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RL8809

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PASMINCO EXPLORATION
OCEANA RL 8809
ANNUAL REPORT
FOR THE PERIOD ENDING AUGUST 1996

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Date: September 1996
Report No.: TA-29
Submitted to: Regional Exploration Manager - Tasmania
Distribution: Tasmanian Development & Resources Industry Safety & Mines Division - Hobart
Pasmenco Exploration - Burnie
- Melbourne
- Rosebery
Arimco Mining - Sydney
- Perth

Submitted by: *[Signature]*

Accepted by: *[Signature]*

BURNIE
SEPTEMBER 1996

96-3922

ANNUAL REPORT-OCEANA-RL 8809
P/E AUG'96. PASMINCO EXPLORATION
D.C.GARDNER & S.M.DIBBEN

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SUMMARY

Exploration completed on the Oceana RL8809 Joint Venture during the period September 1995 to August 1996 has included diamond drilling, down hole EM ground magnetics, metallurgical testing and petrology. This program has focussed on the base metal potential of the Gordon Limestone within both the Austral and Pyramid Valleys.

Diamond hole OP6 (202.3m) was drilled to test a ground magnetic anomaly on the Austral grid and to test the Gordon Limestone - Crotty Quartzite contact. Minor sphalerite mineralisation is associated with an anomalous magnetic zone at 120m. The hole failed to intersect the targeted lithological contact due to bad drilling conditions.

Two small ground magnetic anomalies were located on the Pyramid grid and need to be followed up by soil sampling and/or air core drilling.

Down hole EM on OP4 produced no signatures that could be associated with mineralisation.

Metallurgical testing of shallow mineralisation on the Austral grid concluded that the fine nature of the sample makes it unsuitable for simple gravity concentration techniques. Also the apparent even distribution of the metal values over the size range suggests that sizing separation techniques would also be inappropriate.

Since 1992 Pasminco have carried out an extensive exploration program on the RL outside the immediate area of the Oceana deposit. The objective of this program was to prove up resources either as stand alone propositions or to be mined in conjunction with Oceana itself. As a result of this work Pasminco Exploration is now convinced that there is no large zones of economic mineralisation close to the

surface on the RL, and that the character of the mineralisation is such that it is considered unlikely that a viable ore deposit exists anywhere on the RL.

1 INTRODUCTION

Retention Licence 8809 (Oceana) covers 5km², and is located 2km south of Zeehan in western Tasmania (see Figure 1). Title to the tenement is held by Arimco Mining Pty Limited. Pasminco Australia Ltd hold a Joint Venture Agreement with Australian Resources to evaluate the mineral potential of the licence area.

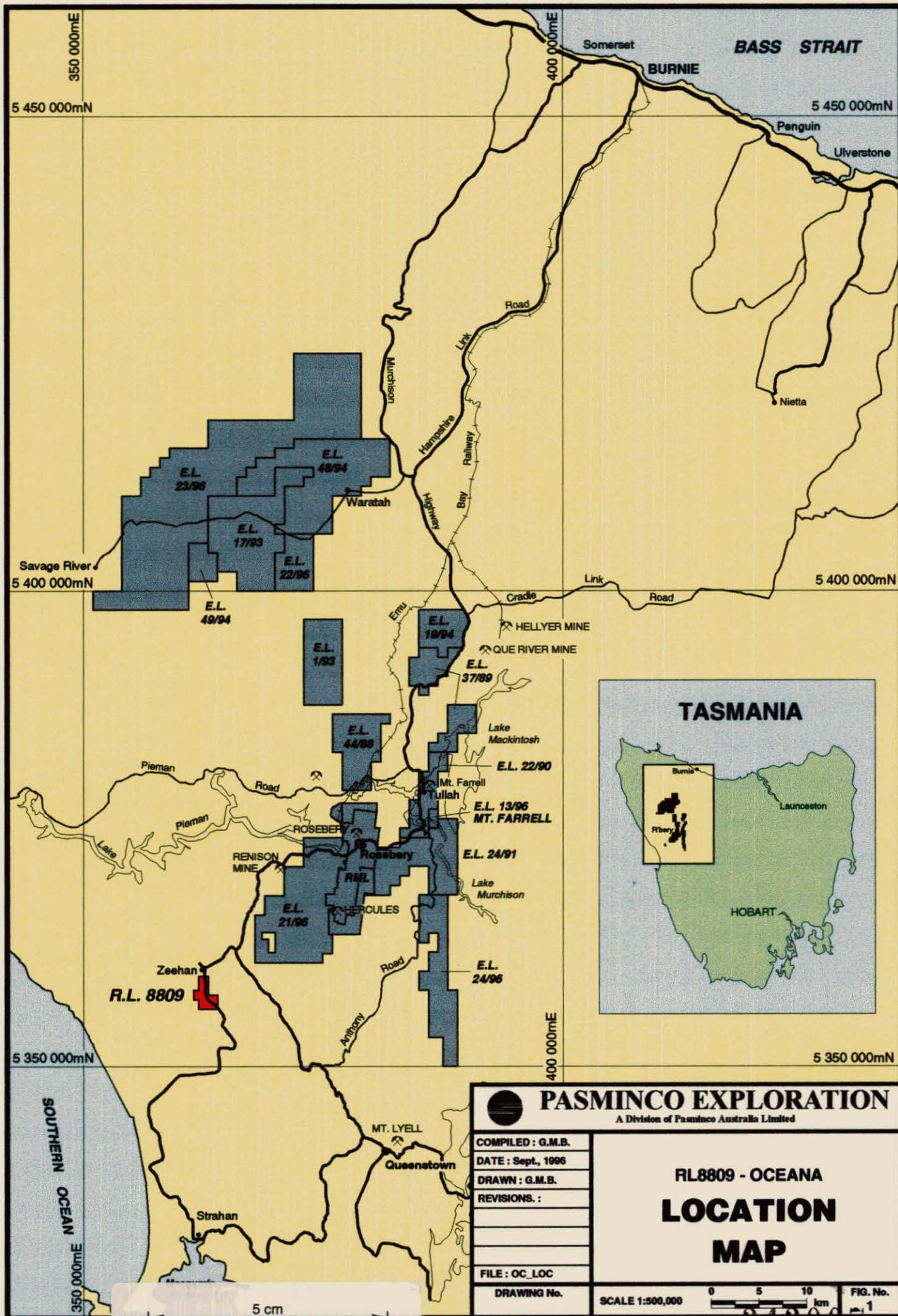
This report covers the period from September 1995 to August 1996. Work conducted during this period included:

- Down hole EM
- Ground magnetics
- Diamond drilling
- Metallurgical Testing
- Petrology

Access to the Oceana RL is easily gained by the Zeehan to Strahan road. The Gordon Limestone which hosts mineralisation is deeply weathered and forms a marshy valley between steep ridges of Moina Sandstone and Zeehan Conglomerate to the west, and Crotty Quartzite to the east.

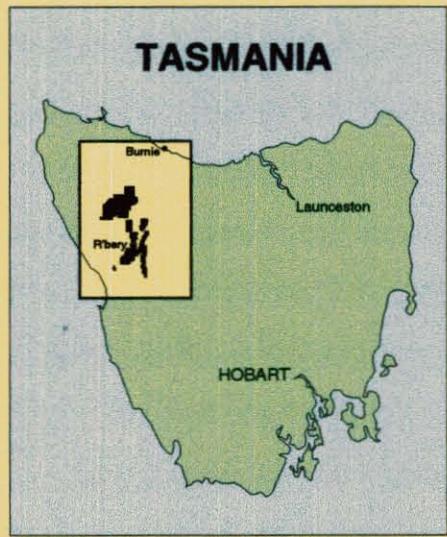
The Oceana orebody is located in the central portion of the RL, and has a previously reported, indicated resource of:-

	tonnes	Pb%	Zn%	Ag g/t
3550-3700GN	2 297 000	7.1	2.5	48
3350-3440GN	188 000	12.0	4.0	89
TOTAL	2 485 000	7.5	2.6	51

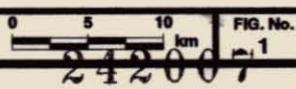
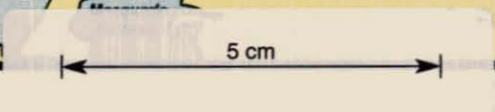


350 000mE
5 450 000mN
5 400 000mN
5 350 000mN
350 000mE

Somerset
BURNIE
Penguin
Ulverstone
Nietta
Savage River
Waratah
Murchison
Hampshire
Bay
Railway
Highway
Road
Link
Cradle
Road
Emu
HELLYER MINE
QUE RIVER MINE
Lake Mackintosh
Mt. Farrell
Tullah
ROSEBERY
ROSEBERY
RENISON MINE
HERCULES
Lake Murchison
Zeehan
R.L. 8809
Anthony
Road
Mt. Lyell
Queenstown
Strahan
400 000mE
5 400 000mN
5 350 000mN



PASMINCO EXPLORATION A Division of Pasminco Australia Limited	
COMPILED : G.M.B.	RL8809 - OCEANA LOCATION MAP
DATE : Sept, 1996	
DRAWN : G.M.B.	
REVISIONS :	
FILE : OC_LOC	
DRAWING No.	SCALE 1:500,000
FIG. No. 1	



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Vegetation cover is sparse, dominated by button grass and banksia on the ridges, button grass and gorse in the marshy valley, and dense tea tree and eucalypt scrub along the creeks.

2 TENURE

Retention Licence 8809 (Oceana) was granted to Cyprus Gold Australia Corporation (Cyprus) on 14 October 1988 for a period of two years. The licence was retained as a result of exploration by Cyprus on Exploration Licence 4/78, which was relinquished on 14 July 1988.

Title to RL 8809 was transferred to Hudspeth and Company Pty. Ltd. on 23 October 1990, and was subsequently transferred to Arimco Mining Pty Limited on 24 August 1991 following a certified change of company name.

