco and Farm Creeks. These are generally subparallel to the regional strike of units within the CVC.

NW-SE Trend

No major structures of this orientation are recognised in the mapped geology. However, small scale faults, along the Pieman road, show extensional and oblique, locally dextral, slip components. A shear zone is also interpreted on the southern shore of Lake Rosebery, close to the Cutty Sark mineral occurrence.

The TM data picks out a set of widely spaced (1-2 km) linears in the SW which locally crosscut NE trending features. Similar structures in the extreme SE of the EL may be part of a larger scale system linked to those in the NW.

E-W Trend

Although largely absent from the mapped geology, small scale faults occur in a costean near the Pinnacles which show down-to-south normal displacements. These have little effect on the distribution of lithological units in the CVC.

In contrast, the TM data shows a series of structures in discrete zones, particularly in the region between Pinnacles and Bastyan Dam. The linears have a marked topographic expression, are recognisable by changes in forest canopy and influence the positions of roads and the railway. Some NW-SE and NE-SW trending structures appear to terminate against or are offset across E-W structures.

3.3. Aeromagnetic Imagery

Map 2 shows an interpretation of linear trends and signature distributions.

3.3.1 MAGNETIC SIGNATURES

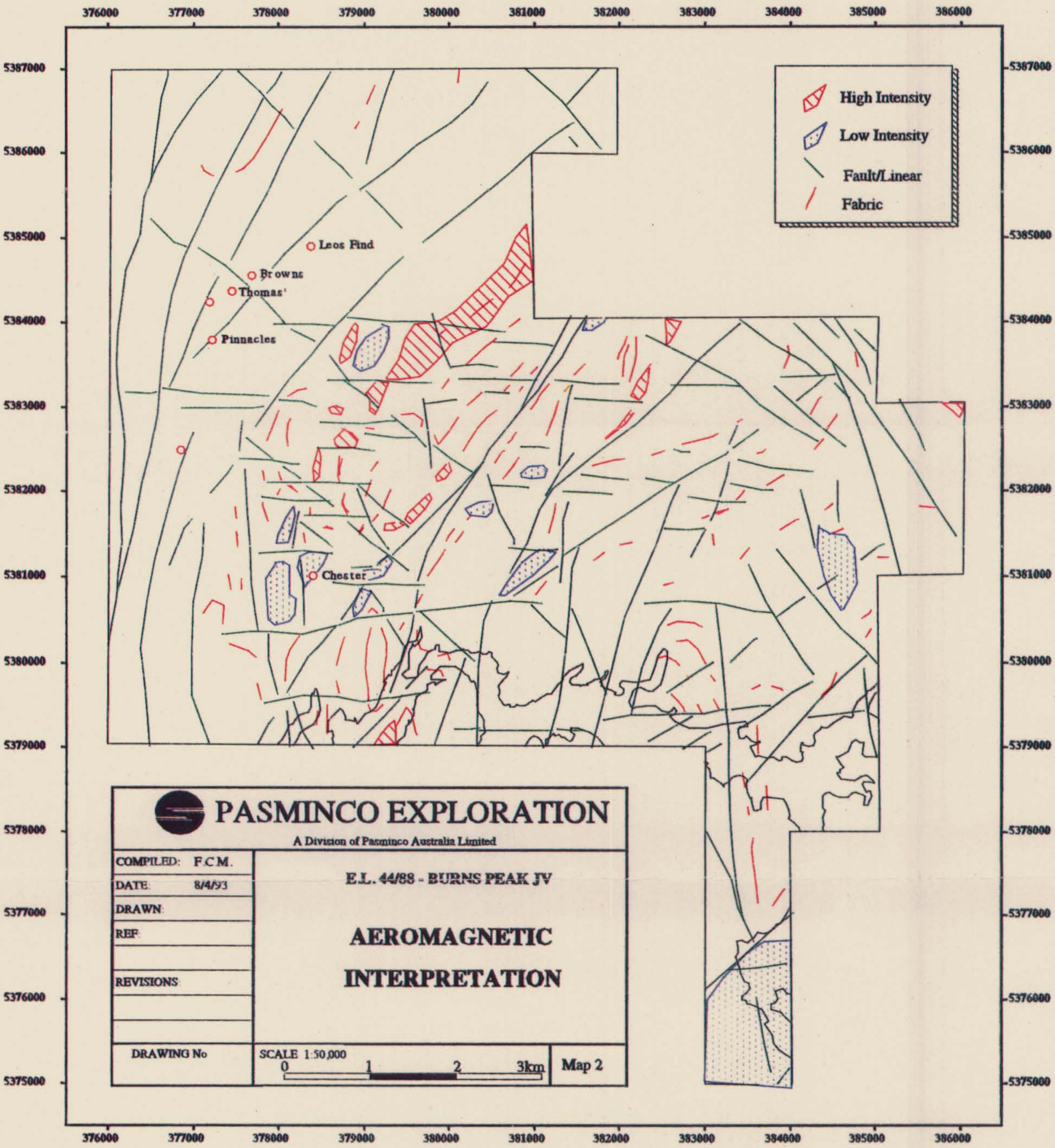
The eastern and SE of the area is characterised by a low intensity signature (Fig. 2) which increases stepwise northwards and westwards and passes into a series of linear higher intensity anomalies separated by intermediate to low intensity zones.
The NE–SW trending anomalies in the NW of the EL diminish in width, become more segmented south westwards and strike into a low intensity zone. The continuation of the anomaly pattern to the NE (outside of the EL) suggests the existence of a large scale gentle SW plunging fold closure.

The relationship between the NE–SW and N–S trending zone of anomalies in the SW suggests continuity, through a strike swing, and separated by an east–west zone of diminished intensity close to the position of Lake Rosebery.

Profiles of anomalies along the lines of section suggest that the high intensity sources lie within a 2 km depth range, in the CVC; some are directly associated with outcropping magnetic lavas.

West of the N–S trending high intensity zone, the magnetic signature has a low intensity, with some small point anomalies, and the intensity gradually increases northwards (Fig. 2). In this area, the pyrite–sericite alteration of the host rocks to the Chester mine is associated with a low intensity signature.

The Pinnacles lies in a relatively featureless area transitional between a low in the south and a broad high intensity signature in the north. This high signature is related to a deep seated magnetic source and is distinct from the linear, shorter wavelength anomalies that characterise the CVC. In the regional magnetic data for western Tasmania, this anomaly has a subcircular shape that suggests an intrusive origin. The nature of this anomaly is probably related to skarn effects of a Devonian granite, a feature of many western Tasmanian granites of this age. However, further modelling is recommended to test this interpretation.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Thomas'
Pinnacles
Chester
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E.L. 44/88 - BURNS PEAK JV
AEROMAGNETIC
INTERPRETATION
SCALE 1:50,000
0 1 2 3km
Map 2

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953293

3.3.2 MAJOR STRUCTURAL TRENDS

N–S Trend

This is well developed in west of the area where it defines the boundaries to low intensity and linear high signatures, and is subparallel to the trend of the Rosebery Fault. Other N–S structures occur in the central and SE parts of the tenement within the broad low intensity signature.

NE–SW Trend

This is pronounced in the NW and to a lesser degree in the central and SE part of the EL as signature bounding structures, commonly along the margins of linear high intensity anomalies. A major boundary occurs east of Chester, close to the Boco Creek, and another lies along the NE edge of the shallow–sourced anomalies in the north part of the area.

NW–SE Trend

In the NW, a series of widely spaced linears appear to crosscut other trends and are interpreted as relatively late stage. The segmentation and termination of the zone of NE trending anomalies, between Chester and Pinnacles (Fig. 2), is in part related to NW trending structures.

E–W Trend

Due to levelling problems, there is an E–W corrugation over parts of the image which tends to mask sub E–W structures. However, the shapes of some anomalies are defined by, or are truncated and offset across sub E–W structures. An example is the northern boundary to the Chester magnetic low (Fig. 2; Map 2). Individual linears are discontinuous or segmented but, taken as a group, they tend to occur in trains which suggests the presence of deep seated E–W basement structures.

3.4. Gravity

Interpreted lineaments are shown in Map 3.

N-S Trend

This is not as pronounced as it is in the TM/Mapped Fault and Magnetic data. Some features are interpreted in the west of the EL.

NE-SW Trend

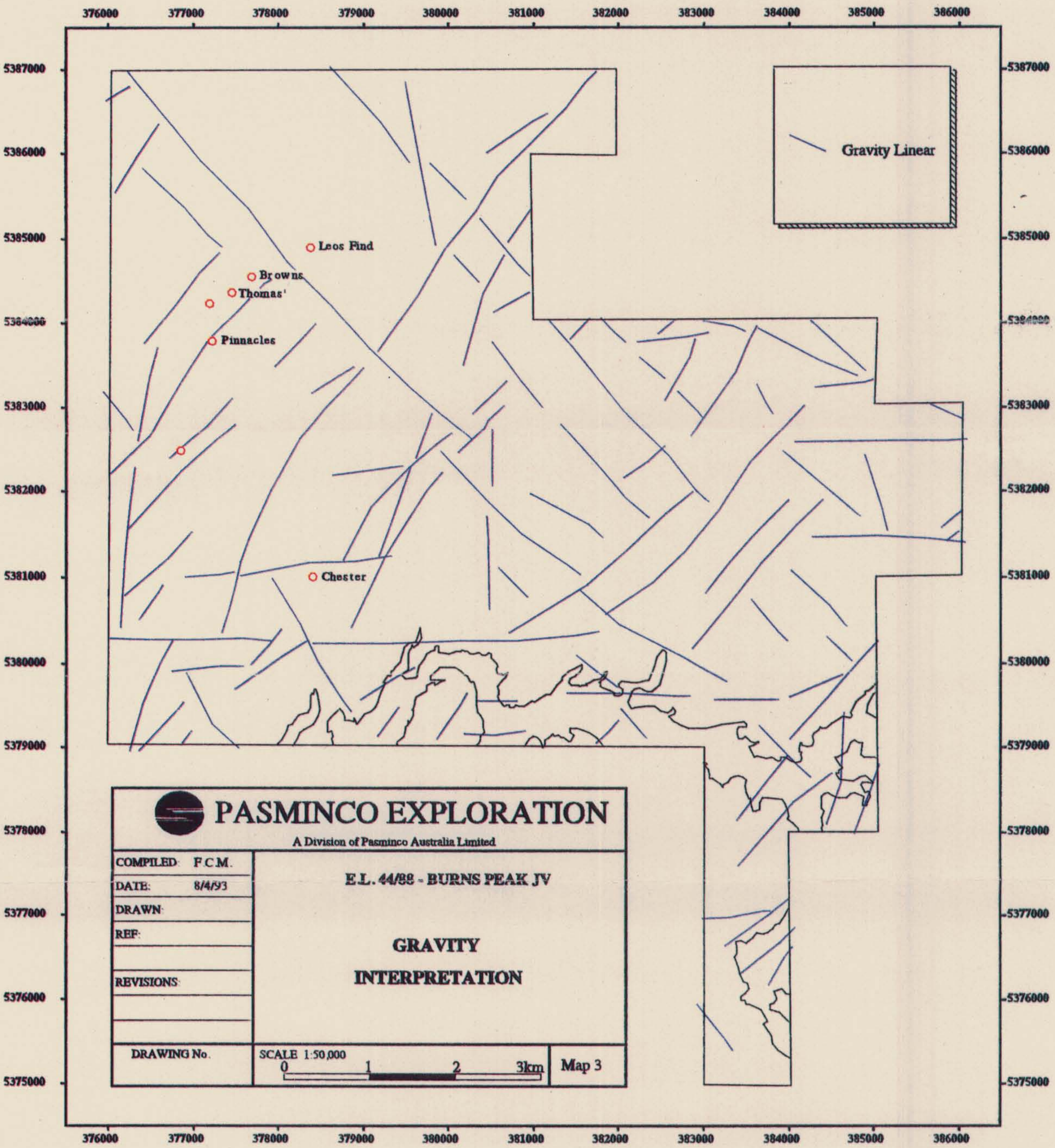
There is a gradual regional scale change from high intensity in the NW to low in the SE. The gradient is interpreted to reflect a NE-SW basement trend, particularly within the northern parts of the EL, but also within the central and southern areas as a series of discrete linear zones. Mineral occurrences in the Pinnacles area are spatially related to NE trending structures (Fig. 3; Map 3).

NW-SE Trend

This is represented by several sub-parallel, relatively straight zones which form a *semi-continuous array in the north and central parts of the EL* (Map 3). These both truncate and are truncated by NE trending structures.

E-W Trend

These "cross structures" define a series of steps in the gravity field. The strongest features are developed south of Chester as a train of linears that both truncate and are truncated by the NE and NW trends. The continuity of these eastwards suggests that they are an important basement feature. Second order structures occur in the area between Chester and Pinnacles.



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Gravity Linear
Leos Find
Browns
Thomas'
Pinnacles
Chester
PASMINCO EXPLORATION
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COMPILED: F.C.M.
DATE: 8/4/93
DRAWN:
REF:
REVISIONS:
E.L. 44/88 - BURNS PEAK JV
GRAVITY
INTERPRETATION
DRAWING No.
SCALE 1:50,000
0 1 2 3km
Map 3

5 cm

953296

3.5. Radiometrics

Although strongly influenced by cadastral and outcrop factors, the value of this data should not be under-estimated as it highlights a similar range of linear trends as the other data sets.
The distribution of high and low intensity signatures (Fig. 4) in part relates to the distribution of outcrop. This is indicated by the association of high intensity signature with outcrops in the Pieman Road area, along the railway and powerlines. In contrast, areas with substantial glacial cover have a low signature.
The CVC north of the Pieman Road is characterised by low intensity, rimmed by higher intensity zones along the Boco and Farm Creeks respectively. In contrast, the CVC south of Lake Rosebery has a high intensity signature, bounded on its eastern side by a NE trending linear extending along the Farm Creek zone. While the nature of this difference across Lake Rosebery remains unclear, it may be fault controlled.

3.6. Structural Interpretation

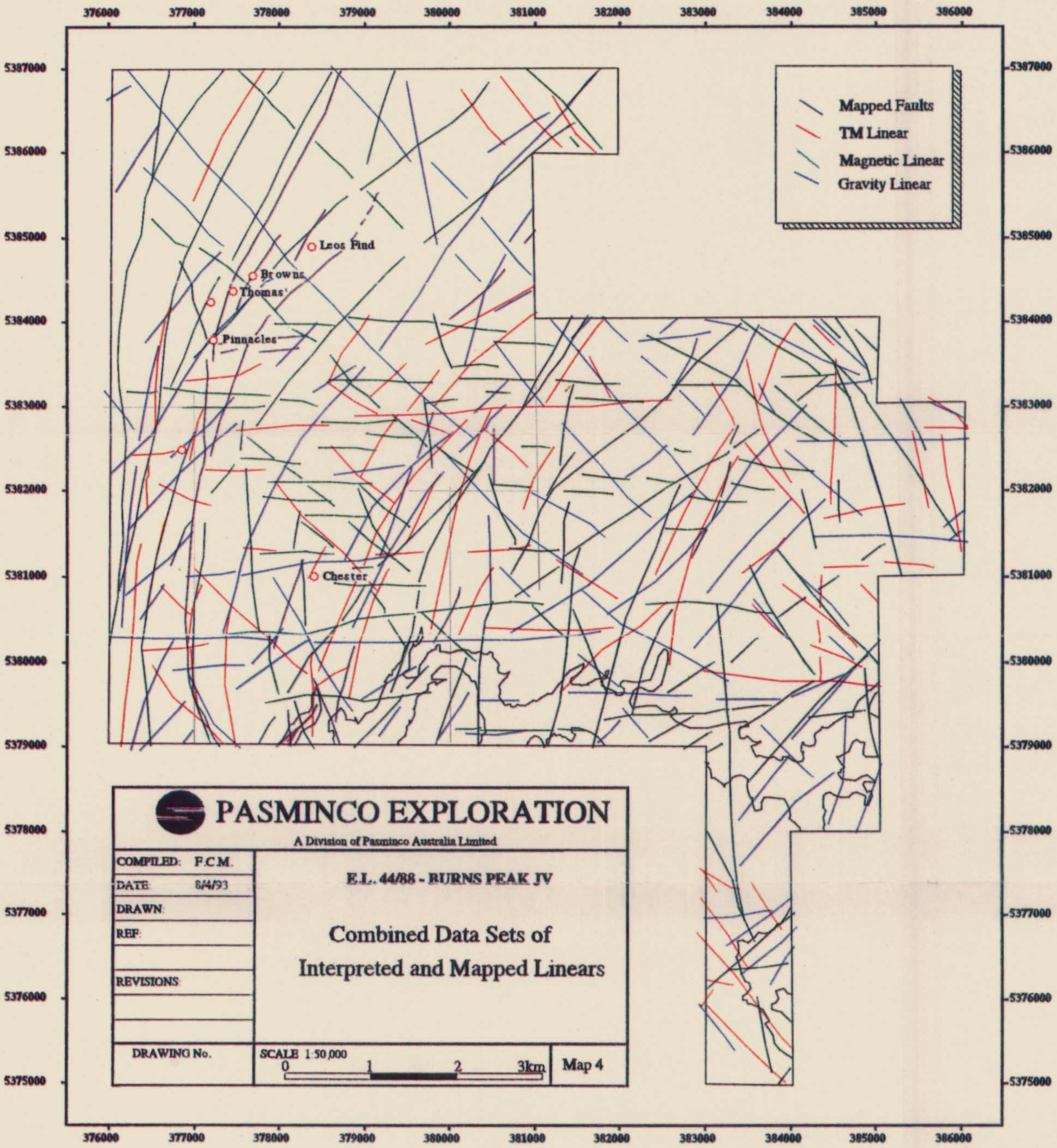
Map 4 shows the degree of spatial correlation of the various trends interpreted from each data set .

Map 5 shows a compilation of the major structural features, positions of significant and/or discrete magnetic lows (commonly associated with alteration), mineral occurrences and selected target areas for follow up work.

Kinematic information shown on the map is derived from mapped and remotely sensed data. The structural history is best understood in terms of the age relationships of structures relative to the regional (S1) cleavage and (F1) folds.

3.6.1 PRE-CLEAVAGE STRUCTURES

Small scale growth faults have been identified in core and the complex lithostratigraphic assemblage of units and rapid thickness changes in the Pinnacles area suggest the influence of large scale growth faulting during and/or at the waning stages of CVC deposition. The distribution of lavas and of black shales suggest the presence of NE-SW


Mapped Faults
TM Linear
Magnetic Linear
Gravity Linear
Leos Find
Browns
Thomas'
Pinnacles
Chester
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: F.C.M.
DATE: 8/4/93
DRAWN:
REF:
REVISIONS:
E.L. 44/88 - BURNS PEAK JV
Combined Data Sets of
Interpreted and Mapped Linears
DRAWING No.
SCALE 1:50,000
0 1 2 3km
Map 4

5 cm

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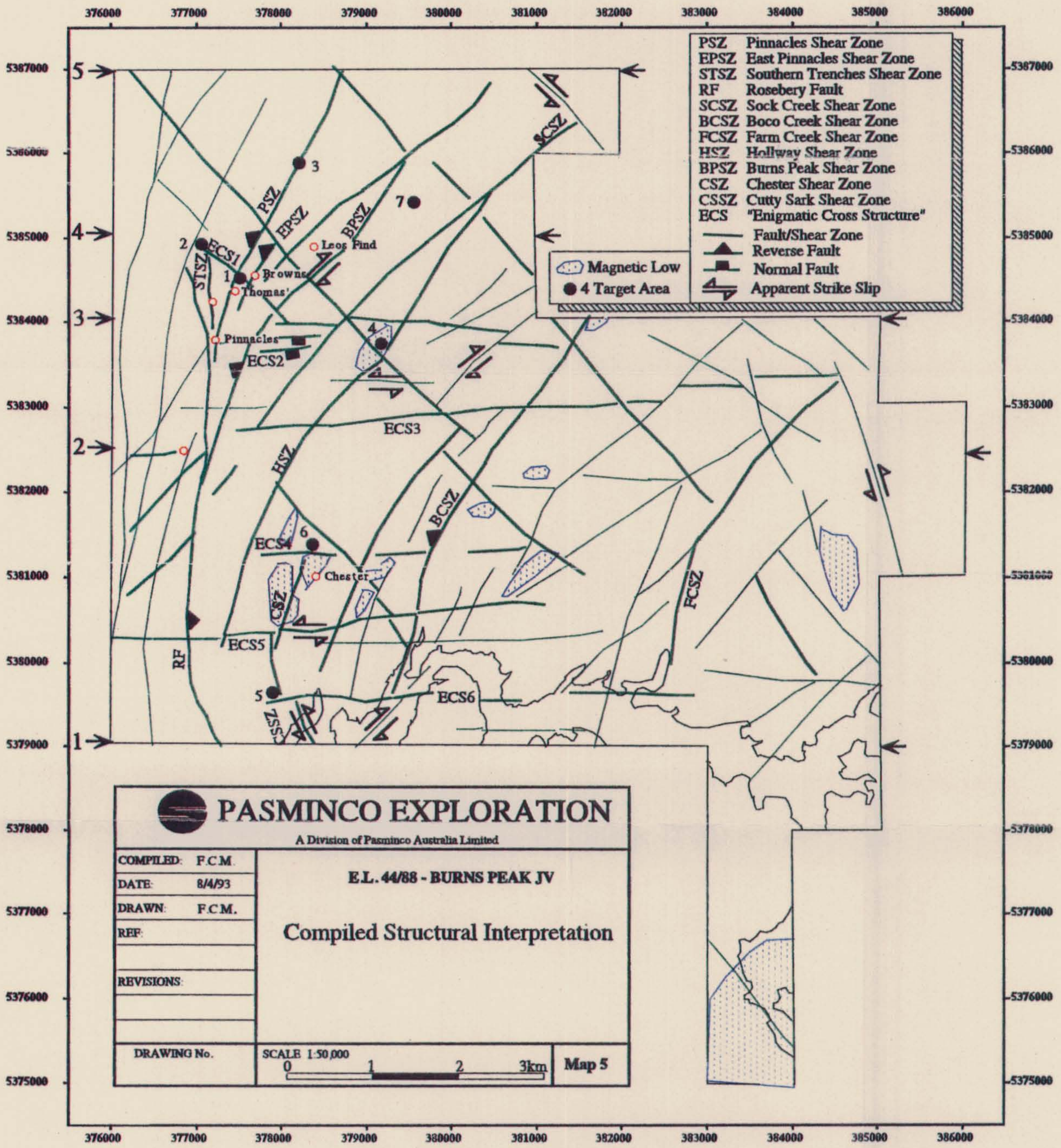
PSZ Pinnacles Shear Zone
EPSZ East Pinnacles Shear Zone
STSZ Southern Trenches Shear Zone
RF Rosebery Fault
SCSZ Sock Creek Shear Zone
BCSZ Boco Creek Shear Zone
FCSZ Farm Creek Shear Zone
HSZ Hollway Shear Zone
BPSZ Burns Peak Shear Zone
CSZ Chester Shear Zone
CSSZ Cutty Sark Shear Zone
ECS "Enigmatic Cross Structure"
Fault/Shear Zone
Reverse Fault
Normal Fault
Apparent Strike Slip
Magnetic Low
4 Target Area
Leos Find
Browns
Thomas'
Pinnacles
Chester
ECS1
ECS2
ECS3
ECS4
ECS5
ECS6
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED: F.C.M.
DATE: 8/4/93
DRAWN: F.C.M.
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REVISIONS:
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
Compiled Structural Interpretation
SCALE 1:50,000
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Map 5

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trending growth structures east of Pinnacles, along the Boco Creek shear zone trend, and other structures west of Pinnacles are inferred. The orientations of the growth faults has not been established. However, it is likely that such structures would be re-activated and inverted during compression such that the growth history is obscured. Thus some of the major faults and shears could have a growth history with NE-SW and/or E-W orientations as likely candidates.

3.6.2 SYN-CLEAVAGE STRUCTURES

Shear zones, into which the regional S1 cleavage intensifies, occur in the central and western parts of the EL. The most important of these are the NE-SW and locally north trending Pinnacles Shear Zone (PSZ), East Pinnacles Shear Zone (EPSZ), Southern Trenches Shear Zone (STSZ), Burns Peak Shear Zone (BPSZ), Boco Creek Shear Zone (BCSZ) and the Farm Creek Shear Zone (FCSZ).

The **FCSZ** is remotely sensed and no field evidence for the existence of the zone has been sought as its position is largely occluded by Quaternary glacials.

The **BCSZ** is an important feature in all of the remote data sets and occupies a steep sided valley. It separates a linear zone of high magnetic intensity anomalies to the west from a low magnetic signature to the east. The western units are also more radiogenic. The shear zone lies close to the major NW-SE change in gravity gradient. As presently mapped, the CVC units appear to be more porphyry dominated on the western side of the zone. Volcaniclastic units to the east are cut by subvertical shear zones, subparallel to the BCSZ, that show west side up, dip slip, displacement. Sericitic and pyritic alteration is associated with these shears. Traced along strike to the NE, outside of the EL, the BCSZ is associated with a large sericite-silica-pyrite alteration system at Boco siding. This alteration occurs at the intersection of the BCSZ with NW trending faults which are well displayed in the regional magnetics and the alteration system is characterised a low magnetic intensity signature.

The **BPSZ** is a syn-cleavage shear which has undergone post-cleavage reactivation. Syn-cleavage movement sense was mainly reverse, west side up whereas the reactivation involved oblique dextral displacement with a shallow SW pitching lineation. Minor mineralisation is associated with the syn-cleavage part of this shear but it has no known high grade pods of the type seen in the PSZ or STSZ to the west.

The **PSZ** and the associated **EPSZ** are major steep west dipping syn-cleavage structures that occupy the Pinnacles "Axis". The "axis" represents an anticlinal position in which much of the western limb and hinge of the fold are replaced by shears. The overall geometry is interpreted as a positive flower structure to a deep seated transpressive shear zone. Kinematic indicators show a dominant vertical stretching and east directed reverse displacements. The PSZ is part of a mineralised system, containing discrete high grade pods (e.g. Thomas' Tunnel and Pinnacles) whereas the EPSZ appears to be in a less mineralised part of the system.

The **STSZ** lies on the west side of the Pinnacles "Axis" (or "Flower") and is more northerly trending than the other syn-cleavage zones. The southern part of the structure appears to link with the PSZ, and to the north it is cut by a NW trending structure, termed ECS1. The strong cataclastic fabric in the STSZ is spatially associated with sericitic and pyritic alteration and with high grade mineralised pods. The zone is associated with a down dip stretching lineation and, while no clear kinematic evidence was found, west side up displacement is inferred.

3.6.3 POST-CLEAVAGE STRUCTURES

The Rosebery Fault effects a reorientation in dip and strike of the regional cleavage in the hangingwall and footwall which is interpreted as a drag effect due to post-cleavage thrusting. The fault displacement may diminish northwards along the structure, commensurate with the development of splays to the north of Pinnacles. A minimum 1.5 to 2 km dip slip displacement of the CVC/Dundas Group boundary is estimated in the south and this may decrease to a maximum of 1.3 km in the north. If so, this would place the CVC/Dundas Group boundary at *ca* 900 m depth beneath the Rosebery Fault in the north of the EL.

West directed thrusting during the Devonian suggests a model whereby NW-SE trending structures have sinistral shear sense, NE-SW trending structures a dextral shear sense (such as the BPSZ) and E-W trending structures with extensional displacements.

The distinction between syn-and post-cleavage structures derives from the different relative depths of generation on the crust with the implication that syn-cleavage structures were generated earlier at sub-greenschist facies conditions and the post-cleavage structures developed later at higher crustal levels. This difference is also evident in the kinematic data with, in general, the syn-cleavage structures as west dipping east directed reverse shears and the post-cleavage structures as east dipping west directed thrust faults.

3.6.4 ENIGMATIC CROSS STRUCTURES (ECS)

Sub E-W structures have been regarded as "enigmatic" because their expression in the mapped geology appears insignificant compared to their relative prominence in other data sets (e.g. TM, aeromagnetics and gravity). Although their stratigraphic effect is poorly understood, there are grounds to believe that such structures developed early as growth faults during deposition of the CVC and Dundas Group. The intersections of ECSs with strike parallel "basin margin" faults could be an important factor in the localisation of mineralisation. Six ECS zones are shown in Map 5 (& plate 5).

ECS1 occurs between Browns and Thomas' Tunnel and some along strike stratigraphic changes are recognised across it.

ECS2 is represented to the east of the Pinnacles by small normal faults in outcrop and by aeromagnetic linears, although no stratigraphic effects are recognised.

ECS3 is a prominent feature in the TM and aeromagnetic data sets. It is interpreted to extend eastwards towards the boundary of the EL and may continue to the Henty Fault.

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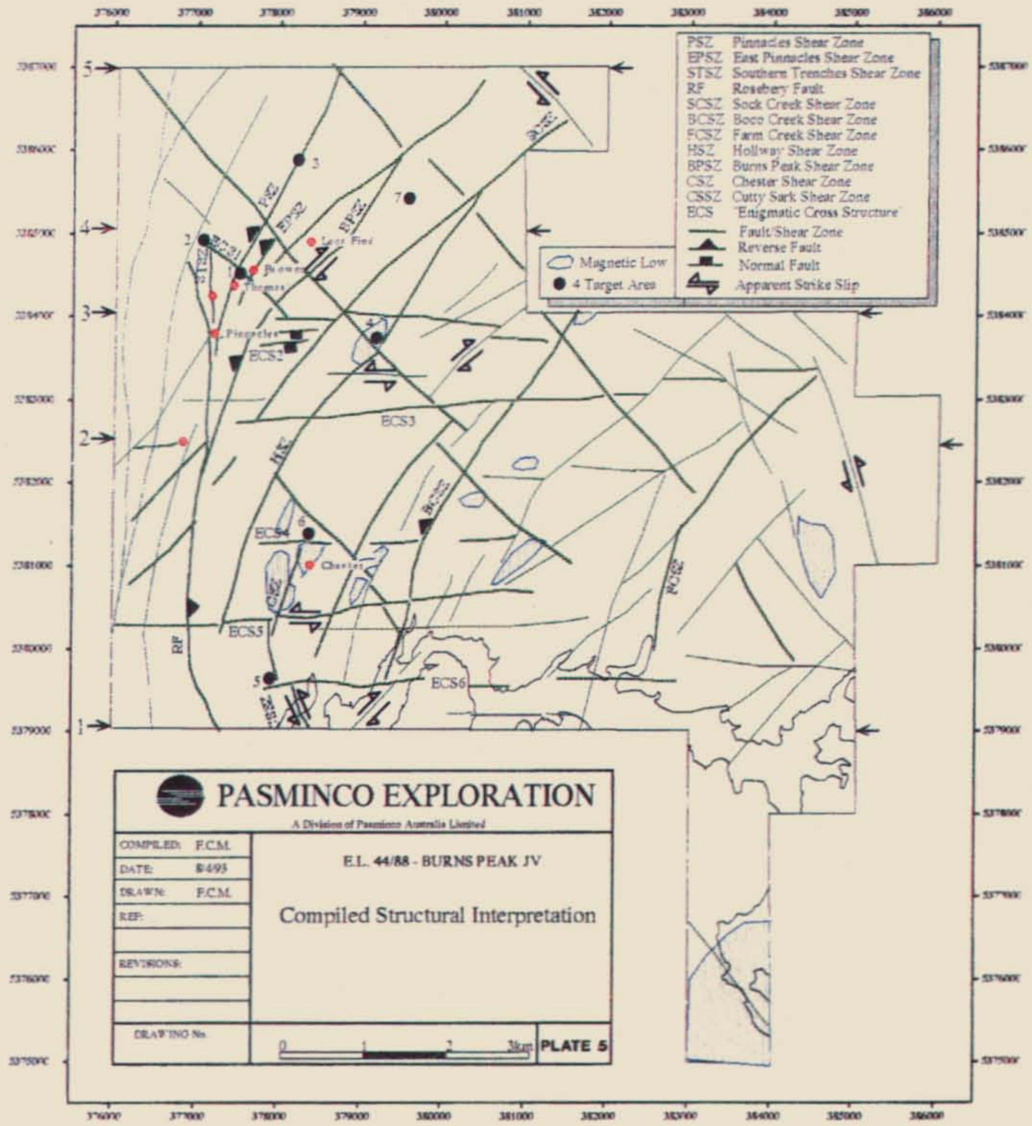


5 cm

PLATE 5

ECS4 lies immediately north of Chester and is evident in all data sets but has not been mapped on the ground. The continuity eastwards is limited by NE and NW trending faults that segment the structure.

ECS5 occurs south of Chester and is interpreted to extend westwards across the trace of the Rosebery Fault and eastwards across the trace of the Boco Creek Shear Zone where it appears to offset a NW trending structure. It is evidently less segmented than ECS4 and is interpreted as a younger reactivated fault.

ECS6 is a semi–continuous feature along Lake Rosebery which is identified in part by aeromagnetics in the west and by gravity in the central and eastern parts of the zone. There is some evidence that the stratigraphic changes across Lake Rosebery may be related to the existence of this zone.

3.7 Target Areas

Seven target areas are identified in Fig. 5. The basis for their selection is dealt with elsewhere in this report.

In terms of prospective areas, lithostratigraphic controls on mineralisation are important particularly in the western part of the EL, within and towards the top of the CVC. Structural controls are exerted by the major structures and their intersection with other trends. In this regard, the ductile shear zones along the Pinnacles flower structure are more fundamental than the brittle Rosebery Fault. In addition, the position of ECS' within the structural architecture has guided target selection.

The prosectivity of the central and eastern parts of the EL has not been fully assessed. Limited traverse mapping of structures and known alteration zones is recommended. However, it seems likely that these parts of the EL hold less interest in terms of fertile lithostratigraphy than the Pinnacles area.

4 RESULTS

4.1 Regional Traverses

4.1.1 PIEMAN ROAD

The Pieman Road was traversed from 377000E to 381000E, with the aim of recognising and characterising the major structures. The Rosebery Fault, exposed near Bastyan Dam, is the most obvious structure exposed on section. It is a brittle thrust fault, dipping 38° to the east at surface, which juxtaposes massive to weakly cleaved volcaniclastics of the Rosebery Hangingwall Sequence above the fault, with folded and cleaved shales and sandstones of the Dundas Group below. Drag folding of cleavage and bedding occurs for a few tens of metres from the fault in the footwall sediments, indicating that the final thrust movement on the Rosebery Fault post-dates the main cleavage forming event in the Dundas Group. Synthetic and antithetic thrusting is common in the footwall of the Rosebery Fault, at a smaller scale than the main structure (few metres of off set). Little deformation is recognised in the hangingwall of the Rosebery Fault.

To the east of the Rosebery Fault, at approximately 377800E, the Mt Black brittle thrust fault juxtaposes the Rosebery Hangingwall Sequence to the west, and the Mt Black Volcanics to the east. This structure was not viewed on the Pieman Road traverse.

Evidence of deformation is uncommon within the Mt Black Volcanics along the Pieman Road. A number of NNE trending creeks and inlets on Lake Rosebery appear to be localised along major structures, the most prominent of these following the Chester Rivulet and Boco Creek. There is little outcrop in these linear, steep-sided valleys, but smaller scale ductile shear zones with associated alteration do outcrop on the Pieman Road, near and parallel to these major structures (eg at 380 100E), that are inferred to be of the same generation. No significant rock-type change is recognised across these ductile shear zones, possibly due to a lack of distinctive stratigraphy within the Mt Black Volcanics. These Structures are observed in the TM, gravity and magnetic data, and are recognised to have considerable strike extent (see figures 5 & 24).

4.1.2 BOCO ROAD

The **Boco Road** was traversed from immediately west of the Marionoak River bridge to the licence boundary (see figures 3 & 4) (376 500E to 381 500E).

Two brittle faults similar to the Rosebery Fault seen near Bastyan Dam (brittle, east-dipping thrusts which deform the main cleavage) were mapped. The first crosses the Boco Road just west of the Marionoak River, where micaceous siltstones and sandstones to the west are faulted against quartz and feldspar crystal-rich volcaniclastics to the east. The fault dips at 60° to the ENE and has a strongly deformed footwall, due to drag folding and some subsidiary faulting. The sequence in the footwall is equated with Dundas Group sediments west of the Rosebery fault at Bastyan Dam (? Chamberlain Shales). East of this fault the sediments contain a high degree of volcaniclastic detritus, especially quartz and feldspar crystals, as well as coarse, conglomeratic mass flows with shale "rafts" and clasts, and fine grained grey siltstones. Cleavage/bedding angles indicate a syncline to the east of the Marionoak River. A brittle, manganese stained east-dipping thrust fault occurs within these rocks at about 377 050E, and dips at 45° ESE. The rocks in this zone are similar to the White Spur Formation and some of the Southwell Subgroup described (and viewed by the Review Team) elsewhere in the northern Mt Read Volcanics. The eastern limb of the syncline is covered by glacial till at about 377 300E and may be partially faulted out. The Pinnacles Rhyolite crops out to the east of these sediments, and is interpreted to occur stratigraphically below them on the east limb of the syncline at this locality.

Further east, near the junction of the Pinnacles Track (377 580E) cleavage in the Pinnacles Rhyolite intensifies and some faulting is exposed. Just east of this junction pyritic sediments of the Pinnacles Host Sequence occur and contain a number of steep brittle faults with quartz slickensides and a narrow NNE trending shear (East Pinnacles Shear Zone-EPSZ). These sediments dip steeply west and are on the western limb of a north plunging (faulted) anticline (Pinnacles Axis).

The Pinnacles Host sediments on the eastern limb of the anticline are exposed at Leo's Find and are overlain by quartz-feldspar porphyries, believed to be related to the Pinnacles Rhyolite. East of this, a mirror image of the sequence mapped west of the

Pinnaces Host Sequence occurs, with the Pinnaces Rhyolite, coarse polymict quartz and shale clast-bearing volcaniclastics (?White Spur and Southwell equivalents), felspathic volcaniclastics, and further to the east a shale and sandstone sequence. A few brittle faults, dipping east, can be seen, but have little effect on the units mapped at surface.

The trace of the Pinnacles Axis is NNE, along the North Pinnacles ridge, but its exact position is not mappable on the Boco Road. It is inferred that the EPSZ corresponds to the Pinnacles Axis.

In the thick sedimentary sequence east of the Pinnacles Rhyolite, a moderate to tight syncline, plunging 20° NNE occurs at about 379 500E. The east limb of this syncline is similar to the western limb, however the Pinnacles Rhyolite and Host Sequence are apparently absent. Instead a micaceous sediment horizon and some rhyolitic and andesitic clast-bearing conglomerates outcrop, that may be a fold repetition and lateral equivalent of the Pinnacles Host Sequence.

4.2 Detailed Core Logging - Pinnacles

Drill holes were summary logged on a section by section basis at Pinnacles with an emphasis on structural geology and alteration. For more detailed lithological logs, previous work by Gregory (1987) and the four most recent Pasminco Annual Reports (for 1989 to 1992 inclusive) were referred to, and updated where appropriate.

Drill sections logged were based on the Comstaff EAF grid, base line of which (5000E) trends 12° east of north (approximately magnetic north). Four digit northings on sections refer to this local grid, with the origin 5000E, 5000N at AMG 377 708.09E 53 843 17.99N 497.07RL (Roberts 1985).

The sections at Pinnacles, with drill holes logged and local northing are set out below:

1.	5750N	BPD 65, 70, 77
2.	5400N	EAF 11 ESB1 BPD 62, 76
3.	5360N	EAF 8,10,12
4.	5320N	EAF 6,9, 13
5.	5280N	EAF 3, 4, 7, 14
6.	5240N	EAF 1, 5 PP31
7.	5200N	EAF 2
8.	5080N	EAF 16
9.	5000N	BPD 63 CP 7, 14
10.	4800N	CP 12
11.	4600N	EAF 17 CP 8, 9, 13
12.	4520N	PIN 1
13.	4440N	EAF 18 BPD 64 (PP34, 36, 42)
14.	4400N	PIN 2
15.	4200N	CP 10,15
16.	3720N	CP1, 2, 2R

These sections are presented as figures 6 to 14. In addition EAF 15 was viewed (5040N) but not plotted, due to the lack of other drilling on this section, and its proximity to EAF16. The PP series of holes were not viewed as part of this review as their preservation is poor and at best only indications of structure, although lithologies are discernible.

Working logs were plotted at 1:1 000 scale, but compiled and interpreted at 1:2 500 scale for presentation in this report.

4.2.1 MAJOR FEATURES

A section by section description of the geology is not warranted here, but the main features, and their reference to local grid northing or drill hole are discussed below.

(a) STRUCTURE

The most obvious structural features in core are steep, intensely cleaved ductile shear zones often with good shear indicators preserved, including feldspar crystals with asymmetric pressure shadow tails and S/C fabrics. The major shears of this type are here named the East Pinnacles Shear Zones (EPSZ), the Pinnacles Shear Zone (PSZ) and the Southern Trenches Shear Zone (STSZ).

The EPSZ seen in Diamond Drill Hole (DDH) BPD62, can be mapped near the Boco Road, on the Pinnacles Track and in costean 5 200N. This shear is consistently west side up with a steeply plunging lineation. Sediments east of the EPSZ are eastward younging (in the top of BPD62 – section 5 400N; at Leo's Find – section 5 750N) and to its west they are mostly westward younging, therefore, the EPSZ is now equated with the faulted-out anticlinal hinge of the Pinnacles Axis, which trends at about 020 AMG, not 045 AMG as marked on previous maps (Lorrigan, in Kirsner et al., 1991). The EPSZ continues along the Pinnacles Rhyolite ridge to the north (figure 3).

The PSZ is similar in style and is subparallel to the EPSZ, with an intense ductile steep cleavage, a steep lineation, and an overall west side up movement sense (although east-up sense of movement was observed in places). The PSZ has been drilled on every section from 5750N (BPD70) to 5080N (EAF16) (figures 6 to 11), and then further south on section 4600 (CP9) (figure 12) and trends at about 020 to 030 AMG. All DDH's viewed between 4600N and 5080N were drilled west of the PSZ. On section 5080N the PSZ joins another shear, the STSZ, to become a single more intense ductile shear zone south of this northing. This shear zone trends north-south, extends both north and south of its junction with the PSZ and occurs in the main Southern Trench workings, DDH's EAF18, CP9, CP13 (4440N) and the top of BPD63 (5000N). At both northings the STSZ contains ore grade mineralisation, albeit narrow zones. The STSZ is logged in CP10, but it is unmineralised and is interpreted to meet the surface trace of the Rosebery Fault south of this section (4200N) but north of CP1 & 2 (3720N).