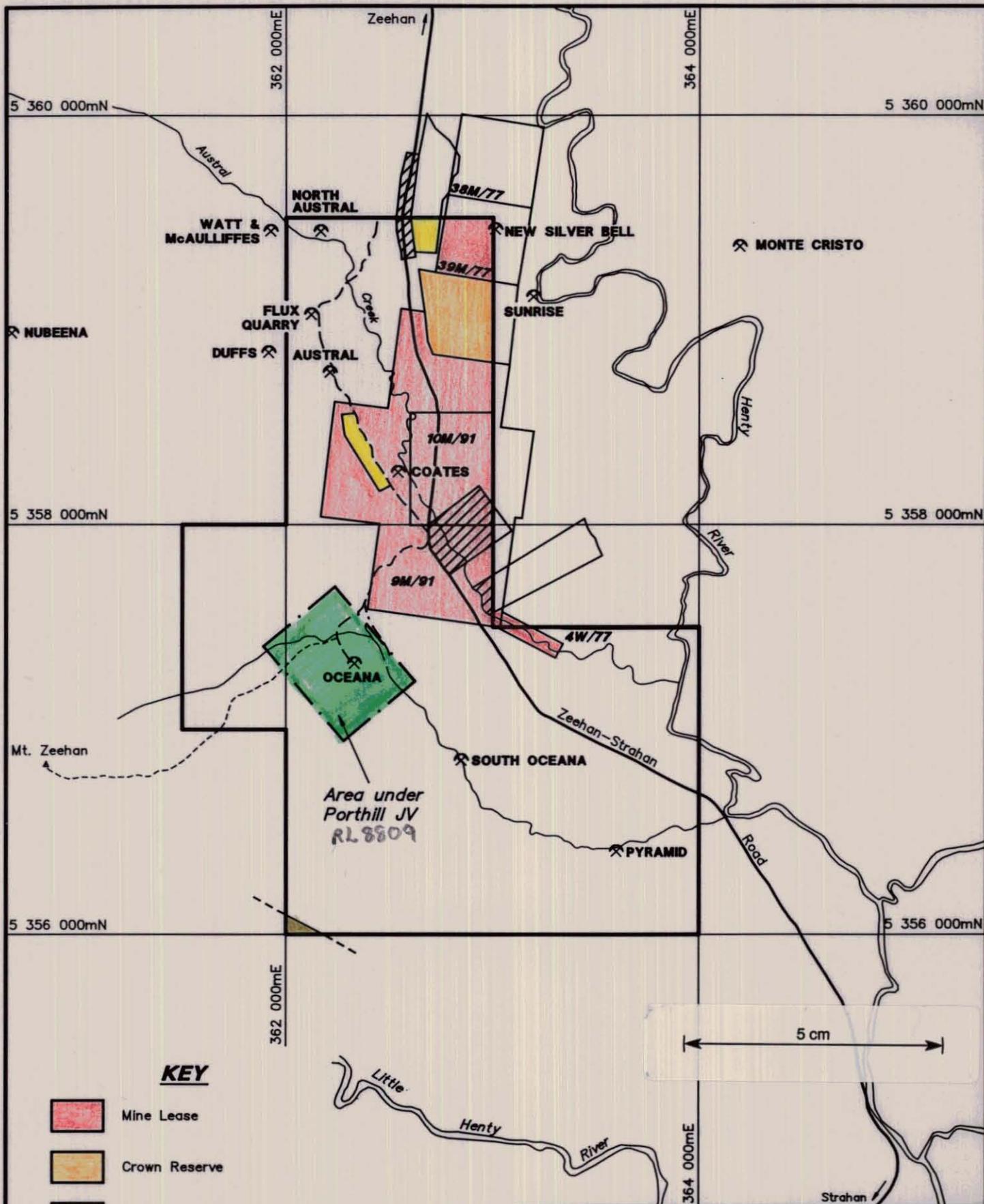
Pasminco Australia Limited (Pasminco) entered negotiations with Hudspeth in late 1990 to permit evaluation of the base metal potential of the licence area. A Joint Venture Agreement was ratified on 14 May 1992. Under the terms of the Joint Venture, Pasminco Exploration, a division of Pasminco Australia Limited, would manage and operate the Joint Venture while earning equity. Pasminco have the right to earn a 65% interest in the tenement by spending \$2 million within 9 years, with \$1 million expenditure within the first 5 years.

The licence covers an area of 5.5km². This area excludes a total 1.1km² that is enclosed by the Mine Leases: 9M/91, 10M/91 and 4W/77, held by Pasminco Australia Limited, and 39M/77 held by JNR Enraught - Mooney (see Figure 2). Lease 10M/01 is subject to a joint agreement with Dragon Resources whereby they hold the surface rights to retreat the old Zeehan smelter dumps. Also excluded is 0.2km² of Crown Reserves.

A second Joint Venture Agreement was ratified during the 1994-1995 licence year between Australian Resources and Mining Company NL, Pasminco Australia Limited and Porthill Resources Limited (now known as White Tiger Resources NL).

This Joint Venture covers the known mineralisation of the Oceana mine to a depth of 200m, and allows Porthill Resources to earn 51% equity by spending of \$1.5 million assessing the potential for a shallow (open-cutttable) resource, by December 1996.

The land tenure of RL 8809 comprises unallocated Crown Land designated as Multiple Use Forest Land and Private Property. In addition, part of the area is on the interim list of the Register of the National Estate as part of the Zeehan Smelters Geological Monuments (see Figure 2).



KEY

-  Mine Lease
-  Crown Reserve
-  Multiple Use Forest
-  Private Freehold Land
-  Unallocated Crown Land (within EL only)
-  National Estate Interim Listing

NOTE :
Land tenure is shown within RL8809 only

5 cm

 PASMINCO EXPLORATION A Division of Pasma Australia Limited		<p style="font-size: 1.5em; margin: 0;">242011</p> <p style="margin: 0;">R.L. 8809 - OCEANA JV</p> <h1 style="margin: 0;">LAND TENURE</h1>				
COMPILED : G.M.B. DATE : Sept., 1995 DRAWN : P.G.R. REVISIONS : FILE : 25_OCLTN	<table border="0"> <tr> <td style="font-size: 0.8em;">DRAWING No. 311-GN-003</td> <td style="font-size: 0.8em;">SCALE 1:25,000</td> <td style="text-align: center;">  </td> <td style="font-size: 0.8em;">FIG. No. 2</td> </tr> </table>		DRAWING No. 311-GN-003	SCALE 1:25,000		FIG. No. 2
DRAWING No. 311-GN-003	SCALE 1:25,000		FIG. No. 2			

3 PREVIOUS EXPLORATION & MINING

Comprehensive accounts of past prospecting and mining activities in the Zeehan area including the Oceana RL have been given in Taylor (1983), Jones (1988), and Saxon (1995).

The earliest report of mining activity at Oceana dates from 1890 when small scale trenching was undertaken. During the following 3 years the Oceana Silver Mining Co. extracted approximately 1000t at 39% Pb and 14.5 oz/t Ag. A further 517t of lead ore was mined between 1896-99 by Oceana Pty Ltd. No further significant production from the Oceana mine occurred until 1954 when Zeehan Mines Pty Ltd (a Joint Venture between North Broken Hill and Broken Hill South) reopened the old workings, following a successful exploration drilling program. Zeehan Mines extracted a total of 128 177t at 11.6% Pb and 4.79 oz/t Ag up to 1960 when the mine again closed. This phase of activity is summarised by Curtis (1981).

The Cyprus exploration program focussed on carbonate hosted Pb-Zn-Ag mineralisation within EL 4/78. During the 10 years of licence tenure, the area was geologically mapped, sampled using track mounted power auger, extensively costeamed, surveyed with IP, EM, gravity and magnetics, and tested by 25 diamond drill holes for a total of 6690m. Work was completed both by Cyprus/Amoco and EZ following the establishment of a Joint Venture covering the licence during 1983.

Activity within the area covered by RL 8809 was minimal after 1984, as EZ focussed activity on other sections of the licence. Untested potential for Oceana-style mineralisation was recognised over several other prospects, including Oceana South, Austral and Pyramid, where the amount of drilling is low.

From granting of RL 8809 until establishment of the Joint Venture, Hudspeth did not undertake any significant work, citing the prevailing unfavourable mineral

economics associated with the ore resource outlined above. Pasminco has completed an aeromagnetic survey, ground magnetic and gravity surveys, plus significant aircore and diamond drilling since Joint Venture inception.

4 GEOLOGY

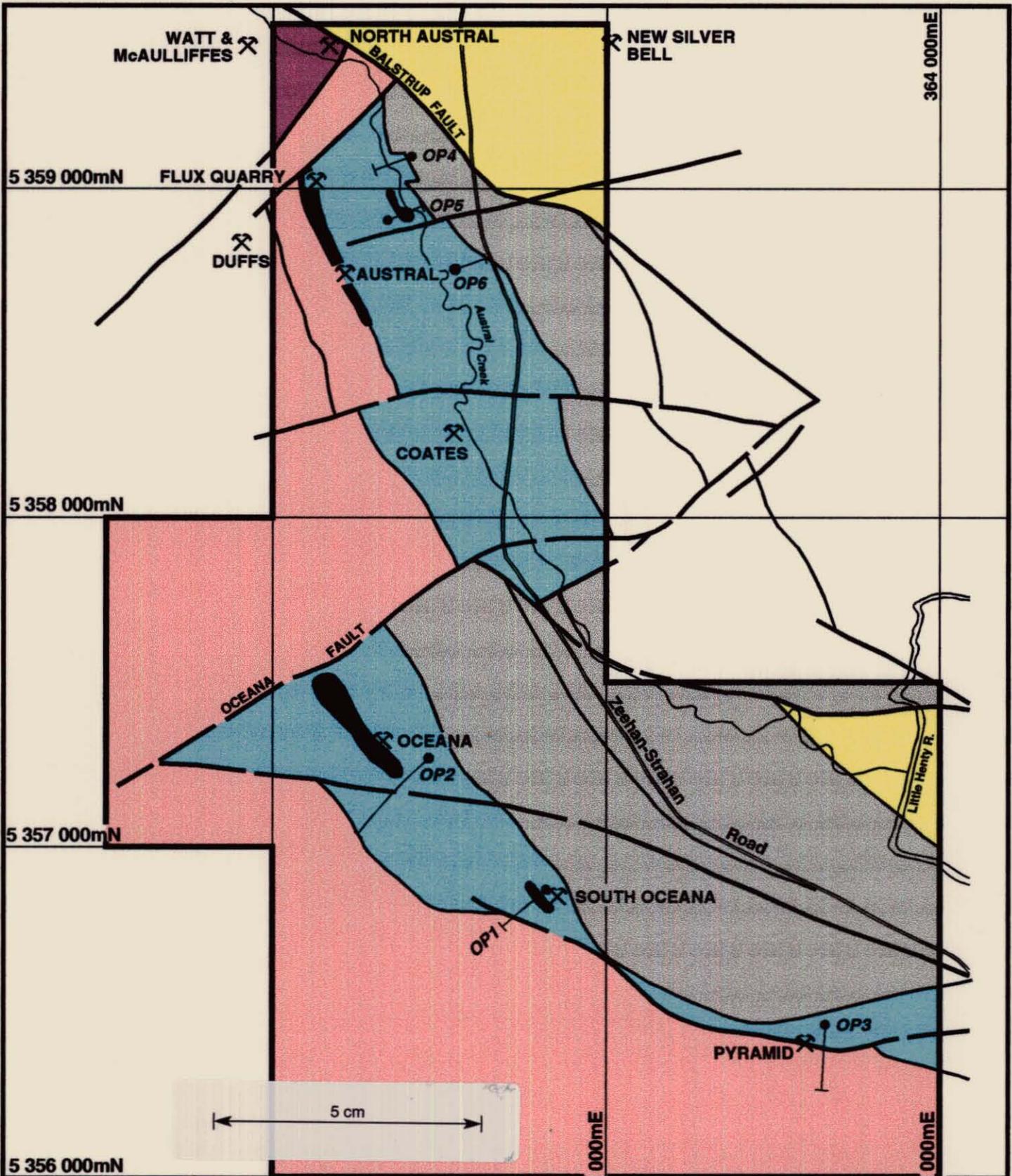
4.1 Regional Geology

The regional geological setting of the Zeehan area is well described in Blissett (1962), Taylor (1983) and Jones (1988).

The Oceana deposit is hosted by the Ordovician Gordon Group, a limestone dominated succession which overlies the Late Cambrian-Ordovician Denison Group, and underlies the Silurian-Devonian Eldon Group (Figure 3). Although Group contacts may be locally disconformable, there do not appear to be major structural breaks through the sequence.

Rock units older than the Denison Group which crop out in the Zeehan area are: the Cambrian Dundas Group, a mixed sedimentary and volcanic sequence; the Eo-Cambrian Crimson Creek Formation of deep marine mudstones, turbidites and volcanoclastics; and Proterozoic Oonah Formation quartzite and shale (Figure 4). To the northwest of the Oceana RL the Devonian Heemskirk Granite crops out. Widespread Sn and Pb-Ag-Zn mineralisation in the Zeehan field is attributed to the intrusion of this body. The Heemskirk Granite is modelled as forming an east-northeast trending ridge in the subsurface (Leaman and Richardson, 1989), and to occur at approximately 2km depth below the Oceana Mine.

The Oonah Formation has recently been interpreted (Findlay and Brown, 1992) as a thin overthrust sheet of possible Tabberaberan age. Thin skinned Devonian thrusting provides the possibility of shallow depth masked mineralisation in a variety of host formations in the Zeehan area.



LEGEND

- Florence Quartzite Bell Shale
- Crotty Quartzite, Amber Slate, Keel Quartzite
- Gordon Limestone
- Crimson Creek Formation
- Moina Sandstone, Mt. Zeehan Conglomerate

PASMINCO EXPLORATION <small>A Division of Pasminco Australia Limited</small>	
COMPILED : M.S.S. DATE : Sept., 1996 DRAWN : G.M.B. REF. : FILE : 25_SGEOL	R.L. 8809 - OCEANA SIMPLIFIED GEOLOGY
DRAWING No. 311-GL-045	SCALE 1:1750 FIG. No. 3

PERMIAN
 SILURIAN\DEVONIAN
 ORDOVICIAN
 CAMBRIAN
 PROTEROZOIC

ELDON GROUP

GORDON GROUP

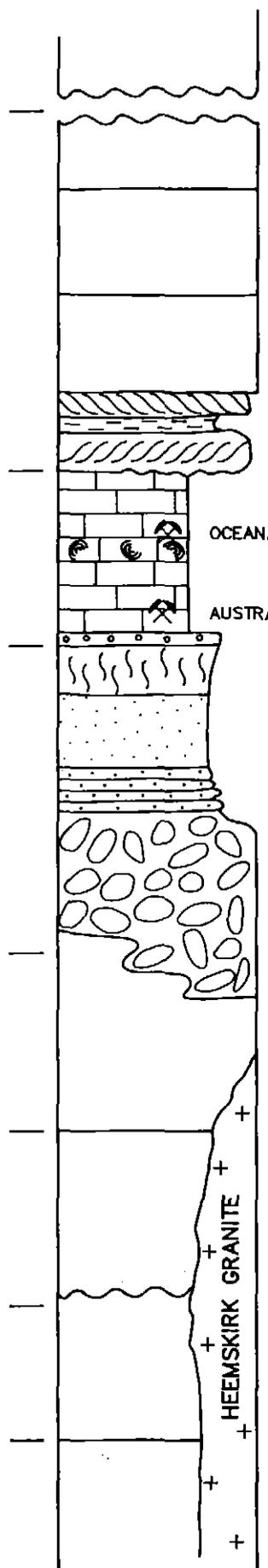
DENISON GROUP

DUNDAS GROUP

CRIMSON CREEK FORMATION

OONAH QUARTZITE

CONCERT SCHIST



~1500m

~500m

TABBERABBERAN OROGENY
 folding and granite intrusive

BELL SHALE

FLORENCE QUARTZITE

AMBER SLATE

CROTTY QUARTZITE

GORDON LIMESTONE

Shallow water low energy to high energy fossiliferous limestone

MOINA SANDSTONE

MT. ZEEHAN CONGLOMERATE

(This contact is a time transgressive response to Tyennanland convergence and may be coeval with Dundas Group)

Mixed sedimentary, epiclastic, volcanic sequence

Deep marine mudstones and turbidites

PENGUIN OROGENY

(Devonian)

 PASMINCO EXPLORATION A Division of Pasminco Australia Limited	
COMPILED : P.M.Q. DATE : Sept., 1992 DRAWN : G.M.B. REFERENCE : REVISIONS : M.S.S. Modified Sept., 1994 File No. SC.GLST	R.L. 8809 - OCEANA STRATIGRAPHIC COLUMN OF GORDON LIMESTONE REGIONAL CONTEXT
DRAWING No. 311-GL-012	SCALE
FIG. No. 4	

4.2 Local Geology

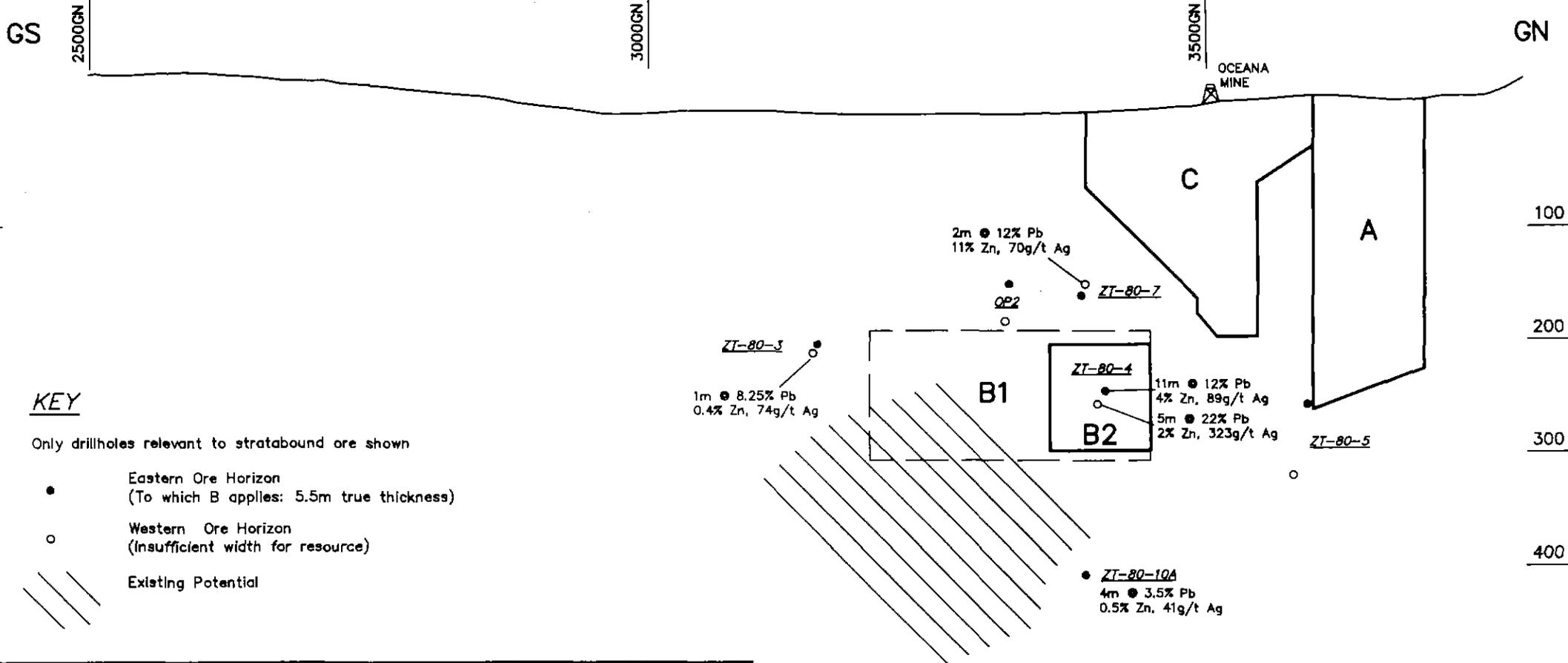
Limestone of the Gordon Group is the target sequence within the Oceana RL, and extends from the north to the south of the licence. The Gordon Limestone dips steeply to the east or west, is approximately 350m in thickness, and has been disrupted by a series of northeast-southwest and northwest-southeast trending brittle faults. The largest of these is the Oceana Fault which has produced 700m of apparent dextral offset of the Ordovician sequence. Work by Pasminco shows that the stratigraphic section from the Mt Zeehan Conglomerate through Moina Sandstone to the top of the Gordon Limestone, and possibly including the Crotty Quartzite is conformable (figure 6). Stratigraphy of the limestone is summarised in Quayle (1993).

The Gordon Limestone at Oceana is reasonably homogeneous throughout, and displays variation in sedimentary facies that indicate cycling of low energy and high energy shallow water environments (Saxon, 1994). All facies were deposited within photic and oxic zones, and typically above storm wave base. Overprint of diagenetic dolomite has resulted in a complex array of textures, due to the overlap of depositional and post-depositional features.

4.3 Mineralisation at Oceana

The Oceana deposit is comprised of two mineralisation styles. The area north of the Mine Fault, adjacent to the Oceana Fault, consists of coarsely crystalline galena-sphalerite mineralisation that crosscuts stratigraphy. South of the mine fault, mineralisation is present as two stratabound ore lenses (Figure 5)

Gangue to mineralisation is semi-massive siderite-ankerite of mixed replacement and open space fill origin. No evidence exists for sea-floor exhalation as interpreted by Cyprus/EZ. For discussion of ore textures and origin see Saxon (1994).