The shear zones at Pinnacles are most obvious in sedimentary units, but can also be seen in the otherwise massive acid volcanics, for example in BPD70 below the second sedimentary horizon, and at the surface in costean 5200.

Brittle faults also occur at Pinnacles. The most important of these is the Rosebery thrust fault that dips at 35 to 38 degrees to the east, and juxtaposes acid volcanics with coarse polymict sediments and shales in some places, but elsewhere juxtaposes sediments of similar kind. It off-sets the Pinnacles mineralisation at depth under Southern Trenches, and probably under Brown's Tunnel. The brittle faults deform cleavage in the area and are thus post-folding.

(b) STRATIGRAPHY

The stratigraphy of the Pinnacles area cannot be understood without structure being considered. On a regional scale the Pinnacles belt site on the sheared western limb of a kilometre-scale shallowly north plunging anticline. The units at Pinnacles dip sub-vertically and are westward younging. The lowest stratigraphic unit on this western limb is a sequence of pumice breccias and dacitic lavas (CVC). These are overlain by the lower lava and pumice dominated volcaniclastic breccia, fine-grained sediments, andesitic lavas, minor rhyodacites and the upper volcaniclastic breccia horizon, collectively named the Pinnacles Host Sequence (PHS). Stratigraphically above this package of rocks is the Pinnacles Rhyolite and associated quartz-feldspar porphyries, overlain by polymict coarse quartz and shale-bearing epiclastics grading up into a shale dominated sedimentary sequence (White Spur Formation (WSF) Equivalents). Micaceous sediments of the Dundas Group are the unit farthest west and are believed to overlie the WSF equivalent rocks although the contact is faulted. This sequence is repeated on the eastern limb of the faulted anticline, as seen in BPD76 & 77 at Leo's Find and the Boco Road. Variations on this sequence occur through the Hollway area (not studied in this review) where the andesites are believed to be lateral and much thicker equivalents of the andesite occurring within the PHS. Within the Pinnacles belt itself the fine grained sediments, where they are interbedded with andesites, host the high grade mineralisation. The best grades are invariably adjacent to, or within, the highest strain of the Pinnacles or Southern Trenches shear zones.

The Pinnacles Host Package is sandwiched between the CVC (dacites and pumice breccias) and the Pinnacles Rhyolite (lavas and QFP) and represents the transition from feldspar–dominant to quartz–bearing rocks. It is narrow and attenuated and strongly cleaved at Brown's Tunnel. The Pinnacles Rhyolite thins significantly to the south of Brown's to be a narrow "QFP" horizon on section 5000N. The host sediments, thicken to the south (especially south of EAF16 - 5080N), and the specific host horizons become the "basal" unit of the thick sequence of WSF equivalent rocks. Mineralisation at Southern Trenches is in this "basal" position, with andesite/dacite lavas and breccias of the Pinnacles Host sequence immediately to their west.

The character of the andesites in the Pinnacles sequence changes from north to south. In the north it is an amygdaloidal, mostly aphyric pale green lava. In the south it is feldspathic, less amygdaloidal and more "dacitic" in appearance.

The trend of the rock units is parallel to the PSZ - that is, 020 to 030 AMG. The PSZ is localised in the sediments and altered "Host Package". The STSZ is only seen in the sediments in EAF18, BPD63 and in the Southern Trenches themselves. It is mineralised in those positions. Elsewhere the STSZ is in acid lavas and pumice breccias and is much less mineralised. This shear and host sequence hit the Rosebery Fault, south of the Southern Trenches, between 4200N and 3720N.

(c) MINERALISATION & ALTERATION

Important Observations: (here, "mineralisation" refers to Pb/Zn sulphides)

* Best grades are in the fine grained siliceous (some are silicified) sediments, adjacent to major, steep, ductile shears.
* Mineralisation is either strongly cleaved (in the shears) or has a cleavage (and bedding) parallel layering.
* Pyrite and black magnesium chlorite occur on the same horizon, down dip or laterally equivalent to mineralisation.
* There is more than one "horizon" in the sediments that is highly mineralised (eg. EAF9, EAF3 & 4).
* Gold grades are often highest on one margin of the mineralisation, possibly outside the sulphides (EAF16).
* Alteration is developed symmetrically about mineralised horizons, within a few metres of mineralisation.
* There is a strong association between manganese – rich sericite and the mineralised horizon.
* Mineralisation is poddy, narrow and discontinuous over very short distances along the mineralised horizons – possibly due to shearing.
* The PSZ contains low level, but anomalous base metals away from the host rocks (eg. BPD62).
* Southern Trenches mineralisation is wholly within the STSZ.
* Pyrite is recrystallised post–cleavage in the PSZ, but is pre– or syn– shearing.
* Sediments in the WSF equivalent rocks do not contain any identified massive mineralisation.
* Alteration is pervasive and volumetrically significant in the Host package and within cleaved rocks to the east of Pinnacles – the CVC or stratigraphic footwall rocks. There is less alteration in the Pinnacles Rhyolite and WSF rocks to the west stratigraphically the mineralised zone.

4.2.2 MODEL

The main bulk of the high grade Pb/Zn/Au mineralisation at Pinnacles pre-dates the main cleavage forming event and probably the deposition of the Pinnacles Rhyolite and WSF rocks and is thus early in the depositional history rocks of the area.

Sulphide clasts in WSF-style rocks in BPD77 indicate the mineralisation was being actively eroded shortly after deposition. A major feeder zone in a similar position to the PSZ and STSZ introduced the mineralising fluids at Pinnacles. The initial compressional, cleavage- forming and shearing event was concentrated on the most altered rocks - the Pinnacles Host Sequence. Thus the mineralisation is intimately associated with a major shear. Gold may have been introduced separately to the Pb/Zn sulphides, or merely at a later stage in the one continuous event.

4.3 Detailed Core Logging - Chester

Drilling in the Chester area has been confined to the immediate south of the mine workings, on the Comstaff EAD grid , to which cross-section northings apply.
Drill sections logged were:

1.	80930 N	(Chester Mine)	BPD67, CP6
2.	80560 N		CP3, BPD68, CP23, BPD73
3.	80330 N		CP4, CP16
4.	80060 N		CP21, CP22

Working logs for the above holes were plotted at 1:2500 scale, this scale was maintained for presentation in this report (Figures 15-18). Two field visits to the Chester open-cut were also undertaken.

4.3.1 MAJOR FEATURES

As in the Pinnacles area, the structure of the Chester area is dominated by steeply dipping ductile shear zones, that are associated with intense silica-sericite-pyrite alteration.

The gross homogeneity of the Mt Black Volcanics within which the Chester deposit lies, and the detexturing effect of the superimposed alteration, makes the original rock type difficult and often impossible to determine. Current work suggests that the footwall to the Chester deposit is predominantly volcaniclastic, the host horizon in part a fine-grained sediment, and the hanging wall is lava and lava-breccia dominated.

The Drill Site Shear Zone (DSSZ) is intersected on all drill sections from 80930N to 80060N, and is further observed in the Chester open-cut, providing a 0-5° (AMG) trend, steep easterly dip (80-90 degrees) and a true thickness of 10-20m. The shear zone is characterised by a strong spaced cleavage, defined by variation in pyrite/silica and sericite/silica content of cleavage and inter-cleavage zones. C/S fabrics and rotated silica "boudins" in the mine indicate west over east transport on the DSSZ, with a steep south plunging stretching lineation showing a slight dextral movement component. No evidence exists for significant displacement across the DSSZ.

Intense alteration associated with the DSSZ at Chester Mine rapidly diminishes both down dip and to the south, however the shear zone does host minor pyrite in all intersections. The DSSZ corresponds with a discrete I.P. anomaly, and was thus targeted by the 19 hole Comstaff drilling program without recognition of the shear zone. The shear zone was proven to have no base metal anomalism, and therefore warrants no follow up work.

Intersected only in CP3 and BPD68 on section 80560N, is the main Chester Shear Zone (CSZ) which lies to the west of the Chester Mine, and to which the DSSZ is a subsidiary. Strike of the CSZ is interpreted at 15-20 degrees (AMG), controlled by drill intersections and mapped cleavage strengthening to the SW of the Chester Mine. Further evidence arises from the recently defined South Kershaw IP anomaly that lies upon the 15-20 degree trend, and is itself elongate in this orientation. Dip of this structure is inferred at 80-85 degrees W. The CSZ is approximately 90m in true thickness, occurring as a quartz augen schist over much of this width, where sericite and pyrite-rich cleavage zones anastomose about quartz augen. West over east transport is again indicated, and invasion of the shear zone by mafic dykes is common. Although the shear zone has no known base-metal mineralisation, it has been intersected only twice, at a spacing of 140m, and therefore remains a potential target, along strike end at depth.

To the north of the Chester open-cut, shear fabric and alteration is largely absent. This observation corresponds with the position of a cross structure (figure 24), and it is therefore suggested that this structure has either terminated or offset the Chester alteration system, limiting exploration potential to within 200m north of the mine.

4.3.2 MINERALISATION & ALTERATION

* Textures include finely laminated silica and pyrite, massive pyrite hosting silica clasts and coarse grained pyrite veining.
* Early replacement of a partially laminated rock by silica, was followed by high energy fluidised introduction of pyrite that caused brecciation of the silicified rock.
* Hydrothermal fluids were introduced via proto CSZ/DSSZ structures.
* Superimposed shearing caused recrystalisation of pyrite, locally remobilising the pyrite into cross cutting veins.
* The hydrothermal system was base-metal depleted at the structural/stratigraphic position corresponding to the Chester Mine.
* A chance intersection in CP3 of a carbonate vein containing "ore-grade" sphalerite and galena is apparently unrelated to the alteration, pyrite mineralisation and shearing at Chester.

4.4 Exploration Implications

A sedimentary (or at least volcaniclastic) horizon is necessary for substantial mineralisation to be present. This horizon indicates a hiatus in active volcanism, giving sulphides time to form and lithify, and thus have a chance to be preserved in an otherwise high-energy environment. Mineralisation may be replacive and exhalative in the one system – giving a number of different clastic horizons worth exploring on. Shearing is an important post-mineralisation indication of where alteration zones are. The shears which cut mineralised intervals may contain remobilised mineralisation away from the main mineralised zone – thus exploring down dip or along strike in the weakly mineralised shears to where they hit a potential host horizon is recommended.

4.5 Other areas reviewed

Data from the rest of EL 44/88 was reviewed with a view to identifying anomalism. Geochemical, magnetic and gravity data combined to form a powerful target selection tool. The areas highlighted for follow-up work are discussed in section 5, below, and in the regional discussions by Murphy, section 3, above.

5 CONCLUSIONS & RECOMMENDATIONS

The overwhelming picture to emerge from the review is that Burns Peak still holds a lot of potential for a big ore discovery, both within the already drilled prospects, and more importantly in untested areas on the rest of the licence. Ten drilling target areas are outlined by this review, and should form the basis of a sustained exploration campaign for the next few years.

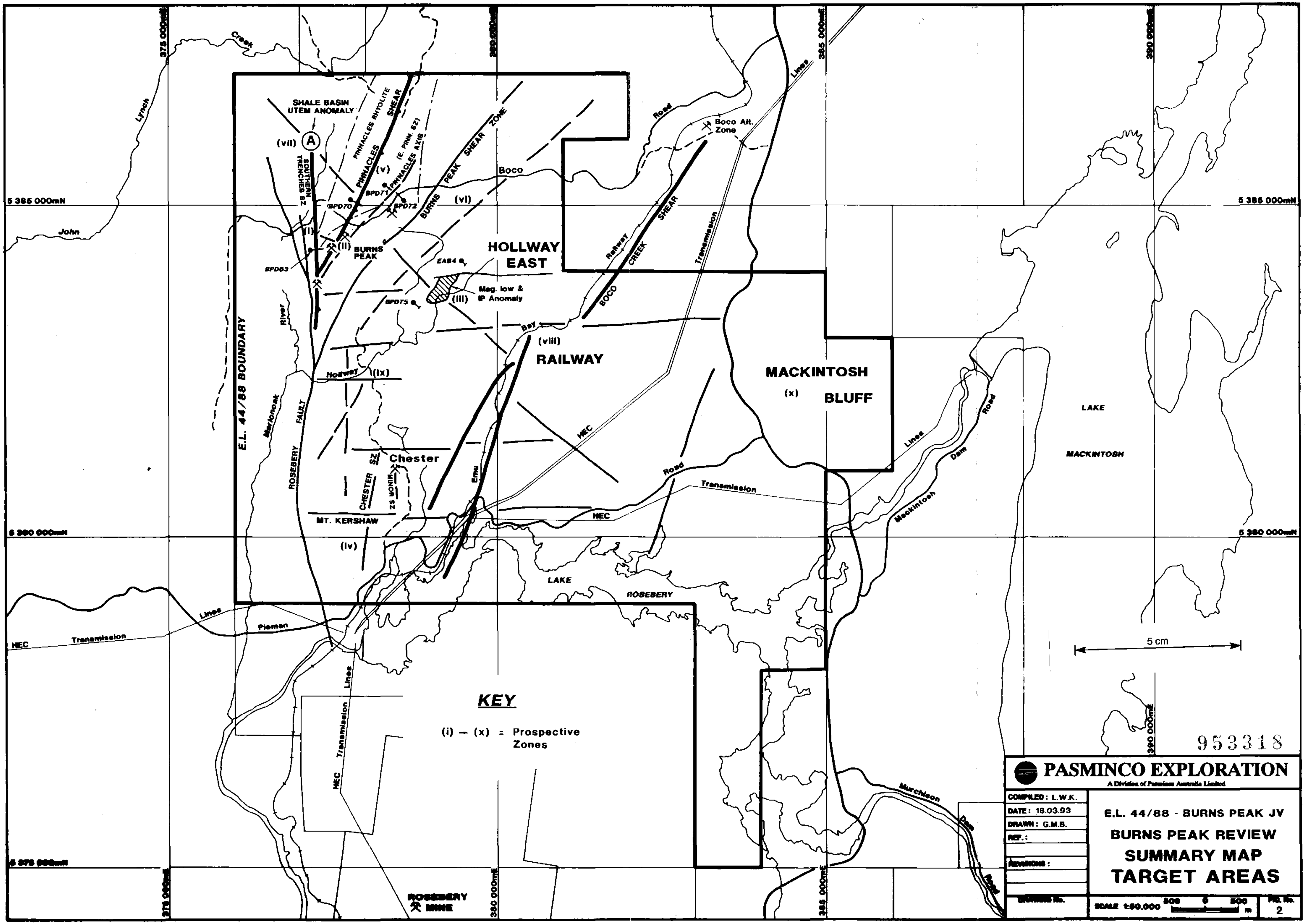
Key conclusions from the review are:

BROWNS TUNNEL

* Mineralisation is hosted within sediments in and adjacent to a NNE trending high-strain ductile shear zone (Pinnacles Shear). All rock types locally are attenuated and discontinuous, including the mineralisation.
* A gap with the potential to **host 2 to 3 million tonnes** of high grade mineralisation exists in this horizon, between Brown's and Thomas' Tunnel, below DDH EAF 16. (figure 25)

SOUTHERN TRENCHES/THOMAS TUNNEL

* A north–south trending shear localises the mineralisation at Southern Trenches (Southern Trenches Shear Zone). This shear also contains the high grade mineralisation in and near BPD63, west of Thomas' Tunnel. This shear is depth limited by the Rosebery Fault at Southern Trenches and BPD63 (figure 26), but is completely **untested to the north**, where depth to the Rosebery Fault progressively increases. Unlimited strike length and 250–300m of depth extent exist in the zone immediately north of BPD63.



KEY

(i) → (x) = Prospective Zones

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PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED : L.W.K.
DATE : 18.03.93
DRAWN : G.M.B.
REF. :
REVISIONS :
DRAWING No.

E.L. 44/88 - BURNS PEAK JV

BURNS PEAK REVIEW

SUMMARY MAP

TARGET AREAS

SCALE 1:50,000 500 0 500 m

FIG. No. 2

NORTH PINNACLES/SHALE BASIN

* The Pinnacles Shear Zone (PSZ) and Southern Trenches Shear Zone (STSZ) continue NNE and N respectively into untested areas of the licence.
* At depth (?>600m) below the North Pinnacles Rhyolite, where the Brown's host sediments coincide with the PSZ, to the north of BPD70, some potential still exists. This is a **separate trend** to the Pinnacles Axis drilled in BPD71 & 72.
* In the Shale Basin, 2km north of BPD63, a UTEM anomaly (Anomaly A) exists on the projected strike extension of the STSZ. This anomaly has previously been ascribed to black shales, but the shales are far more extensive than in the immediate vicinity of the UTEM anomaly, and have no UTEM features of the strength of Anomaly A anywhere else. This area needs further work to identify the source of the UTEM anomaly. It is possibly an equivalent horizon to the sulphide clast horizon east of the Pinnacles Rhyolite.

HOLLWAY

* A broad IP anomaly coincides with a deep, discrete magnetic low near the SE margin of the Hollway Andesite, between EAB4 and BPD75. This is interpreted to be a large magnetite-destructive alteration zone within the andesites, and should be a high priority drill target. Surface geochemistry (A° and Auger) has no anomalies here, but local glacial cover may mask bedrock responses.
* Current IP surveying has recorded a broad anomaly over the Hollway Pyrite Zone (4km SW of the EAB4/BPD75) confirming the area as a worthy target. Some galena veining has been reported near this zone.

CHESTER/KERSHAW

* The main shear zone and sub-surface alteration at Chester trend NNE and lie **west** of the mine and the intensively drilled zone south of the mine. A subsidiary shear trending north-south is in the zone that has been drilled and in the mine. Only two holes (CP3 and BPD68) intersect the main Chester Shear Zone (CSZ), and these test the same northing, coincident with the best previously recorded IP anomaly. Recent IP surveying outlined the discrete South Kershaw anomaly which lies on the CSZ, 1.5km SSW of Chester itself. Auger/Wacker sampling and more

intense mapping over the South Kershaw anomaly is recommended before drilling should be considered, due to the general lack of base metals elsewhere in the Chester area.

STRUCTURE

* East–west trending features evident in the geophysical data sets (mag, TM, gravity etc) but hard to find on the ground (Enigmatic Cross Structures–ECS) seem to control distribution of rock types and mineralisation at Burns Peak. A brittle fault zone trending east–west near Cone Hill is the only ECS mapped to date. The main ECS's seen on images are:

  (i) between Browns & Thomas
  (ii) north of Cone Hill
  (iii) in the Hollway Rivulet
  (iv) at the north end of the Chester mine
  (v) near the South Kershaw IP anomaly
  (vi) just north of Lake Rosebery

Their importance is not fully understood, but they do terminate strong north–south features in all data sets.

* Other big structures trend between N–S and NNE/SSW fanning from a common zone located between Chester and the Hollway Rivulet. The Boco Creek shear zone is the biggest of these structures and has the Boco Alteration Zone (py–sil–ser) (off the Burns Peak Tenement) and Railway Prospect on it. Strong NNW trends are also evident. The importance of these structures is not fully understood with respect to mineralisation, but some of them may reflect long lived, deep features related to mineralising events.

MINERALISATION MODEL

* It is envisaged that mineralisation on the Burns Peak tenement is controlled by major, long lived structures, but a strong stratigraphic control is also important. The major shear zones present in the mineralised zones are re-activation of earlier structures along which mineralising fluids passed and about which alteration was centred. The fine grained stratigraphic horizon(s) in which mineralisation at Pinnacles is concentrated are in a similar setting to the host horizons at Hellyer, Rosebery and Hercules, VIZ: they have a thick acid volcanic pile below them, and a quartz-bearing clastic sequence above them and represent a hiatus in volcanism. The degree of shearing and alteration in the mineralisation at Pinnacles indicates that it was emplaced early in the picture, possibly immediately post-volcanism, as replacement style or as a sea-floor "mound". Clasts of sulphide in rocks stratigraphically above the host horizons (BPD77) support this conclusion.

DRILL TARGETS

These targets are ready to be drilled with minimal further work and are in their order of priority:

(i) Southern Trenches shear zone north of BPD63
(ii) Pinnacles shear zone below EAF16
(iii) IP & magnetic anomaly in Hollway Andesite, between EAB4 and BPD75.
(iv) IP anomaly at South Kershaw

More work (mapping, sampling, detailed core logging, modelling) should be carried out before drilling in these interesting areas:

(v) PSZ north of BPD70.
(vi) Core of syncline east of sulphide clasts & stringer zone in BPD77 (? near Burns Peak Shear Zone).
(vii) UTEM anomaly A in the Shale Basin (? on the STSZ)

Prospects worth following up before considering a drill target are:

(viii) Boco Creek shear/Railway Prospect
(ix) Hollway Pyrite Zone
(x) Mackintosh Bluffs (UTEM anomalies?)

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7 KEYWORDS & LOCALITY

ZINC, LEAD, GOLD, ACID VOLCANICS, ANDESITE, BRECCIA, PORPHYRY, RHYOLITE, FAULT, FOLD, VOLCANOGENIC, SULPHIDES, CAMBRIAN, DATA REVIEW, GEOPHYSICS, ALTERATION, GEOLOGY.

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BURNS PEAK, CHESTER, PINNACLES.

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APPENDIX 1

INTERPRETATION OF COMPILED ELECTRICAL GEOPHYSICS OVER THE BURNS PEAK E.L. 44/88

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1 INTRODUCTION

A review of existing electrical geophysics was undertaken as part of a general geoscientific review of the Burns Peak E.L. the aim of which is a better understanding the setting of the mineralisation, and to highlight areas for further investigation.

This report deals specifically with the electrical geophysics methods used on the licence, including electrical induced polarisation and resistivity (IP), ground and airborne electromagnetics, drill-hole electromagnetics (DHEM), self potential (SP), controlled source audio magneto telluric (CSAMT) and mise-a-la-masse (MALM).

Other ground and airborne geophysics used on the licence include ground magnetics and gravity, and airborne magnetics and radiometrics. The results of these surveys are used/interpreted by B. Murphy as part of a structural analysis of the licence.

A description of the various methods can be found in Applied Geophysics by Telford et al, 1990.

The main source of information for the electrical geophysics review were the four binders of geophysical data compiled by Geopeko (1989), contractor reports (Mitre Geophysics Ltd) and internal memos and reports and contractor data sets. During the period of the review two grids on the licence were surveyed with the IP method.

A summary of geophysical exploration on the licence is given in the 1992 annual report (Kirsner 1992).

The results of this data review include a compilation map of IP and UTEM interpretation which includes recommended areas for further work and maps detailing the UTEM and IP coverage over the western half of the E.L.

2 SUMMARY OF RESULTS

2.1 Electromagnetic Surveys

Several ground EM systems have been trialled on the E.L. including Sharp vertical loop EM, Turam EM and Crone PEM. The results of these surveys are superseded by the "near blanket" UTEM coverage of the E.L. by BHP and Comstaff during 1984 to 1987. Only the UTEM surveys over the western section of the E.L. have been considered during this data review as the area to the east of the EMU railway line is thought less prospective. It must be noted however that the Lamontagne interpretation of UTEM results across the entire E.L. outlined several conductive zones to the east.

Two airborne EM surveys have been flown over the licence as part of larger, regional surveys. The first in 1975 by Geoterrex using the INPUT method, and the second in 1983 by Dighem using a multi-coil frequency system. Neither survey yielded many anomalies, and those picked were weak and thought due to overburden or culture. These survey results are also superseded by the UTEM coverage.

Interpretation of the UTEM survey results are presented as either distinct anomalies in the case of BHP and Mitre Geophysics, where the anomaly is located at the point of highest gradient (from more positive to less), or as conductive zones in the case of Lamontagne, where the width of the zone corresponds to the width of the anomaly on the profile.

The results from all the interpretations have been compiled onto a compilation and interpretation map, Map 1.

All three interpretations have the same conclusion that no "good" anomalies were detected by the surveys. Petrophysical studies of drill core initiated by Bishop (Bishop, 1898, Rep BP56) indicate that in general the known mineralisation is a poor conductor.

All three interpretations highlighted two zones as being more prospective than the rest because of their shape, amplitude and persistence to later time. These were labelled A and B. Anomaly B, within the Hollway andesites, was drill tested with BPD75 (Bishop, 1989, Rep BP56). The drill-hole intersected a clay pug zone which appears to be the cause of the anomalies.

Anomaly A is located in an area called the Shale Basin to the north west of the E.L. and is covered by alluvial sediment, and has not been drill tested.

Numerous, see Map 1, weak conductors have also been identified and presumably they correspond to unit contacts of different resistivities, clay or water zones at contacts or in shears, increases in overburn thickness and or conductivity, and possibly weakly conducting massive sulphide sources.

It is reasonably expected that a large, low conductance metallic sulphide body in a resistive host would be detectable at depths greater than 200m using large loop EM systems such as UTEM. To test this hypothesis in the context of the Burns Peak setting, that is a low conductance sulphide body in a resistive host, a number of models were generated with Crone's PLATE program, for the UTEM system. This program assumes a rectangular plate conductor situated in free space, not unreasonable for Burns Peak, and is based on the University of Toronto PLATE program.

Models were generated for a 200m x 200m plate, a 300m x 300m plate, a 400m x 400m plate and a 800m x 400m with conductance of 5 Siemens and 20 Siemens. The position of all models was 200m from the loop edge and at a depth to top of 200m. The models were all vertical, centred on the loop and parallel to the loop edge. The survey line was over the centre of the plate and extended from 200m inside the loop to 600m outside. This places the conductor at 400m along the survey line.

Models were also generated for an IMPULSE system (eg. Crone, SIROTEM, Geonics) for the 800 x 400m conductor for comparison to those from the UTEM (STEP) system.

The results (Figures to) indicate that a 300m x 300m body of low conductance (5 to 20 Siemens) would be difficult to recognise in the presence of noise and background responses. The 800m x 400m conductor should be detectable as either cross-over anomalies or a significant gradient changes in the overall background response (ie. on top of the half space response). This modelling has not taken into account the affects of current changeling, which tends to enhance the anomalies response.

2.2 Drill-hole EM Surveys

Table 1 lists drill-holes surveyed with drill-hole EM and the results of those surveys. Apparently BHP surveyed 20 holes in the Pinnacles area with SIROTEM drill-hole EM (Bishop, 1989, Rep BP56). The data from these surveys was not available for this review but apparently no significant off-hole conductors were detected (Bishop, 1989, Rep BP56).

All systems, apart from the UTEM system?, suffer from what has become known as "self-response" or system response whereby the profiles mimic to some degree the geometry of the inducing primary magnetic field. This effect appears to be most pronounced close to the surface and/or loop edge where the primary field is strongest. It has been/is thought that the response is due to the ferrite or mu metal core commonly used in probes to boost signal to noise ratios. However, even though the response is more pronounced for probes with a core a similar response is also noted for air-cored surface receivers close to the transmitter loop edge. An example is the detailing SIROTEM data over the Shale Basin. The cause of these response, be they total system response or specifically due to cores remains unanswered.

TABLE 1

Drill Hole	Results
EAF 9	* surveyed with SIROTEM and EM37 * two transmitter loops (1,2) small conductive feature above the hole at 75m to 100m. * DC shift for data EM37 at 125m
EAF 11	* surveyed with SIROTEM and EM37 * two transmitter loops (1,2) * no conductors but strong self response or overload
EAF 14	* surveyed with SIROTEM and EM37 * two transmitter loops(1,2) * in hole type response at 225m – minor and/or poorly conducting sulphides * EM37 data has DC shift problems * SIROTEM does not show the conductor at 225m * reverse coupling or off-hole feature at 225m in EM37 data
BPD 62	* surveyed with EM37 * two transmitter loops (12, 13) * no conductors
BPD 63	* surveyed with EM37 * two transmitter loops (7, 8) * small conductive feature at 320m. sub-parallel to (vertical), and west of the hole
BPD 64	* surveyed with EM37 * one transmitter loop (11) * no conductors * the polarity of the inducing field wrong, that is why the profiles are negative
BPD 65	* surveyed with EM37 * one transmitter loop (14) * current channelling response at 360m
EAF 11	* surveyed by Zonge (using SIROTEM probe) * no conductors
BPD63	* surveyed with EM37 * two transmitter loops (15, 16) * no conductors * the polarity of the inducing field from loop 15 is wrong, that is why the profiles are negative
BPD67	* surveyed with SIROTEM * two transmitter loops (67/1, 67/2) * no conductors
BPD68	* surveyed with SIROTEM * two transmitter loops (68/1, 68/2)

* no conductors

BPD69 * surveyed with SIROTEM
* two transmitter loops (17, 18)
* step in profiles at 340m probably due to a drop in transmitter loop current since the slope remains the same

BPD70 * surveyed with SIROTEM
* two transmitter loops (19, 20)
* no conductors

BPD69 * surveyed with Crone
* two transmitter loops (17, 18)
* no conductors

BPD71 * surveyed with Crone
* three transmitter loops (21, 22, 23)
* no conductors

BPD72 * surveyed with Crone
* three transmitter loops (21, 22, 23)
* no conductors

BPD73 * surveyed with Crone
* two transmitter loops (73-1,73-2)
* no conductors

BPD74 * surveyed with Crone
* two transmitter loops (74-1, 74-2)
* no conductors

BPD75 * surveyed with UTEM
* two transmitter loops (24-93, 25-93)
* no conductors

BPD76 * surveyed with Crone
* two transmitter loops (26-93, 27-93)
* in-hole at 250m and off-hole response caused by shale

BPD77 * surveyed with Crone and SIROTEM
* two transmitter loops (28-93, 29-93)
* off-hole response at 270m thought due to shale to east of, below, hole

Drill-hole EM modelling done by Bishop (Bishop, July, 1990 Rep BP63 and Bishop, July 1991, Rep BP71) shows the technique offers an excellent chance of detecting and resolving relatively small, poorly conductive massive sulphide bodies in a resistive host as long as the drill-hole passes close enough to the body. The modelling was done using the MULTILOOP program of Lamontagne Geophysics.

2.3 Induced Polarisation and Resistivity Surveys

Apart from the recent IP surveys the rest of the IP and resistivity data can be viewed in image format at 1:25000
in the report by Whitaker (Whitaker, April 1991, Rep BP 70), which also details the surveys.

The data from the new surveys is to be incorporated into the above data set. For this report however it is displayed as stacked pseudosections of the M10 channel (0.450 - 0.520 seconds) and as Fraser filtered (n = 1 to 3) contour plan maps of the M10 channel.

Where appropriate attention is drawn to resistivity results and self potential results (SP).

Two array methods were used for the IP surveying, the dipole-dipole method and the gradient array method. For the dipole-dipole method (also for pole-dipole) the spacing between the current injection point and the potential measuring point
determines the depth of penetration, limited by the amount of the current injection and the conductivity of the host.
The gradient array has the potential for greater depth of penetration than the dipole-dipole method because of the widely spaces current electrodes. However, this array is poorly suited to vertical conductors and is adversely affected by conductive cover. The resolution of both arrays is determined by the width of the measuring dipole and the depth to the source.

1993 Surveys

Mt Kershaw Grid (Map 4, Map 6)

* Rosebery Fault clearly defined
* broad area of elevated IP with a NE strike correlates with the Chester pyrite alteration zone
* distinct IP anomalous zone within the alteration zone (target 1)
* apparent EW offset of the Rosebery fault at 5 379 300N
* weak NS resistivity low zone correlates to the Boco Creek Shear Zone
* weak IP anomaly at 388200E, 5 378 900N / 5 379 100N coincident with overhead power lines, has good shape

Burns Peak Grid (Map 5, Map 7)

* Rosebery Fault clearly defined - signature stronger to north of grid
* Hollway pyrite zone clearly outlined (target 4)
* slightly elevated IP to the north east of the grid
  may relate to the basic intrusives?
* resistive, anomalous IP zone east of Rosebery Fault, extending north of 5 382 900N

1981 Survey

EAB Grid

* strong, well defined IP anomaly zone coincident with a black shale unit, near or at the contact with the Hollway andesite (target 2)
* moderately well defined IP anomaly zone within the Hollway andesite. Zone extends over three survey lines and is bounded to the west and south by the Burns Peak Shear Zone and an ECS respectively (target 3)
* zone of increased IP response coincident with the Hollway andesite extending northeast from 379800E, and stronger to the northwest (target 2)
* SP anomalies on lines surveyed correspond to the black shales

1978 Survey

EAA Grid

The data from these surveys is lost, therefore the results of the surveys as reported will be taken as fact.

* three lines tested (415S, 600S, 800S)
* moderate amplitude anomaly on all three lines
* thought due to a pyritic black shale (costeaned at 415S:1500W)
* this anomaly is shown on the compilation map north of the EAF grid

EAB Grid

* IP anomaly zone due to the pyritic black shale
* lines incorporated into the 1981 survey results and presentation

1974 Survey

EAD Grid

* broad area of elevated IP coincident with the Chester alteration zone, south of L12N
* several weak and very weak IP anomalies north of L12N
* Chester mine shows as a moderate to strong IP anomaly, but has no coincident resistivity low
* evidence for a north plunge / deep seated IP anomaly on L12N tenuous, even though the IP signature smears out in latter dipoles. The anomaly does not get stronger at latter dipoles, plus ip effects from sides need to be considered (ie. dipole = 60m, line separation = 100m, Chester on L11N)
* very strong and well defined IP zone coincident with S.W. Chester.
* moderate IP high and resistivity low zone along eastern edge of Chester alteration
* several weak SP anomalies noted but not considered important

EAF Grid

* results are shown as the 3 and 4 contour of PFE
* most notable feature is the NE striking Rosebery Fault at the south end of the grid
* mineralisation at Pinnacles, Thomas' Tunnel and Brown's Tunnel is moderately chargeable

1971 and 1972 Surveys

Where the survey lines overlap those of later surveys, the latter survey data was used for interpretation. The data however correlates reasonably well with the latter surveys.

* L20N of the 1972 survey thought unreliable due to non repeatability and negative chargeability results

CSAMT

The CSAMT method was trialled on four lines over the northern part of the Pinnacles mineralisation during 1989 (Bishop, 1898, Rep BP56). The results of the test were disappointing in that the mineralisation was not detected with the method. The method, as it was in 1989, appears unsuitable for the environment because the host rock is too resistive, as is the mineralisation, the mineralisation is not extensive enough and the system does not have a sufficiently high transmitter frequency to resolve near surface features. These trials may highlight the fact that there is no significant, poorly or otherwise conducting sulphides at depth below the Pinnacles mineralisation.

MALM

Mise-a-la-masse was trialled in the Brown's - Thomas' Tunnel area during 1989. The consultants report and data for these surveys has not been located. Available results indicate that the mineralisation was detected but had no lateral extent
(Rosenhain 1989, Rep T242).

3 CONCLUSIONS

Much of the prospective part of the E.L. has been covered with both UTEM and IP (Maps 2 and 3). Areas not covered with the IP method are the Shale Basin and the Burns Peak Shear, north of 5 385 000N.

The results from the interpretation of the IP and UTEM data is presented as a compilation map of electrical geophysics,
Map 1.

The IP surveys have clearly outlined the Rosebery Fault, the Chester and Hollway pyrite alteration zones, a strong IP zone associated with black shales, north of the Hollway andesite and outlined a moderate IP zone within the Hollway andesite?, east of the Burns Peak Shear and north of an ECS. They have highlighted areas of elevated IP associated with the Hollway andesite, and resistive anomalous IP zones east of, and close to the Rosebery Fault as well as detecting numerous isolated weak responses. The mineralisation at Pinnacles, Brown's Tunnel and Thomas' Tunnel has also been detected but the IP response are not considered strong, considering the amount of mineralisation, neither is the response from Chester Mine considered strong.

The ability of the IP technique to detect mineralisation at depths of 200m or greater is doubtful, considering the target size, but this technique has been useful in outlining areas of alteration and increased amounts of pyrite/ metallic sulphides in areas where UTEM failed to respond.

The blanket UTEM coverage of the E.L. highlighted two "better" defined responses at Shale Basin and within the Hollway andesite, from a multitude of weak, poorly defined responses. The method has shown that there are no large, **conductive** massive sulphide bodies within approximately 200m of surface, however there still exists the possibility of relatively? large, poorly conductive sulphide bodies relatively? close to surface.

The MALM technique trialled at Brown's and Thomas' Tunnel showed the mineralisation was detected, but had no lateral extent.

The CSAMT trialled over the Pinnacles mineralisation failed to detect the mineralisation because the host and mineralisation were too resistive for the technique at that time (1989).

Five areas have been highlighted for further investigation, and are labelled from 1 to 5 on the compilation map.
Table 2 lists the targets and salient geophysical information.

TABLE 2

Target 1

UTEM anomaly in the Shale Basin.
One of two "better" defined UTEM anomalies.
Figures 11 to 13 are contour plan maps of the continuously normalised data for channels 9, 7 and 5 respectively.
Figures 14 to 20 are reprocessed profiles of the CP01 loop data using the Crone plotting software.
The anomaly trend is most pronounced in channel 7 at 3900E from lines 6200N to 7000N.
The likely cause of the anomaly is current changeling at a contact.
The area is partially covered by alluvial.
The fact that the anomaly is not affected by a steep NS topographic gradient between 6800N and 7000N suggests it is due to other than overburden thickening.
The follow up SIROTEM surveys to delineate this anomalous trend was of very poor quality with the response measured over the loop edges dominating.

Target 2

IP and UTEM anomalies in the black shales, close to the contact of the Hollway andesites.
A strong, well defined IP zone associated with the black shales. The IP zone remains open to the east.
Several well defined UTEM anomalies to the north of the shale unit.
An area of elevated IP response within the Hollway andesites, south of the contact with the black shales.

Target 3

A well defined, isolated IP zone, of moderate strength, within the Hollway andesites. The anomaly zone is east of the Burns Peak Shear and north of an ECS.

Target 4

An anomalous IP zone coincident with the Hollway pyrite alteration zone.

Target 5

An anomalous IP zone within a broader area of elevated IP that correlates to the Chester pyrite alteration system.

4 RECOMMENDATIONS

1. Geological follow up of the targets mentioned, and if prospective then drilling.

2. IP be trialled at Shale Basin and across the Burns Peak Shear Zone, north of 5 385 000N, to detect disseminated metallic sulphide accumulations and as an aid to drill targeting.

3. That the UTEM data be finished processing using the line current density filtering method devised by Pasminco Exploration at sensible scales for use as a mapping aid and to detect subtle anomalies not readily detectable from the profiles.

4. That DHEM continue to be used in all drill-holes as this method offer an excellent chance of detecting poorly conducting sulphides close to the hole.

5. That radio imaging (RIM) be trialled (if feasible) at Pinnacles to aid in along strike interpretation of the geology.

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6 KEYWORDS and LOCALITY

INDUCED POLARISATION, RESISTIVITY, CSAMT, MALM, AIRBORNE, ELECTORMAGNETICS, SURFACE ELECTROMAGNETICS,, DOWNHOLE ELECTROMAGNETICS, SIROTEM, UTEM, CRONE, TIME DOMAIN, FREQUENCY DOMAIN, CONDUCTOR, CONDUCTANCE, CHARGEABILITY, MODELLING, BURNS PEAK EL 44/88, CHESTER, PINNACLES, HOLLWAY, MASSIVE SULPHIDE, PYRITE,

APPENDIX 1

Parameters for thin plate EM modelling

STEP response

Base frequency - 26.23Hz

Timing gates (in microseconds)

Channel	10	18	to	36
	9	36	to	72
	8	72	to	144
	7	144	to	288
	6	288	to	576
	5	576	to	1152
	4	1152	to	2304
	3	2304	to	4608
	2	4608	to	9216
	1	9216	to	1843

IMPULSE response

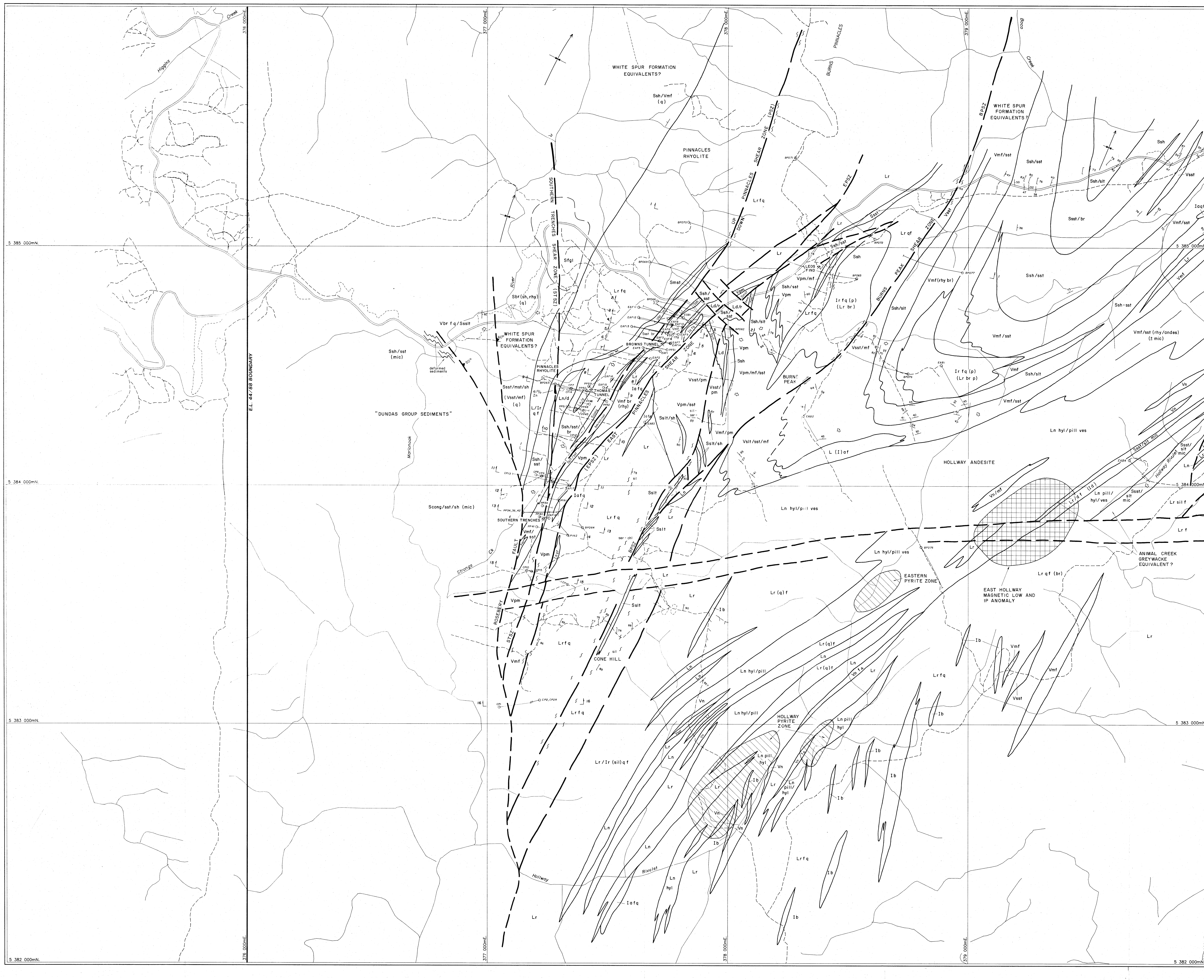
Base frequency - 25.00Hz

Turn on time - 1 millisecond

Ramp off time - 0.5 milliseconds

Timing Gates (in microseconds)

Channel	1	76.5	130.5
	2	130.5 225	
	3	225	378
	4	378	639
	5	639	1075.5
	6	1075.5	1809
	7	1809	3046.5
	8	3045.5	5121



LEGEND

1. General Form

Colour, grain size, overall texture, Rock Type, constituents & textutres, alteration, mineralisation.

Descriptors and Rock Types to be separated by comma or slash. Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.

2. Rock Types

Lavas L
- a (9) acid
- i (46) intermediate
- b (49) basaltic
- r (9) rhyolitic
- d (11) dacitic
- n (46) andesitic

Intrusives I
- a (12) acid
- i (46) intermediate
- b (49) basic
- fel felsic
- p porphyritic
- g (12) granitic
- peg pegmatitic

Volcaniclastics V
- pm (7) pumiceous mass flow
- q (32) quartz phyric mass flow
- sst (32) sandstone
- mf (32) coarse lithic mass flows

Sediments S
- sh (35) shale
- t (36) slate incl. black slate
- slt (35) siltstone
- sst (39) sandstone
- tb turbidite
- w (39) wacke
- cong (39) conglomerate
- Δ breccia
- cht (34) chert
- lst (65) limestone
- dol (65) dolomite
- q (39) quartzite
- Fe iron formation
- gl (4) glacial deposits
- fgl (4) fluvioglacial deposits
- alv (4) alluvial deposits
- mst (35) mudstone

Metamorphic Rocks M
Colours should be hatched
- sht (38) schist
- sp (35) semi–pelite
- ps (39) psammite
- amph amphibolite
- gran granulite
- sk skarn
- mb (65) marble
- m mylonite

Unassigned ? Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:
ple pale, dk dark, clr clear, or orange, blk black, pk pink, rd red, brn brown, bl blue, wht white, yel yellow, ol olive, grn green, ppl purple, crm cream

Grainsize:
fg fine grained, mg medium grained, cg coarse grained, vcg very coarse grained

Overall Texture:
aug augen, p porphyritic, fol foliated, clvd cleaved, msv massive, blk blocky, bd bedded, lam laminated, xbd cross bedded, xlam cross laminated, br brecciated, fb flow banded, fΔ flow brecciated, ufs upwards fining sequence, hyl hyaloclastic, pill pillowed, pep peperitic

Constituents & Internal Textures:
f feldspar, q quartz, l lithic, pm pumice, styl stylolites, wsp wisps, ves vesicles, sph spherulites, lph lithophysae, mic micaceous

Alteration:
alb albitised, co carbonate alteration, chl chloritised, ser sericited, kao kaolinised, ep epidotised, sil silicified

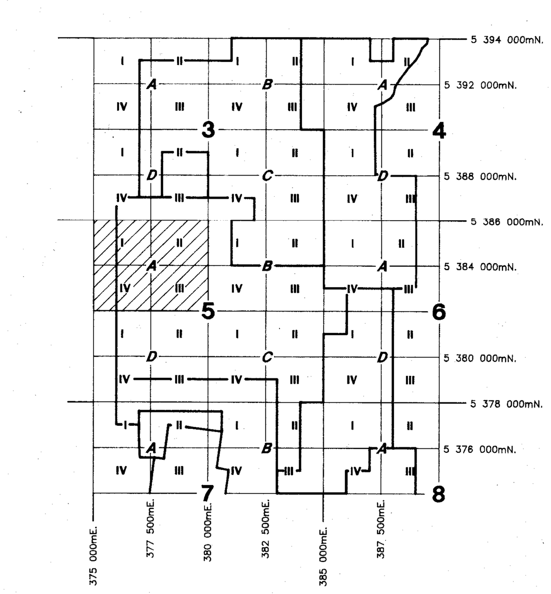
Mineralisation:
diss disseminated, str stringer, msv massive, gos gossan, bx boxwork, py pyrite, po pyrrhotite, asp arsenopyrite, gn galena, sp sphalerite, mag magnetite, hm haematite

3. Mapping Symbols

- 25 Strike and Dip of Strata
- Strike and dip of inverted strata
- 60 Strike and dip of cleavage or foliation
- 50 Plunge of lineation
- Geological boundary position accurate
- Geological boundary position approximate
- Mine
- Abandoned prospect or mine
- Costean or trench
- Diamond drill hole, including projection
- I.P. Anomaly
- Unconformity
- Fault
- Thrust Fault
- Plunging antiform
- Plunging synform
- Shear/strong cleavage
- Sil + Ser + Py Alteration Zone
- Magnetic/Gravity/TM Lineaments

NOTE:
Geological mapping by: A.N. Lorrigan, L.W. Kirsner, M.S. Saxon, B. P. Coutts and R.O. Reid

Interpretation by: L.W. Kirsner, A.N. Lorrigan and M.S. Saxon



5 cm

GN TN MN
GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

953340

93-3523.'

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : A.N.L. / L.W.K.	E.L. 44/88 - BURNS PEAK JV
DATE : October, 1992	**INTERPRETIVE GEOLOGY**
DRAWN : G.M.B.	**SHEET 5A**
REFERENCE :	
REVISIONS : L.W.K. March, 1993	
DRAWING No.	SCALE 1:5000 0 100 200 m — FIG. No. 3

LEGEND

1. General Form

Colour, grain size, overall texture, Rock Type, constituents & textutres, alteration, mineralisation.

Descriptors and Rock Types to be separated by comma or slash. Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.

2. Rock Types

Lavas	L	a	(9)	acid
		i	(46)	intermediate
		b	(49)	basaltic
		r	(9)	rhyolitic
		d	(11)	dacitic
		n	(46)	andesitic
Intrusives	I	a	(12)	acid
		i	(46)	intermediate
		b	(49)	basic
		fel		felsic
		p		porphyritic
		g	(12)	granitic
		peg		pegmatitic
Volcaniclastics	V	pm	(7)	pumiceous mass flow
		q	(32)	quartz phyric mass flow
		sst	(32)	sandstone
		mf	(32)	coarse lithic mass flows
Sediments	S	sh	(35)	shale
		t	(36)	slate incl. black slate
		slt	(35)	siltstone
		sst	(39)	sandstone
		tb		turbidite
		w	(39)	wacke
		cong	(39)	conglomerate
		Δ		breccia
		cht	(34)	chert
		lst	(65)	limestone
		dol	(65)	dolomite
		q	(39)	quartzite
		Fe		iron formation
		gl	(4)	glacial deposits
		fgl	(4)	fluvioglacial deposits
		alv	(4)	alluvial deposits
		mst	(35)	mudstone
Metamorphic Rocks (Colours should be hatched)	M	sht	(38)	schist
		sp	(35)	semi-pelite
		ps	(39)	psammite
		amph		amphibolite
		gran		granulite
		sk		skarn
		mb	(65)	marble
		m		mylonite
Unassigned		?		Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:
ple pale; dk dark; clr clear; or orange; blk black; pk pink; rd red; brn brown; bl blue; wht white; yel yellow; ol olive; grn green; ppl purple; crm cream

Grainsize:
fg fine grained; mg medium grained; cg coarse grained; vcg very coarse grained

Overall Texture:
aug augen; p porphyritic; fol foliated; clvd cleaved; msv massive; blk blocky; bd bedded; lam laminated; xbd cross bedded; xlam cross laminated; br brecciated; fb flow banded; fΔ flow brecciated; ufs upwards fining sequence; hyl hyaloclastic; pill pillowed; pep peperitic

Constituents & Internal Textures:
f feldspar; q quartz; l lithic; pm pumice; styl stylolites; wsp wisps; ves vesicles; sph spherulites; lph lithophysae; mic micaceous

Alteration:
alb albitised; co carbonate alteration; chl chloritised; ser sericited; kao kaolinised; ep epidotised; sil silicified

Mineralisation:
diss disseminated; str stringer; msv massive; gos gossan; bx boxwork; py pyrite; po pyrrhotite; asp arsenopyrite; gn galena; sp sphalerite; mag magnetite; hm haematite

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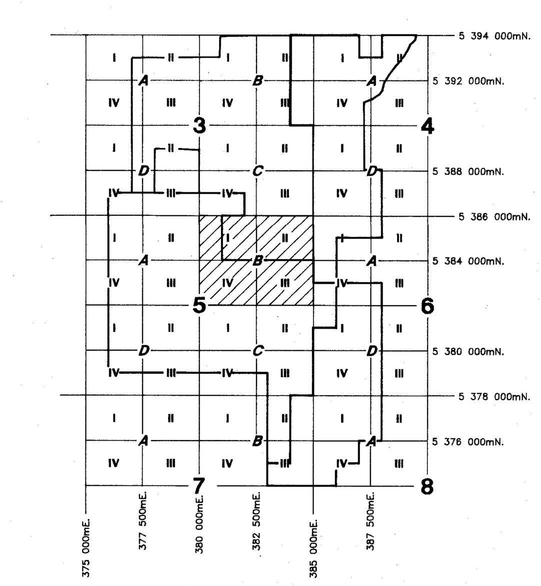
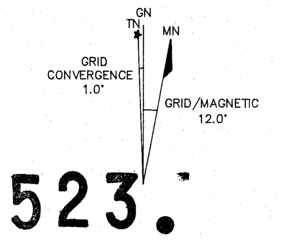
- Costean or trench
- Diamond drill hole, including projection
- Unconformity
- Fault
- Thrust Fault
- Plunging antiform
- Plunging synform
- Shear/strong cleavage

NOTE
Geological mapping by:— A. N. Lorrigan, L. W. Kirsner, B. P. Coutts and R. O. Reid.

Interpetation by : L.W. Kirsner and A.N. Lorrigan



5 cm



93-3523.

953341

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : L.W.K.	E.L. 44/88 - BURNS PEAK JV
DATE : October, 1992	**INTERPRETIVE GEOLOGY**
DRAWN : G.M.B	SHEET 5B
REFERENCE :	
REVISIONS :	
DRAWING No.	SCALE 1:5000 (0 100 200 METRES)
FIG. No.	4

905342

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	200mx200m	Tx Loop :	800mx400m
Sigma-t :	5 Siemen	Line :	Centre
Position :	x=200m,z=200m	File name :	200S5.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000 Unit Scale: 1cm = 1

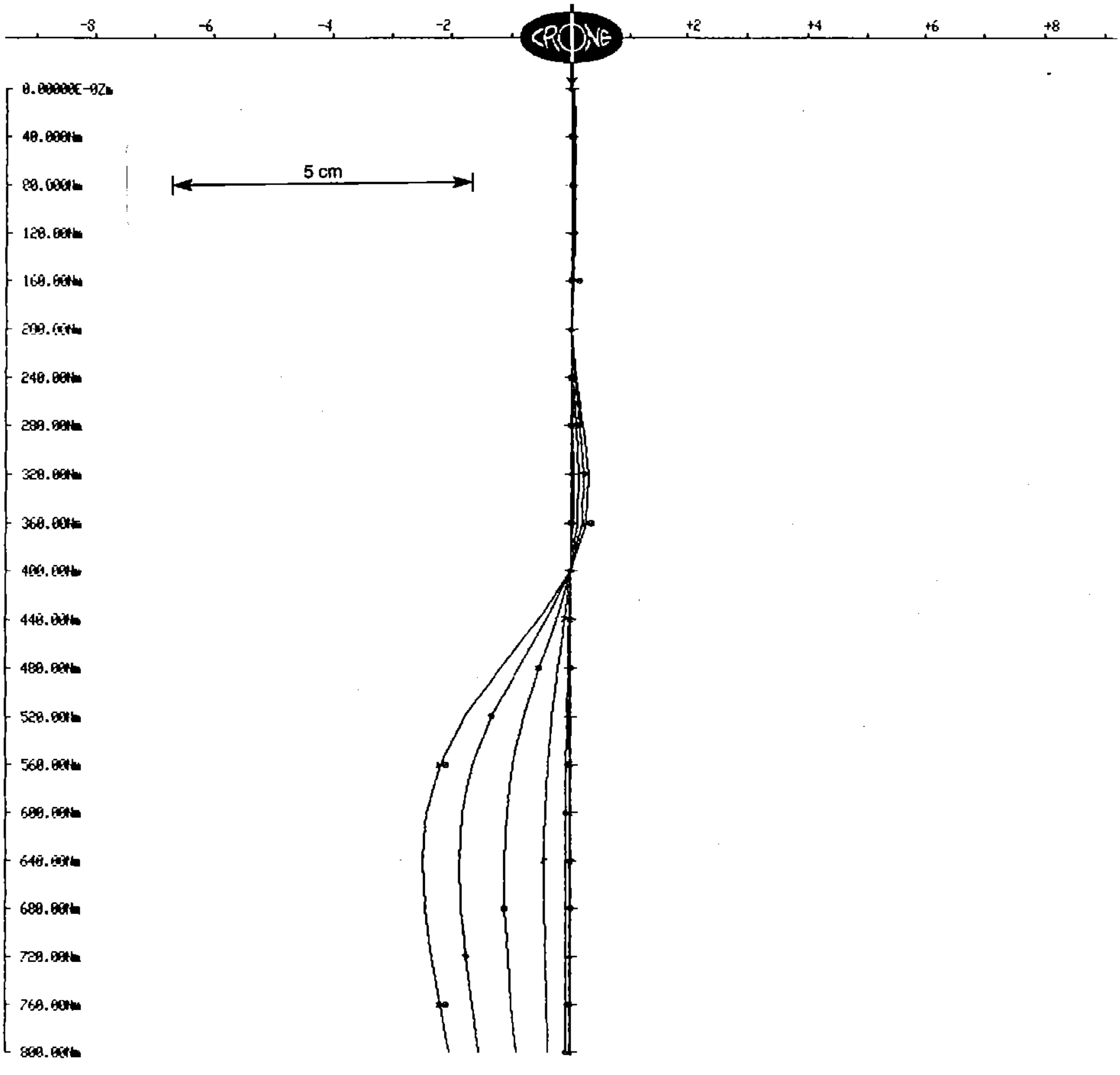


Fig 1

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	200mx200m	Tx Loop :	800mx400m
Sigma-t :	20 Siemen	Line :	Centre
Position :	x=200m,z=200m	File name :	200S20.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000 Unit Scale: 1cm = 1

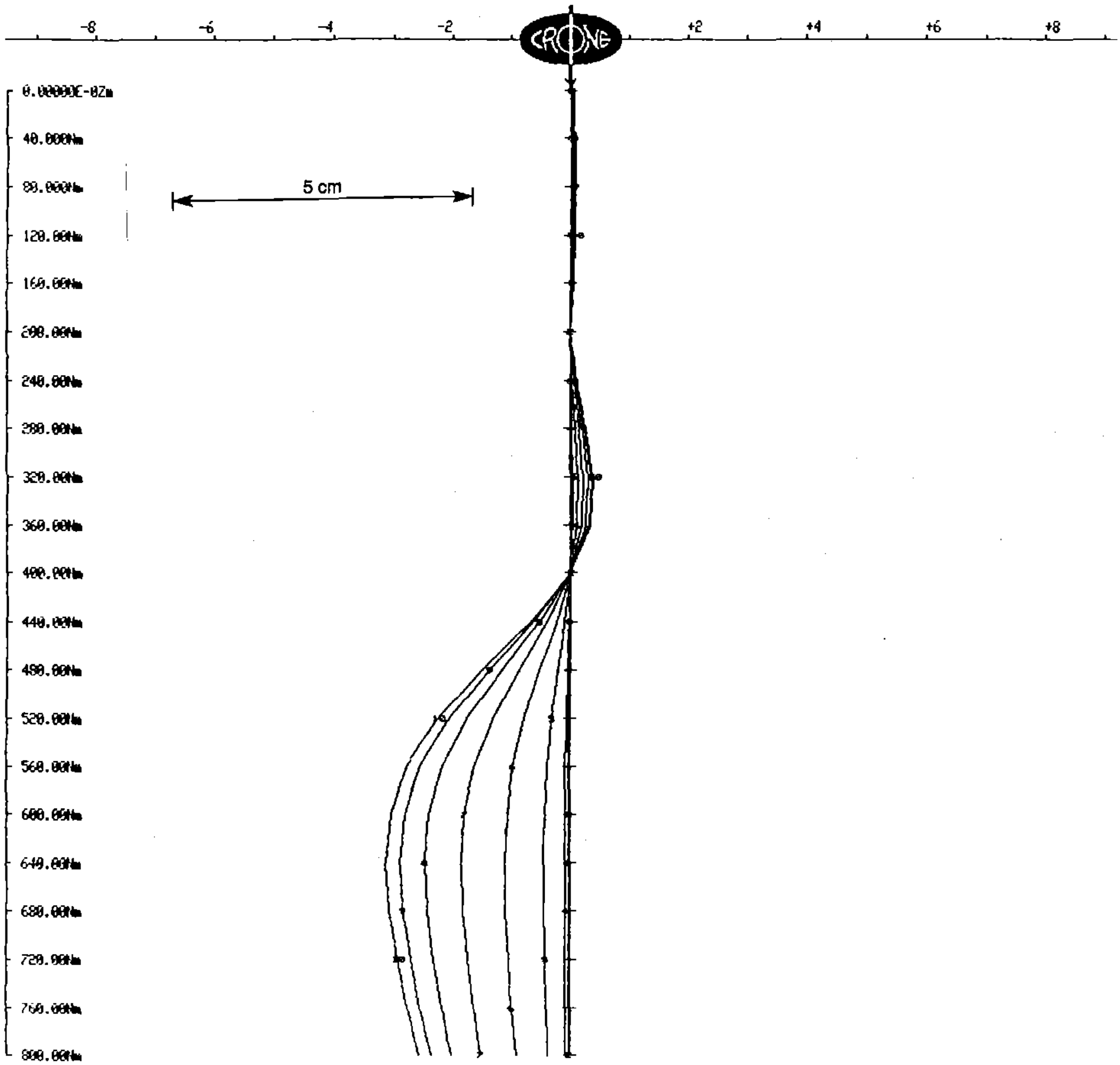


Fig 2

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	300mx300m	Tx Loop	: 800mx400m
Sigma-t	: 5 Siemen	Line	: Centre
Position	: x=200m, z=200m	File name	: 300S5.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000 Unit Scale: 1cm = 1

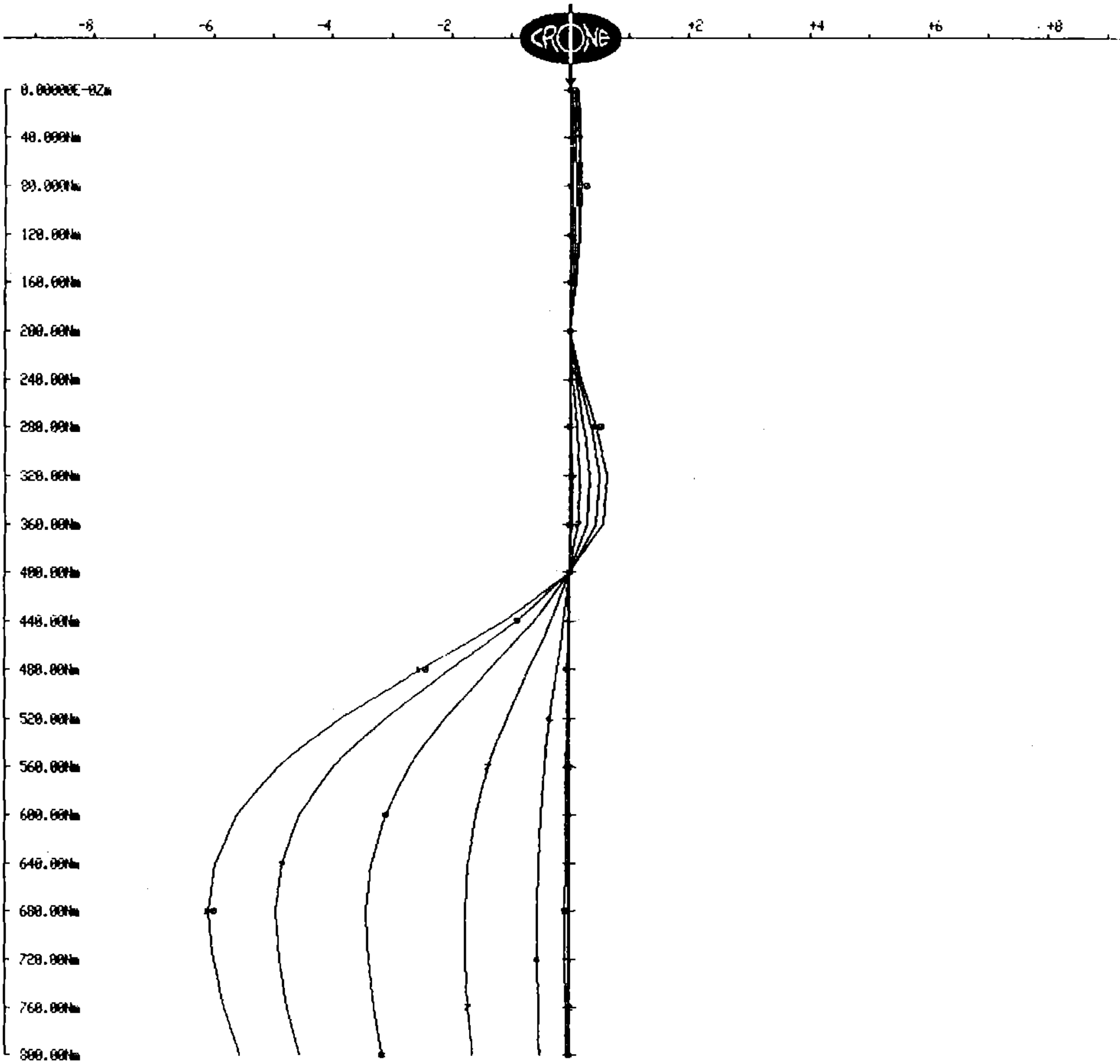
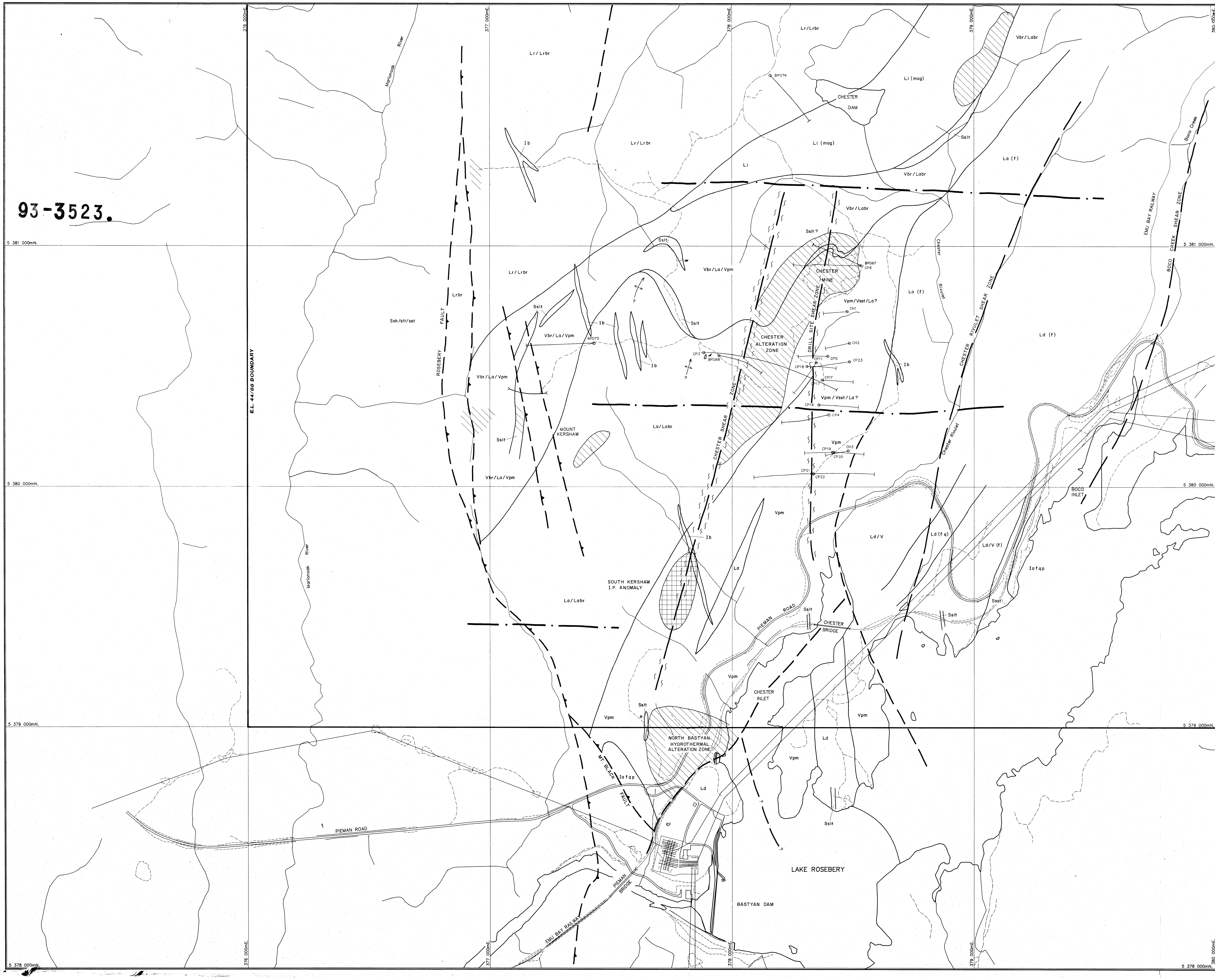


Fig 3

93-3523.



L E G E N D

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alv	(4)	alluvial deposits
mst	(35)	mudstone

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Colours should be hatched

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sp	(35)	semi–pelite
ps	(39)	psammite
amph		amphibolite
gran		granulite
sk		skarn
mb	(65)	marble
m		mylonite

Unassigned ? Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:

ple	pale	bl	blue
dk	dark	wht	white
clr	clear	yel	yellow
or	orange	ol	olive
blk	black	grn	green
pk	pink	ppl	purple
rd	red	crm	cream
brn	brown		

Grainsize:
fg fine grained
mg medium grained
cg coarse grained
vcg very coarse grained

Overall Texture:
aug augen
p porphyritic
fol foliated
clvd cleaved
msv massive
blk blocky
bd bedded
lam laminated
xbd cross bedded
xlam cross laminated
br brecciated
fb flow banded
fΔ flow brecciated
ufs upwards fining sequence
hyl hyaloclastic
pill pillowed
pep peperitic

Constituents & Internal Textures:
f feldspar
q quartz
l lithic
pm pumice
styl stylolites
wsp wisps
ves vesicles
sph spherulites
lph lithophysae
mic micaceous

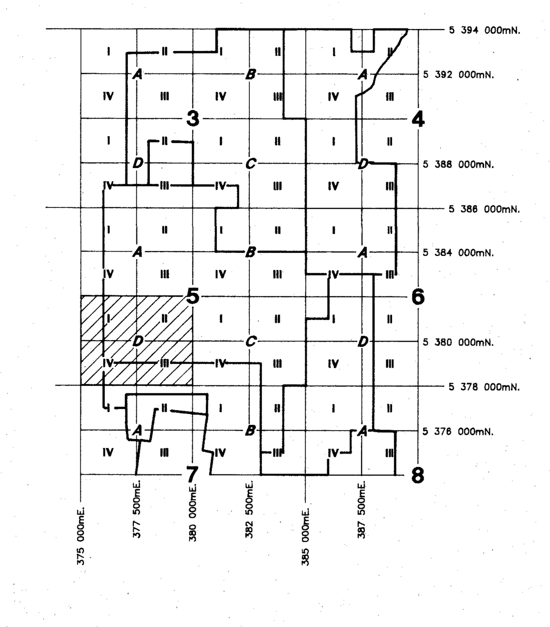
Alteration:
alb albitised
co carbonate alteration
chl chloritised
ser sericited
kao kaolinised
ep epidotised
sil silicified

Mineralisation:
diss disseminated
str stringer
msv massive
gos gossan
bx boxwork
py pyrite
po pyrrhotite
asp arsenopyrite
gn galena
sp sphalerite
mag magnetite
hm haematite

3. Mapping Symbols

25 Strike and Dip of Strata
Strike and dip of inverted strata
60 Strike and dip of cleavage or foliation
50 Plunge of lineation
Geological boundary position accurate
Geological boundary position approximate
Mine
Abandoned prospect or mine
Costean or trench
Diamond drill hole, including projection
I.P. Anomaly
Unconformity
Fault
Thrust Fault
Plunging antiform
Plunging synform
Shear/strong cleavage
Sil + Ser + Py Alteration Zone
Magnetic/Gravity/TM Lineaments

Mapping and interp. by : M. S. Saxon, L. W. Kirsner, A. N. Lorrigan and J. G. Purvis



GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

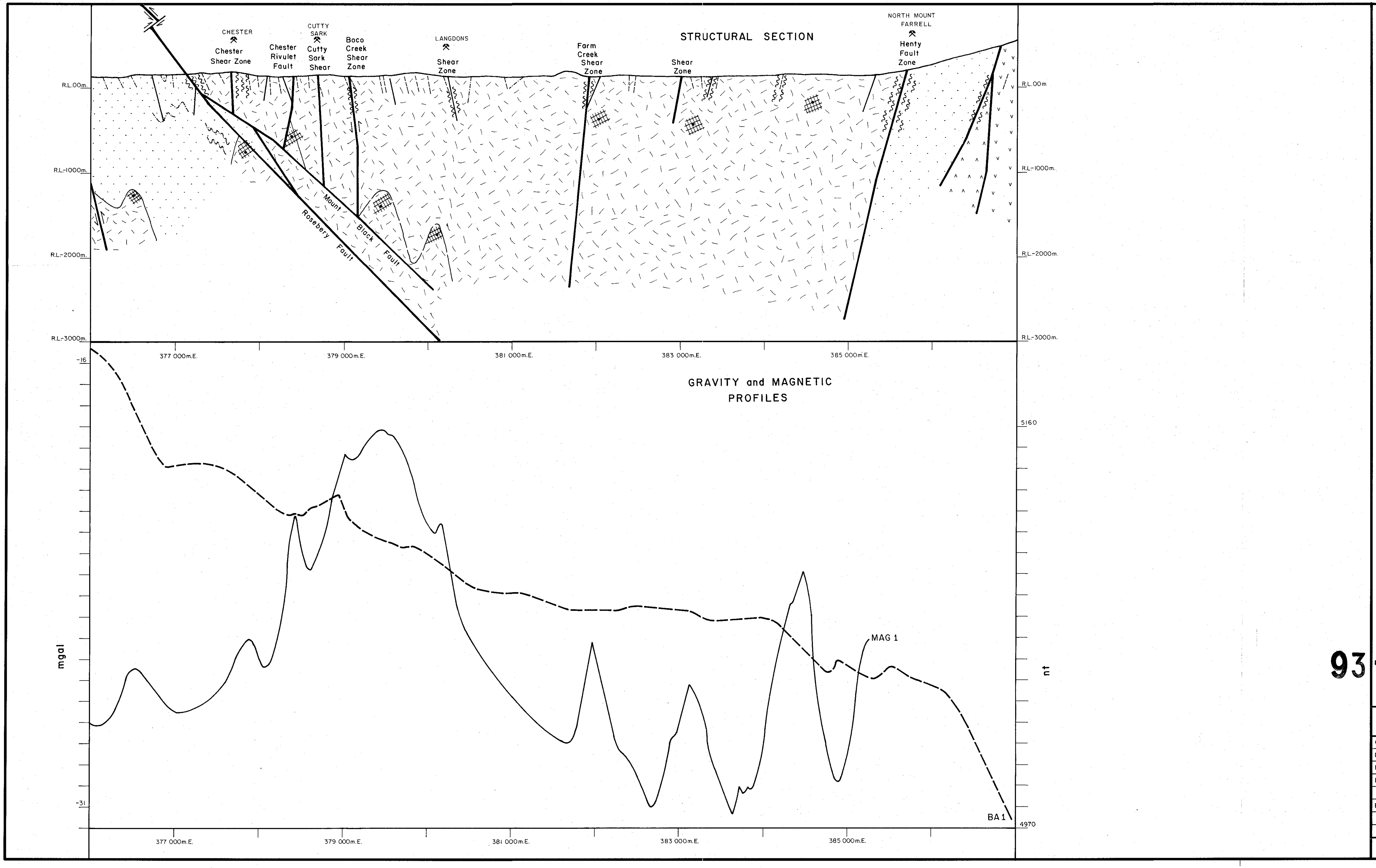
953345

93-3523.

5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : M.S.S.	E.L. 44/88 - BURNS PEAK JV
DATE : March 1993	**INTERPRETIVE GEOLOGY**
DRAWN : G.M.B.	SHEET 5D
REFERENCE :	
REVISIONS :	
DRAWING No.	SCALE 1:5000 (0 100 200 METRES) — FIG. No. 5



LEGEND

- DUNDAS SEDIMENTS.
- CVC SEDIMENTS.
- CENTRAL VOLCANICS (ACID).
- CENTRAL VOLCANICS (INTERMEDIATE).
- EASTERN VOLCANICS.
- LOCAL MAGNETIC HIGH.
- BA1 BOUGUER ANOMALY PROFILE.
- MAG1 MAGNETIC PROFILE.
- FAULT OR SHEAR.

953346

93-3523.

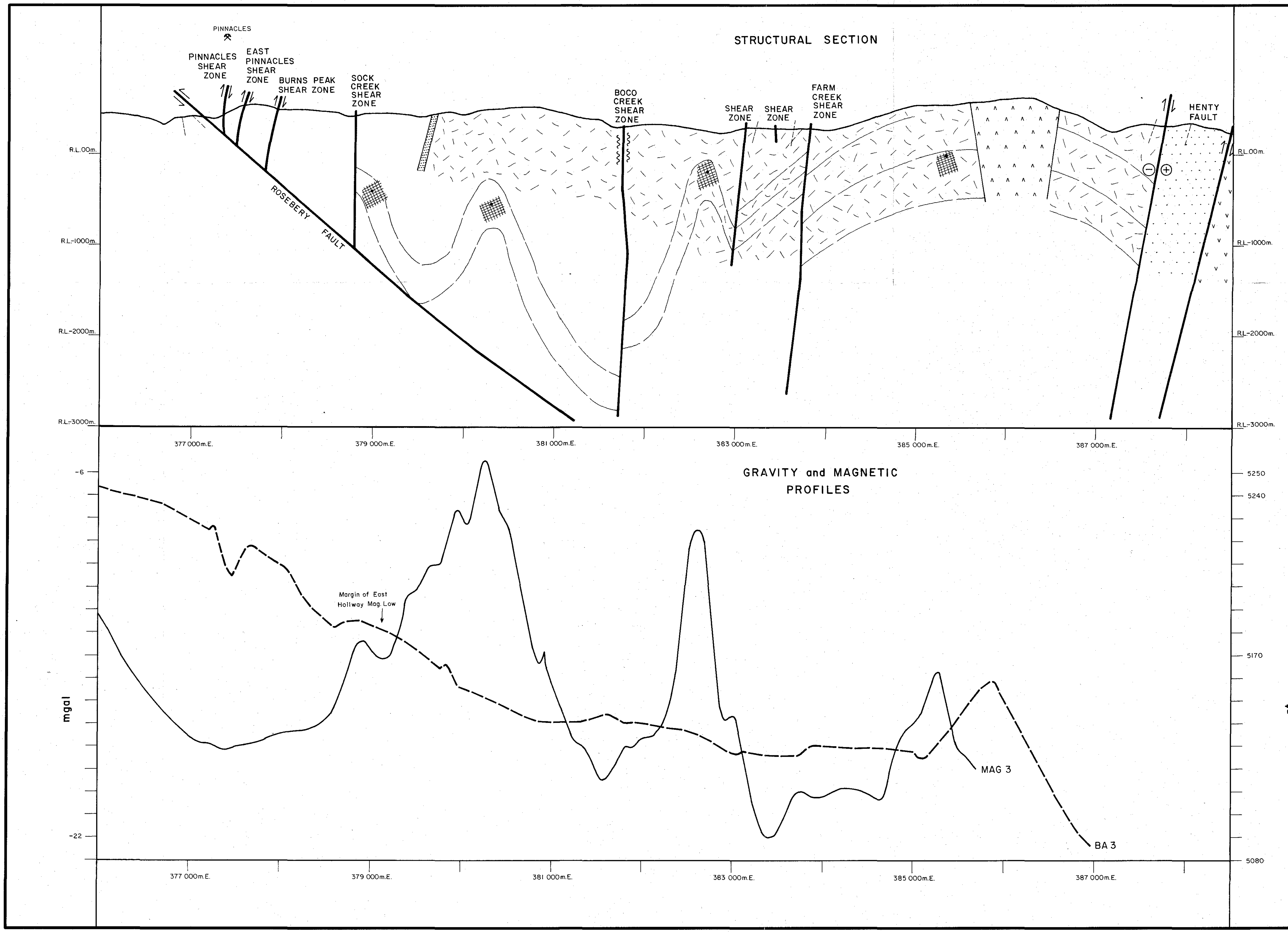
5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : F.C.M.	E.L. 44/88 - BURNS PEAK J.V.
DATE : March, 1993	**REGIONAL SECTION No. 1**
DRAWN : N.W.D.S.	5 379 500m.N.
REFERENCE :	
REVISIONS :	
DRAWING No.	SCALE 1:25,000 0 500 1000 m
FIG. No. 19	

93-3523.

953347



LEGEND

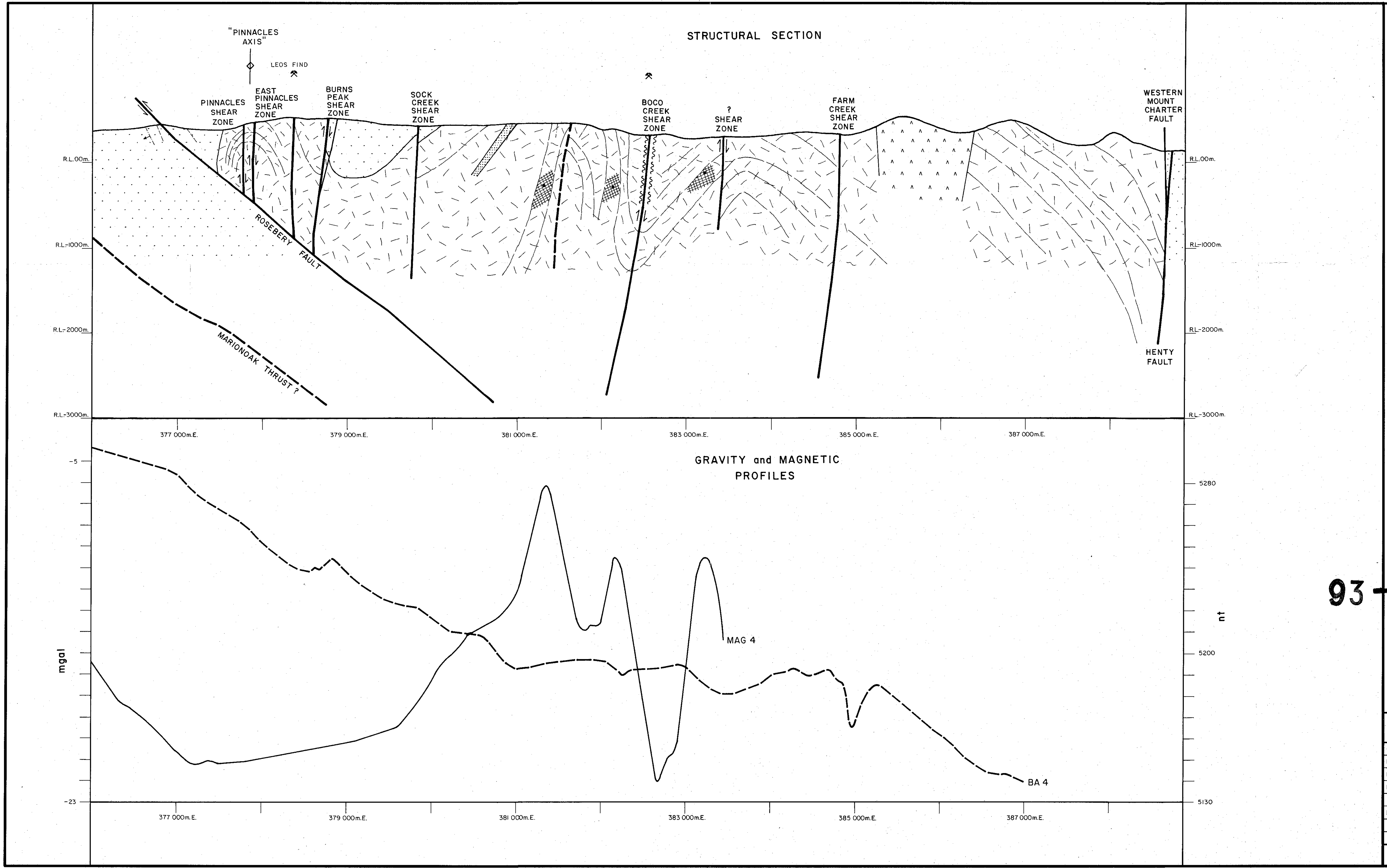
- DUNDAS SEDIMENTS.
- CVC SEDIMENTS.
- CENTRAL VOLCANICS (ACID).
- CENTRAL VOLCANICS (INTERMEDIATE).
- EASTERN VOLCANICS.
- LOCAL MAGNETIC HIGH.
- BAI — BOUGUER ANOMALY PROFILE.
- MAGI — MAGNETIC PROFILE.
- FAULT OR SHEAR.