INFERRED RESOURCE

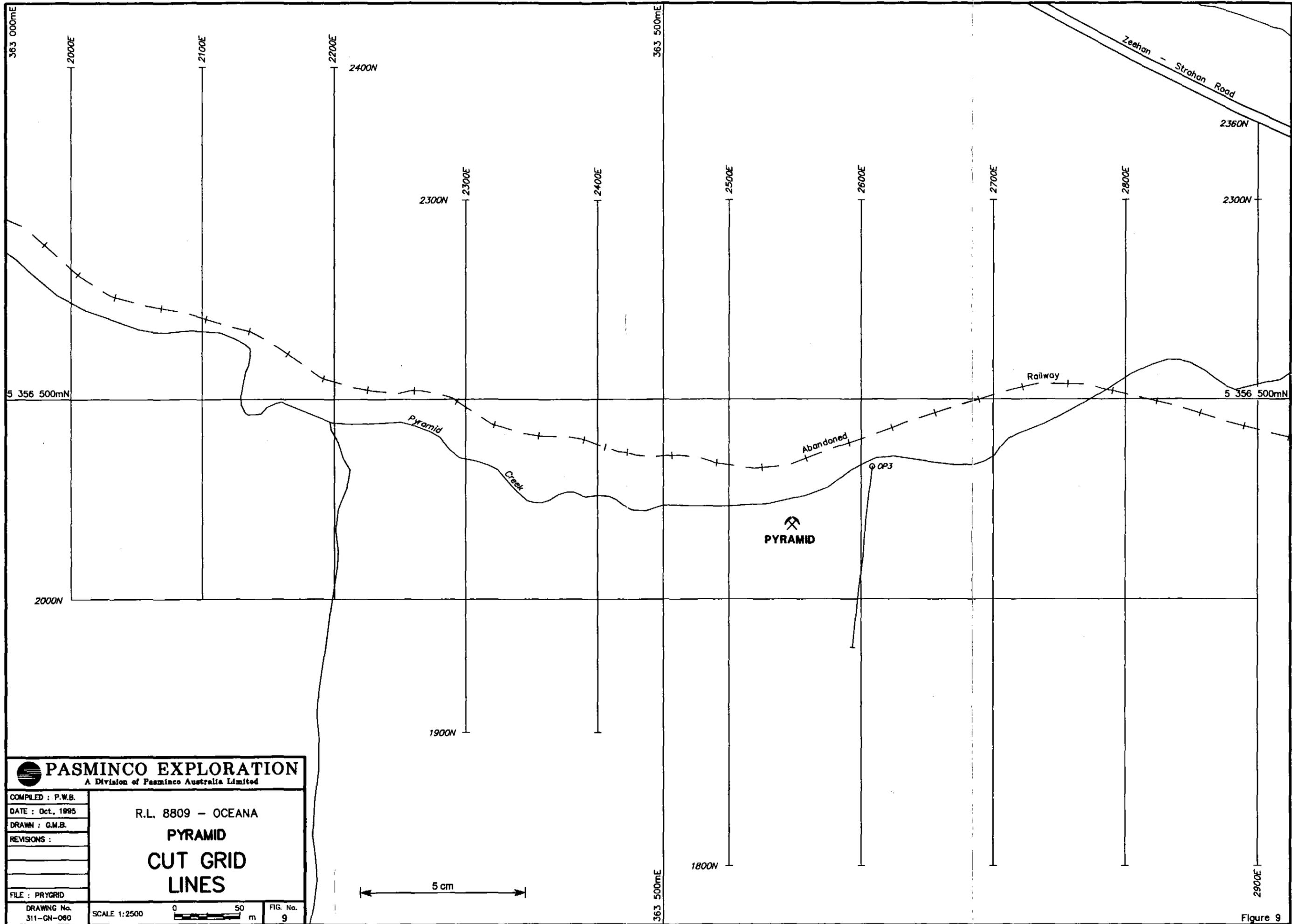
Using SG = 4 Cut off = 5% Pb + Zn

		tonnes	Pb %	Zn %	Ag g/t
A	CYPRUS 1988	2,297,000	7.1	2.5	48
B1	EZ 1983	750,000	12	4	89
B2	PASMINCO 1994	188,000	12	4	89
	TOTAL (1994)	2,485,000	7.5	2.6	51
C	PRODUCTION AND DETAILED PRE-1960 DRILLING				

5 cm

<p>PASMINCO EXPLORATION A Division of Pasminco Australia Limited</p>	
COMPILED : P.M.Q. DATE : Oct. 1992 DRAWN : G.M.B. REFERENCE : REVISIONS : M.S.S. Modified SepL. 1994 File No:5_RESPOT	RL8809 - OCEANA LOCATION OF INFERRED RESOURCE AND POTENTIAL
DRAWING No. 311-GL-014	SCALE 1:5000
	FIG. No. 5

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 PASMINGO EXPLORATION A Division of Pasmenco Australia Limited			
COMPILED : P.W.B.	R.L. 8809 - OCEANA PYRAMID CUT GRID LINES		
DATE : Oct., 1995			
DRAWN : G.M.B.			
REVISIONS :			
FILE : PRYGRID			
DRAWING No. 311-GN-080	SCALE 1:2500		FIG. No. 9

Figure 9

5 WORK COMPLETED

5.1 Drilling

OP6 (202.3m) was drilled on the Austral grid (figure 7) to test a ground magnetic anomaly, and the Gordon Limestone - Crotty Quartzite contact (figure 3). Mineralisation at this contact in OP5 was associated with above background magnetic susceptibility. In OP6 a zone of 10x background magnetic susceptibility was intersected at 120m with minor associated sphalerite mineralisation, however the hole failed to intersect the contact before bad drilling conditions forced the hole to be terminated (figure 8). OP6 drill log and assay results are contained in Appendix 1. Assay results for OP3, 4 and 5 which were not included in last years annual report are contained in Appendix 2.

5.2 Pyramid Grid Magnetic Survey

A small grid was cut in the pyramid valley where a small wedge of Gordon Limestone occurs beneath a thin glacial veneer (figure 9), and a ground magnetic survey conducted (appendix 3). Two small anomalies are recommended for follow up soil sampling and possible air core drilling.

5.3 Metallurgical Testing

To follow up the Austral air core program, 3 samples (approximately 50kg each) from the better areas of shallow mineralisation were taken for metallurgical testing (figure 7). Samples were taken using an excavator, immediately back filling the trench. Overburden is glacial sandstone deposits, thicknesses being; 2m(1800N/1340E), 2.6m(1800N/1320E), and 1.1m(1700N/1320E).

bag	line	mE	depth	comment
1	1800	1340	2-3m	plastic black decomposed limestone
2	1800	1340	2-3m	crumbly black/brown decomposed limestone
3	1800	1340	2-3m	crumbly black/brown decomposed limestone
4	1800	1340	2-3m	crumbly black/brown decomposed limestone
5	1800	1320	3+m	plastic black decomposed limestone
6	1800	1320	2-3m	plastic black decomposed limestone
7	1800	1320	4+m	saccharoidal black sulphidic limestone
8	1800	1320	4+m	saccharoidal black sulphidic limestone
9	1700	1320	1.5-2m	crumbly black/brown decomposed limestone
10	1700	1320	2.5-3m	sulphidic black plastic decomposed limestone
11	1700	1320	2.5-3m	sulphidic black plastic decomposed limestone
12	1700	1320	2.5-3m	sulphidic black plastic decomposed limestone

Analyses from air core drilling were

line	mE	Pb%	Zn%
1800	1320	0.36	4.35
1800	1340	9.5	6.87
1700	1320	9.8	0.65

A report on Metallurgical Testing is enclosed in Appendix 4.

5.4 Downhole EM Survey OP4

The down hole EM survey (appendix 5) detected responses from casing left in the hole. No signatures that could be associated with mineralisation were observed.

5.5 Petrology

9 samples from the mineralised parts of Austral Grid air core holes (see Saxon 1995) were sent for petrological examination to determine the type and size of zinc bearing minerals. The report (appendix 6) suggests that most of the zinc occurs as sphalerite with grains between 0.038mm and 0.1mm. Zinc may substitute for iron in the siderite.

6 CONCLUSIONS

Since 1992 Pasminco have carried out an extensive exploration program on the RL outside the immediate area of the Oceana deposit. The objective of this program was to prove up resources either as stand alone propositions or to be mined in conjunction with Oceana itself. The program has included ground magnetic surveys and infill gravity surveys over the RL, 1550m of air core drilling and 6 diamond drill holes. As a result of this work Pasminco Exploration is now convinced that there is no large zones of economic mineralisation close to the surface on the RL, and that the character of the mineralisation is such that it is considered unlikely that a viable ore deposit exists anywhere on the RL.

7 RECOMMENDATIONS

Pasminco Exploration will conduct no further exploration on RL8809 Oceana and plans to withdraw from the Joint Venture Agreement.

8 ENVIRONMENTAL REHABILITATION

All drill pads and access tracks have been rehabilitated.

9 EXPENDITURE

EXPENDITURE STATEMENT 1 SEPTEMBER 1995 - 31 AUGUST 1996

Personnel	\$32 311
Travel & Accommodation	\$2 481
Geological Consultants	\$360
Geochemical Consultants & Assays	\$1 809
Geophysical Surveys & Consultants	\$4 880
Other Consultants	\$6 461
Drilling	\$34 108
Stores & Supplies	\$1 527
Vehicles & Equipment	\$2 070
Land	\$10
Computing	\$1 659
Tenement Fees	\$500
Office Running Costs	\$7 768
Administration Fee (10%)	\$9 896
TOTAL EXPENDITURE	\$105,840

10 KEYWORDS AND LOCATION

LEAD, SILVER, ZINC, LIMESTONE, DOLOMITE, FACIES MARINE
SHALLOW, FAULT, CARBONATE HOSTED TYPE, DISCORDANT,
MASSIVE, STRATABOUND, ORDOVICIAN, DRILL DIAMOND, ASSAYING,
DRILL AIRCORE, GEOPHYS MAGNETICS.

QUEENSTOWN SK5505

TENEMENT: RL 8809 OCEANA JV

ZEEHAN, OCEANA, AUSTRAL

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APPENDIX 1

OP6 Drill Log and Assay Results

Project: OCEANA

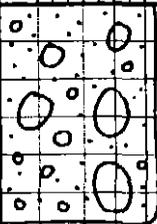
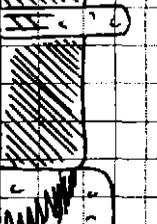
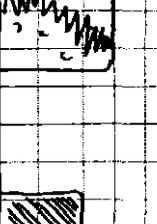
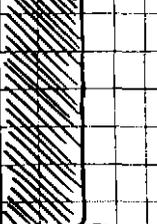
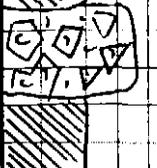
Logged by: M. SAXON

Date: 17/10/95

PASMINCO EXPLORATION DIAMOND DRILL LOG

HOLE No. OP6

Page 1 of 4

m	VEINING and ALTERATION (1 = weak, 4 = Intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG		LITHOLOGY	MINERALISATION
			0.06 mm	0.5 mm		
0				0.06 mm	0-5.8 <u>GLACIAL FLOAT</u> Quartzose gravel.	
10				0.5 mm	5.8-18.2 <u>PUG</u> Black calcareous pug with minor limestone rubble and fragments. Decomposed limestone.	
20				2 mm	18.2-24.8 <u>FOSSIL DOLOSTONE</u> Slightly fossiliferous dolostone, with numerous pug zones.	
30				32 mm	24.8-28.1 <u>PUG</u> Black calcareous pug, indistinct weathered 1st.	
30				max mm	28.1-31.6 <u>GRAINSTONE/MICRITE</u> F-g grainstone grading to micrite. Mn bioturbation; strong stylotization; abundant matrix; dolomite overprint predates stylotilites.	
40					31.6-34.8 <u>CAVITY</u> 34.8-41.7 <u>PUG</u> Rubble and dark grey, core loss. Minor grainstone.	
40					41.7-42.1 <u>GRAINSTONE</u> Blotchy dolomite altered fine grained grainstone. Weathered.	41.8-42.0 Calcite and pyrite veinlet.
45.3-47.7	45.3-47.7 Breccia zone. Coarse crystalline dolomite veining, minor late siderite-calcite veining.				42.1-45.3 <u>PUG</u> Minor Fe-staining. 45.3-47.7 <u>BRECCIA ZONE</u> Angular fragments of 1st in coarse crystalline dolomite; abundant shelly debris in matrix; minor late siderite-calcite veining.	
50						