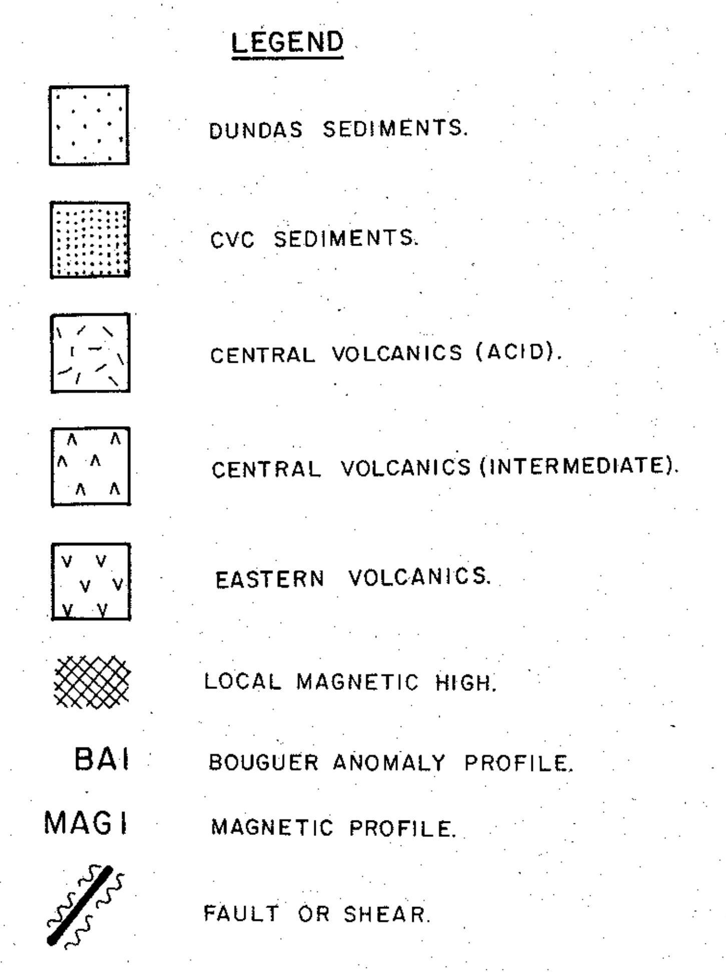
93-3523.

953348

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : F.C.M.	E.L. 44/88 - BURNS PEAK J.V.
DATE : March, 1993	
DRAWN : N.W.D.S.	**REGIONAL SECTION No.3**
REFERENCE :	
REVISIONS :	5 384 000m.N.
DRAWING No.	SCALE 1:25,000 0 500 1000 m
FIG. No. 21	





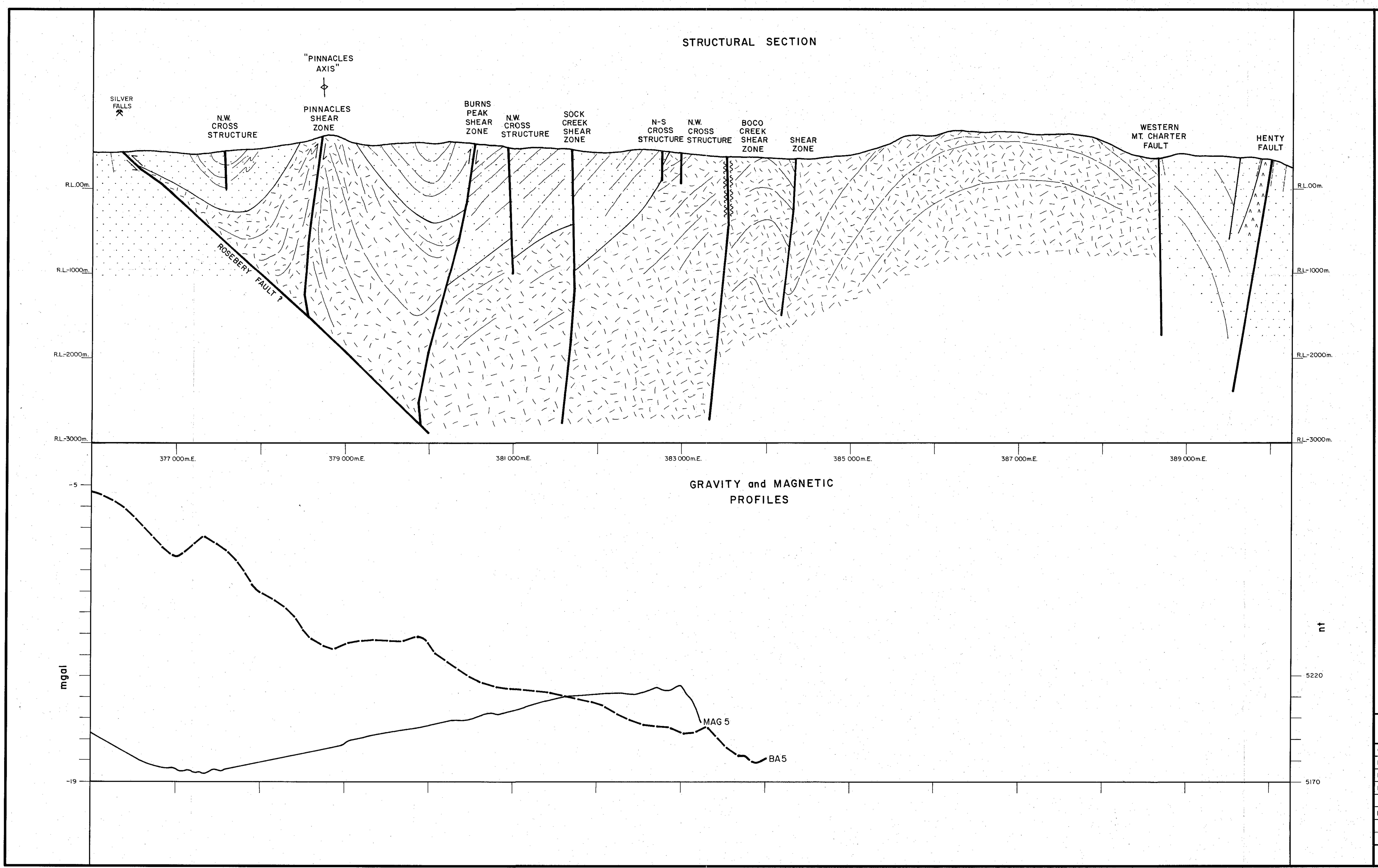
93-3523.

953349

5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : F.C.M.	E.L. 44/88 - BURNS PEAK J.V.
DATE : March, 1993	
DRAWN : N.W.D.S.	
REFERENCE :	**REGIONAL SECTION No. 4**
REVISIONS :	5 385 000m.N.
DRAWING No.	SCALE 1:25,000 (0 500 1000 m) — FIG. No. 22



LEGEND

DUNDAS SEDIMENTS.

CVC SEDIMENTS.

CENTRAL VOLCANICS (ACID).

CENTRAL VOLCANICS (INTERMEDIATE).

EASTERN VOLCANICS.

LOCAL MAGNETIC HIGH.

BAI BOUGUER ANOMALY PROFILE.

MAGI MAGNETIC PROFILE.

FAULT OR SHEAR.

953350

93-3523.

5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : F.C.M.
DATE : March, 1993
DRAWN : N.W.D.S.
REFERENCE :
REVISIONS :
DRAWING No.

E.L. 44/88 - BURNS PEAK J.V.

REGIONAL SECTION No.5

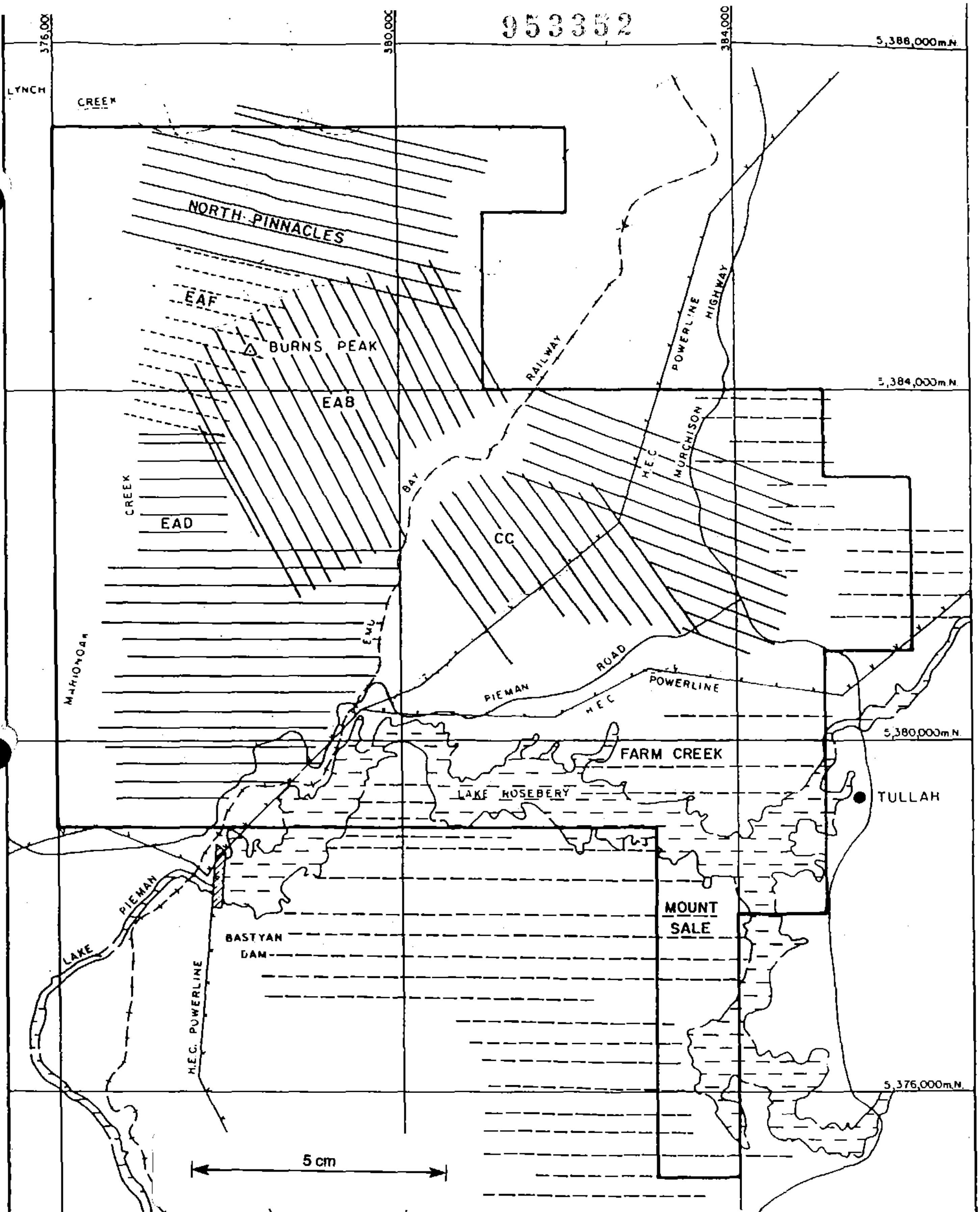
5 387 000m.N.

SCALE 1:25,000 0 500 1000 m

FIG. No. 23

600mRL
500mRL
400mRL
300mRL
200mRL
100mRL
84203·0 N
77317·5 E (AMG)
84713·5 N
77777·5 E (AMG)
Rock Chip Sample
1m @ 0·06% Zn
0·03% Pb
0·06% Cu
5·07g/t Au
Rock Chip Sample
1m @ 19·44% Zn
5·17 % Pb
0·78 % Cu
2·99g/t Au
14·33 % Zn
8·3 % Pb
0·4 % Cu
46·2 g/t Au
0·6 % Zn
0·2 % Pb
0·2 % Cu
5·71g/t Au
McGUINESS'S SHAFT
Samples from spoils heaps(projected from 14mW)
PP46 4m @ 7·1% Zn
1·9% Pb
0·74% Cu
0·9g/t Au
(projected from 14mW)
THOMAS' TUNNEL
6·7m @ 1·8 % Zn
5·0 % Pb
0·04% Cu
0·1g/t Au
EAF 15
15m @ 3·1 % Zn
0·15% Pb
0·01% Cu
0·02g/t Au
(2m at 7% Zn)
(1·3m at 8% Zn)
EAF 16
2·2m @ 7·9% Zn
0·72% Pb
0·18% Cu
0·28g/t Au
(0·7m at 23·8% Zn)
EAF 2
(1m at 3% Zn)
EAF 5
(<1% Zn)
BROWN'S TUNNEL
8m @ 0·24% Zn
0·44% Pb
0·05% Cu
2·7 g/t Au
EAF 3
1·2m @ 26·6 % Zn
15·9 % Pb
2·5 % Cu
1·52g/t Au
(1·5m at 25·2% Zn)
EAF 4
a) 2m @ 3·10% Zn
1·68 % Pb
0·50% Cu
6·5 g/t Au
b) 0·8m @ 25·8% Zn
9·4% Pb
0·67% Cu
(0·65m at 15·5% Zn)
(1·6m at 25% Zn)
EAF 1
EAF 6
5·5m @ 9·9 % Zn
2·8 % Pb
0·6 % Cu
0·28g/t Au
(2m at 22% Zn)
EAF 8
(2m at 3% Zn)
ESB 1
(<1% Zn)
EAF 10
6m @ 8·6 % Zn
1·4 % Pb
0·9 % Cu
0·6 g/t Au
(2m at 36% Zn)
(1m at 37% Zn)
EAF 10
2m @ 7·3% Zn
0·3% Pb
0·4% Cu
0·14g/t Au
(2m at 12% Zn)
(1m at 13% Zn)
EAF 9
10·5m @ 9·3 % Zn
3·8 % Pb
0·4 % Cu
2·5 g/t Au
(0·6m at 20% Zn)
(6m at 30% Zn)
(2m at 10% Zn)
(1m at 14% Zn)
EAF 7
(No significant min)
(1m at 2·3% Zn)
PP31
2m @ 4·5% Zn
PP31
2·5m @ 3·3% Zn
BPD 66
10m @ 1·76% Zn
0·4 % Pb
0·3 % Cu
0·4g/t Au
(4m at 3·3% Zn)
PP51
CP12
CP7
Zone in which Brown's Host Horizon
and Pinnacles Sheer exist and are untested.
450m
200m
"OPTIMISTS
ESTIMATE"
450m x 200m x 10m (average thickness ?) = 900,000m^3
tonnage potential (at 4 tonnes/m^3) = 3·6 million tonnes
for 10% Zn
4% Pb
2·5 ppm Au
Same as EAF 9 grades.
EAF 14
1m @ 3·3% Zn
0·46% Pb
0·17% Cu
— Au
(2m at 3·3% Zn)
(2m at 2·9% Zn)
EAF13
Nil
(2m at 4·9% Zn)
(4m at 3·5% Zn)
EAF12
Nil
(<1% Zn)
EAF11
3m @ 3·1 % Zn
2·9 % Pb
0·2 % Cu
0·04g/t Au
(1m at 5·7% Zn)
(1m at 6·1% Zn)
BPD 69
6m @ 0·67 % Zn
0·3 % Pb
4m @ 1·0 % Zn
BPD 70
20m @ 0·4% Pb
2m @ 0·4% Zn
BPD 62
Nil
(2m at 1·6% Zn)
Approximate Projection of Rosebery Fault
F
F
BPD63
(Did hit STSZ near
top of hole)
(0·6m at 35·2% Zn)
93-3523.
953351
5 cm
NOTE:
Maximum drilled intervals noted in brackets and all other intersections are interpreted true width, projected onto a vertical plane.
Cut offs used:- 3% Zn, 2% Pb, 5% Cu, 5g/t Au.
✳ Drill holes marked thus did not intersect the host horizon at the Pinnacles Shear Zone.
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : T.LEES
DATE : JAN.1992
DRAWN : GEO
REF:
REVISIONS : L.W.K.
13·04·93
DRAWING No.
THOMAS'S TUNNEL -
BROWN'S TUNNEL
LONG SECTION THROUGH 84203.0 N, 77317.5 E and 84713.5 N, 77777.5 E (AMG). FACING WEST.
(after A.N.Rosehain, 1989)
SCALE: 1:1000
0 20 40m
Fig. No. 25

953352



LEGEND

- BHP–UTAH MINERALS INTERNATIONAL.
- BILLITON AUSTRALIA.
- COMSTAFF PROPRIETARY LIMITED.

0 1 2 3 4 km

Scale = 1:60,000 (Approx only).

GEOPEKO

A DIVISION OF PEKO WALLSEND OPERATIONS LTD

	E.L. 44/88 BURNS PEAK	No FIG 21
Date 9-10-'89	GRID COVERAGE	
Geologist A.N.R.		
Checked		
Drawn N.W.D.S.	Map Ref	Area ROSEBERY, TAS.
Amendments		

953353 BP52

FOLDER 1

Geophysical Survey	Map Ref.	Showing
E.A.B. - EAST CHESTER		
S.P. (1980)	E.A.B.	Lines traversed for S.P.
	Tas/2/2011	Stacked Self Potential Profiles
I.P. (1980)	E.A.B.2	Line traversed for I.P.
	E.A.B.2A	I.P. Data, (results)
	E.A.B.2B	Discussion
	Tas/2/2428	Contoured chargeability & anomalies
	Tas/2/2429	Contoured resistivity & anomalies
Ground mag (1980)	Tas/2/1615	Stacked ground Mag (Mines Dept microfilm)
	E.A.B.3C	Report 80-1413 - Summary & Discussion
E.A.D. - CHESTER METRIC GRID		
Magnetics (1974) E.M. (1974) Ground Mag. (1978)	E.A.D.1	Lines traversed for Magnetics E.M. Ground Magnetics
	E.A.D.1A	Magnetics Profiles
	Tas/2/613	Magnetics Anomalies
	Tas/2/495	E.M. Profiles
	Tas/2/1603	Ground Mag Profiles
	Tas/2/1602	Ground Mag Profiles - Mines Dept
	Tas/2/1924	Mag, Crone Profile for line 0600N
I.P. (1974)	E.A.D.2	Lines traversed for I.P.
	E.A.D.2A	I.P. Profiles
	Tas/2/755	I.P. Anomalies
	Rept No.Tas/6	I.P. Discussion
	A1-238	I.P. Summary
	Tas/2/501	I.P. Summary
S.P. (1974)	E.A.D.3	Lines traversed for S.P.
	Tas/2/614	S.P. Anomalies.

953354 BP52

FOLDER 2

Geophysical Survey	Map Ref.	Showing
E.A.A. - CHESTER/PINNACLES		
Ground Mag. (1979)	E.A.A.1	Lines traversed for Ground Mag.
	Tas/2/1922	Ground Mag Profiles.
	E.A.A.1A	Ground Mag Summary.
I.P. & S.P.	E.A.A.1B	I.P. and S.P. Discussion only.
S.P., I.P. & E.M.	E.A.A.1C	Discussion
E.A.F. - PINNACLES METRIC GRID		
I.P. (1974/5)	E.A.F.1	Lines traversed for I.P.
	A1-299 A1-300 A1-301 A1-302	I.P. Profiles
	Fig. No. 2 3 4	I.P. Results
	E.A.F.1A	I.P. Discussion
Pulse E.M. (1977)	E.A.F.2	Lines traversed for Pulse E.M.
Crone E.M. (1977)		Lines traversed for Crone E.M.
	A1-197 A1-198 A1-199 A1-200	Pulse E.M. Profiles
	A1-304	Pulse E.M. Interpretation
	E.A.F.2B	Crone E.M. Profiles
Ground Mag	E.A.F.3	Lines traversed for Ground Mag. (See Tas/2/3992, Tas/2/3993)
	Tas/2/3992 Tas/2/3993 Tas/2/3871	Ground Mag. Results
	Tas/2/4072 Tas/2/4073	Ground Mag. Interpretation
	E.A.B.3A	Ground Mag. Discussion

FOLDER 3

A.S.G. - 1968 AUGER SAMPLING GRID

Geophysical Survey	Map Ref.	Showing
I.P. (1971) I.P. (1972)	A.S.G.1	Lines traversed for I.P.
	P1.1-9	1971 I.P. Profiles/Anomalies
	Fig. No. 3	1972 I.P. Profiles
	A.S.G.1A	1971 I.P. Discussion
	A.S.G.1B A.S.G.1C	1972 I.P. Discussion
Magnetics (1972)	A.S.G.2	Lines traversed for Magnetics
E.M. (1972)		Lines traversed for E.M.
	Tas/2/424 Tas/2/425 Tas/2/426	Magnetics Profiles
	Tas/2/423	E.M. Profiles
Magnetics (1986)	A.S.G.1D	Lines traversed/Profiles
Phase diff./ eqvi-ratio contours	A.S.G.1E	Plans

953356 BP52

FOLDER 4

AIRBORNE ELECTROMAGNETIC SURVEY (A.E.M.)

Survey	Map Ref.	Showing	
Airbone E.M. (1975)	A.E.M.1	Flight Paths	INPUT
"	A.E.M.1A	Anomalies	INCONSISTANT ANOMALIES ?
"	A.E.M.1B	Anomalies	
"	A.E.M.1C	Anomalies	
"	A.E.M.1D	Anomalies	
"	A.E.M.1E	Discussion & Results	
Airborne E.M. (1983)	A.E.M.2	Flight Paths	DIGHEM
"	A.E.M.2A	Geological Interpret.	
"	A.E.M.2B	Geological Interpret.	
"	A.E.M.2C	Summary & Results	
"	A.E.M.2D	Interpret. - Anomalies	

953357

GEOPHYSICAL COMPILATION EL44/88 BURNS PEAK

SUMMARY OF EXTENT OF SURVEYS
COMSTAFF AND BHP SURVEYS

GRID	SURVEY TYPE	DATE	EXTENT			
E.A.B.	S.P.	1980	L1930S	1600	-	800
			2130S	1600	-	800
			2340S	1600	-	940
			2540S	1900	-	1000
			2750S	1900	-	1000
			2950S	1900	-	1000
			3150S	1750	-	1240
			3350S	1400	-	00
			3550S	500	-	00
	I.P.	1980	L3750S	1600W	-	350W
			3550S	1600W	-	450E
			3350S	1650W	-	700W
			3150S	1800W	-	750E
			2950S	1700W	-	400E
			2750S	1650W	-	550E
			2540S	1300W	-	450E
			2340S	1500W	-	900W
			2340S	150E	-	700E
			2130S	1600W	-	600E
			1930S	1500W	-	400E
			1730S	1400W	-	400E
			1530S	1400W	-	400E
	Ground Magnetics	1980	L3950S	400W	-	390E
			3750S	920W	-	0
			3550S	1400W	-	660E
			3350S	1400W	-	0
			3150S	1400W	-	820E
			2950S	1980W	-	0
			2750S	1920W	-	700E
			2540S	1900W	-	20E
			2340S	1920W	-	780E
			2130S	1820W	-	20E
			1930S	1760W	-	640E
E.A.D.	Magnetics	1974	0	00	-	1140E
			1N	00	-	1140E
			2N	00	-	940E
			5N	00	-	1160E?
			7N	00	-	2060E
			8N	00	-	1920E
			9N	00	-	1420E
			10N	00	-	1260
			11N	00	-	2320
			14N	00	-	2100
			15N	00	-	1140
			16N	00	-	1160
			18N	00	-	1140
			19N	00	-	1140

E.A.D.	E.M.	1974	L	9N	1010E -	60E
				10N	1010E -	60E
E.A.D.	Ground Magnetics	1978	L	00N	0 -	1700W
				200N	0 -	1620W
				400N	0 -	1640W
				600N	0 -	1600W
				800W	0 -	1600W
				1000W	0 -	1500W
				1200W	0 -	1300W
				1400W	0 -	1240W
				1600W	0 -	1280W
				1800W	0 -	1160W
				1900W	0 -	1140W
				2000W	0 -	1160W
				2300W	0 -	1100W
				2800W	0 -	940W
				3100W	0 -	1000W
E.A.D.	I.P.	1974		0	90E -	870E
				1N	90E -	1530E
				2N	90E -	840E
				3N	90E -	960E
				4N	90E -	960E
				5N	90E -	960E
				6N	90E -	960E
				6N	1320E -	1860E
				7N	90E -	960E
				8N	90E -	1290E
				9N	90E -	2000E
				10N	90E -	960E
				11N	90E -	1320E
				12N	90E -	960E
				13N	90E -	960E
				14N	90E -	960E
				15N	90E -	1410E
				16N	90E -	960E
				17N	90E -	960E
				18N	90E -	960E
				19N	90E -	960E
E.A.D.	S.P.	1974		0	00 -	960E
				1N	00 -	940E
				2N	00 -	850E
				3N	00 -	960E
				4N	00 -	960E
				5N	00 -	960E
				6N	00 -	900E
				7N	00 -	1100E
				8N	00 -	1020E
				9N	00 -	1100E
				11N	00 -	1000E
				12N	00 -	1020E
				13N	00 -	940E
				14N	00 -	1000E

			15N	00 - 920E	
			16N	00 - 960E	
			17N	00 - 980E	
			18N	00 - 980E	
			19N	00 - 960E	
E.A.A.	Ground Magnetics	1979	1200N	1000E - 3600E	
			1000N	1000E - 3300E	
			0800RN?	2000E - 3300E	
			0800N	1000E - 3300E	
			0600N	1000E - 3350E	
			0400N	1000E - 3450E	
			0200N	1000E - 3450E	
			1000N	1000E - 2600E	
			0200S	1000E - 2420E	
			0415S	1000E - 1750E	
			0600N?	1000E - 1500E	
			0800	1000E - 1250E	
E.A.F.	I.P.	1974/75	10S	10.2W - 19.8W	
			12S	10.2W - 19.8W	
			14S	10.2W - 19.8W	
			16S	10.2W - 19.8W	
			18S	10.2W - 19.8W	
			20S	11.8W - 19.8W	
			22S	10.2W - 19.8W	
			24S	10.2W - 19.8W	
			26S	10.2W - 19.8W	
E.A.F.	PULSE E.M.	1977	14S	10.2W - 16.8W	
			16S	10.2W - 19.5W	
			18S	13.9W - 19.5W	
			26S	11.9W - 18.0W	
E.A.F.	CRONE E.M.	?	20S	10.5W - 19.3W	
			22S	10.5W - 19.5W	
			26S	10.5W - 19.3W	
E.A.F.	Ground Magnetics	19/6/84	4200N	4280E - 5500E	
			4400N	4280E - 5500E	
			4600N	4280E - 5480E	
			4800N	4300E - 5500E	
			5000N	4300E - 5500E	
			5200N	4080E - 5700E	
			5400N	4500E - 5900E	
			5600N	5420E - 5900E	Missing.
			5800N	5420E - 5860E	
			6000N	5420E - 5900E	
			6200N	3860E - 5880E	
E.A.F.	Ground Magnetics	11/4/84	4840N	4800E - 5200E	
			4920N	4800E - 5200E	
			5000N	4800E - 5200E	
			5080N	4840E - 5200E	
			5160N	4800E - 5200E	Missing.
			5000E	4840N - 5160N	

A.S.G. I.P. Northern Grid	1971	42S	2650W	-	00
		50S	3000W	-	00
		60S	3000W	-	1450W
		70S	2900W	-	1500W
A.S.G Baseline		00	166S	-	184S
A.S.G. Southern Grid		165S	2900W	-	00
		175S	1200W	-	400W
		185S	200E	-	2200E
A.S.G. I.P.	1972	135S	300W	-	00
		115S	400W	-	00
		85S	300W	-	00
		70S	300W	-	00
		42S	300W	-	00
		20W	400W	-	00

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	300mx300m	Tx Loop	: 800mx400m
Sigma-t :	20 Siemen	Line	: Centre
Position :	x=200m,z=200m	File name	: 300S20.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000 Unit Scale: 1cm = 1

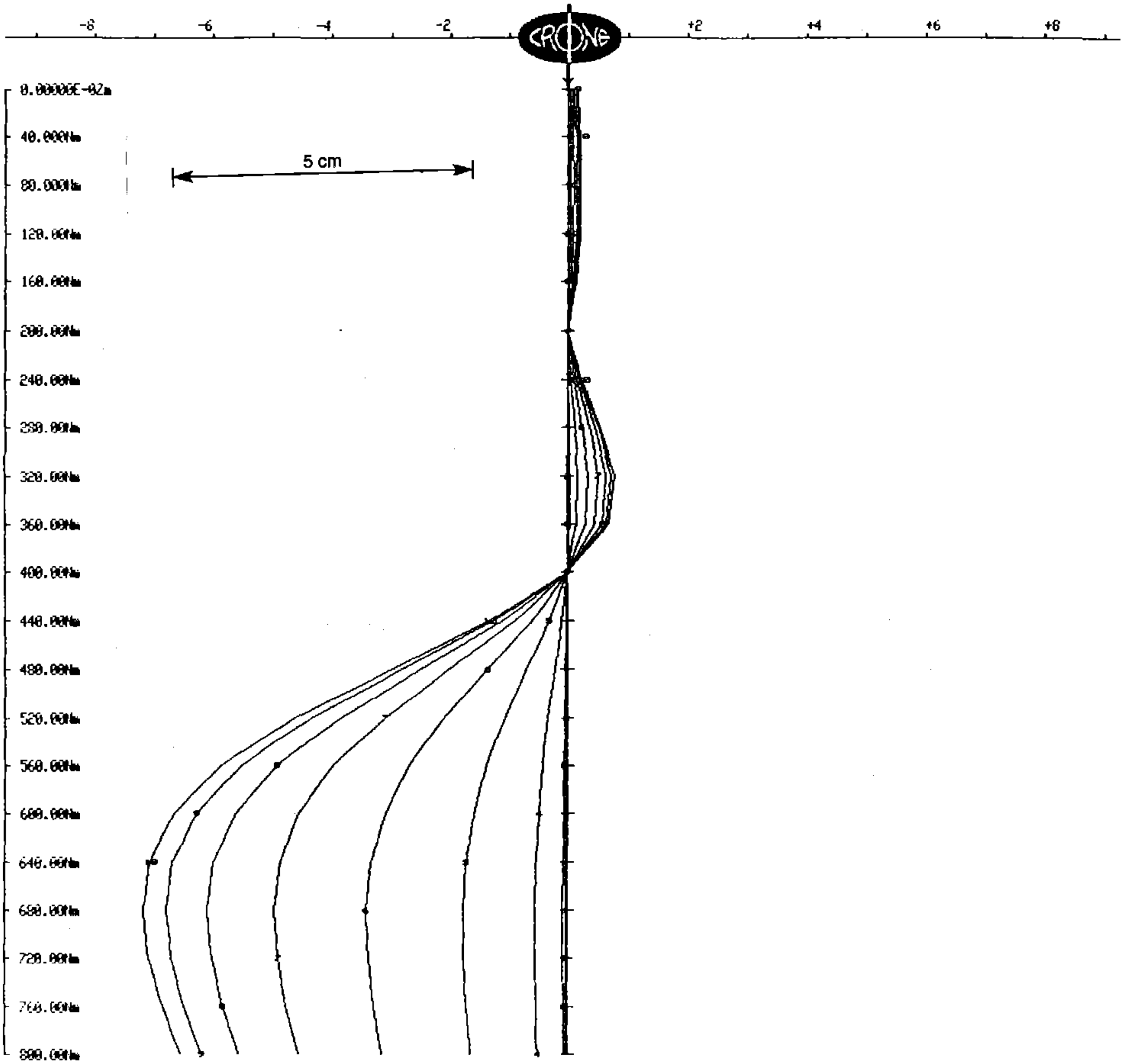


Fig 4

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size: 400mx400m
Sigma-t : 5 Siemen
Position : x=200m,z=200m

Tx Loop : 800mx400m
Line : Centre
File name : 400S5.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000

Unit Scale: 1cm = 2

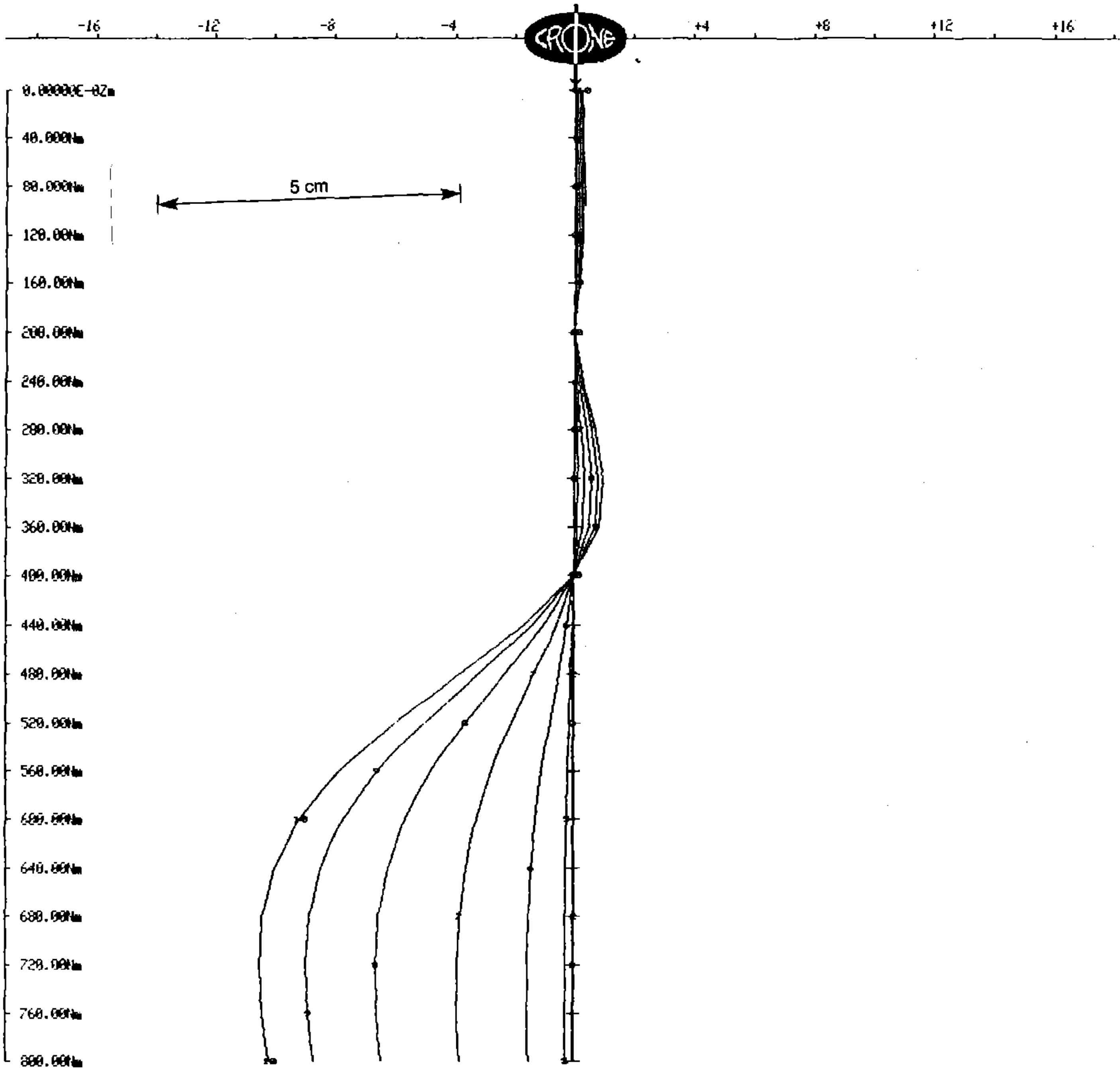


Fig 5

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size: 400mx400m
Sigma-t : 20 Siemen
Position : x=200m,z=200m

Tx Loop : 800mx400m
Line : Centre
File name : 400S20.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000

Unit Scale: 1cm = 2

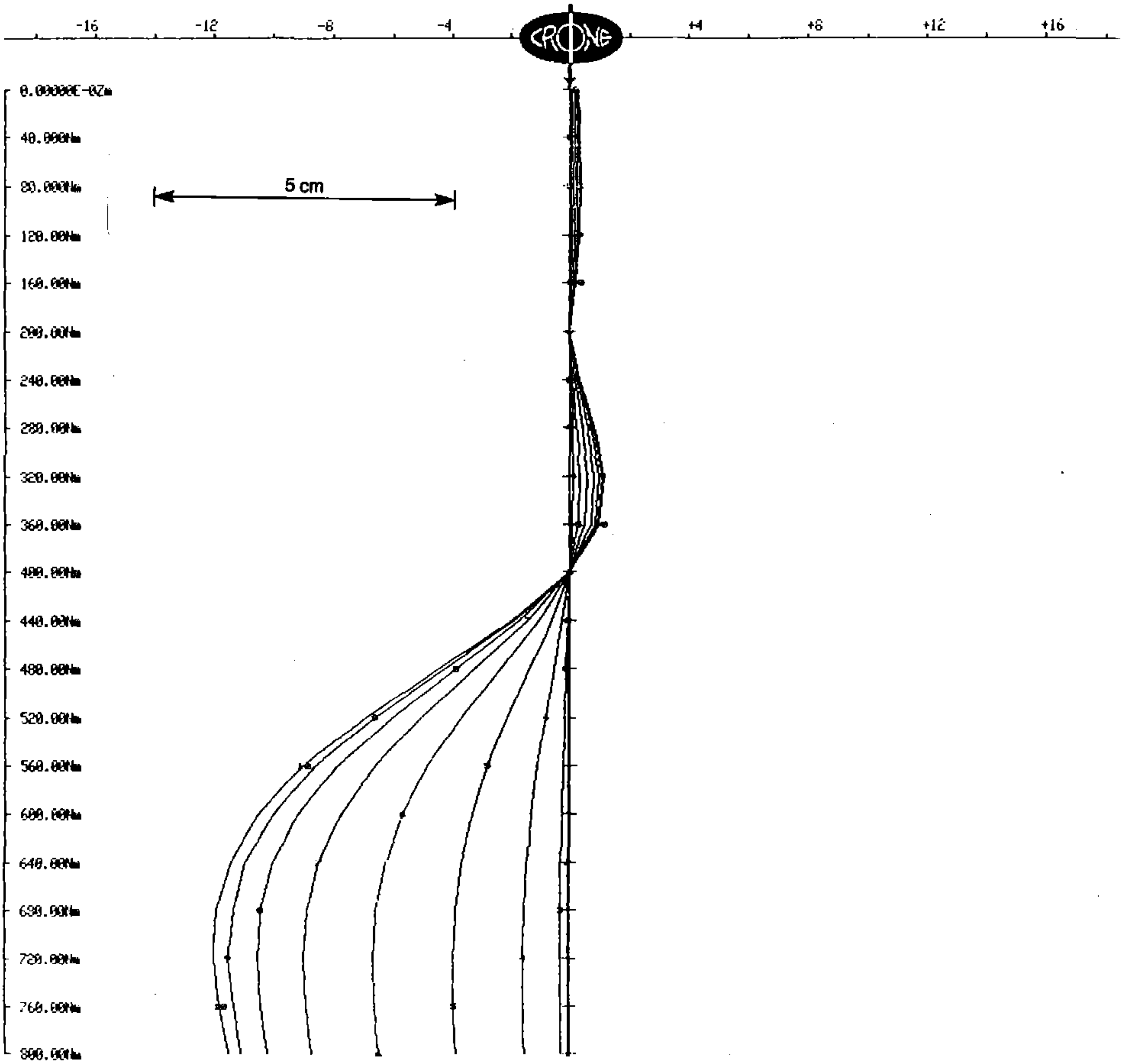


Fig 6

953364

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	800mx400m	Tx Loop :	800mx400m
Sigma-t :	5 Siemen	Line :	Centre
Position :	x=200m, z=200m	File name :	8X4S5.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000 Unit Scale: 1cm = 2