Project: OCEANA

Logged by: M. SAXON

Date: _____

PASMINCO EXPLORATION DIAMOND DRILL LOG

242032

HOLE No. OP6

Page 2 of 4

m	VEINING and ALTERATION (1 = weak, 4 = Intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG 0.08 m 0.5 1 2 3 5 10 20 30 50 100 m	LITHOLOGY	MINERALISATION
50				47.7-50.8 <u>PUG</u> 50.8-53.4 <u>GRAINSTONE</u> Patchy dolomite altered grainstone. Occasional corals.	50.3 coarse pyrite nodules
60				53.4-65.6 <u>PUG</u> Short lengths of grey carbonate, dark grey to black pug. 65.6-66.7 <u>CAVITY</u>	
70				66.7-71.9 <u>PUG</u>	
80				71.9-87.0 <u>DOLOSTONE</u> Pale steel grey dolostone, minor lamination, coarsely crystalline dolomite. Rare fossil ghosts, increasing downhole. Dolomite filled vugs/pores. Minor stromatolite texture.	72.4 trace crystalline sphal. on fractures. 75.3 trace cpy-sph-galena in irregular dolomite vein.
90				Grainstone visible in part, with coral clasts. Rubble + pug at base.	76.4 trace sph- cpy-chalocite on fractures.
100				87.0-99.5 <u>DOLOSTONE</u> As above, fossil poor, massive. No stromatolite form.	
110				Shelly log from 92.9m.	
120					
130					
140					
150					
160					

PASMINCO EXPLORATION DIAMOND DRILL LOG

HOLE No. OP6

m	VEINING and ALTERATION (1 = weak, 4 = Intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG					LITHOLOGY	MINERALISATION
			0.06 mm	0.5	2	8	32 mm		
106								99.5-108.0 <u>RUBBLE + PUG</u> Mid-pale grey shattered dolomite. Weathered,uggy at base.	103.8 gal-sph in dolomite vein. 105.0 tr sph. in dolomite vein
110	108.5-111.4 Breccia zone with grey dolomite vein fill, rebx and veined by dol-qtz-sphal.							108.0-108.5 <u>PUG</u> 108.5-111.4 <u>BRECCIA ZONE</u> Fractured/angular dst in grey dolomite matrix. 2nd bx with calc-qtz veining. Coarse sphal in late veins.	108.9-111.4 sph in veins and dissen. & as coarse xls. Assoc. with bx.
								111.4-111.9 <u>PUG</u> 111.9-115.3 <u>WACKESTONE</u> Fine shelly wackestone, occasional coarse fragments, in limestone matrix. Minor patchy dolomite alteration. Occasional ooids.	
120								115.3-116.8 <u>PUG</u> 116.8-121.6 <u>GRAINSTONE</u> Packed shelly grainstone with irregular overprint of patchy dolomite alteration. Grades downhole to wackestone. Includes calcite sealed breccia 121.0-121.2.	120.1 tr sph. at margin of calcite vein.
								121.6-126.2 <u>PUG</u> Cream pug supporting grey shelly limestone rubble.	
130	127.2-128.9 Breccia zone, hosted by vein calcite and minor siderite.							126.2-127.2 <u>MICRITE</u> Micrite lst with minor dolomite. Fractured and calcite veined.	
								127.2-128.9 <u>BRECCIA ZONE</u> Angular limestone fragments hosted by vein calcite. Minor siderite, limonite staining.	
								128.9-141.9 <u>MICRITE</u> Cavernous micrite, minor wackest, matrix overprinted by pale crm alt's. Wackestone increases downhole. Dolomite overprint. Common pug zones.	
140								141.9-154.4 <u>RUBBLE</u> Cavernous weathered rubble.	
150									

Project: OCEANA

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Date: _____

PASMINCO EXPLORATION DIAMOND DRILL LOG

HOLE No. OP6

Page 4 of 4

m	VEINING and ALTERATION (1 = weak, 4 = intense)	STRUCTURE b = bedding c = cleavage f = fault Angles to LCA	GRAPHIC LOG						LITHOLOGY	MINERALISATION
			0.06 mm	0.5 mm	2 mm	8 mm	32 mm	max mm		
150									<p>154.4 - 158.2 <u>WACKESTONE</u> Rubbly puggy zone with wackestone fragments. Crn crm-brn pug. Calcite-dolomite breccia at 156.8-157.1. Limonitic pug.</p> <p>158.2 - 160.2 <u>PUG + LIMESTONE</u> Limonite stained, rubbly</p> <p>160.2 - 160.4 <u>CORAL HEAD.</u></p>	
160									<p>160.4 - 170.3 <u>DOLOMICRITE</u> Msv gry dolomicrite, textureless, fossil poor, minor calcite veining.</p>	
170									<p>170.3 - 172.4 <u>GRAINSTONE</u> Irregularly bedded, dk to light grey grainstone and wackestone, shell rich, recrystallised calcite.</p> <p>172.4 - 172.8 <u>PUG</u> Grey-crm pug.</p> <p>172.8 - 174.9 <u>CAVITY</u> Minor dk gry carbonate</p>	
180									<p>174.9 - 175.4 <u>GRAINSTONE</u> Minor gastropod rich grainstone</p> <p>175.4 - 202.4 <u>RUBBLE + PUG</u> Weathered dk grey pug, minor crm pug, abundant rubble. Probable minor qtz sandstone.</p>	
190										
200										
202.4									202.4 - EOH	

hole_id	lgc_samp	lgc_jobno	lgc_from	lgc_to	Cu	Pb	Zn	Ag	Fe	Mn	Cd
OP6	40060	11409	5.8	6.4	28	639	3826	2	1.74	45	13
OP6	40061	11409	6.4	7.8	30	599	6600	1	3.16	1280	14
OP6	40062	11409	7.8	9.3	11	238	1519	<1	1.5	731	5
OP6	40063	11409	9.3	9.7	10	89	725	<1	0.92	451	2
OP6	40064	11409	9.7	10.4	10	69	924	<1	2.61	1530	1
OP6	40065	11409	10.4	11.9	11	84	953	<1	2.35	1262	2
OP6	40066	11409	11.9	12.4	11	65	981	<1	1.29	753	1
OP6	40067	11409	12.4	13.1	11	90	1375	<1	4.99	3090	1
OP6	40068	11409	13.1	14.2	13	56	590	<1	2.54	1526	1
OP6	40069	11409	14.2	15.4	10	118	996	1	2.96	1845	2
OP6	40070	11409	15.4	16.9	11	86	1180	<1	5.44	3377	1
OP6	40071	11409	16.9	17.5	10	44	664	<1	7.1	4096	<1
OP6	40072	11409	17.5	18.7	11	55	368	<1	2.91	1529	1
OP6	40073	11409	18.7	19.9	8	57	332	<1	1.87	1144	2
OP6	40074	11409	19.9	21.4	8	49	299	<1	1.49	859	2
OP6	40075	11409	21.4	22.9	10	51	743	<1	1.39	845	1
OP6	40076	11409	45.3	46	8	51	640	<1	1.81	1201	2
OP6	40077	11409	46	46.8	7	17	108	<1	2.23	1276	1
OP6	40078	11409	46.8	47.4	6	25	141	<1	4.24	1916	1
OP6	40079	11409	47.4	48.4	8	111	845	<1	0.53	1059	4
OP6	40080	11409	48.4	49	7	41	164	<1	0.43	232	1
OP6	40081	11409	49	49.6	7	67	653	<1	0.73	677	4
OP6	40082	11409	49.6	50.2	5	86	670	<1	0.21	255	4
OP6	40083	11409	50.2	50.7	11	150	1003	1	18.7	276	3
OP6	40084	11409	69.3	70.5	7	111	1074	<1	1.52	1299	3
OP6	40086	11409	71.3	72.3	8	727	1621	<1	1.77	1734	8
OP6	40085	11409	72.3	73.5	6	100	1255	<1	0.94	1322	7
OP6	40087	11409	73.5	74.9	7	380	1118	<1	1.03	903	4
OP6	40088	11409	74.9	76.6	8	567	1775	<1	1.24	984	8
OP6	40089	11409	76.6	78	<2	199	3538	<1	0.91	1234	18
OP6	40090	11409	78	78.2	7	469	226	<1	1.86	1161	2
OP6	40091	11409	78.2	80.7	10	224	643	<1	1.03	757	4

hole_id	lgc_samp	lgc_jobno	lgc_from	lgc_to	Cu	Pb	Zn	Ag	Fe	Mn	Cd
OP6	40092	11409	80.7	82.8	7	148	344	<1	0.83	543	2
OP6	40093	11409	82.8	83	6	38	146	<1	0.46	554	2
OP6	40094	11409	83	85	6	92	510	<1	1.5	1077	2
OP6	40095	11409	104.1	105	6	121	691	<1	0.96	982	3
OP6	40096	11409	105	106.5	6	233	745	<1	1.53	1536	4
OP6	40097	11409	106.5	108.3	6	101	774	<1	1.29	1252	3
OP6	40098	11409	108.3	109.3	10	187	3490	<1	7.07	11600	20
OP6	40099	11409	109.3	111	8	58	3786	<1	12.5	20700	11
OP6	40100	11409	110	112.4	10	80	2243	<1	4.39	7900	10
OP6	36488	11409	112.4	113.6	8	101	1668	<1	1.4	1243	8
OP6	36489	11409	113.6	115	6	71	1063	<1	1.86	1877	3
OP6	36490	11409	126.2	128.4	6	94	501	<1	2.33	1782	1
OP6	36491	11409	128.4	130.8	6	77	1189	<1	3.91	3647	3
OP6	36492	11409	130.8	133.1	8	144	1124	<1	1.28	1320	6
OP6	36493	11409	133.1	134	8	231	1100	<1	2.22	1907	9

APPENDIX 2

OP3, 4, 5 Assay Results
(not reported in 1994-1995 Annual Report)

OP3 ASSAY RESULTS

<i>sample</i>	<i>from</i>	<i>to</i>	<i>Cu</i>	<i>Pb</i>	<i>Zn</i>	<i>Ag</i>	<i>Fe%</i>	<i>Mn</i>	<i>Cd</i>
39627	12	13	9	159	593	<1	1.29	834	3
39628	13	14	11	256	760	<1	1.02	764	4
39629	14	15	9	245	451	<1	0.73	298	5
39630	17	18	8	590	614	1	1.32	678	9
39631	18	19	12	400	250	<1	0.81	949	2
39632	73	75	7	171	409	<1	1.5	797	2
39633	75	77	9	653	1504	1	2.93	1774	6
39634	77	79	6	137	332	<1	0.8	498	3
39635	100	102	4	18	147	<1	1.55	856	1
39636	102	104	3	11	424	<1	1.14	718	1
39637	104	106	3	13	204	<1	0.85	528	1
39638	106	108	5	18	648	<1	1.06	626	1
39639	108	110	5	17	205	<1	1.19	820	1
39640	134	136	8	13	3293	<1	24.7	34900	<1
39641	136	138	23	120	3549	<1	4.66	1875	1
39642	138	140	19	209	2686	<1	14.7	8200	<1
39643	140	142	23	411	7800	<1	2.44	74	11
39644	142	144	119	2345	1251	3	1.1	32	3

OP4 ASSAY RESULTS

sample	from	to	Cu	Pb	Zn	Ag	Fe%	Mn	Cd
75001	50	52	23	406	1313	1	0.89	30	12
75002	52	54	25	406	2077	4	1.82	48	6
75003	54	56	15	328	1218	2	0.87	39	4
75004	70	72	6	120	290	1	0.89	94	<1
75005	72	74	5	139	125	<1	0.62	61	<1
75006	80	82	13	402	422	1	1.24	227	1
75007	82	84	18	285	1012	2	2.17	378	1
75008	84	86	13	463	5500	1	17.5	16500	14
75009	89	90	5	64	1482	<1	9.11	4695	2
75010	91.5	93.7	10	210	2246	1	11	5500	3
75011	113	115	11	191	517	<1	1.35	1138	4
75012	137	139	7	59	1162	<1	3.77	9800	5
75013	139	141	11	172	3914	1	5.61	11400	21
75014	141	143	6	105	828	<1	2.08	4587	4
75015	143	145	4	217	701	<1	1.63	1334	2
75016	157	158.3	5	88	2936	<1	5.64	13800	9
75017	161.8	163.8	4	210	930	<1	2.24	1995	4
75018	163.8	165.8	6	236	960	<1	3.3	3096	2
75019	182	184	4	165	809	<1	2.24	2023	2
75020	184	186	5	74	304	<1	1.99	1549	<1
75021	186	188	3	90	179	<1	1.64	1040	<1
75022	188	190	4	63	342	<1	2.13	1916	<1
75023	200	202	7	136	428	<1	1.2	1181	1
75024	202	204	9	506	1656	<1	1.2	1210	6
75025	204	206	2	153	513	<1	0.68	745	2
75026	206	208	7	375	2260	<1	1.95	2013	8
75027	208	210	3	151	779	<1	1.75	2750	2
75028	210	212	3	107	254	<1	1.3	875	<1
75029	212	214	3	135	333	<1	1.3	1067	1
75030	214	216	3	332	317	<1	1.58	2161	<1

<i>sample</i>	<i>from</i>	<i>to</i>	<i>Cu</i>	<i>Pb</i>	<i>Zn</i>	<i>Ag</i>	<i>Fe%</i>	<i>Mn</i>	<i>Cd</i>
75031	231	232	3	42	183	<1	0.64	1419	2
75032	232	233	4	107	668	<1	0.56	1135	3
75033	233	234	5	363	1832	<1	1.42	6500	8
75034	234	235	8	333	6900	<1	3	15400	37
75035	235	236	7	167	5400	<1	3.28	14300	30
75036	236	237	8	78	1126	<1	2.5	6000	6
75037	237	238	14	1445	2325	<1	2.25	7600	16
75038	238	239	10	105	1130	<1	1.33	5700	7
75039	239	240	7	94	1077	<1	2.45	7600	6

OP5 ASSAY RESULTS

<i>sample</i>	<i>from</i>	<i>to</i>	<i>Cu</i>	<i>Pb</i>	<i>Zn</i>	<i>Ag</i>	<i>Fe%</i>	<i>Mn</i>	<i>Cd</i>
75040	12	14	3	193	691	<1	1.05	1219	4
75041	14	16	3	106	410	<1	0.78	507	3
75042	29	30	3	191	785	<1	0.98	1135	4
75043	30	30.7	9	596	1842	<1	1.05	1850	8
75044	30.7	33.4	10	3540	5200	1	8.7	37200	24
75045	33.4	33.7	11	5600	8700	2	2.62	8500	35
75046	33.7	34.5	16	10200	8300	5	5.78	24200	39
75047	34.5	36	7	15600	5100	3	15.2	62100	21
75048	36	37.6	18	2356	5100	2	2.04	2528	19
75049	37.6	39	6	216	701	<1	2.04	2157	4
75050	39	41	2	294	1599	<1	1.85	2116	7
75051	41	43	6	272	885	<1	2.58	2423	4
75052	61.4	63.4	5	173	744	<1	3.37	5800	4
75053	63.4	64.3	6	215	951	<1	4.08	6300	5
75054	64.3	66.4	7	629	3057	1	2.64	3733	12
75055	66.4	67.7	10	3026	4166	2	21.9	61800	17
75056	67.7	68.6	6	2640	2444	1	21.1	59800	11
75057	68.6	69.2	11	1074	5100	1	4.73	14100	21
75058	69.2	69.6	6	396	2832	<1	18	55100	12
75059	69.6	70.2	4	8100	3320	3	9.81	28800	14
75060	70.2	71.2	10	1043	4477	1	3.29	9500	19
75061	71.2	73.2	9	289	2498	1	2.45	3099	11
75062	73.2	76.4	7	96	2104	<1	1.21	987	9
75063	76.4	78.4	10	69	717	<1	2.08	2144	4
75064	78.4	80.1	4	64	635	<1	1	665	3
75065	80.1	82.8	6	40	204	<1	1.77	1431	2
75066	82.8	84.4	11	126	1926	1	4.12	14600	8
75067	84.4	85.6	8	234	1790	1	3.14	5500	8
75068	132.1	133.2	16	1010	2574	1	0.77	272	18
75069	133.2	134.4	4	132	663	<1	1.11	994	4

sample	from	to	Cu	Pb	Zn	Ag	Fe%	Mn	Cd
75070	134.4	135.6	4	111	1111	<1	4.75	2778	3
75071	135.6	136.9	8	1578	727	1	0.53	818	4
75072	153.6	154.4	9	33	376	<1	1.97	1595	3
75073	177.2	177.8	123	18200	3952	51	18.6	66000	17
75074	177.8	178.8	129	61200	6200	84	24	105000	43
75075	178.8	179.2	39	56300	6700	50	19.3	70200	41
75076	179.2	179.7	36	62800	7100	59	14.7	54100	38
75077	179.7	180.3	59	57000	6200	48	16.4	55200	29
75078	180.3	181.3	9	1322	2458	1	11.7	22700	13
75079	181.3	184.4	4	373	1625	1	7.15	8700	8
75080	154.4	154.9	6	113	746	<1	5.45	4622	2
75081	154.9	155.8	5	29	396	<1	2.27	1727	3
75082	155.8	157.4	4	27	583	<1	5.73	4274	4
75083	157.4	157.9	7	38	362	<1	1.43	1246	3
75084	157.9	158.6	6	36	487	<1	1.93	1790	4
75085	158.6	159.3	5	96	754	<1	2.09	1502	5
75086	159.3	161.1	8	38	506	<1	4.21	3235	2
75087	161.1	162.1	4	43	159	<1	2.03	1523	1
75088	162.1	163	3	253	1489	<1	3.9	4600	7
75089	163	169.3	4	45	496	<1	4.75	3831	2
75090	169.3	174.9	9	36	530	<1	9.76	9000	2
75091	174.9	175.5	8	48	364	<1	19.3	20100	1
75092	175.5	176.3	7	126	757	1	7.68	7700	3
75093	176.3	177.2	7	377	1656	1	7.06	7800	7

APPENDIX 3

Pyramid Grid Magnetic Survey



MEMORANDUM

TO: Marcus Tomkinson
FROM: Paul Basford
DATE: 26 April, 1996
REF: pwb\96109
SUBJECT: GROUND MAGNETICS: PYRAMID GRID - OCEANA RL 8809

Summary

On 8 December 1995 a total of 5.4 line km of ground magnetics was surveyed over the Pyramid grid, Oceana RL 8809. The survey was designed to test for any updip expressions of mineralisation as found using the magnetic technique in the Austral valley. Data collected was extremely noisy and a repeat survey over the known Gordon Limestone position was conducted on December 14.

Conclusion and Recommendations

Data indicates only two anomalies that require specific follow up, however, both appear to be strike limited and both are difficult to characterise.

It is recommended that the following anomalies be followed up by soil sampling and if need be by Aircore drilling, to determine if they are updip extensions of potential mineralisation. These anomalies are line 2300E, between 2000N and 2075N, with possible strike extensions both west and east to lines 2200E and 2400E, and line 2700N at 2010E, which also appears on line 2000N at 2695E.

Ground magnetic data was collected using the GSM-19F fast sampling magnetometer which took readings every second along the line. Base station data was collected using the Scintrex OMNI-IV magnetometer, sampling every ten seconds.

The survey conducted on 8 December 1996 has not been corrected for diurnal variation due to the base station system stopping during the survey. It was noted however, that during the period for which the diurnal was recorded there was little activity. Control pegs spaced twenty metres apart were used to convert timed sampling to station sampling.

Data is extremely noisy and as such required a significant amount of filtering. To aid in the interpretation, a 2 line km of repeat surveying was conducted on 14 December. The repeat area was confined to the known location of the Gordon Limestone. This data is vastly superior to that collected earlier, and may aid in interpretation and processing of the earlier collected data.

Profiles for each line have been generated. Due to the small area of the repeat survey and the noise in most of the original data it is not deemed appropriate to generate contours.

From the profiles of the first survey it is clearly apparent that a heading error exists. That is the background values are different from one line to another. This can be accounted for by the fact that the lines were either read from north to south or vica-versa. Why this error is so large for a ground survey is quite curious. There is no apparent heading error for the second survey, which utilised a slightly smaller pole and different connector cable between the magnetometer head and machine.

Interpretation

Several small, strike limited anomalies are apparent in the repeat survey data set. When comparing responses to the earlier survey it is clear that the two data sets do not match well. The remainder of the interpretation therefore has been conducted on the repeat data set.

Line 2900E displays three long wavelength small amplitude anomalies, all of which are different to that observed in the Austral valley.

Line 2800E may have two long wavelength small amplitude anomalies, however, both are offset from line 2900E indicating strike variation.

Line 2700E has a 15nT shallow, small wavelength response at 2010N, which may be of interest. A long wavelength, small amplitude response is evident further north on the line.

Line 2600E does not contain any interesting response, inferring either the anomaly on line 2700E is isolated or strikes in a southerly direction.