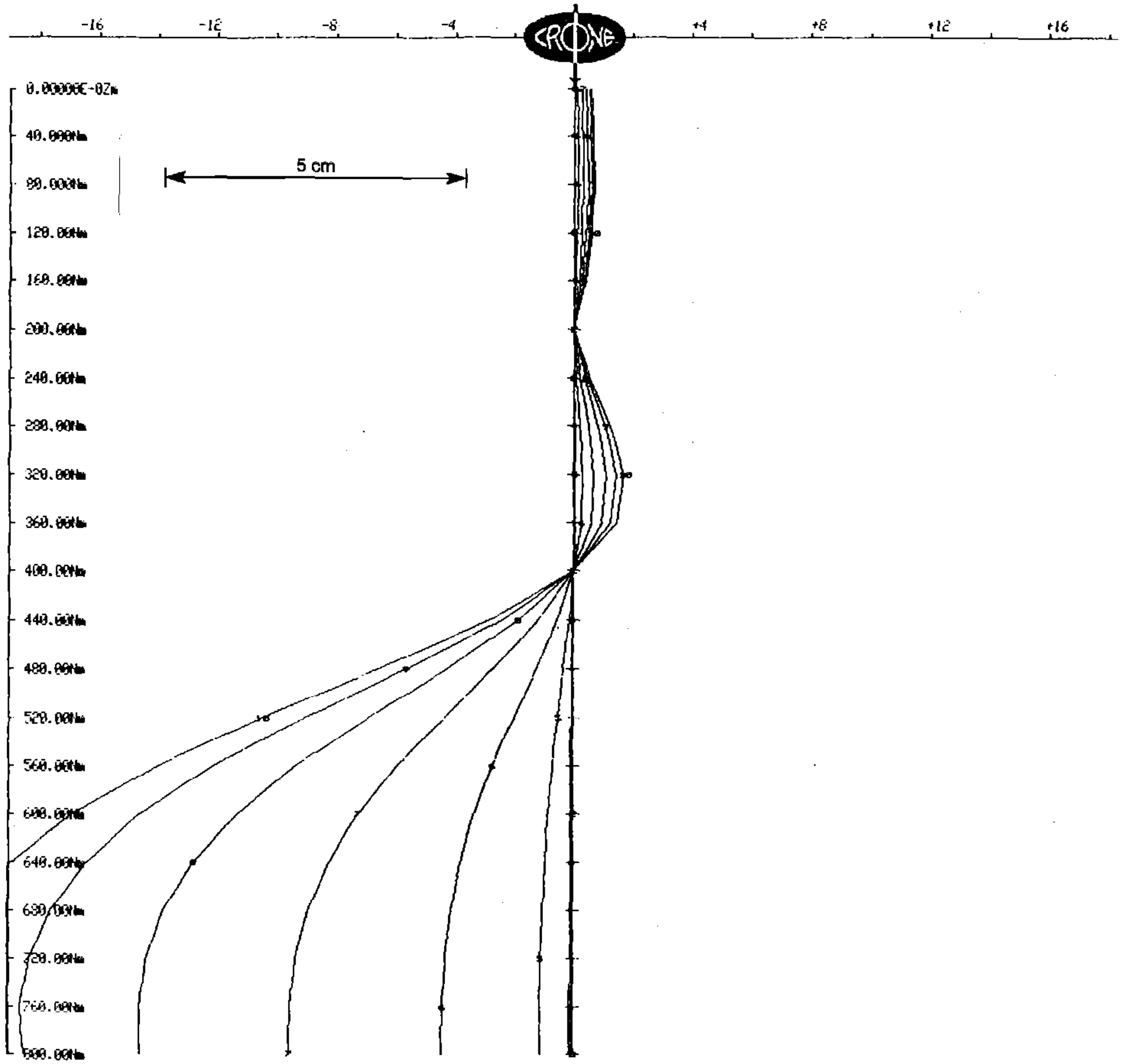


Fig 7

953365

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

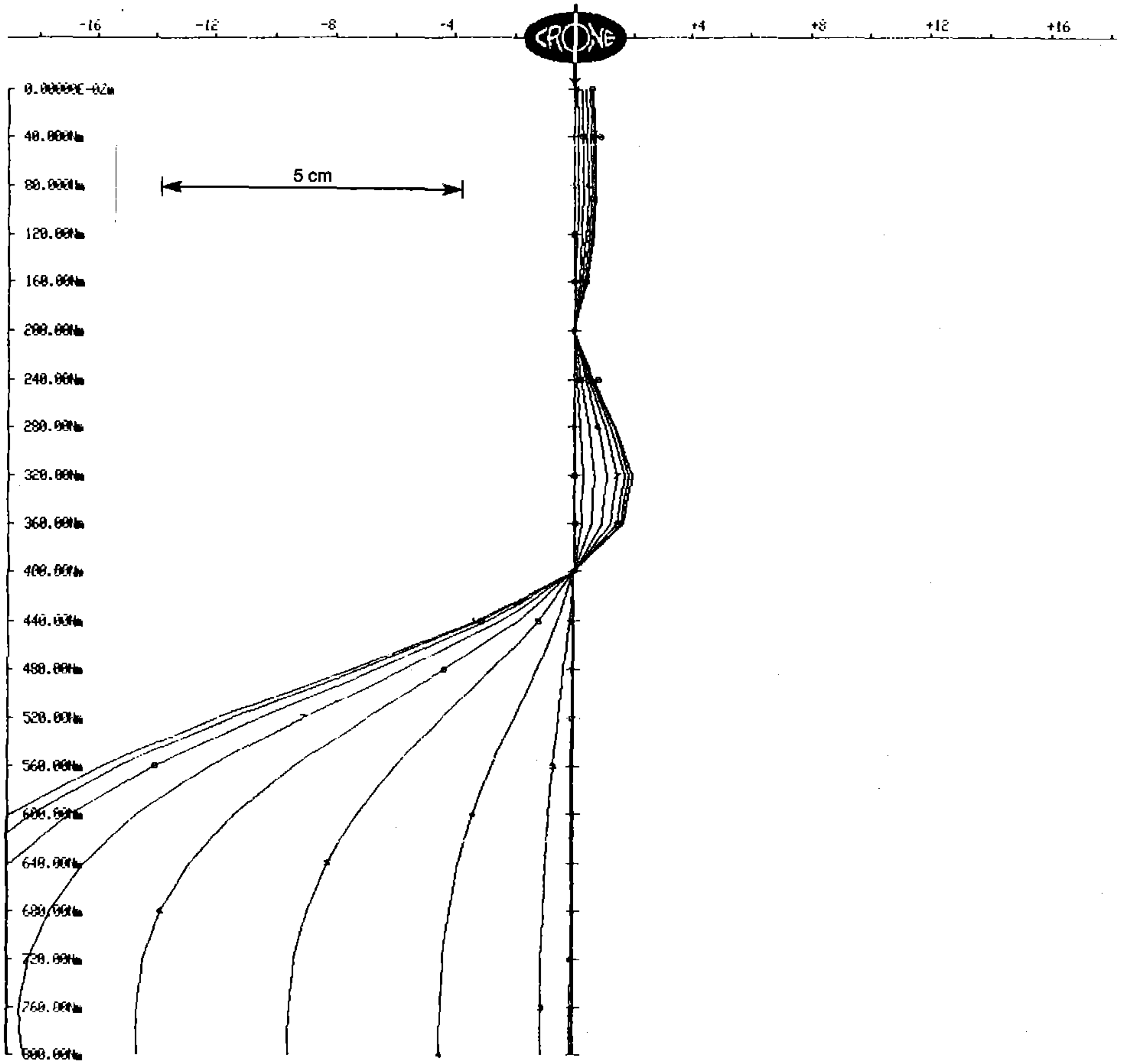
Plate Size: 800mx400m
Sigma-t : 20 Siemen
Position : x=200m,z=200m

Tx Loop : 800mx400m
Line : Centre
File name : 8X4S20.PEM

% Primary Field : Continuous Normalization

Scale: 1:5000

Unit Scale: 1cm = 2



Fig

953366

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size:	800mx400m	Tx Loop :	800mx400m
Sigma-t :	5 Siemen	Line :	Centre
Position :	x=200m,z=200m	File name :	8X4S5P.PEM

nanoVolts/amp-m²

Scale: 1:5000 Unit Scale: 1cm = 2

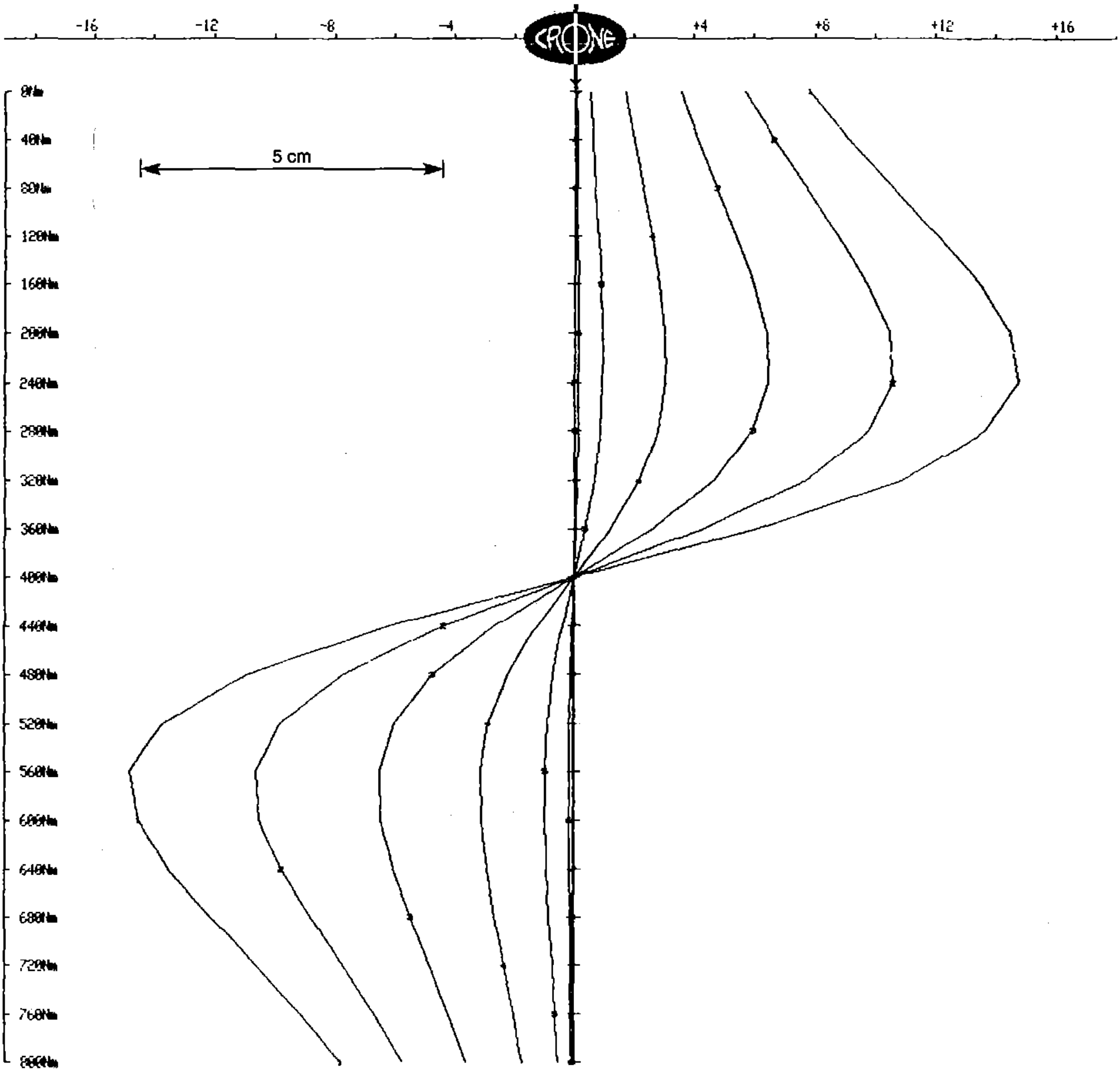


Fig9

953367

CRONE GEOPHYSICS & EXPLORATION LTD
Conductive Thin Plate Modelling

Plate Size: **800mx400m**
Sigma-t : **20 Siemen**
Position : x=200m,z=200m

Tx Loop : **800mx400m**
Line : **Centre**
File name : 8X4S20P.PEM

nanoVolts/amp-m²

Scale: 1:5000

Unit Scale: 1cm = 2

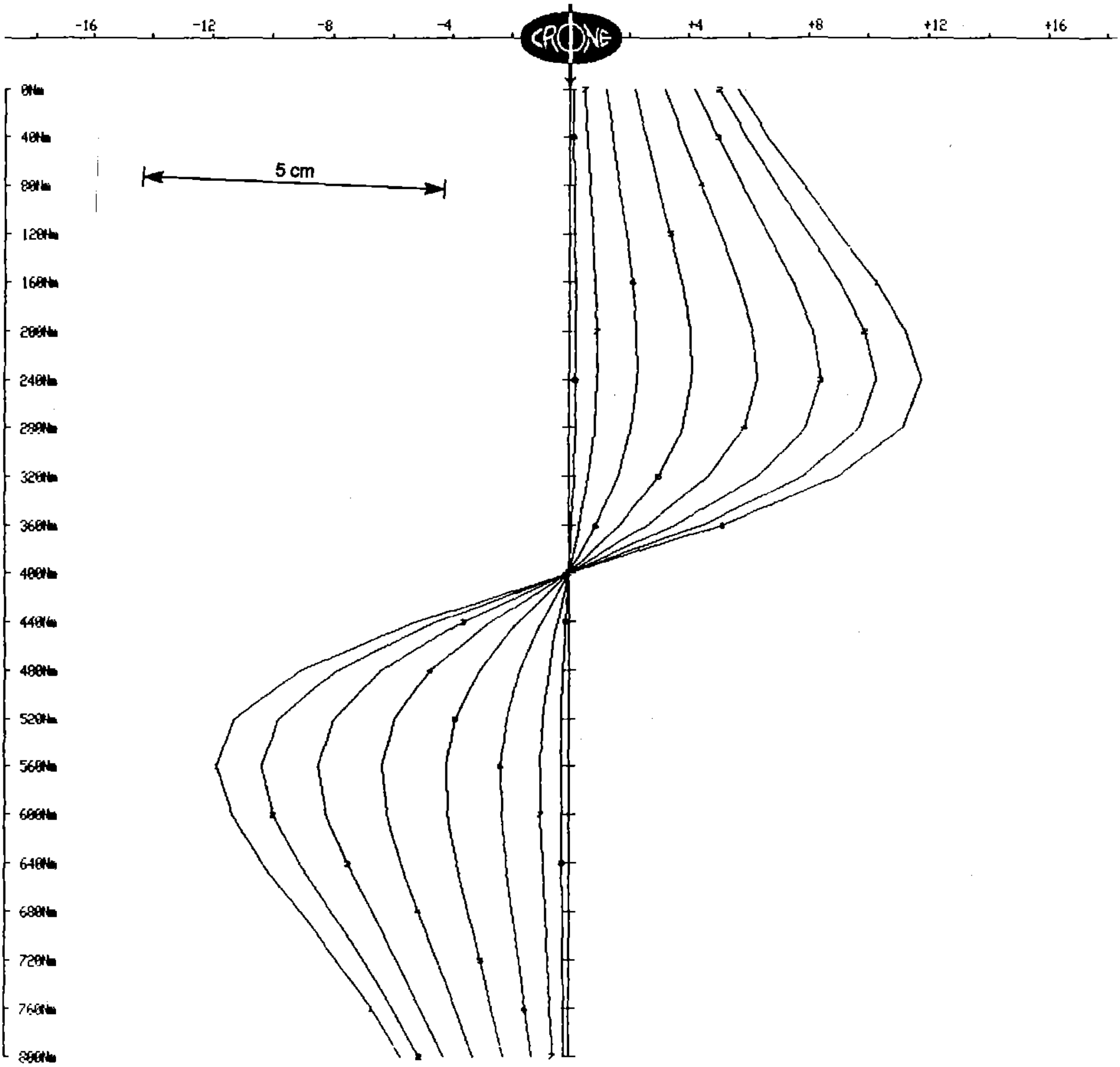
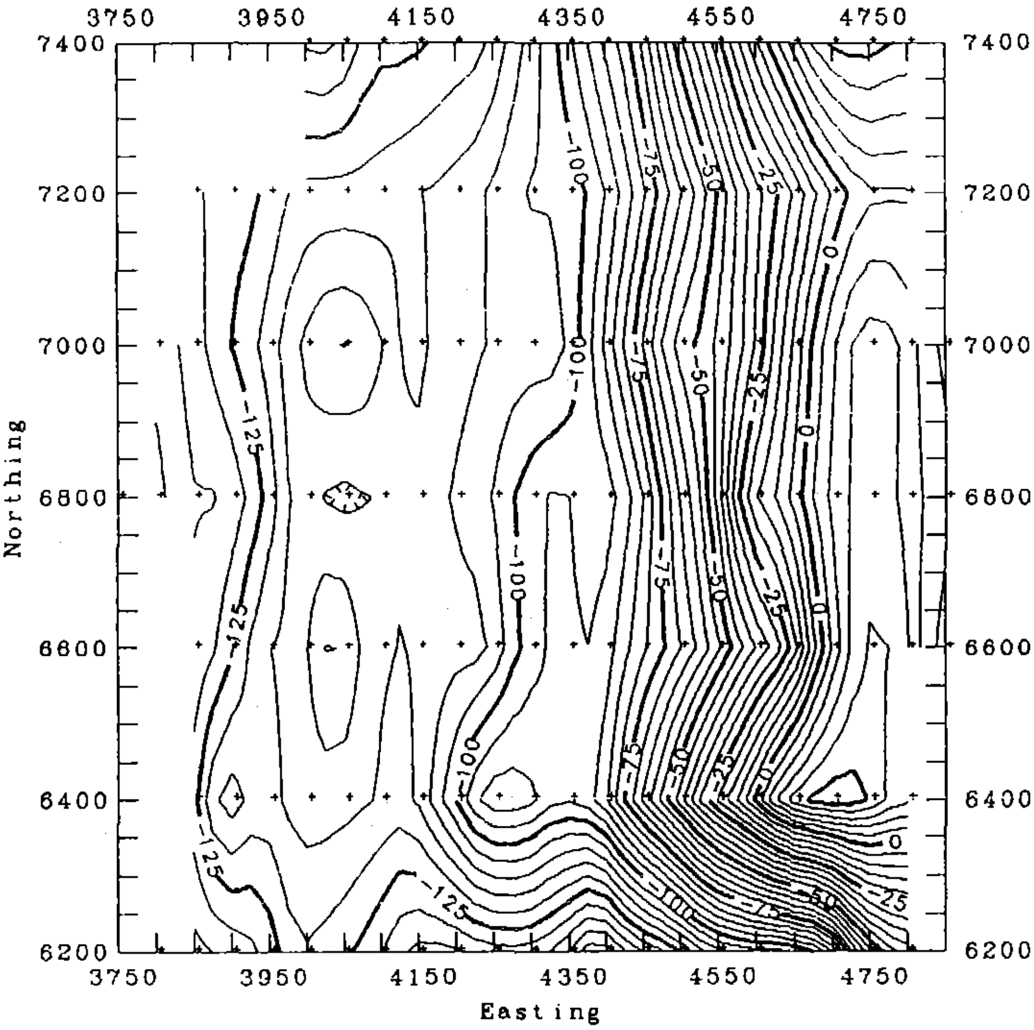


Fig 1C

953368

UTEM Survey - Loop CP01 : Channel 9



SCALE 1 cm. = 100 metres

5 cm

Fig 11

UTEM Survey - Loop CP01 : Channel 7

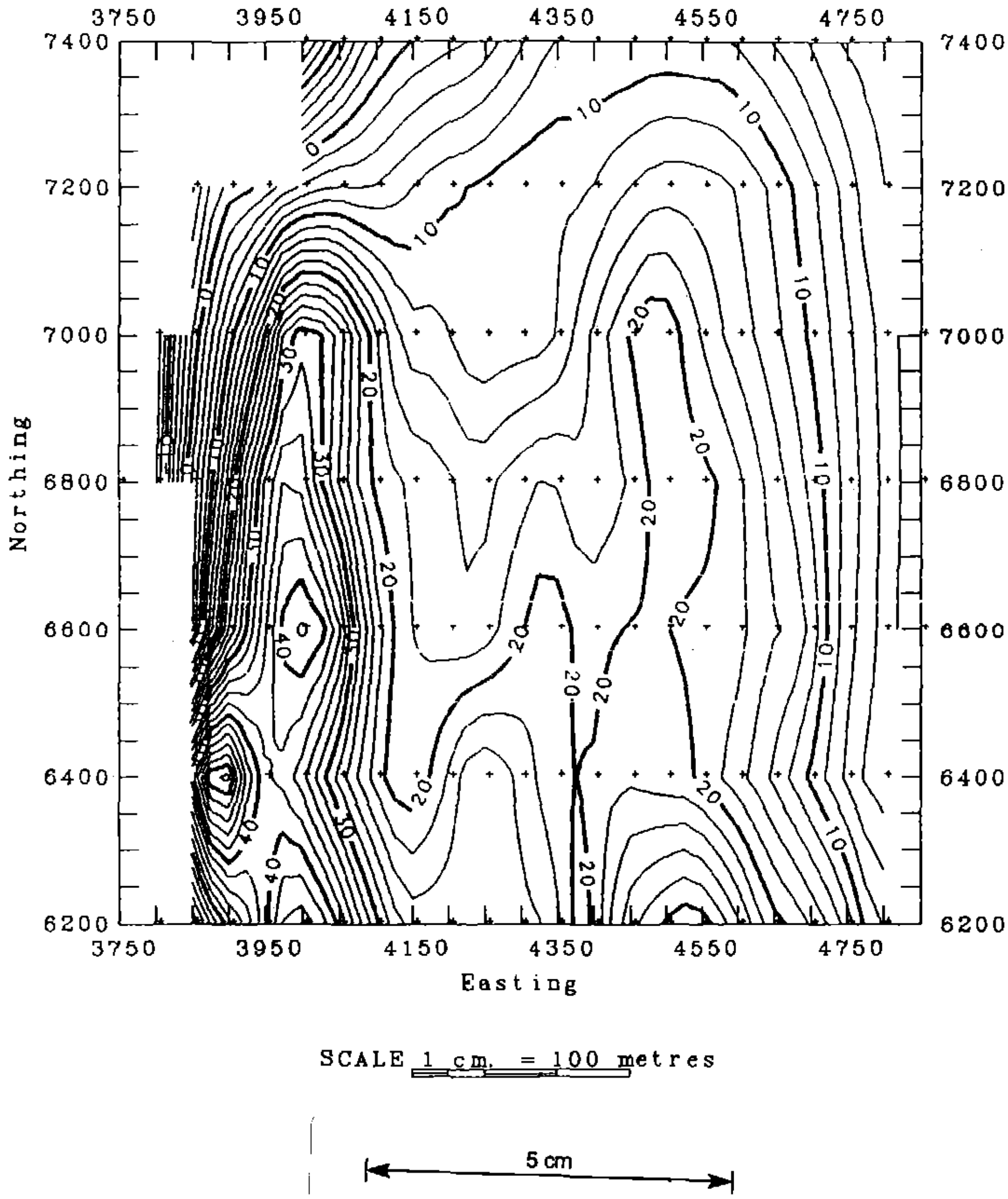
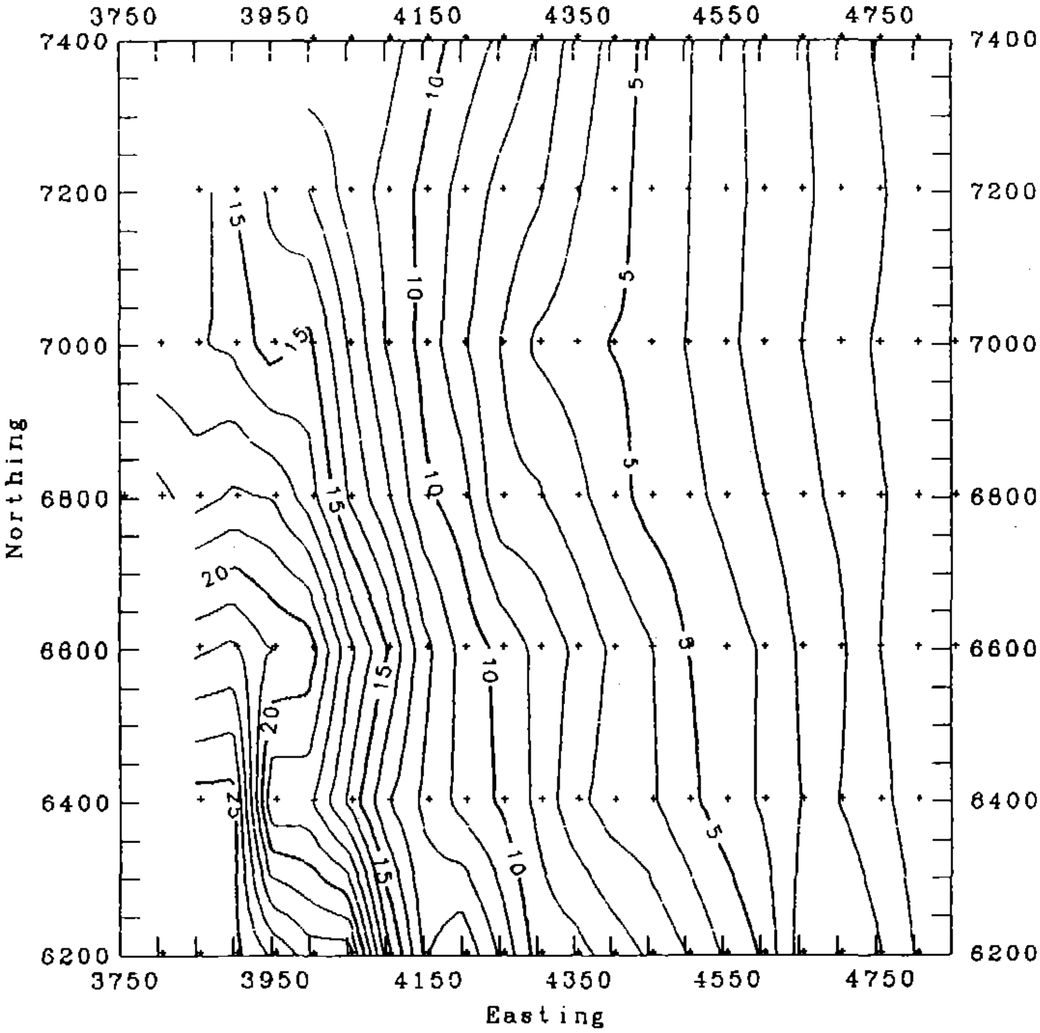


Fig 12

UTEM Survey - Loop CP01 : Channel 5



SCALE 1 cm. = 100 metres

5 cm

Fig13

UTEM Data

Client	: Pasminco Exploration	Line	: 6200N
Grid	: Shale Basin	Tx Loop	: CP01
Component	: Hz	File name	: 62.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000 Unit Scale: 1cm = 10

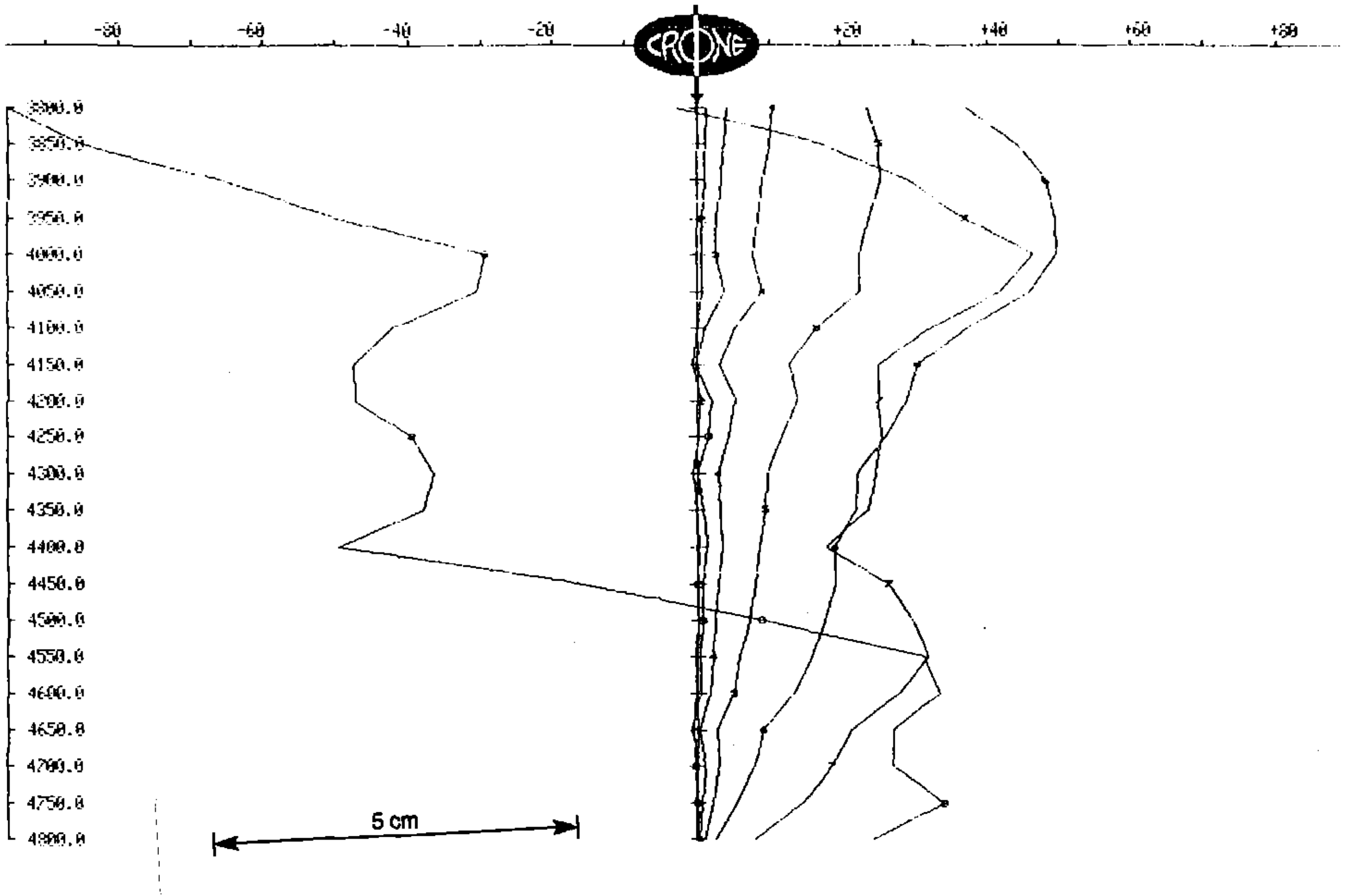


Fig 14

UTEM Data

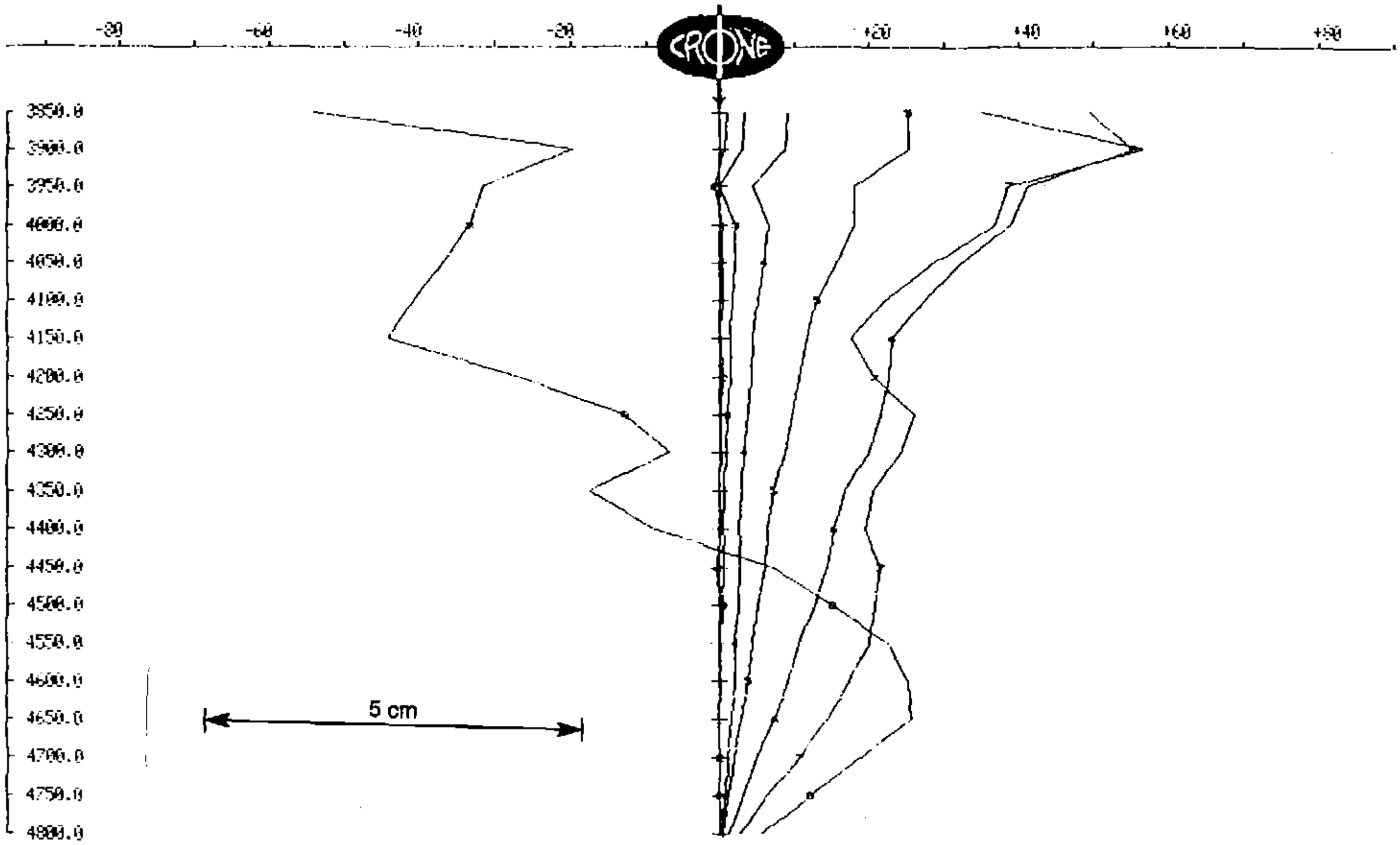
Client : Pasminco Exploration
Grid : Shale Basin
Component : Hz

Line : 6400N
Tx Loop : CP01
File name : 64.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000

Unit Scale: 1cm = 10



Fig'

UTEM Data

953373

Client	: Pasminco Exploration	Line	: 6600N
Grid	: Shale Basin	Tx Loop	: CP01
Component	: Hz	File name	: 66.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000 Unit Scale: 1cm = 10

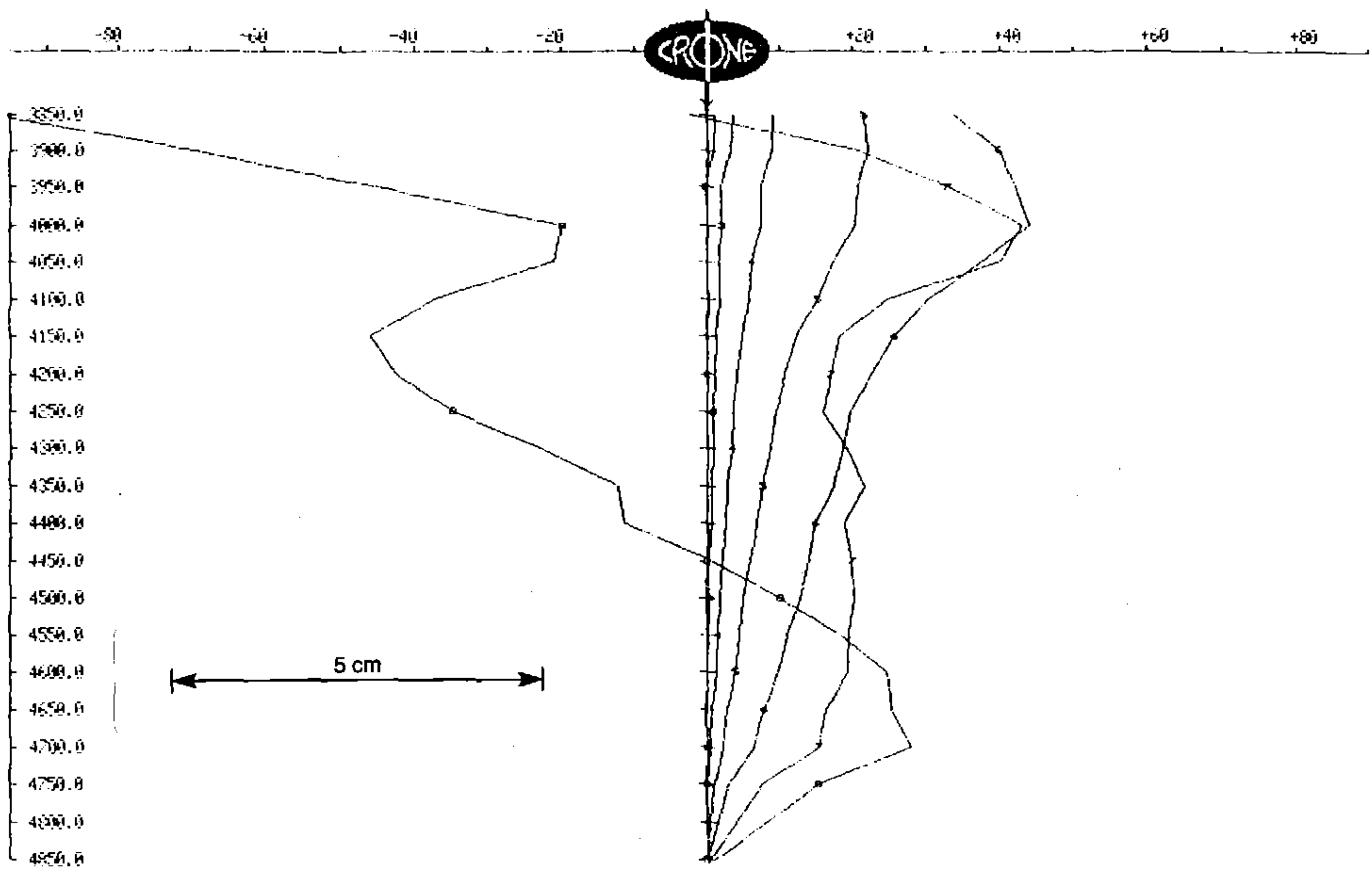


Fig 16

J J J J 7 4

UTEM Data

Client	: Pasminco Exploration	Line	: 6800N
Grid	: Shale Basin	Tx Loop	: CP01
Component	: Hz	File name	: 68.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000 Unit Scale: 1cm = 10

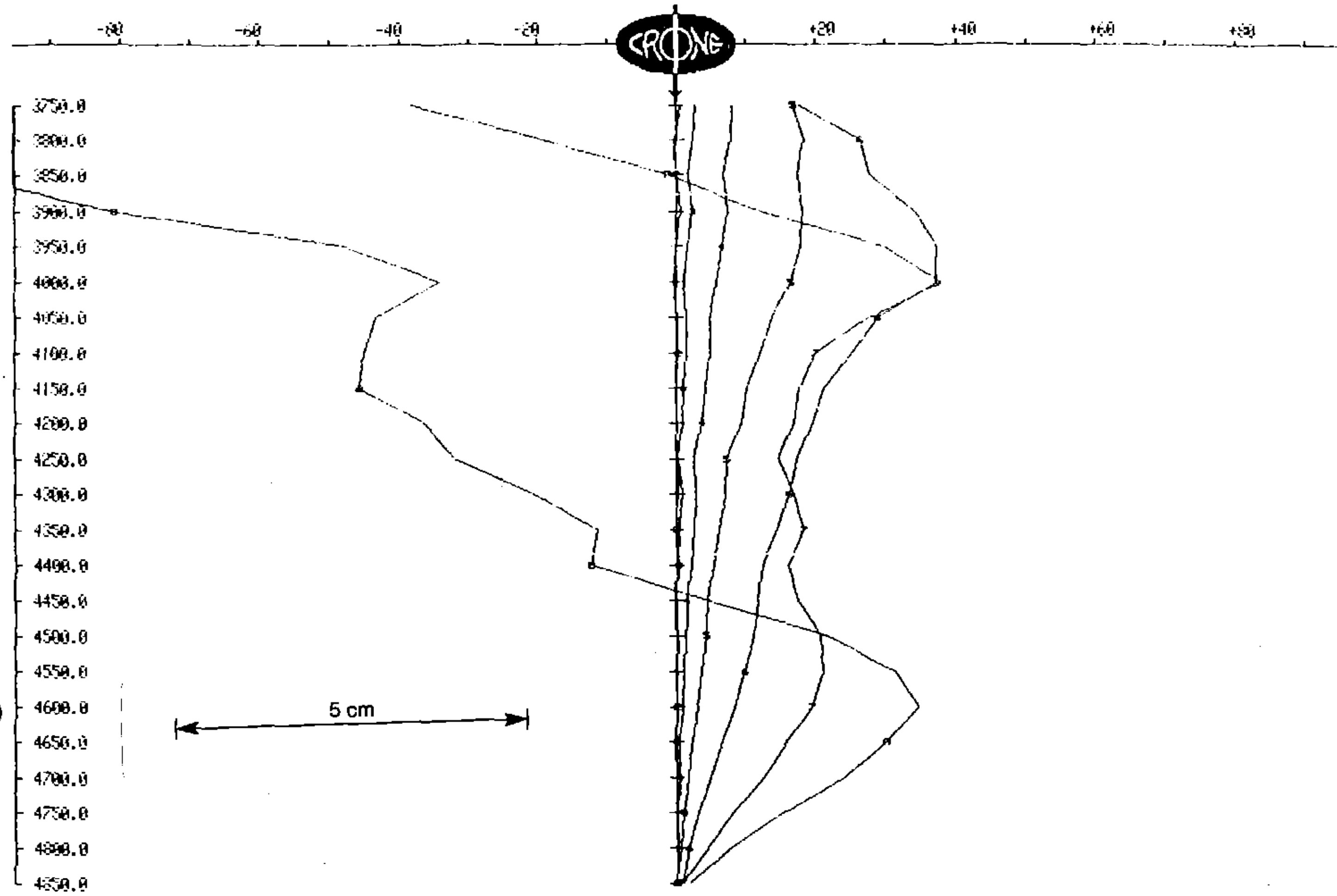


Fig 17

UTEM Data

Client : Pasminco Exploration
Grid : Shale Basin
Component : Hz

Line : 7000N
Tx Loop : CP01
File name : 70.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000

Unit Scale: 1cm = 10

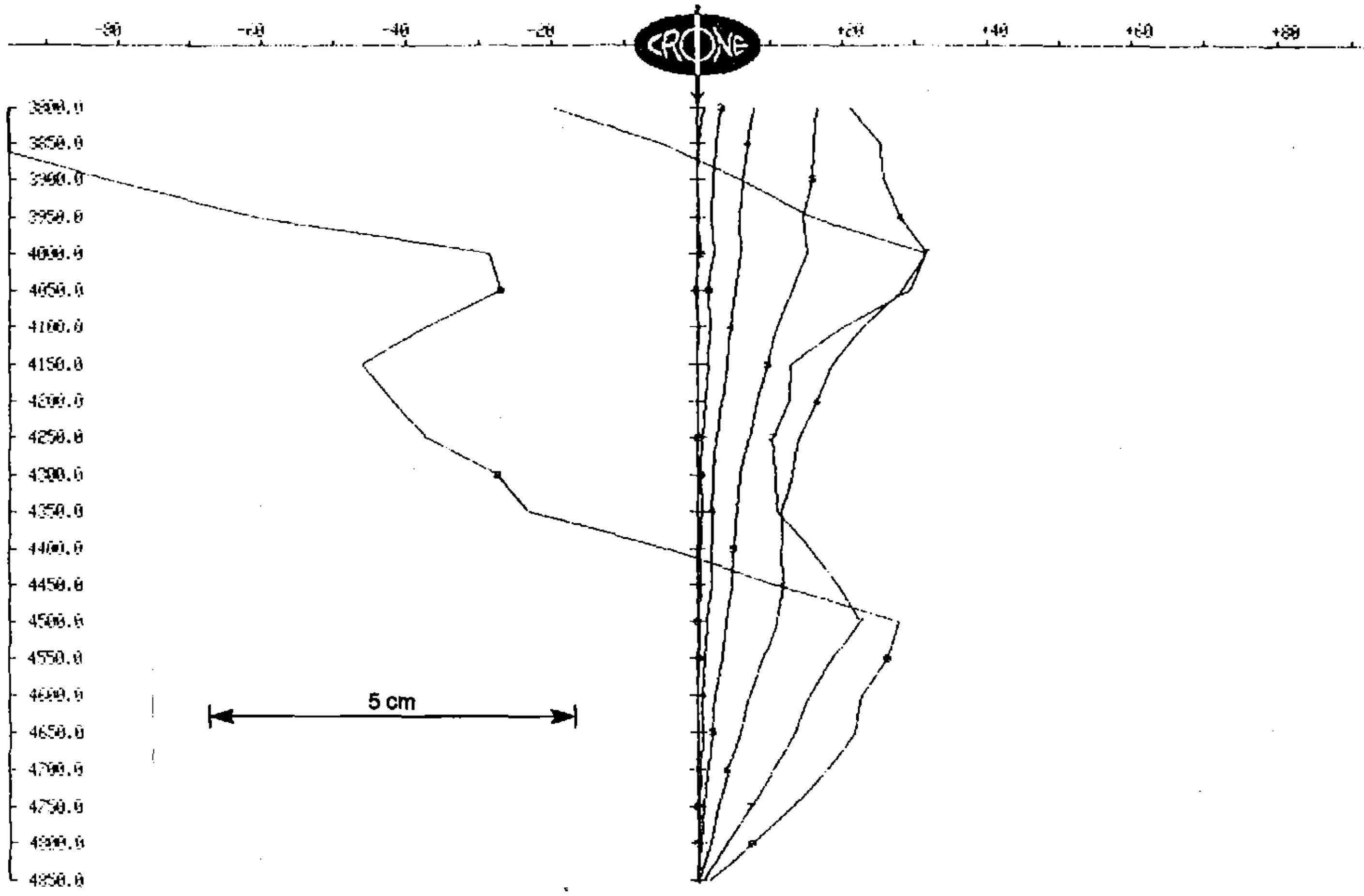


Fig 18

UTEM Data

Client : Pasminco Exploration
Grid : Shale Basin
Component : Hz

Line : 7200N
Tx Loop : CP01
File name : 72.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000

Unit Scale: 1cm = 10

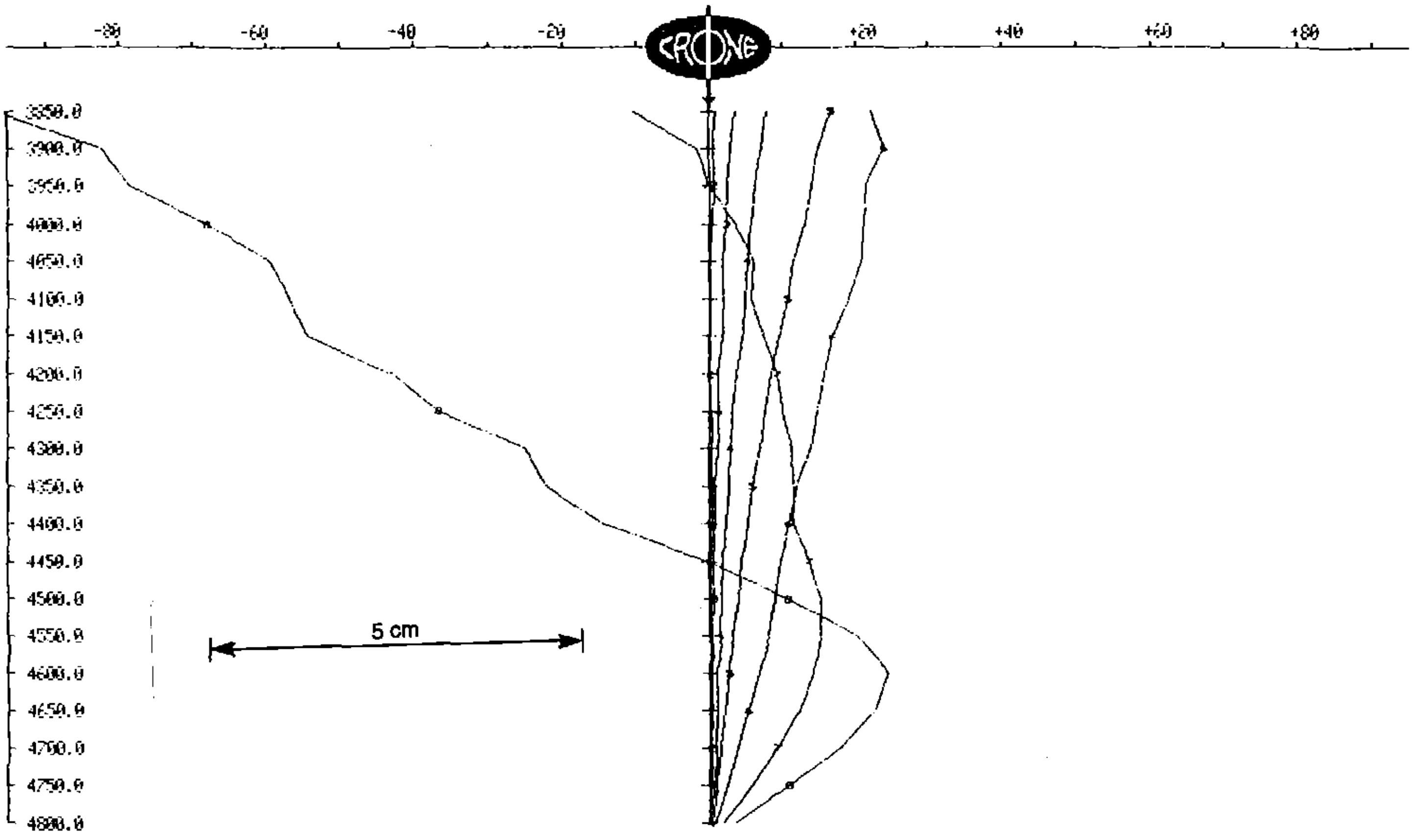


Fig 19

UTEM Data

Client	: Pasminco Exploration	Line	: 7400N
Grid	: Shale Basin	Tx Loop	: CP01
Component	: Hz	File name	: 74.UTM

Continuous Normalization
% Primary Field

Scale: 1:10000 Unit Scale: 1cm = 10

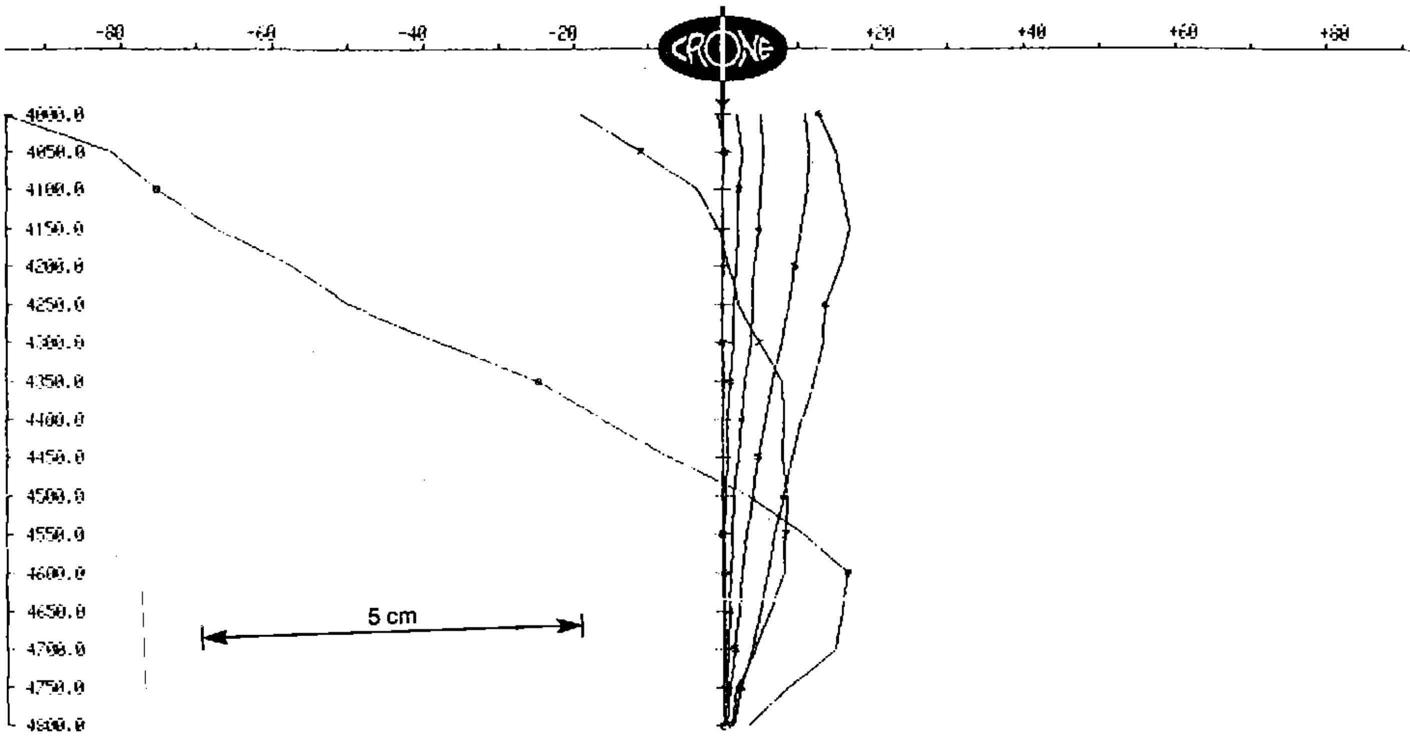
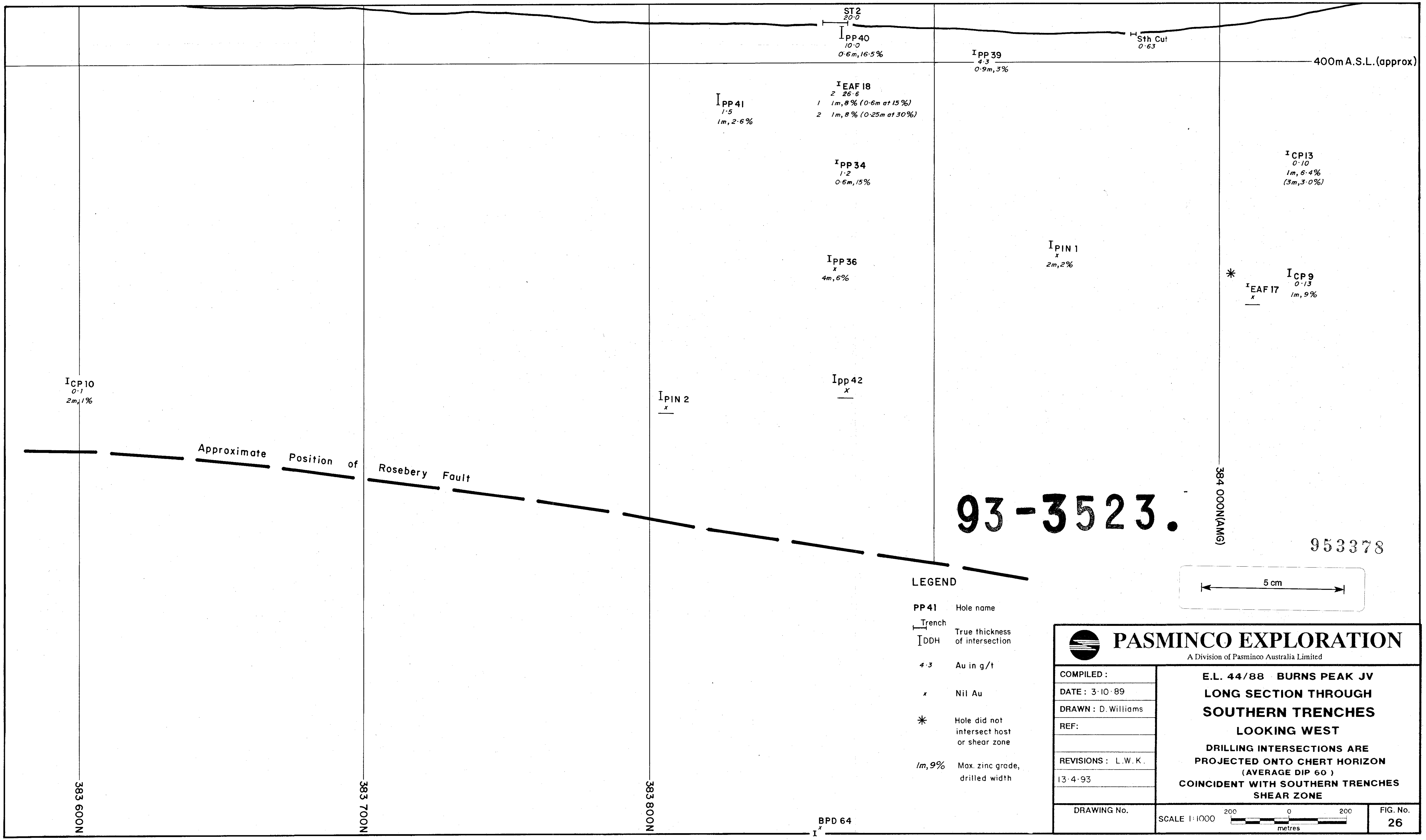


Fig 20


ST2
20·0
PP40
10·0
0·6m, 16·5%
PP39
4·3
0·9m, 3%
400m A.S.L. (approx)
Sth Cut
0·63
EAF18
2 26·6
1 1m, 8% (0·6m at 15%)
2 1m, 8% (0·25m at 30%)
PP41
1·5
1m, 2·6%
PP34
1·2
0·6m, 15%
CP13
0·10
1m, 6·4%
(3m, 3·0%)
PIN 1
x
2m, 2%
PP36
x
4m, 6%
EAF17
x
CP9
0·13
1m, 9%
CP10
0·1
2m, 1%
PIN 2
x
pp42
x
Approximate Position of Rosebery Fault
93-3523.
384 000N(AMG)
953378
5 cm
LEGEND
PP41 Hole name
Trench
DDH True thickness of intersection
4·3 Au in g/t
x Nil Au
✳ Hole did not intersect host or shear zone
1m, 9% Max. zinc grade, drilled width
383 600N
383 700N
383 800N
BPD 64
x
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED:
DATE: 3·10·89
DRAWN: D. Williams
REF:
REVISIONS: L.W.K.
13·4·93
E.L. 44/88 BURNS PEAK JV
LONG SECTION THROUGH
SOUTHERN TRENCHES
LOOKING WEST
DRILLING INTERSECTIONS ARE
PROJECTED ONTO CHERT HORIZON
(AVERAGE DIP 60)
COINCIDENT WITH SOUTHERN TRENCHES
SHEAR ZONE
DRAWING No.
SCALE 1:1000
200 0 200
metres
FIG. No.
26

93-3523.

953379

NOTE:

Maximum drilled intervals noted in brackets and all other intersections are interpreted true width, projected onto a vertical plane.

Cut offs used:- 3% Zn, 2% Pb, 5% Cu, 5g/t Au.

✳ Drill holes marked thus did not intersect the host horizon at the Pinnacles Shear Zone.

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : T.LEES	**THOMAS'S TUNNEL - BROWN'S TUNNEL**
DATE : JAN.1992	
DRAWN : GEO	**LONG SECTION THROUGH 84203.0 N, 77317.5 E and 84713.5 N, 77777.5 E (AMG). FACING WEST.**
REF:	
REVISIONS : L.W.K. 13·04·93	(after A.N.Rosehain,1989)
R.A.P. Nov., 1993	
DRAWING No.	SCALE: 1:1000 — 0 20 40m — Fig. No. 14

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

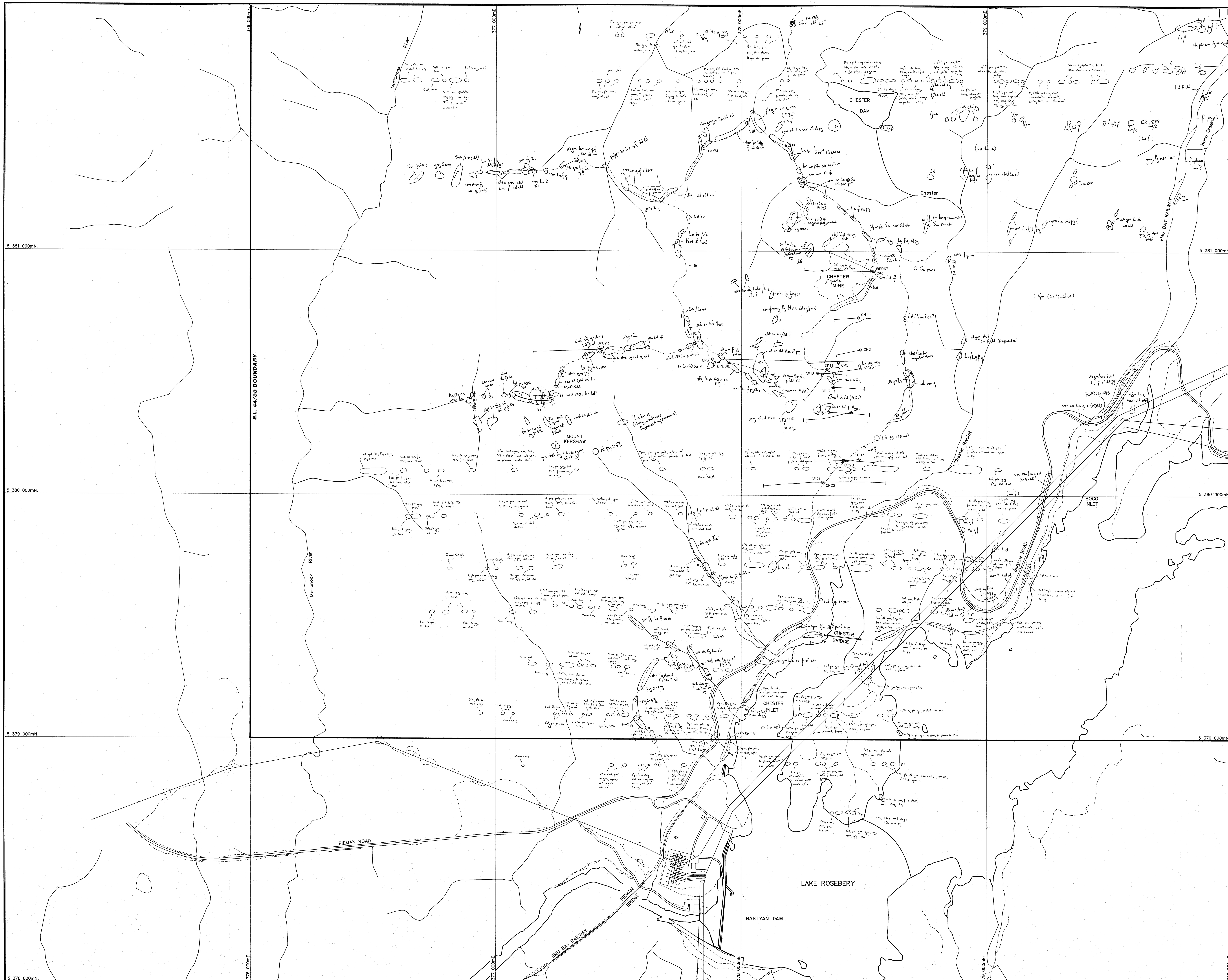
COMPILED : R.A.P.
DATE : Nov., 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :

E.L. 44/88 – BURNS PEAK JV
PINNACLES
BPD78
INTERPRETED DRILL SECTION

DRAWING No.
SCALE 1:1000 0 20 40 m
FIG. No. 15


LEGEND
1. GENERAL FORM
Rock type, colour, grain size, overall texture, constituents & textutres, alteration, mineralisation.
Rock Types can be combined using a –
Subordinate Rock Types are separated by /
Each Descriptor Group is separated by ,
Descriptors within a group are separated by .
Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.
2. ROCK TYPES
Lavas L
Intrusives I
or
Volcaniclastics V
a (14) acid
i (46) intermediate
b (49) basic
u (23) ultrabasic
r rhyolite
d (11) dacite
n (46) andesite
ba (49) basalt
g (20) granite
di (22) diorite
do (45) dolerite
gb (25) gabbro
s (23) serpentinite
Sediments S
or
Volcaniclastics V
bsh (35) black shale
sh (36) shale
slt (35) siltstone
sst (39) sandstone
w (37) greywacke
cong (39) conglomerate
bx breccia
tbd turbidite
msf mass flow
cht (34) chert
lst (65) limestone
dol (65) dolomite
Fe (64) iron formation
gl (4) glacial deposits
fgl (4) fluvioglacial deposits
alv (4) alluvial deposits
cvl (4) colluvial deposits (talus)
Metamorphic and Tectonic Rocks M
Colours should be hatched
sht (38) schist
qzt (40) quartzite
hf (50) hornfels
sk (50) skarn
mb (48) marble
m mylonite
fz fault breccia (pug)
Unassigned ? Use alone or as a qualifier to other rock types where uncertain
3. DESCRIPTORS
Colour:
ple pale
dk dark
gy grey
or orange
blk black
pk pink
rd red
brn brown
bl blue
wht white
yel yellow
buf buff
grn green
ppl purple
crm cream
khk khaki
Grainsize:
fg fine grained
mg medium grained
cg coarse grained
vcg very coarse grained
DESCRIPTORS continued
Overall Texture:
fb flow banded
fbx flow brecciated
hyl hyaloclastic
pill pillowed
pep peperitic
msv massive
blo blocky
aph aphyric
por porphyric
peg pegmatitic
bd bedded
xbd cross bedded
ufs upwards fining sequence
ps poorly sorted
cs clast supported
ms matrix supported
fol foliated
clvd cleaved
shd sheared
bx brecciated
aug augen
vnd veined
Constituents & Internal Textures:
ply polymict
li lithic
pm pumice
xl crystal
vit vitric
sph spherulites
ves vesicles
amy amygdales
wsp wisps
sty stylolites
f feldspar
q quartz
mic micaceous
cal calcareous
px pyroxene
hb horneblende
cr chromite
mag magnetite
Alteration:
bch bleached
dtx de-textured
ox oxidised
alb albitised
co carbonatised
chl chloritised
ser sericitised
kao kaolinitised
ep epidotised
sil silicified
fuc fuchsitic
Mineralisation:
dis disseminated
v vein
str stringer
msv massive
bnd banded
cla clasts
gos gossan
sul sulphides
py pyrite
po pyrrhotite
asp arsenopyrite
gn galena
sp sphalerite
cp chalcopyrite
ba barite
mag magnetite
hm haematite
lm limonite
au gold
ag silver
to tourmaline
q quartz
cb carbonate
sd siderite
mn manganese carbonate
fl fluorite
4. MAPPING SYMBOLS
Strike and Dip of Strata
Strike and dip of inverted strata
Strike and dip of cleavage or foliation
Plunge of lineation
Geological boundary position accurate
Geological boundary position approximate
Mine
Abandoned prospect or mine
Costean or trench
Diamond drill hole, including projection
I.P. Anomaly
Magnetic/Gravity/TM Lineaments
Magnetic Trend Line
Unconformity
Fault
Fault with dip
Thrust Fault
Plunging antiform
Plunging synform
Shear/strong cleavage
Vein
Sil + Ser + Py Alteration Zone
5 394 000mN.
5 392 000mN.
5 390 000mN.
5 388 000mN.
5 386 000mN.
5 380 000mN.
5 378 000mN.
93-3523.
GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°
953381
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : R.A.P.
DATE : Nov., 1993
DRAWN :
REFERENCE :
REVISIONS :
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
SUMMIT PROSPECT
FACTUAL AND INTERPRETIVE GEOLOGY
SCALE 1:2500
0 50 100
METRES
FIG. No. 16
378 000mE.
378 500mE.
379 000mE.
379 500mE.
380 000mE.
5 385 500mN.
5 385 000mN.
5 384 500mN.
5 384 000mN.
BURNS PINNACLES
BURNS PEAK SHEAR ZONE
EAST PINNACLES SHEAR ZONE
BOCO ROAD SYNCLINE
Va msf
Sslt
Ssst xl qf
fgl
Ia porph qf
Siltstone cherty & mudstone lenses
Siltstone & cherty mudstone lenses
Li
BPD72
BPD65
BPD77
BPD76
EA81
Proposed drill collar (See appendix)
Section Line (See Summit Drill Proposal - Appendix 7)
BURNS PEAK
Halfway Rivulet


5 384 000mN
378 800mE
Creek
BPD77
378 700mE
5 384 900mN
378 900mE
379 000mE
379 100mE
379 200mE
5 384 900mN
600mR.L.
500mR.L.
400mR.L.
300mR.L.
200mR.L.
100mR.L.
00mR.L.
GLACIAL DEPOSITS
RHYOLITIC LAVA
AND
ASSOCIATED VOLCANICLASTICS
100m
High grade Pb\Zn sulphide clast in debris flow
silica/pyrite alteration "stringers"
Minor Pb/Zn sulphide blebs
200m
FELDSPATHIC RHYOLITIC LAVA
300m
epidote alt.
FAULT ZONE (Major)
carbonate altered pyritic
FELDSPATHIC/PUMICEOUS VOLCANICLASTIC
SHALE
400m
BEDDING AND CLEAVAGE DETAIL IN SHALE SECTION
250mm
260m
1:200
BEDDING AND CLEAVAGE DETAIL IN SHALE SECTION
330m
016/55W
100/45S
014/83E
012/84W
014/76W
100/45S
012/86W
360m
1:200
LEGEND
Shear
Brittle Fault
Geological contacts
Cleavage
Facing
Bedding to LCA
325 AMG 60
Bedding to LCA strike and dip (oriented)
Flow banding
Zone of disseminated and veinlet sulphides
Significant assay intervals
93-3523.
953382
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : L.W.K.
DATE : July, 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
E.L. 44/88 – BURNS PEAK JV
PINNACLES
BPD77
INTERPRETED DRILL SECTION
DRAWING No.
SCALE 1:1000
0 20 40 m
FIG. No. 17



LEGEND

1. General Form

Colour, grain size, overall texture, Rock Type, constituents & textutres, alteration, mineralisation.

Descriptors and Rock Types to be separated by comma or slash. Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.

2. Rock Types

Lavas L

a	(9)	acid
i	(46)	intermediate
b	(49)	basaltic
r	(9)	rhyolitic
d	(11)	dacitic
n	(46)	andesitic

Intrusives I

a	(12)	acid
i	(46)	intermediate
b	(49)	basic
fel		felsic
p		porphyritic
g	(12)	granitic
peg		pegmatitic

Volcaniclastics V

pm	(7)	pumiceous mass flow
q	(32)	quartz phyric mass flow
sst	(32)	sandstone

Sediments S

sh	(35)	shale
t	(36)	slate incl. black slate
slt	(35)	siltstone
sst	(39)	sandstone
tb		turbidite
w	(39)	wacke
cong	(39)	conglomerate
Δ		breccia
cht	(34)	chert
lst	(65)	limestone
dol	(65)	dolomite
q	(39)	quartzite
Fe		iron formation
gl	(4)	glacial deposits
fgl	(4)	fluvioglacial deposits
alv	(4)	alluvial deposits
mst	(35)	mudstone

Metamorphic Rocks M
Colours should be hatched

sht	(38)	schist
sp	(35)	semi–pelite
ps	(39)	psammite
amph	(49)	amphibolite
gran		granulite
sk		skarn
mb	(65)	marble
m		mylonite

Unassigned ? Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:

ple	pale	bl	blue
dk	dark	wht	white
clr	clear	yel	yellow
or	orange	ol	olive
blk	black	grn	green
pk	pink	ppl	purple
rd	red	crm	cream
brn	brown		

Grainsize:

fg	fine grained
mg	medium grained
cg	coarse grained
vcg	very coarse grained

Overall Texture:

aug	augen
p	porphyritic
fol	foliated
clvd	cleaved
msv	massive
blk	blocky
bd	bedded
lam	laminated
xbd	cross bedded
xlam	cross laminated
br	brecciated
fb	flow banded
fΔ	flow brecciated

Constituents & Internal Textures:

f	feldspar
q	quartz
l	lithic
pm	pumice
styl	stylolites
wsp	wisps
ves	vesicles
sph	spherulites
lph	lithophysae

Alteration:

alb	albitised
co	carbonate alteration
chl	chloritised
ser	sericited
kao	kaolinised
ep	epidotised
sil	silicified

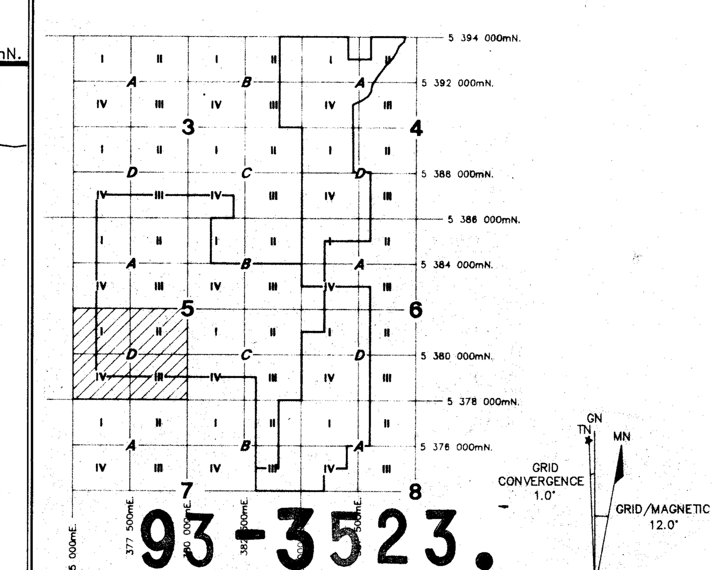
Mineralisation:

diss	disseminated
str	stringer
msv	massive
gos	gossan
bx	boxwork
py	pyrite
po	pyrrhotite
asp	arsenopyrite
gn	galena
sp	sphalerite
mag	magnetite
hm	haematite

4. Mapping Symbols

- 25° Strike and Dip of Strata
- Strike and dip of inverted strata
- 60° Strike and dip of cleavage or foliation
- 50° Plunge of lineation
- Geological boundary position accurate
- Geological boundary position approximate
- Mine
- Abandoned prospect or mine
- Costean or trench
- Diamond drill hole, including projection
- Unconformity
- Fault
- Thrust Fault
- Plunging antiform
- Plunging synform
- Shear/mylonite
- Intense regional cleavage
- Disseminated pyrite
- Tectonic breccia
- Manganese oxide coating on outcrop
- Mineralisation : massive, disseminated

NOTE **SOURCE :-** Pasminco Mapping 1990-1991
B. Coutts (Tas. Uni.) 1990



93-3523.

PASMINCO EXPLORATION
A Division

5 cm

COMPILED : A.N.L., L.W.K.	
DATE : Oct., 1991	
DRAWN :	
REFERENCE :	
REVISIONS : M.S.S.	
March, 1993	

E.L. 44/88 - BURNS PEAK JV

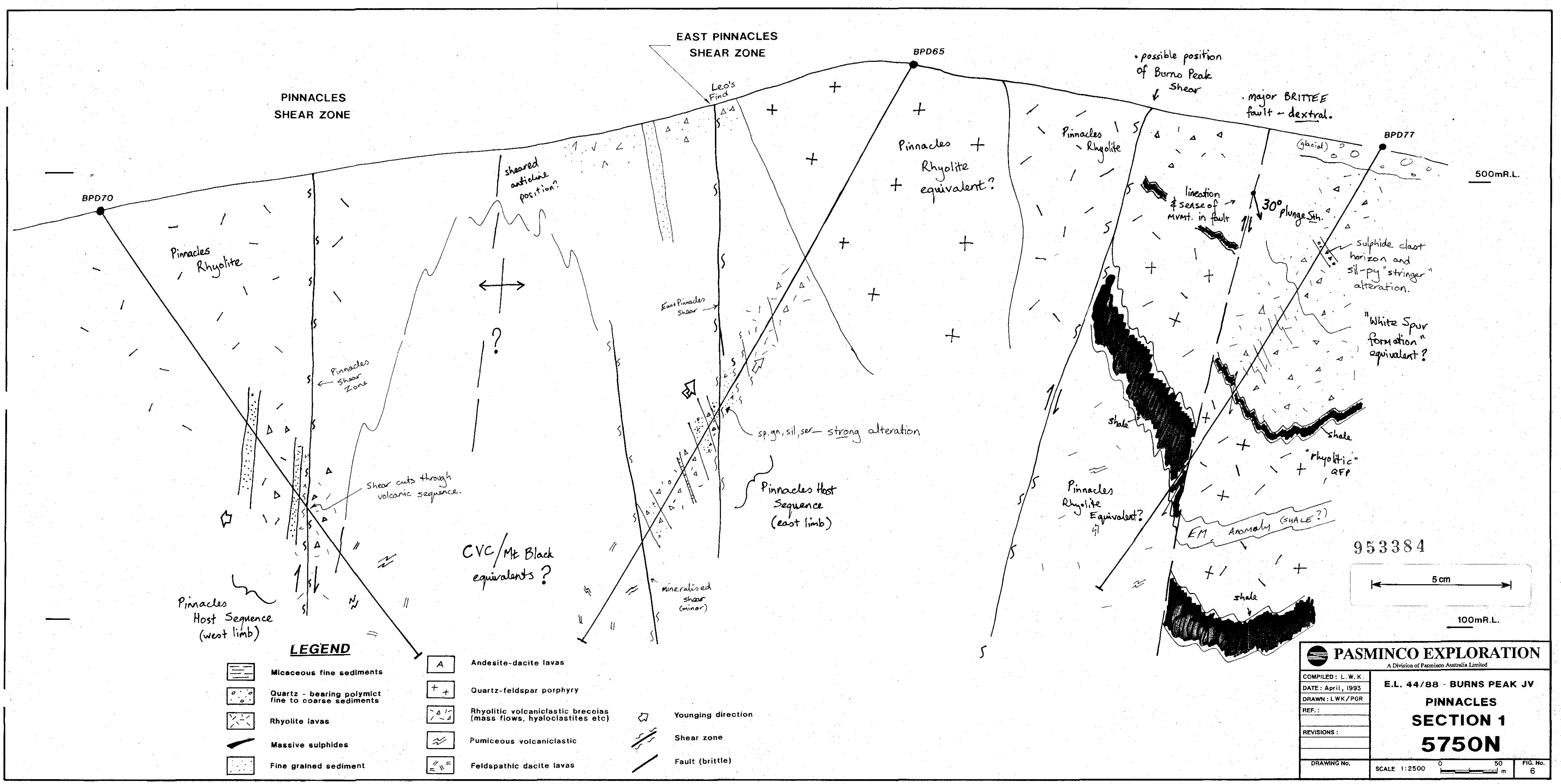
953383

OUTCROP GEOLOGY

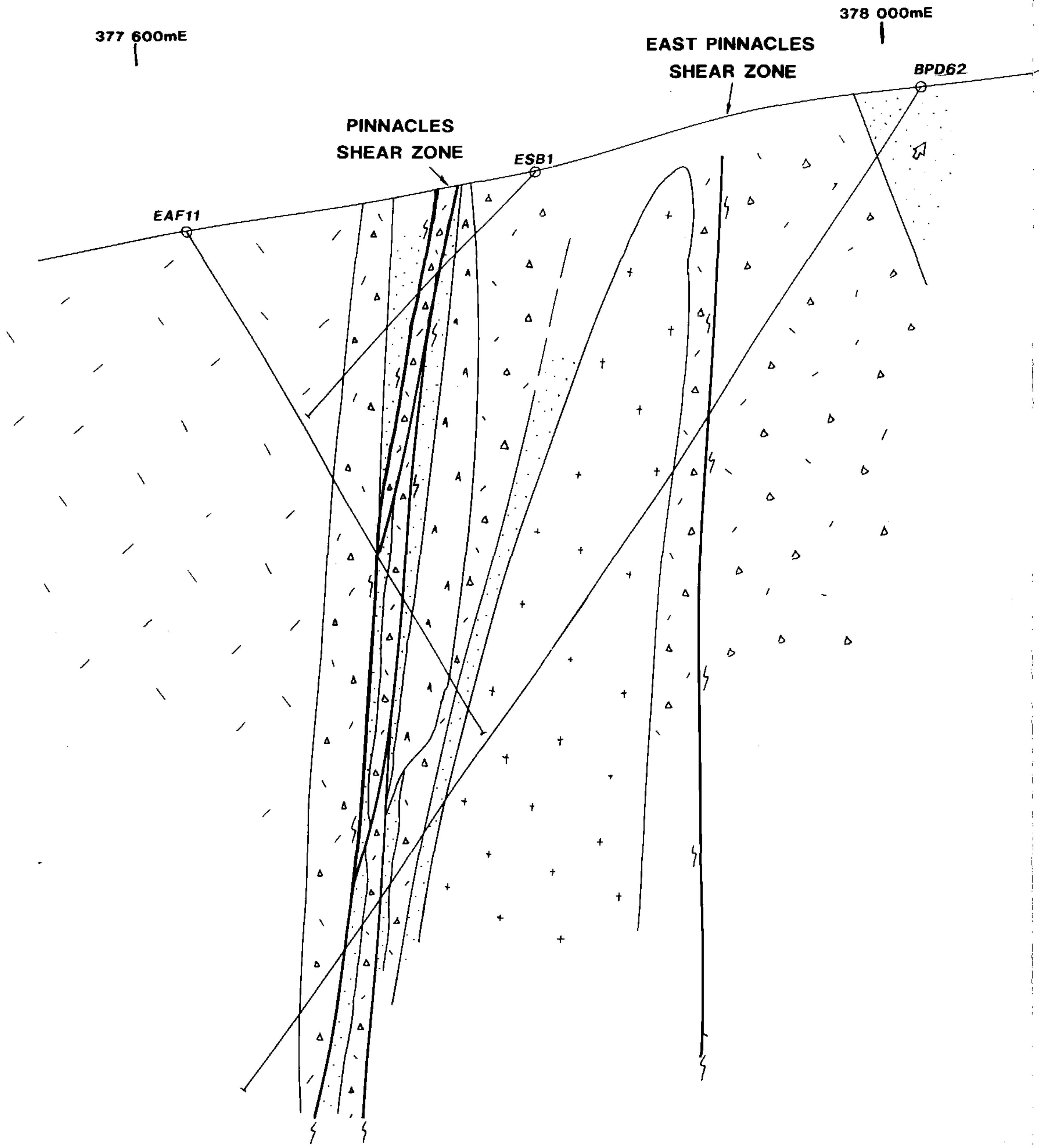
DRAWING No. SHEET 5D

SCALE 1:5000 — 0 100 200 METRES

FIG. No. 18



EAST PINNACLES
SHEAR ZONE
PINNACLES
SHEAR ZONE
BPD65
BPD70
BPD77
Leo's Find
• possible position of Burns Peak Shear
• major BRITTEE fault – dextral.
(glacial)
500mR.L.
100mR.L.
sheared anticline position?
Pinnacles Rhyolite
Pinnacles Rhyolite equivalent?
Pinnacles Rhyolite
lineation & sense of Mvmt. in fault
30° plunge Sth.
sulphide clast horizon and sil-py "stringer" alteration.
"White Spur formation" equivalent?
Pinnacles Shear Zone
East Pinnacles Shear
sp.gn, sil, ser – strong alteration
shale
shale
shale
"rhyolitic" QFP
Shear cuts through volcanic sequence.
Pinnacles Host Sequence (east limb)
Pinnacles Rhyolite Equivalent?
EM Anomaly (SHALE?)
953384
5 cm
CVC/Mt Black equivalents?
Pinnacles Host Sequence (west limb)
mineralised shear (minor)
LEGEND
Micaceous fine sediments
Quartz - bearing polymict fine to coarse sediments
Rhyolite lavas
Massive sulphides
Fine grained sediment
Andesite-dacite lavas
Quartz-feldspar porphyry
Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
Pumiceous volcaniclastic
Feldspathic dacite lavas
Younging direction
Shear zone
Fault (brittle)
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : L.W.K.
DATE : April, 1993
DRAWN : LWK/PGR
REF. :
REVISIONS :
DRAWING No.
E.L. 44/88 - BURNS PEAK JV
PINNACLES
SECTION 1
5750N
SCALE 1:2500
0 50 m
FIG. No. 6



LEGEND

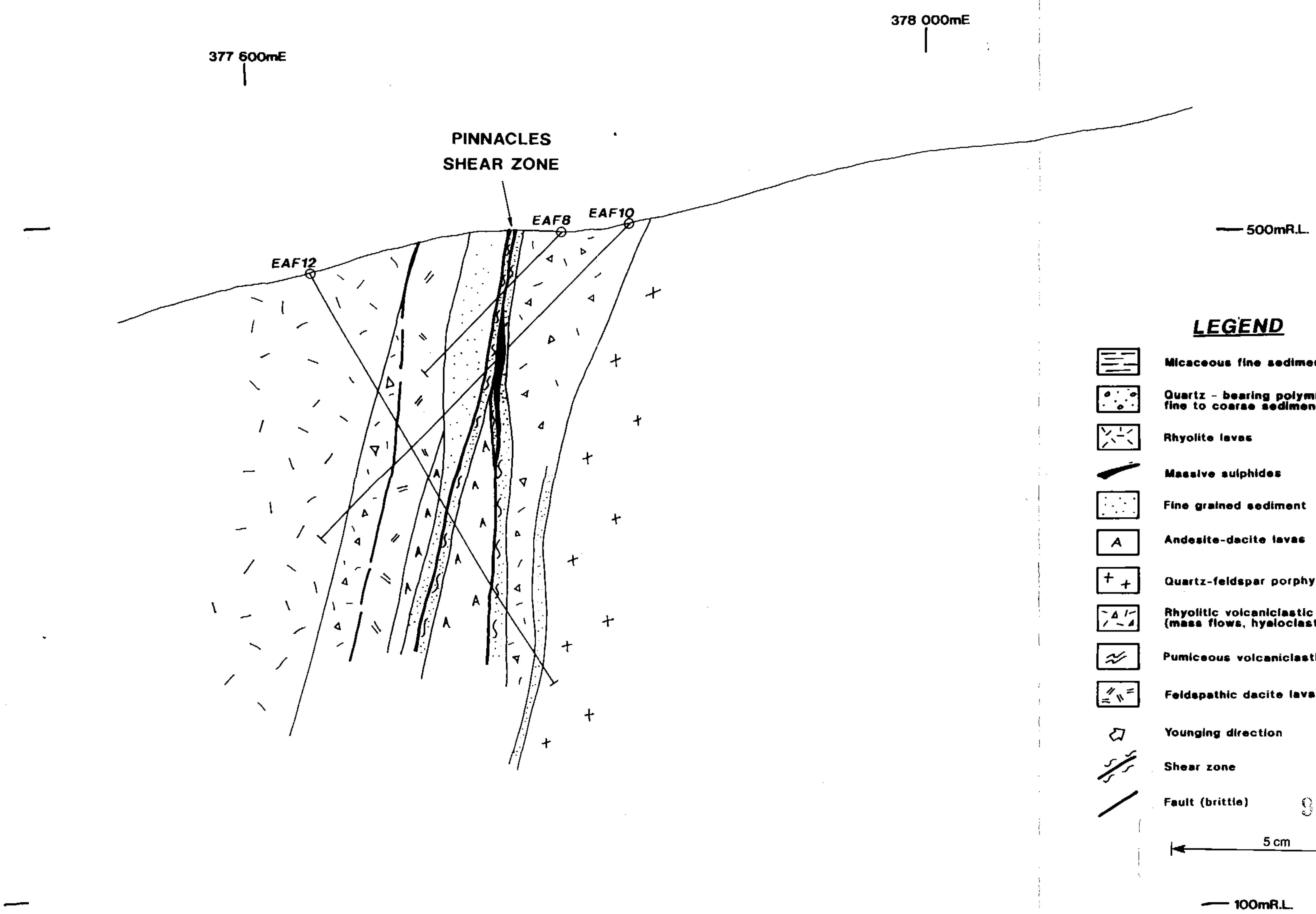
- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