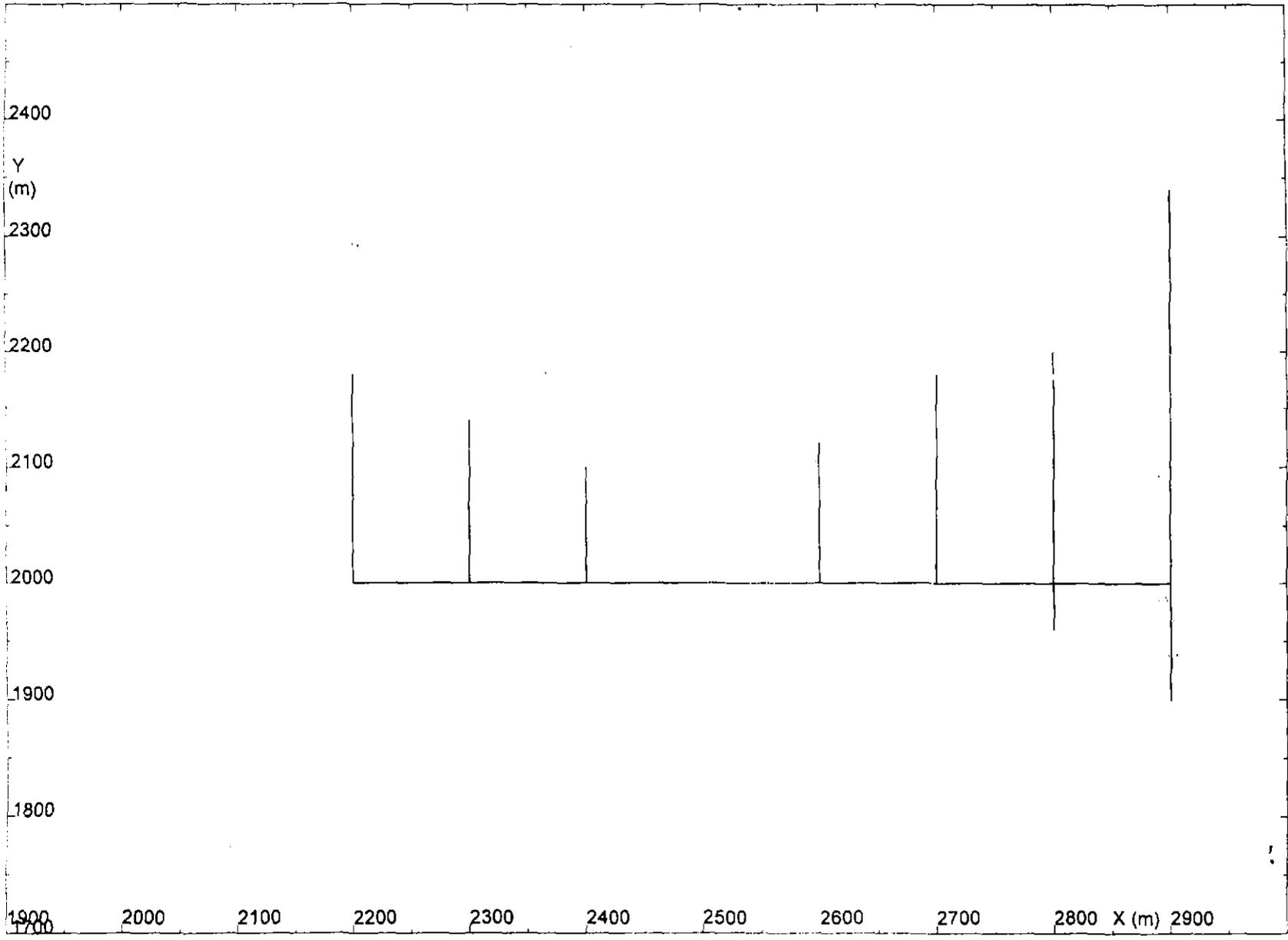
Line 2400E has a very narrow wavelength 10 nT plus anomaly superimposed on what may be a basement response. This feature may be of interest.

Line 2300E displays the most interesting response of all the data, with two high amplitude (15-20 nT) small wavelength responses, on top of a basement response. These anomalies may be related to that observed on line 2400E.

Line 2200E displays a broader, slightly longer wavelength response as compared to line 2300E, still however along strike. This may be caused by the two 'bodies' getting merged and slightly deeper. This feature also warrants further attention.

Line 2000N (baseline) clearly indicates the response observed on line 2700N, however, the amplitude is much greater, being 30 nT instead of 15 nT. Other anomalies that may be of interest are at 2550E (best of all the remaining anomalies), 2450E and 2360E.

For some unknown reason line 2500E was missed in the repeat survey and the original survey data is too noisy to be useful in this interpretation.

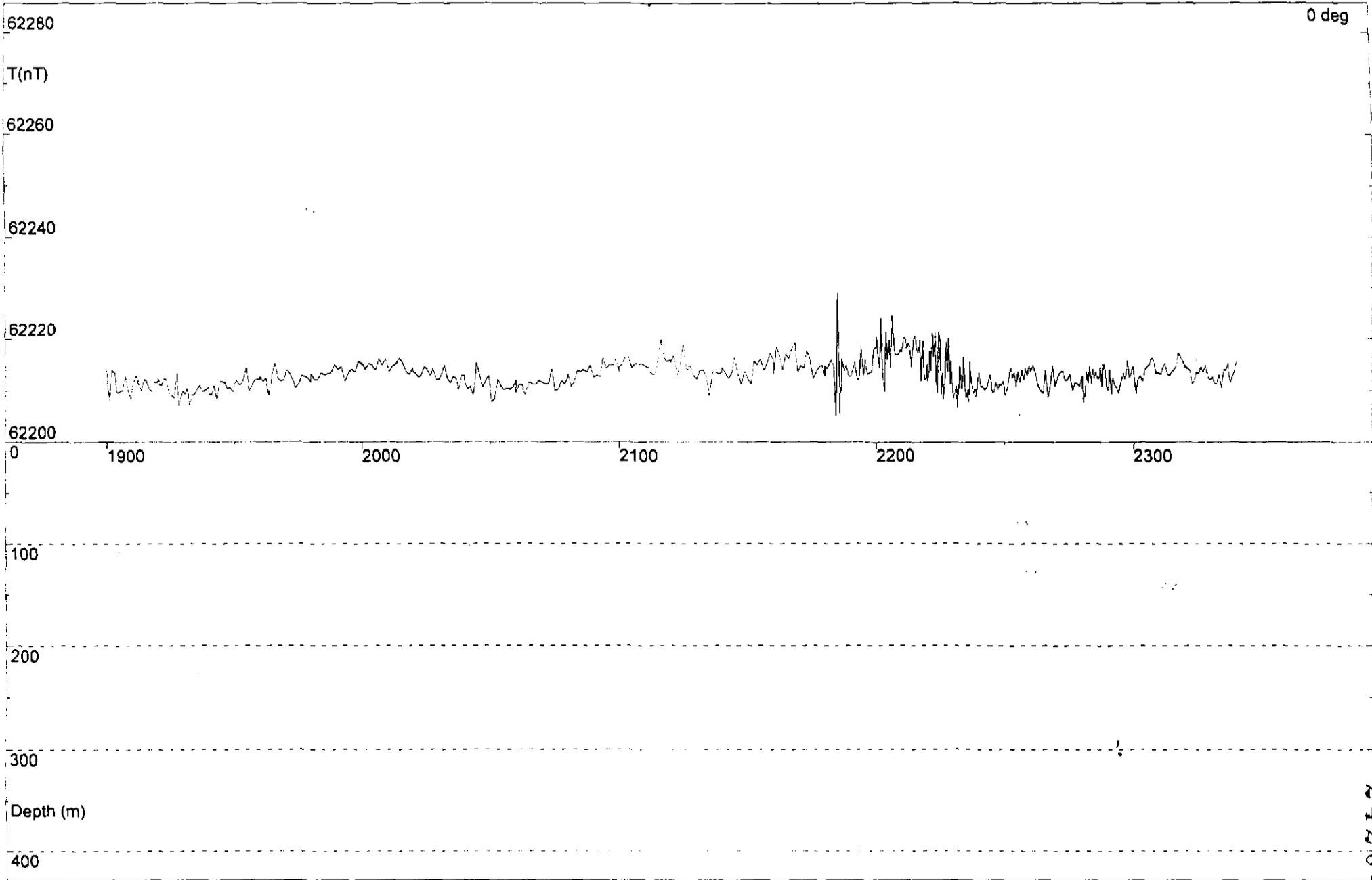


Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)

Model:

POTENT v3.06 Plan drawn at 10:52 30/01/1996 for Pasmenco Exploration

242047



Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)
Profile #1; 29E
Model:
Calculation mode: Total Magnetic Intensity

242048

62280

0 deg

T(nT)

62260

62240

62220

62200

0 2000 2100 2200 2300 2400

100

200

300

Depth (m)

400



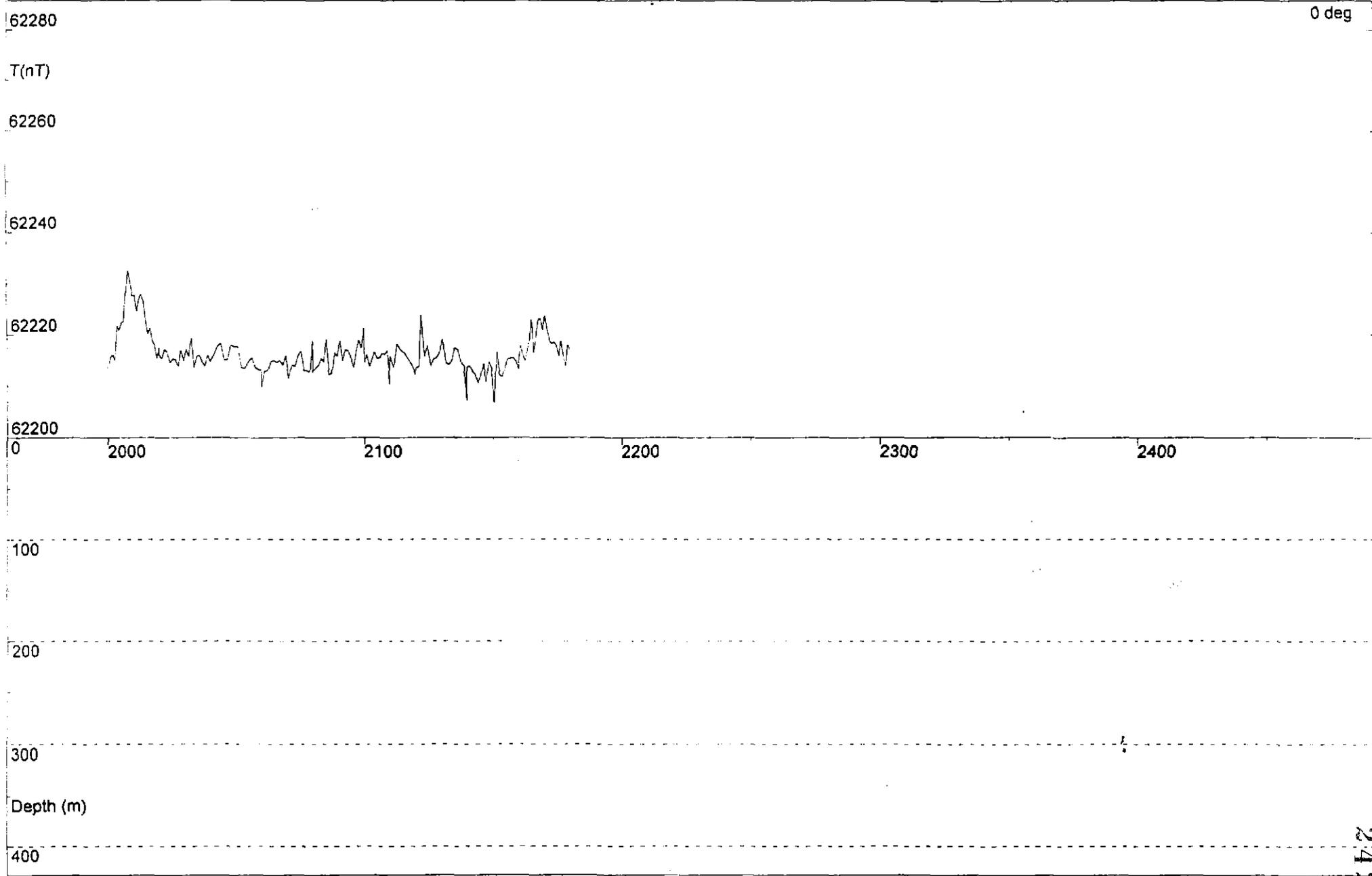
Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)