953385

5 cm

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: MSS/PGR	**SECTION 2**
REF.:	**5400N**
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m — FIG. No. 7



LEGEND

- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

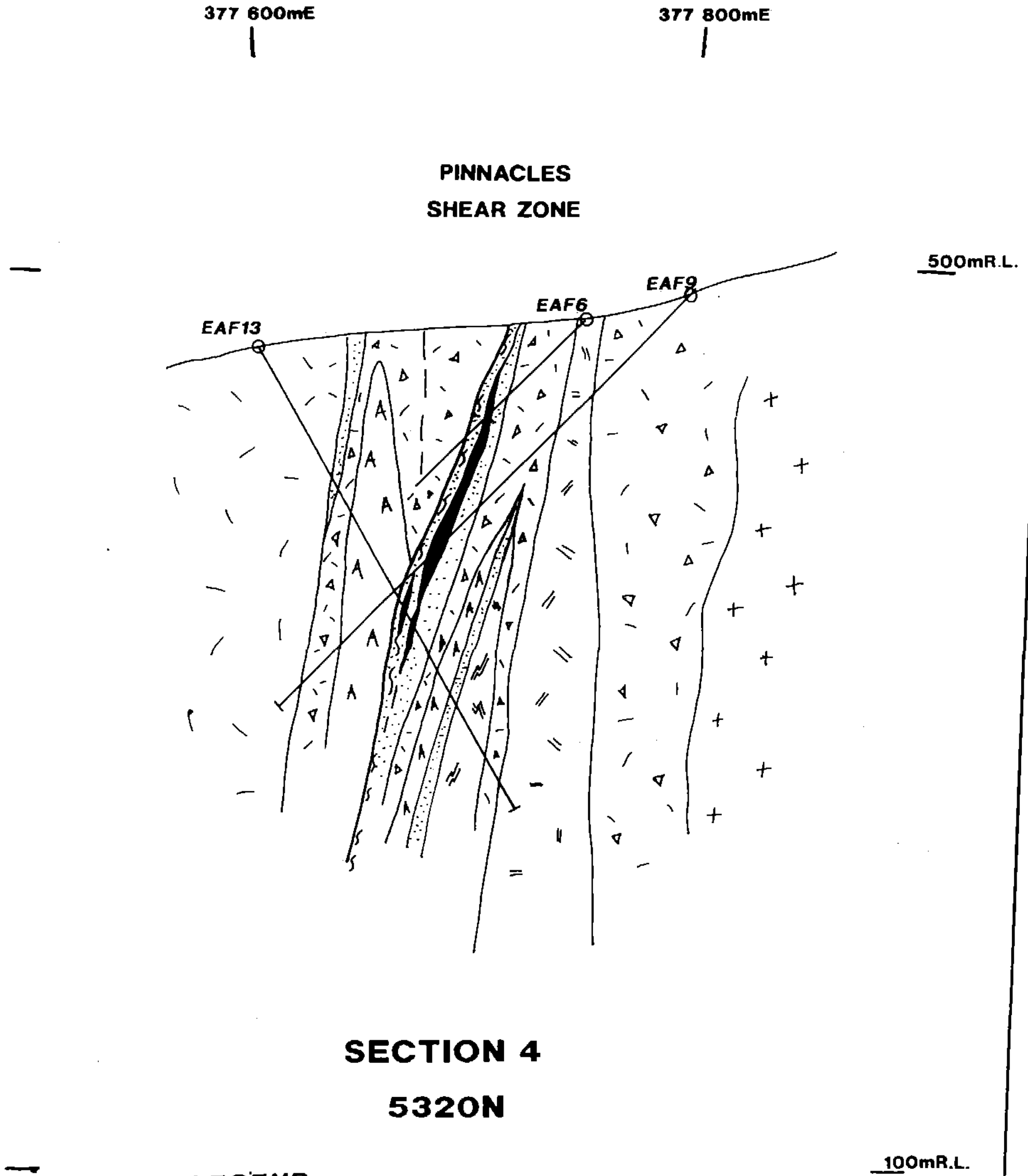
953386

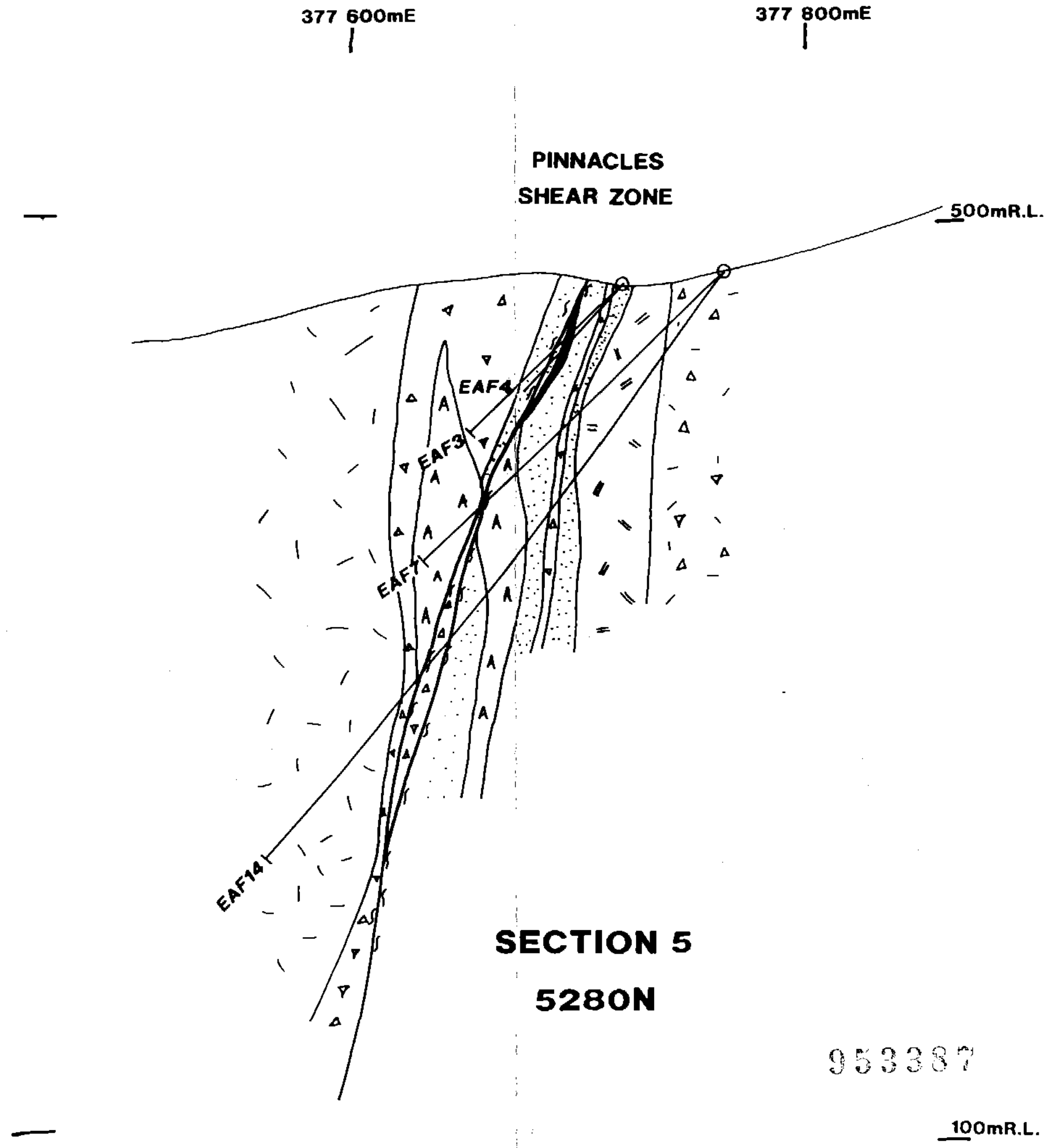
5 cm

PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: LWK/PQR	SECTION 3
REF.:	5360N
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m
FIG. No. B	





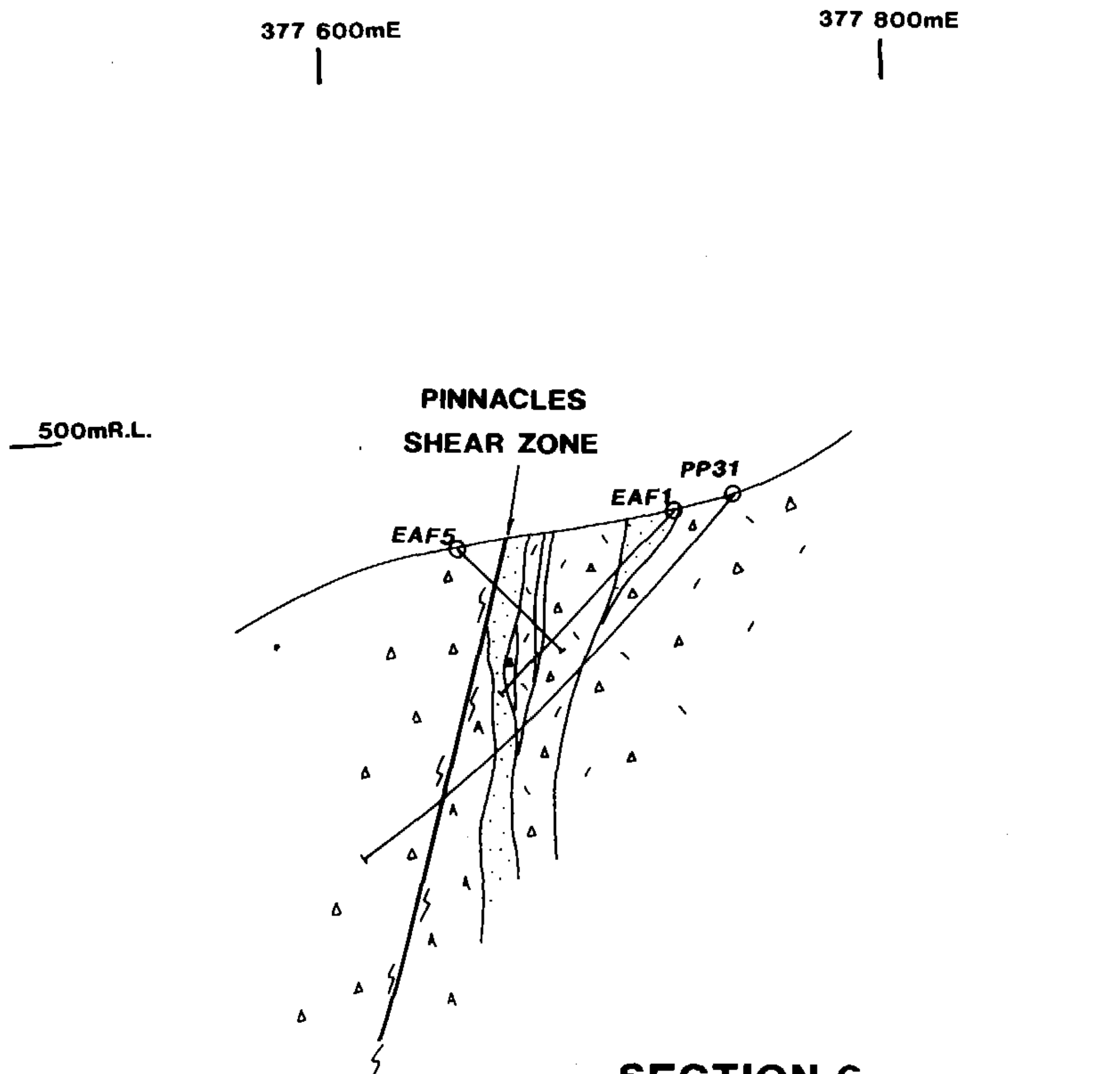
953387

LEGEND

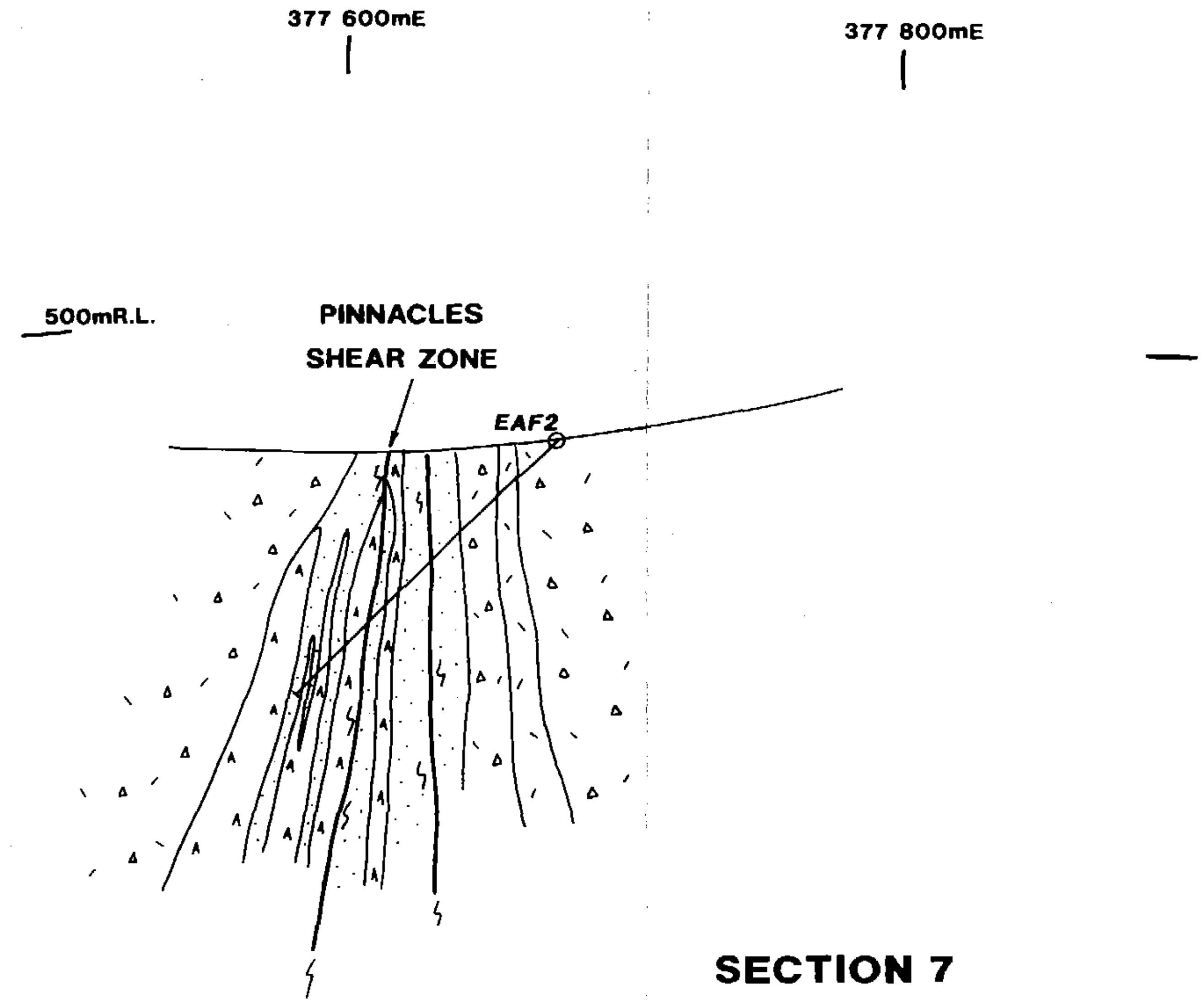
- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: LWK/PGR	SECTION 4 - 5320N
REF.:	SECTION 5 - 5280N
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m — FIG. No. 9



SECTION 6
5240N



SECTION 7
5200N

953388

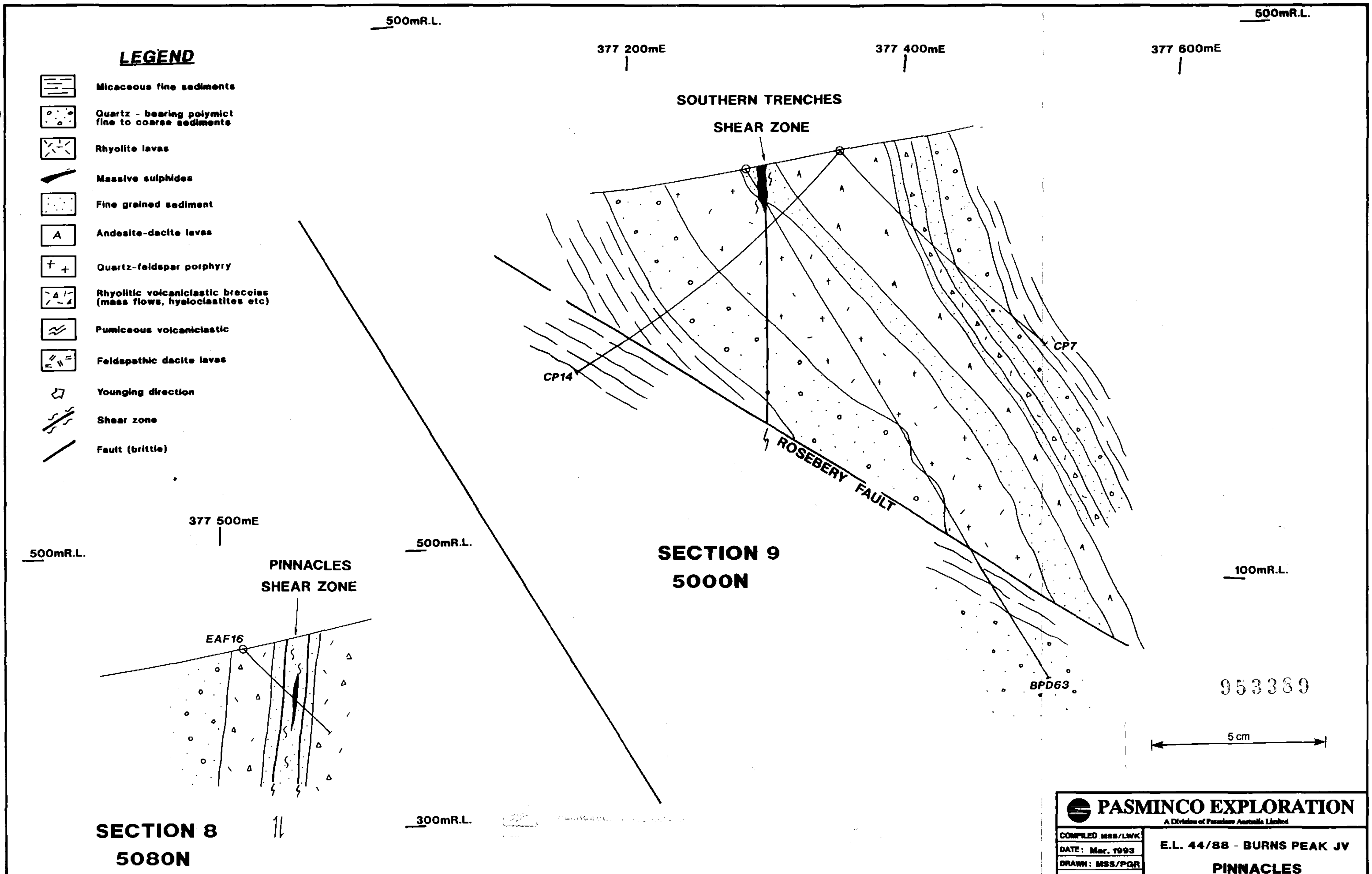
5 cm

LEGEND

- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

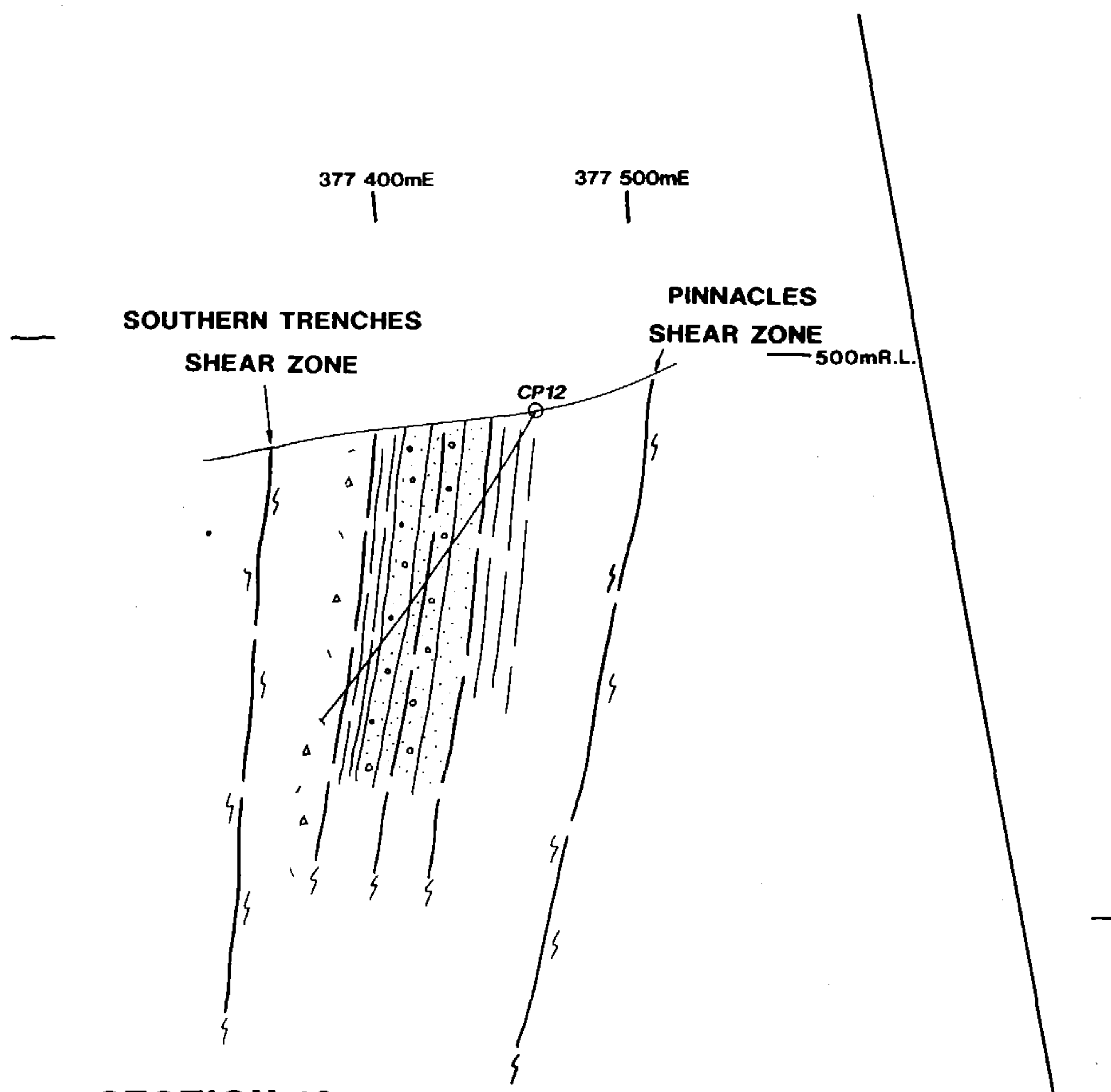
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED: MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: MSS/PGR	SECTION 6 - 5240N
REF.:	SECTION 7 - 5200N
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m; FIG. No. 10

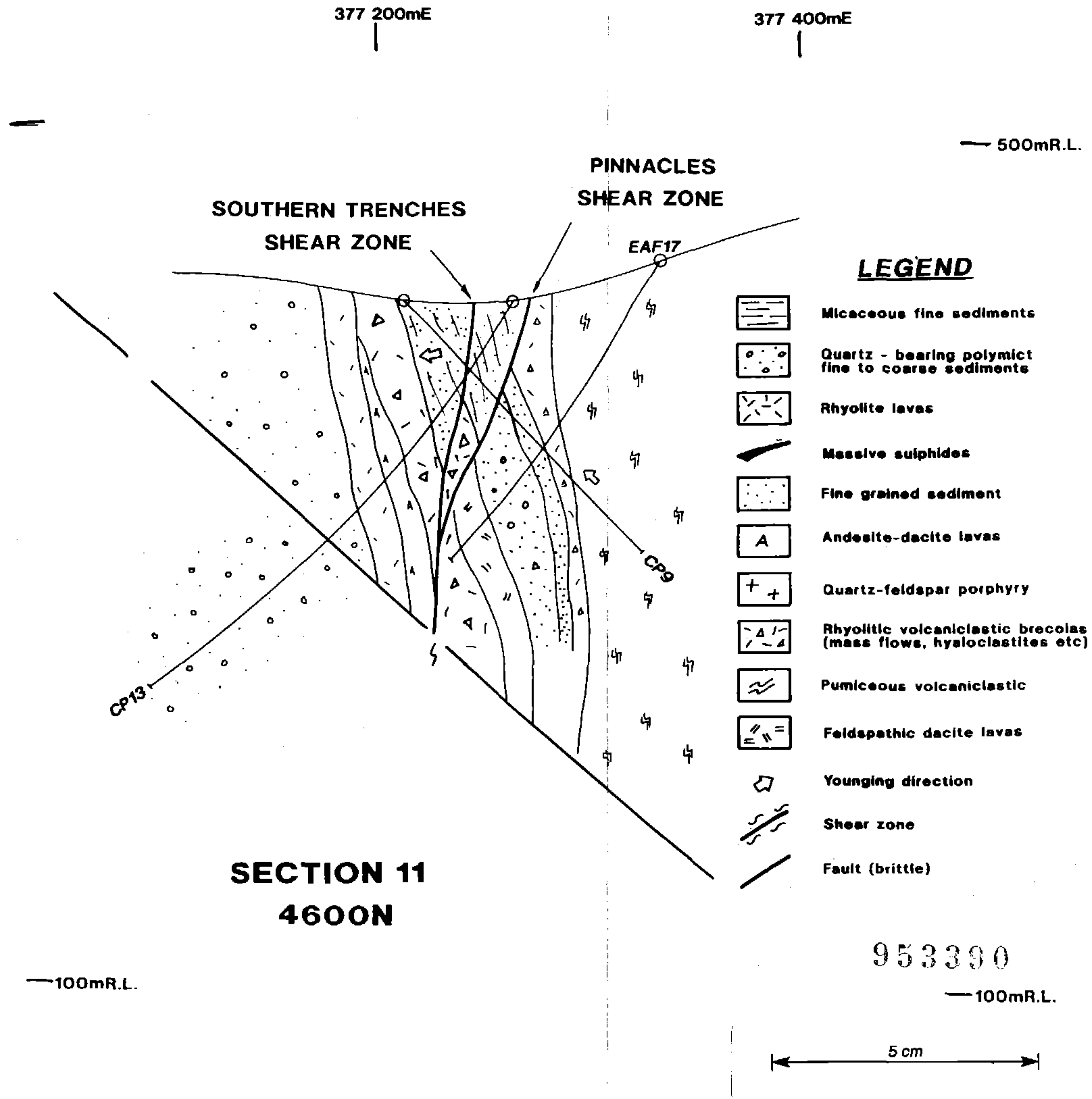


PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED: MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: MSS/PGR	SECTION 8 - 5080N
REF.:	SECTION 9 - 5000N
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m — FIG. No. 11



SECTION 10
4800N



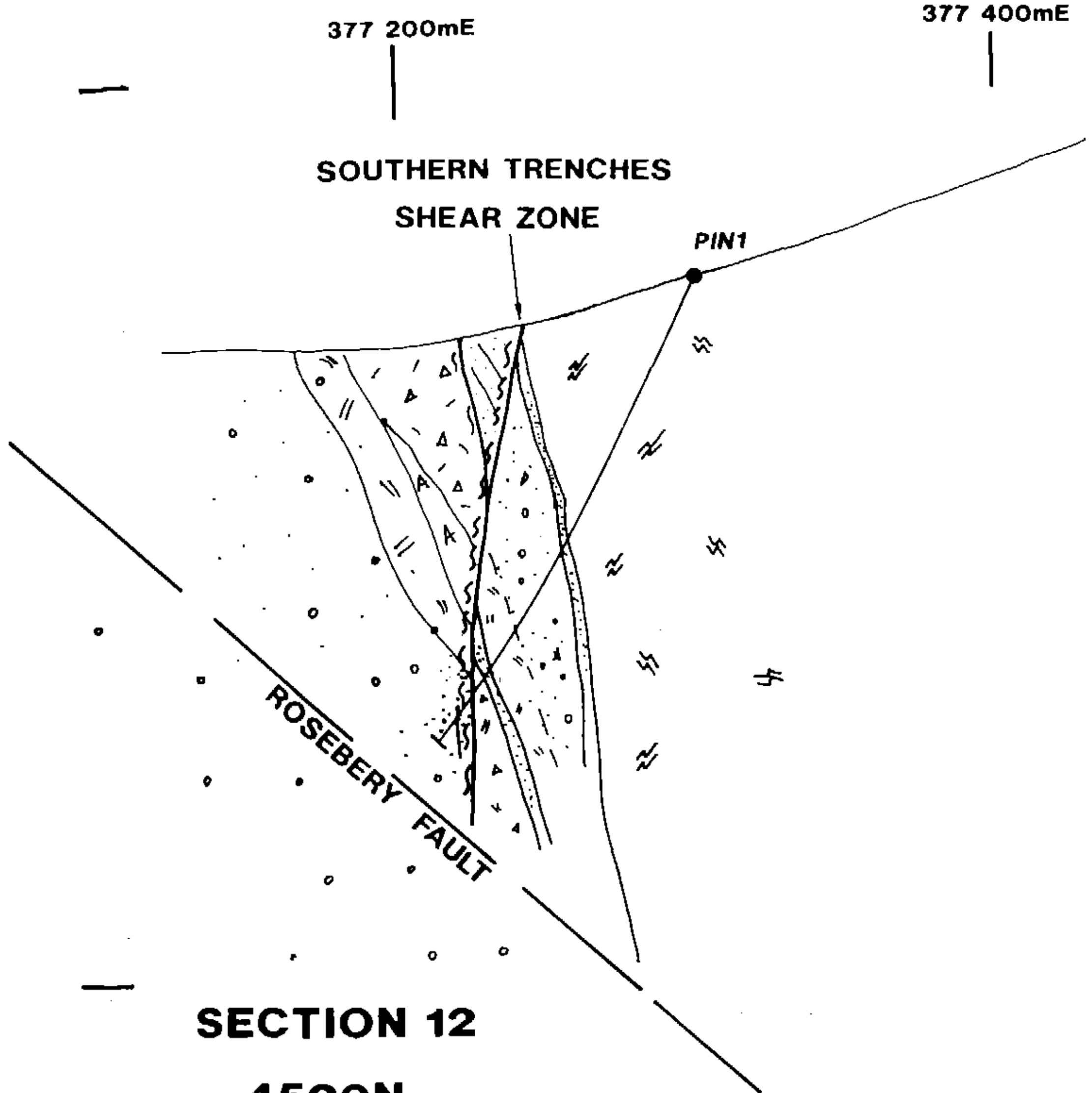
SECTION 11
4600N

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED: MSS/LWK
DATE: Mar. 1993
DRAWN: LWK/PGR
REF.:
REVISIONS:
DRAWING No.

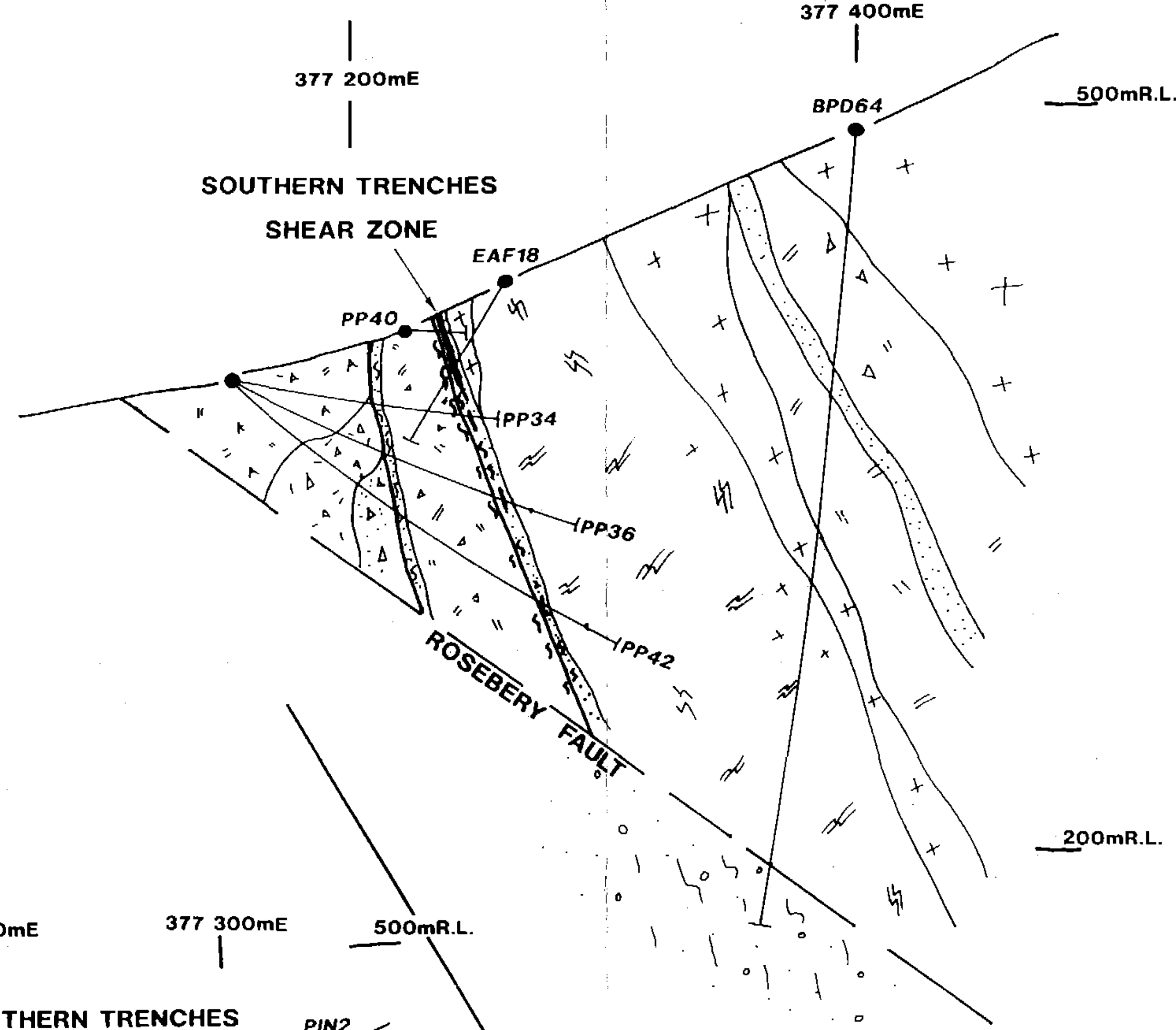
E.L. 44/88 · BURNS PEAK JV
PINNACLES
SECTION 10 - 4800N
SECTION 11 - 4600N

SCALE 1:2500 0 50 m
FIG. No. 12



SECTION 12

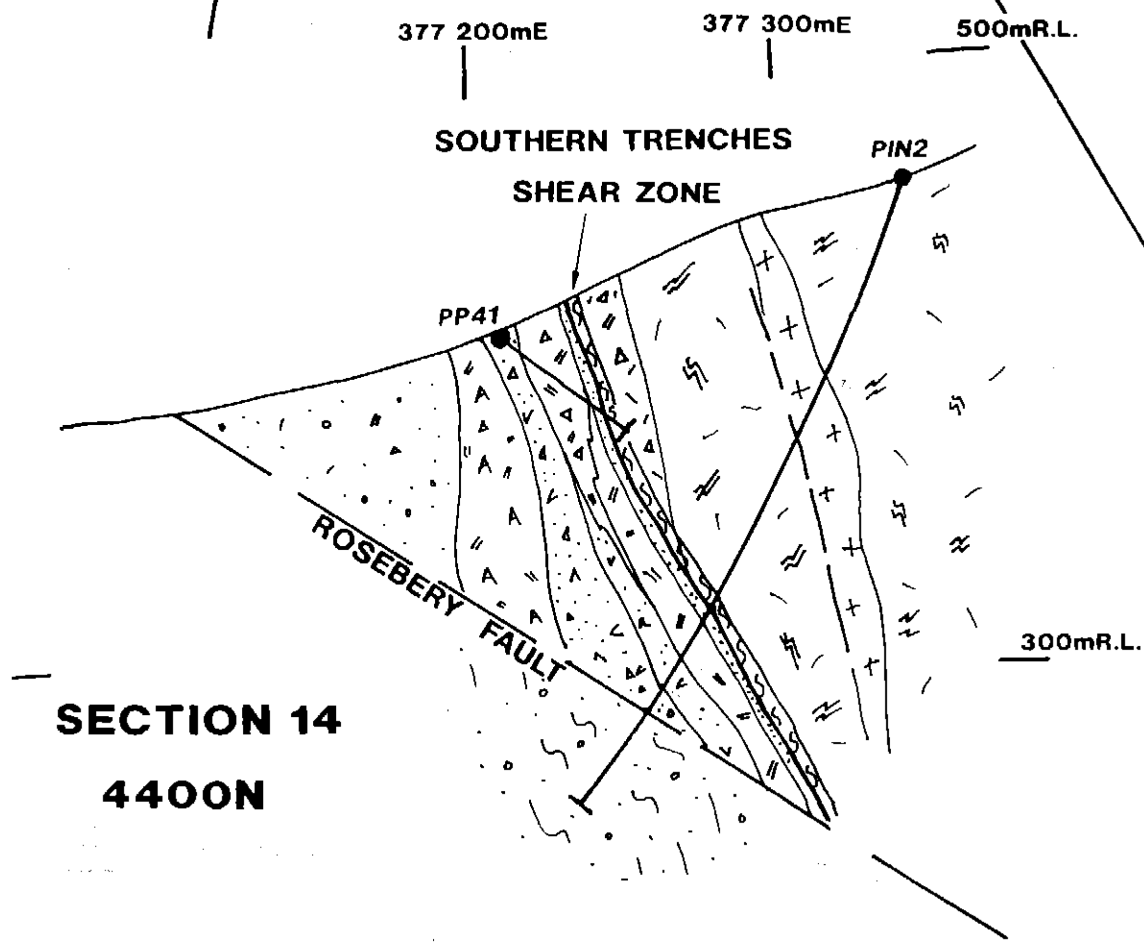
4520N



SECTION 13

4440N

953391



SECTION 14

4400N

LEGEND

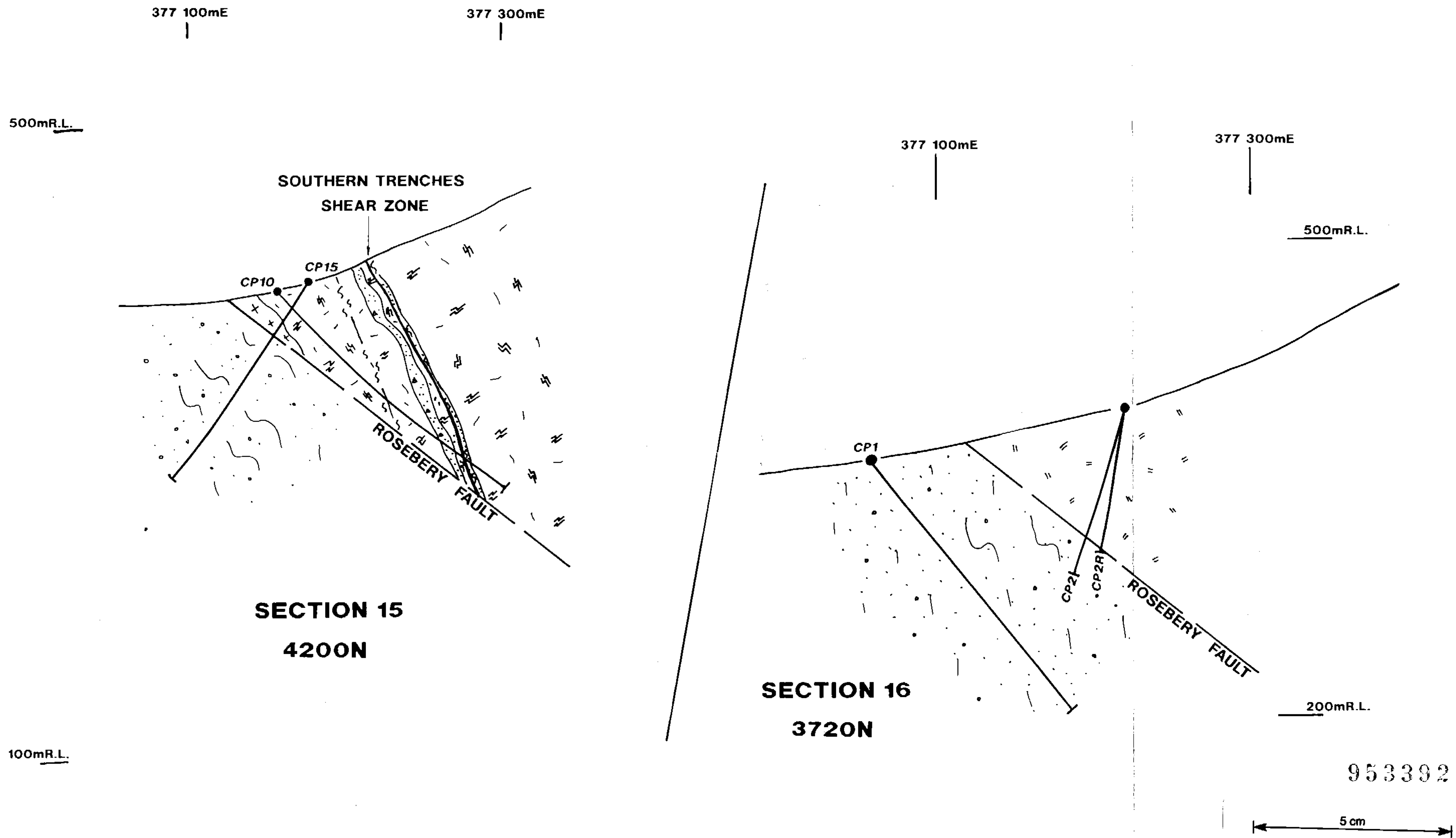
- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

5 cm

PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED MSS/LWK	E.L. 44/88 - BURNS PEAK JV
DATE: Mar. 1993	PINNACLES
DRAWN: LWK/PGR	SECTION 12 - 4520N
REF.:	SECTION 13 - 4440N
REVISIONS:	SECTION 14 - 4400N
DRAWING No.	SCALE 1:2500 0 50 m
FIG. No.	13



953392

LEGEND

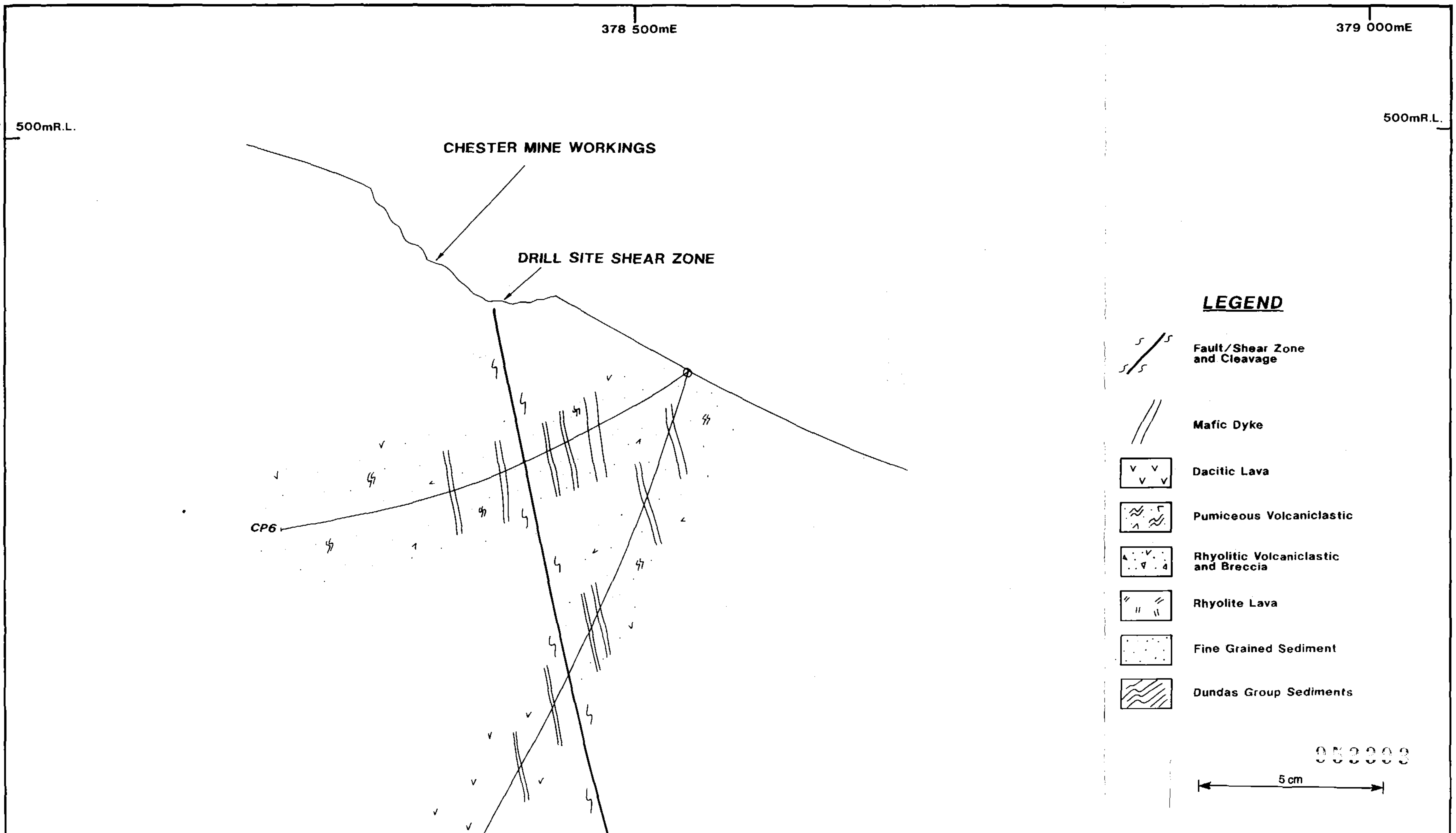
- Micaceous fine sediments
- Quartz - bearing polymict fine to coarse sediments
- Rhyolite lavas
- Massive sulphides
- Fine grained sediment
- Andesite-dacite lavas
- Quartz-feldspar porphyry
- Rhyolitic volcaniclastic breccias (mass flows, hyaloclastites etc)
- Pumiceous volcaniclastic
- Feldspathic dacite lavas
- Younging direction
- Shear zone
- Fault (brittle)

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED: MSS/LWK
DATE: Mar. 1993
DRAWN: LWK/PQR
REF.:
REVISIONS:
DRAWING No.

E.L. 44/88 - BURNS PEAK JV
PINNACLES
SECTION 15 - 4200N
SECTION 16 - 3720N

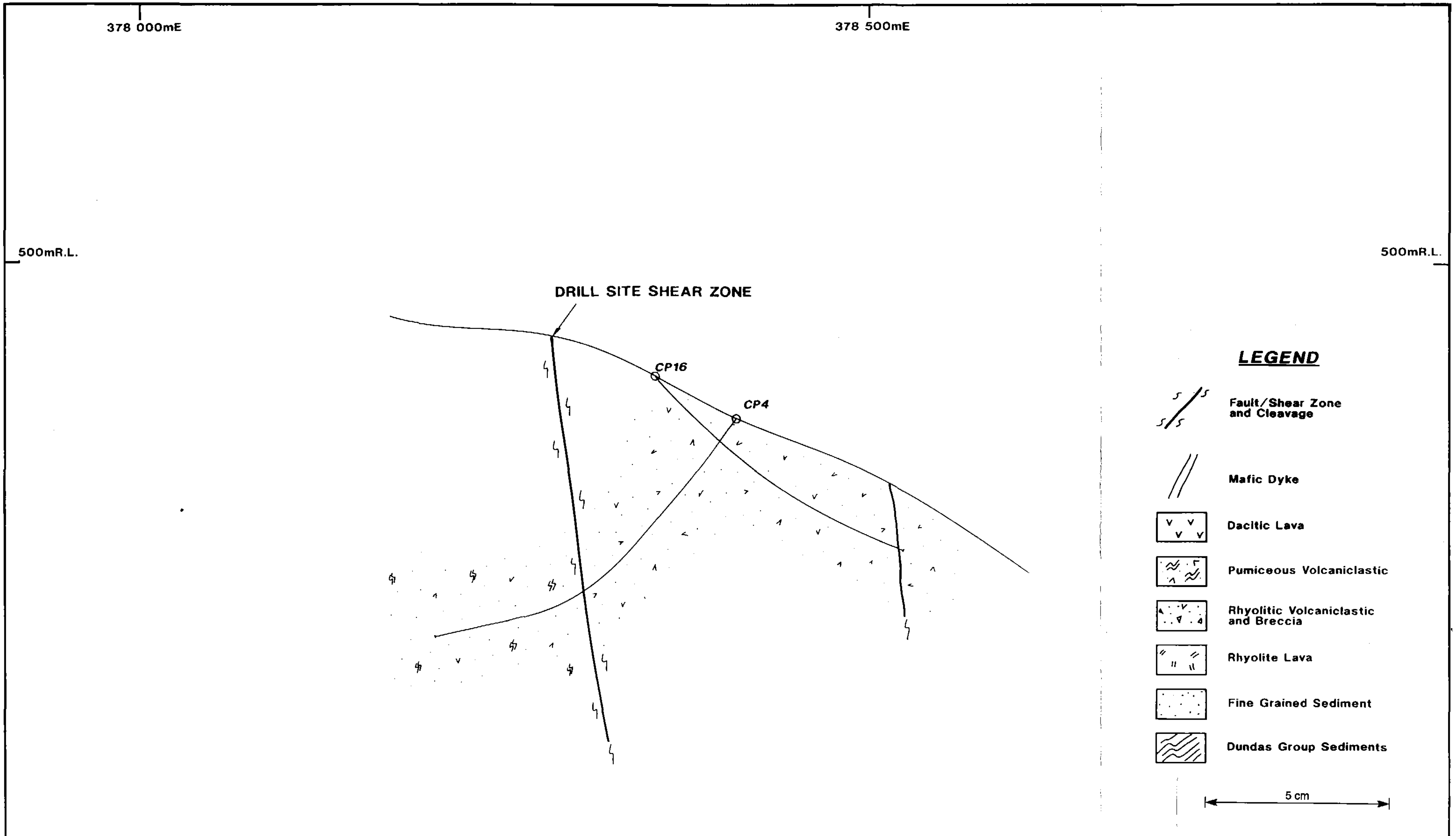
SCALE 1:2500 0 50
FIG. No. 14



PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED MSS/LWK	E.L.44/88 - BURNS PEAK JV
DATE: Mar. 1993	CHESTER
DRAWN: MSS/PGR	**SECTION 1**
REF.:	**80 900N**
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m
FIG. No. 15	

377 500mE
378 000mE
378 500mE
500mR.L.
BPD73
CP3
BPD68
CP23
CHESTER SHEAR ZONE
DRILL SITE SHEAR ZONE
ROSEBERY FAULT
LEGEND
Fault/Shear Zone and Cleavage
Mafic Dyke
Dacitic Lava
Pumiceous Volcaniclastic
Rhyolitic Volcaniclastic and Breccia
Rhyolite Lava
Fine Grained Sediment
Dundas Group Sediments
953394
5 cm
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited
COMPILED : MSS/LWH
DATE : March 1993
DRAWN : MSS/PGR
REF. :
REVISIONS :
DRAWING No.
E.L. 44/88 · BURNS PEAK JV
CHESTER
SECTION 2
80 550N
SCALE 1:2500
0
50
m
FIG. No.
16



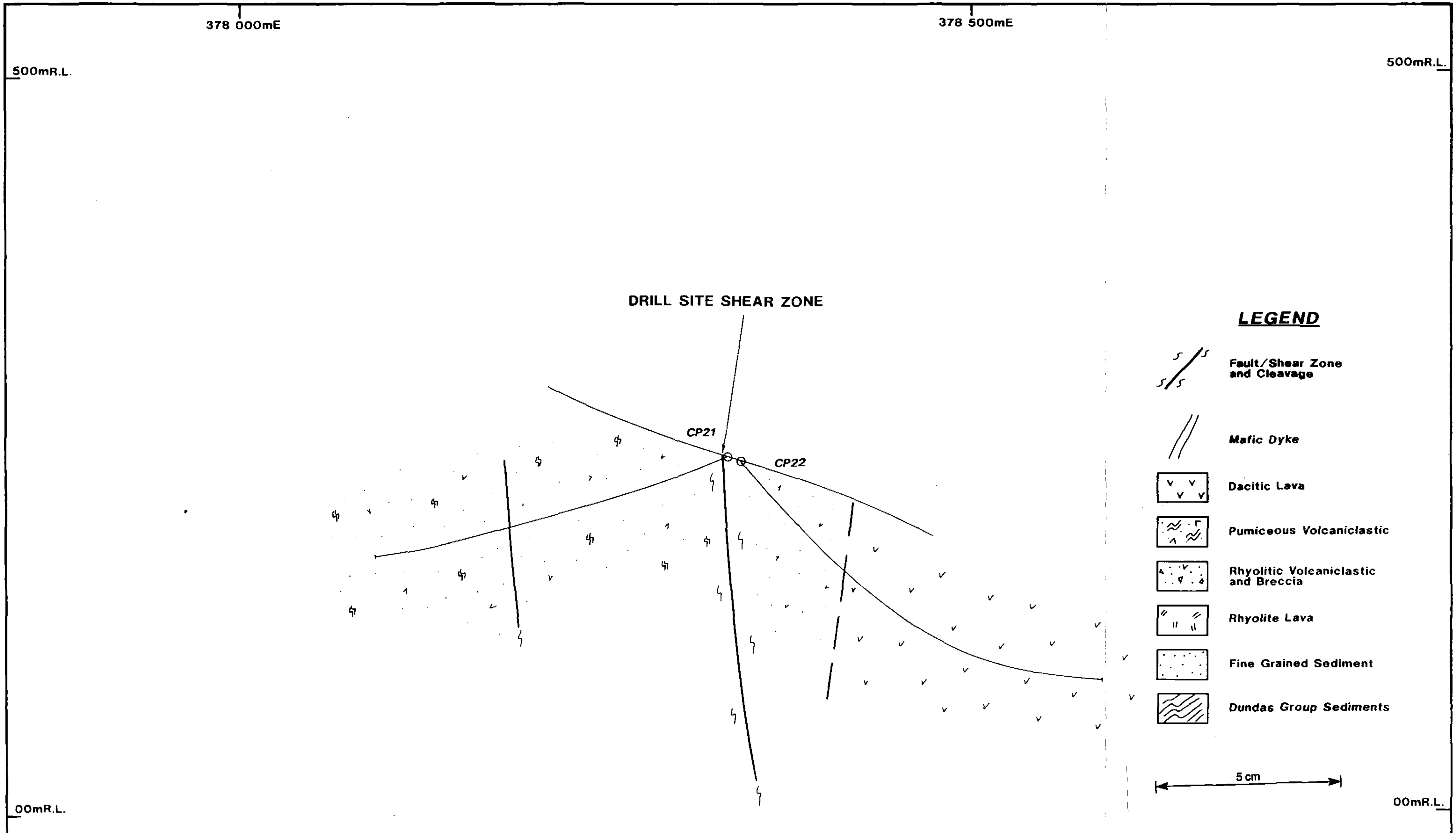
PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED MSS/LWK
DATE: Mar. 1993
DRAWN: MSS/PGR
REF.:
REVISIONS:
DRAWING No.

E.L. 44/88 - BURNS PEAK JV
CHESTER
SECTION 3
80 350N

SCALE 1:2500 0 50 m
FIG. No. 17

953395

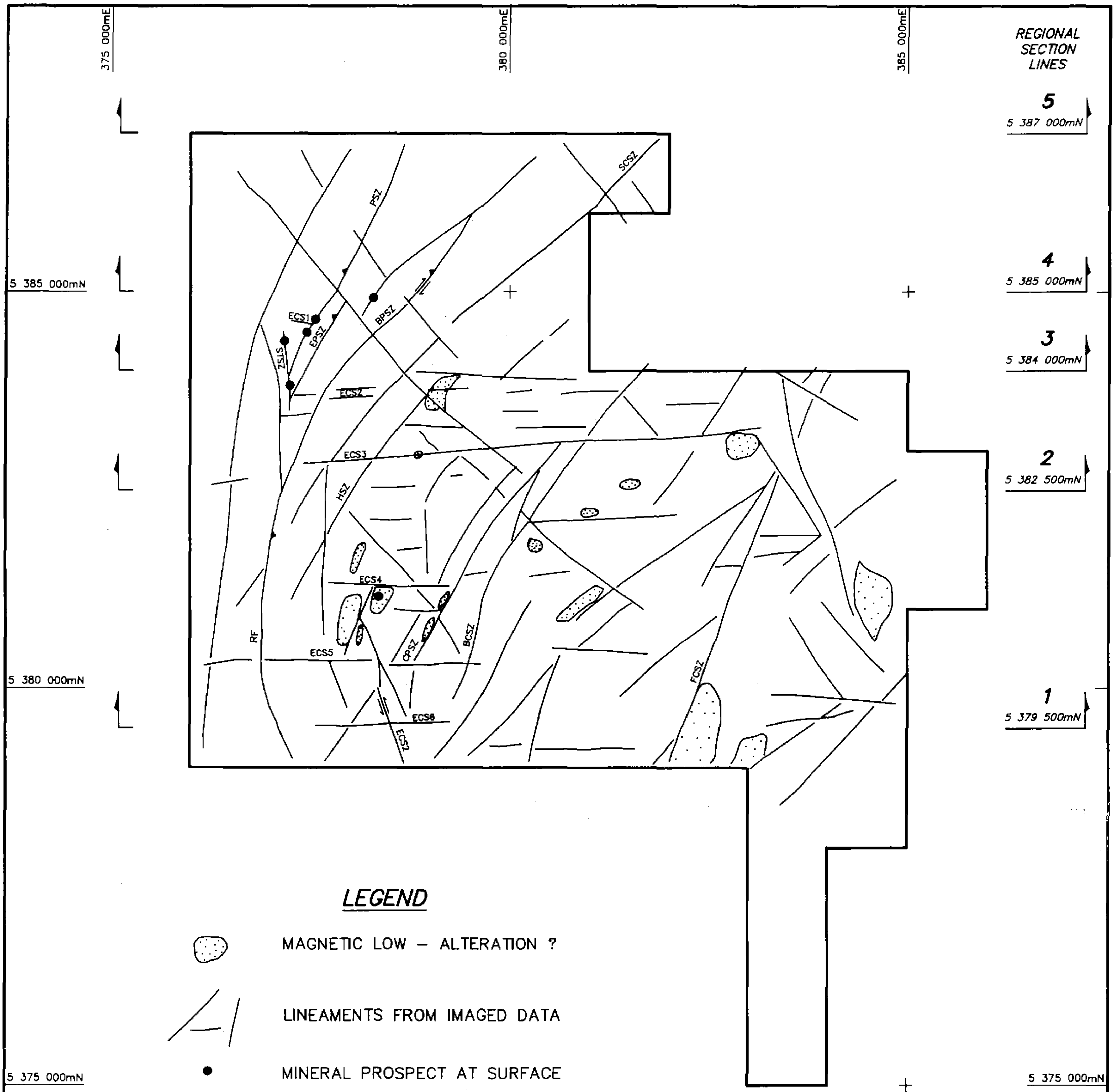


PASMINCO EXPLORATION

A Division of Pasminco Australia Limited

COMPILED: MSS/LWK	E.L.44/88 - BURNS PEAK JV
DATE: Mar. 1993	CHESTER
DRAWN: MSS/PGR	SECTION 4
REF.:	80 050N
REVISIONS:	
DRAWING No.	SCALE 1:2500 0 50 m — FIG. No. 18

953396



LEGEND

MAGNETIC LOW – ALTERATION ?

LINEAMENTS FROM IMAGED DATA

MINERAL PROSPECT AT SURFACE

ECS	Enigmatic Cross Structure
PSZ	Pinnacles Shear Zone
EPSZ	East Pinnacles Shear Zone
STSZ	Southern Trenches Shear Zone
BPSZ	Burns Peak Shear Zone
RF	Rosebery Fault
HSZ	Hollway Shear Zone
CSZ	Chester Shear Zone
CRSZ	Chester Rivulet Shear Zone
BCSZ	Boco Creek Shear Zone
FCSZ	Farm Creek Shear Zone
CSSZ	Cutty Sark Shear Zone
SCSZ	Sock Creek Shear Zone

5 cm

NOTE:

STRUCTURAL INTERPRETATION BASED ON IMAGE ENHANCED MAGNETICS, GRAVITY, TM AND MAPPED STRUCTURES

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : F.C.M.
DATE : March 1993
DRAWN : G.M.B.
REFERENCE :
REVISIONS :
DRAWING No.

E.L. 44/88 – BURNS PEAK JV

STRUCTURAL INTERPRETATION

SCALE 1:50,000 0 1 km

FIG. No. 24

375 000mE
380 000mE

953397

PASMINCO EXPLORATION
PASMINCO - NORANDA - PLUTONIC JOINT VENTURE

BURNS PEAK EL 44/88
ANNUAL REPORT

NOVEMBER 1992 - OCTOBER 1993

volume of

AUTHORS: RA Poltock, LW Kirsner, MS Saxon

DATE: November 1993

REPORT No.: T93-16

SUBMITTED TO: Regional Exploration Manager - Tasmania

DISTRIBUTION: Mineral Resources Tasmania - Hobart

Pasminco Exploration - Burnie
- Melbourne
- Rosebery

Noranda Pty Limited - Toronto

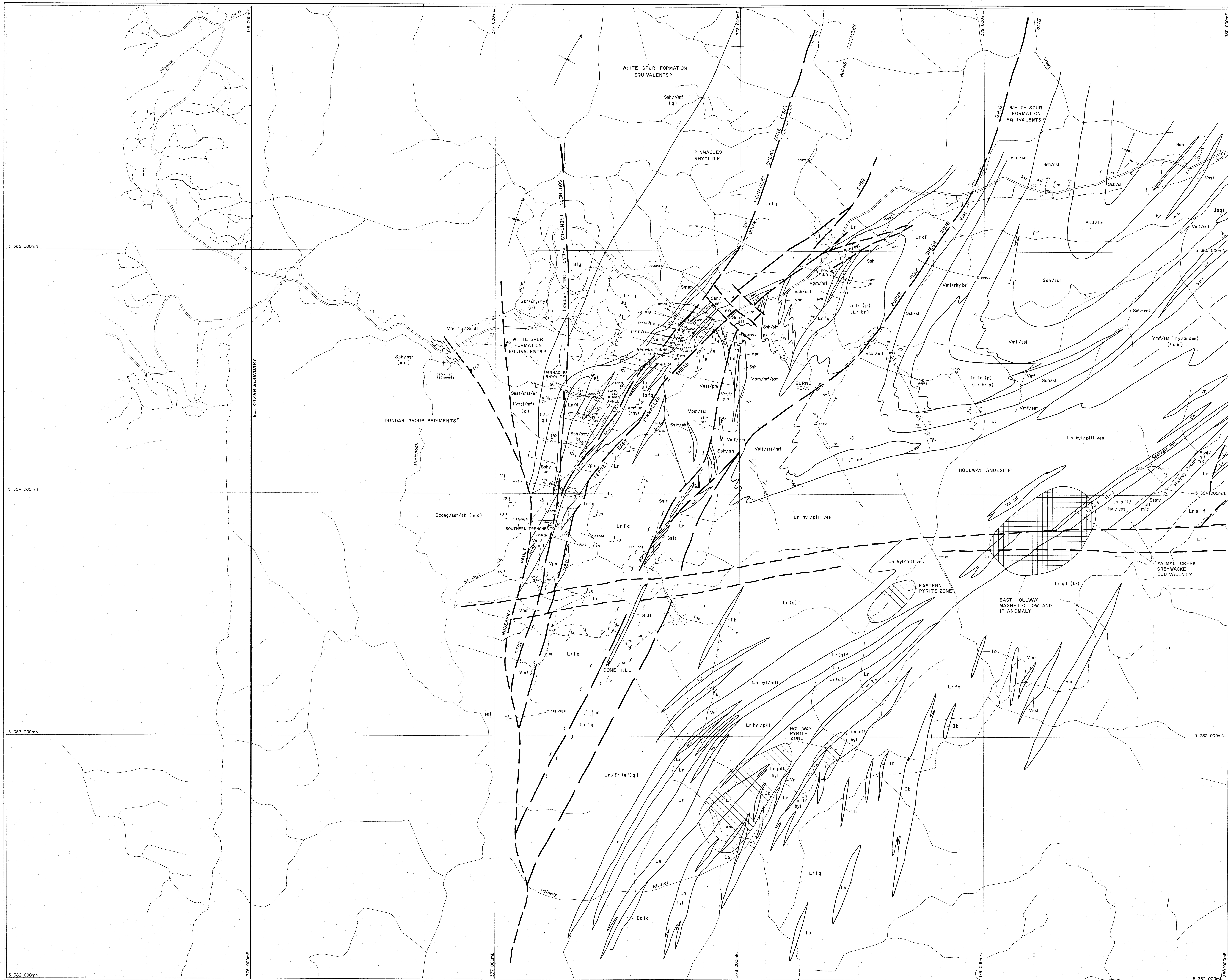
Plutonic Resources Limited - Sydney

SUBMITTED BY: R Poltock

ACCEPTED BY:

Burnie
November 1993

FIGURES



LEGEND

1. General Form

Colour, grain size, overall texture, Rock Type, constituents & textutres, alteration, mineralisation.

Descriptors and Rock Types to be separated by comma or slash. Derwent series 19 colours (in brackets) are intended for the Cambrian sequences.

2. Rock Types

Lavas L

a	(9)	acid
i	(46)	intermediate
b	(49)	basaltic
r	(9)	rhyolitic
d	(11)	dacitic
n	(46)	andesitic

Intrusives I

a	(12)	acid
i	(46)	intermediate
b	(49)	basic
fel		felsic
p		porphyritic
g	(12)	granitic
peg		pegmatitic

Volcaniclastics V

pm	(7)	pumiceous mass flow
q	(32)	quartz phyric mass flow
sst	(32)	sandstone
mf	(32)	coarse lithic mass flows

Sediments S

sh	(35)	shale
t	(36)	slate incl. black slate
slt	(35)	siltstone
sst	(39)	sandstone
tb		turbidite
w	(39)	wacke
cong	(39)	conglomerate
Δ		breccia
cht	(34)	chert
lst	(65)	limestone
dol	(65)	dolomite
q	(39)	quartzite
Fe		iron formation
gl	(4)	glacial deposits
fgl	(4)	fluvioglacial deposits
alv	(4)	alluvial deposits
mst	(35)	mudstone

Metamorphic Rocks M
Colours should be hatched

sht	(38)	schist
sp	(35)	semi-pelite
ps	(39)	psammite
amph		amphibolite
gran		granulite
sk		skarn
mb	(65)	marble
m		mylonite

Unassigned ? Use alone or as a qualifier to other rock types where uncertain.

3. Descriptors

Colour:

ple	pale	bl	blue
dk	dark	wht	white
clr	clear	yel	yellow
or	orange	ol	olive
blk	black	grn	green
pk	pink	ppl	purple
rd	red	crm	cream
brn	brown		

Grainsize:

fg fine grained
mg medium grained
cg coarse grained
vcg very coarse grained

Overall Texture:

aug augen
p porphyritic
fol foliated
clvd cleaved
msv massive
blk blocky
bd bedded
lam laminated
xbd cross bedded
xlam cross laminated
br brecciated
fb flow banded
fΔ flow brecciated
ufs upwards fining sequence
hyl hyaloclastic
pill pillowed
pep peperitic

Constituents & Internal Textures:

f feldspar
q quartz
l lithic
pm pumice
styl stylolites
wsp wisps
ves vesicles
sph spherulites
lph lithophysae
mic micaceous

Alteration:

alb albitised
co carbonate alteration
chl chloritised
ser sericited
kao kaolinised
ep epidotised
sil silicified

Mineralisation:

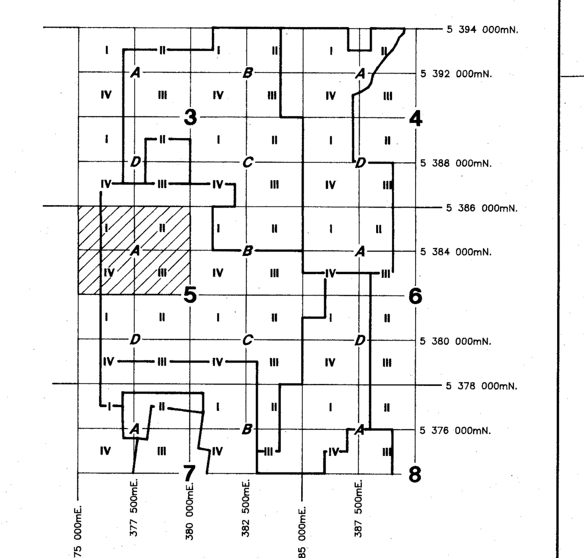
diss disseminated
str stringer
msv massive
gos gossan
bx boxwork
py pyrite
po pyrrhotite
asp arsenopyrite
gn galena
sp sphalerite
mag magnetite
hm haematite

3. Mapping Symbols

Strike and Dip of Strata
Strike and dip of inverted strata
Strike and dip of cleavage or foliation
Plunge of lineation
Geological boundary position accurate
Geological boundary position approximate
Mine
Abandoned prospect or mine
Costean or trench
Diamond drill hole, including projection
I.P. Anomaly
Unconformity
Fault
Thrust Fault
Plunging antiform
Plunging synform
Shear/strong cleavage
Sil + Ser + Py Alteration Zone
Magnetic/Gravity/TM Lineaments

NOTE:
Geological mapping by : A.N. Lorrigan, L.W. Kirsner, M.S. Saxon, B. P. Coutts and R.O. Reid

Interpretation by: L.W. Kirsner, A.N. Lorrigan and M.S. Saxon



5 cm

GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

953400

93-3523.

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : A.N.L. / L.W.K.
DATE : October, 1992
DRAWN : G.M.B.
REFERENCE :
REVISIONS : L.W.K.
March, 1993
DRAWING No.

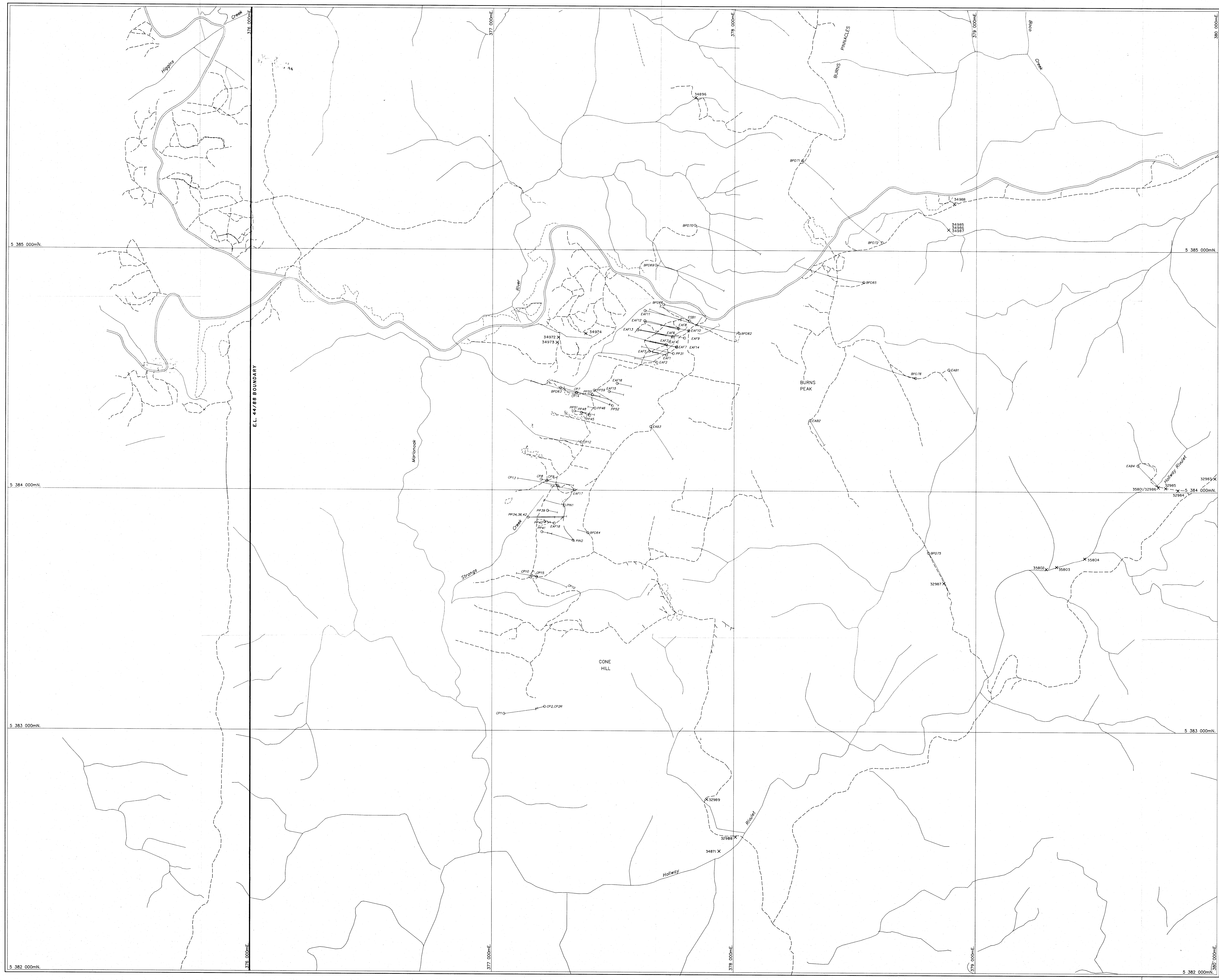
E.L. 44/88 - BURNS PEAK JV

INTERPRETIVE GEOLOGY

SHEET 5A

SCALE 1:5000 0 100 200 m

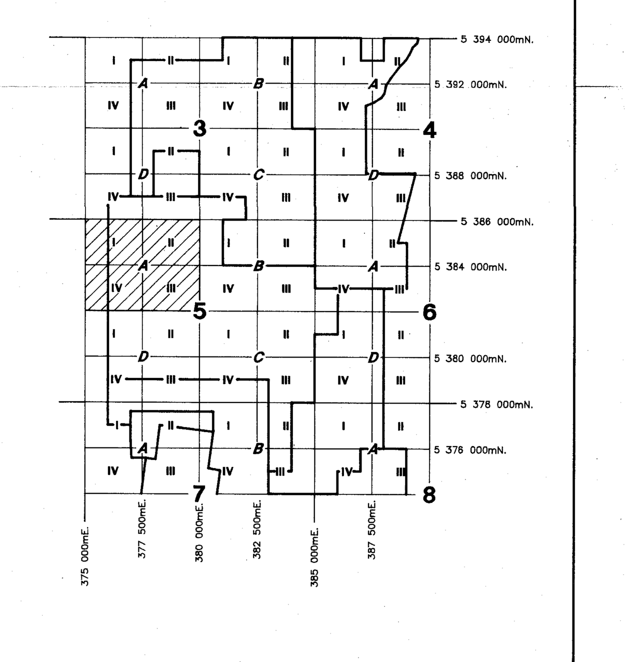
FIG. No. 22



LEGEND

× 31414 Rock Chip Sample.

(for Burns Peak Annual Report, 1992).



5 cm

GN
TN
MN
GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

953401

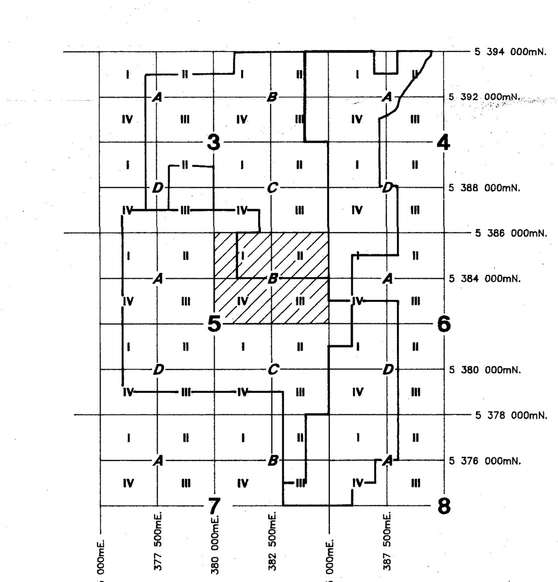
93-3523.

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : L.W.K.	E.L. 44/88 - BURNS PEAK JV
DATE : 23-11-'92	
DRAWN : N.W.D.S.	**SAMPLE LOCATIONS**
REFERENCE :	
REVISIONS : Apr. '93.	
Nov. '93 - R.A.P.	
DRAWING No. SHEET 5A	SCALE 1:5000 0 100 200 m
FIG. No. 23	

LEGEND

× 31713 – Rock Chip Sample.



5 cm

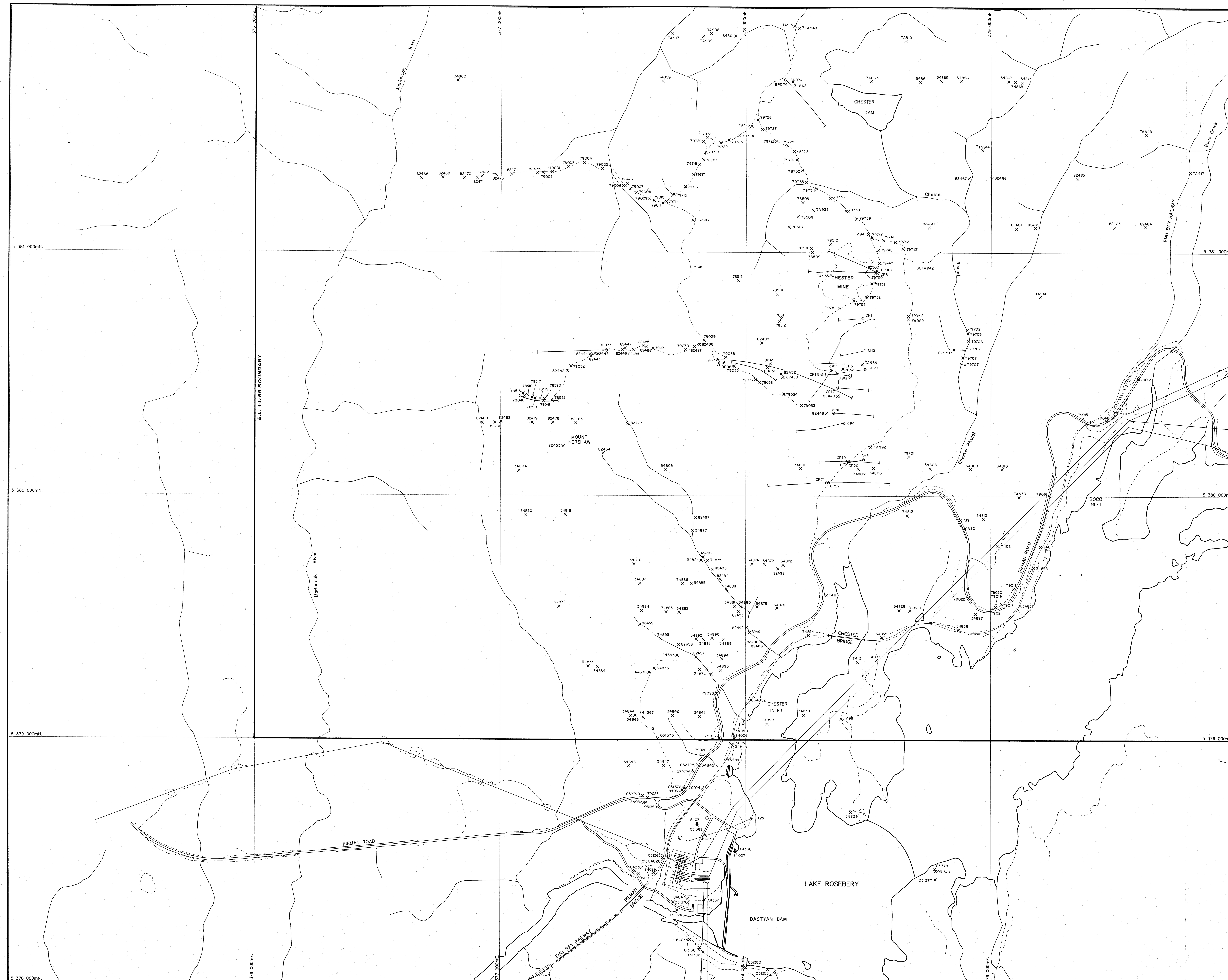
GN
TN
MN
GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

93-3523.

953402

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : LWK	E.L. 2/90 - BOCO JV
DATE : March, 1992	E.L. 44/88 - BURNS PEAK JV
DRAWN : N.W.D.S.	
REFERENCE :	**SAMPLE LOCATIONS**
REVISIONS : Nov.'92	
Apr.'93.	
DRAWING No. SHEET 5B	SCALE 1:5000 (0 100 200 METRES)
FIG. No. 24	



LEGEND

STANDARD SAMPLE SYMBOLS

- × Rock Chip
- ⊗ Rock Float
- △ Wacker
- • Soil
- Channel/Chip
- Stream Sediment
- Water
- Panned Concentrate

NON-STANDARD SAMPLE NUMBERS

- × 031366 - Taken 1991-92 - E.L.12/88 Mt. Black J.V.
- × D9051
- × TA950
- × A20
- × T402

(D9051, TA950, A20, T402: Comstaff Samples)

5 cm

GN TN MN
GRID CONVERGENCE 1.0°
GRID/MAGNETIC 12.0°

93-3523. 953403

PASMINCO EXPLORATION
A Division of Pasminco Australia Limited

COMPILED : A.N.L.	E.L. 44/88 - BURNS PEAK JV
DATE : NOV. 1990	**SAMPLE LOCATIONS**
DRAWN : N.W.D.S.	SHEET 5D
REFERENCE :	
REVISIONS :	
J.G.P. - JUNE 1992	
M.S.S.- MAR. 1993	
DRAWING No. SHEET 5D	SCALE 1:5000 (0 100 200 METRES) — FIG. No. 25