Profile #2: 28E

Model:

Calculation mode: Total Magnetic Intensity

542049



Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)
Profile #3; 27E
Model:
Calculation mode: Total Magnetic Intensity

242050

62280

0 deg

T(nT)

62260

62240

62220

62200

0

2000

2100

2200

2300

2400

100

200

300

Depth (m)

400

Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)

Profile #4; 26E

Model:

Calculation mode: Total Magnetic Intensity



242051

62280

0 deg

T(nT)

62260

62240

62220

62200

0 2000 2100 2200 2300 2400

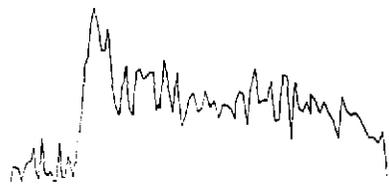
100

200

300

Depth (m)

400



Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)

Profile #5; 24E

Model:

Calculation mode: Total Magnetic Intensity

242052

62280

0 deg

T(nT)

62260

62240

62220

62200

0

2000

2100

2200

2300

2400

100

200

300

Depth (m)

400

Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)

Profile #6; 23E

Model:

Calculation mode: Total Magnetic Intensity

242053

0 deg

62280

T(nT)

62260

62240

62220

62200

0

2000

2100

2200

2300

2400

100

200

300

Depth (m)

400

Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)
Profile #7; 22E
Model:
Calculation mode: Total Magnetic Intensity

242054

90 deg

62280

T(nT)

62260

62240

62220

62200

0

2200

2300

2400

2500

2600

2700

2800

2900

3000

3100

3200

3300

X (m)

100

200

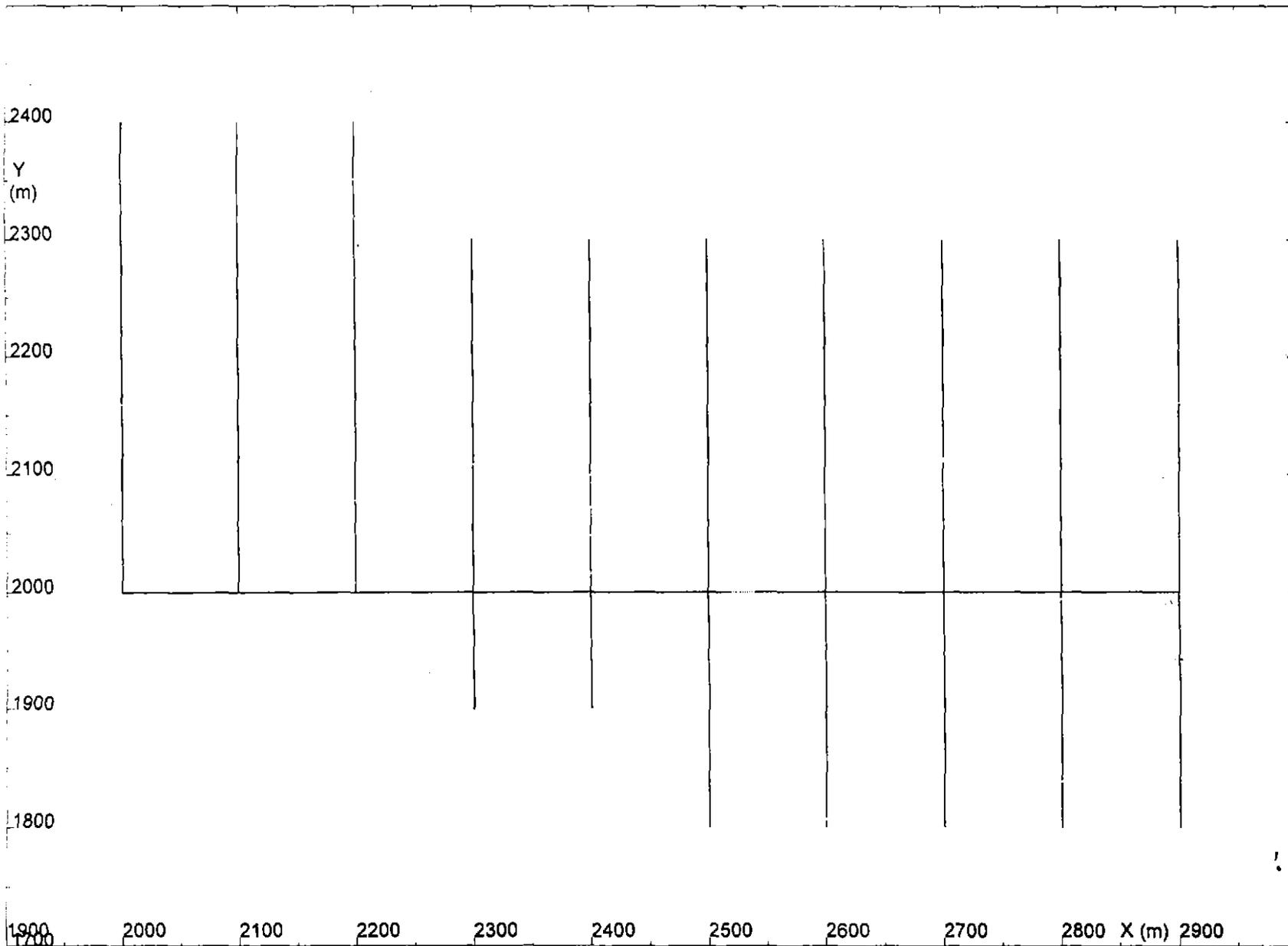
300

Depth (m)

400

242055

Observations: Pyramid Ground Magnetics - (Selected repeat 14-12-95)
Profile #8: 20N
Model:

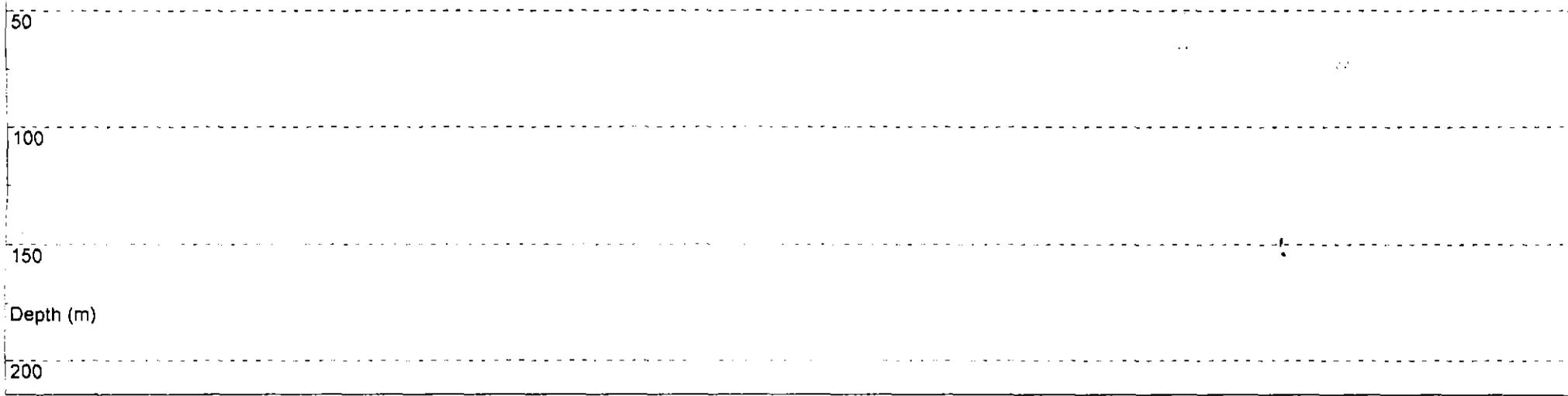
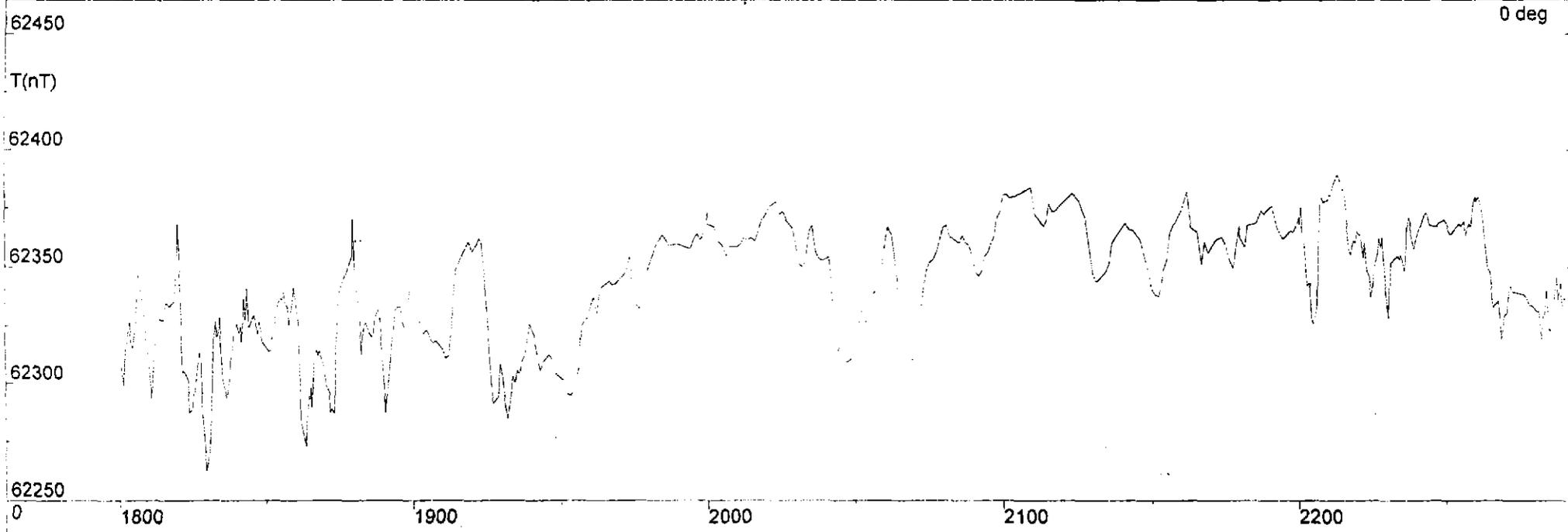


Observations: Pyramid Ground Magnetics - (8-12-95)

Model:

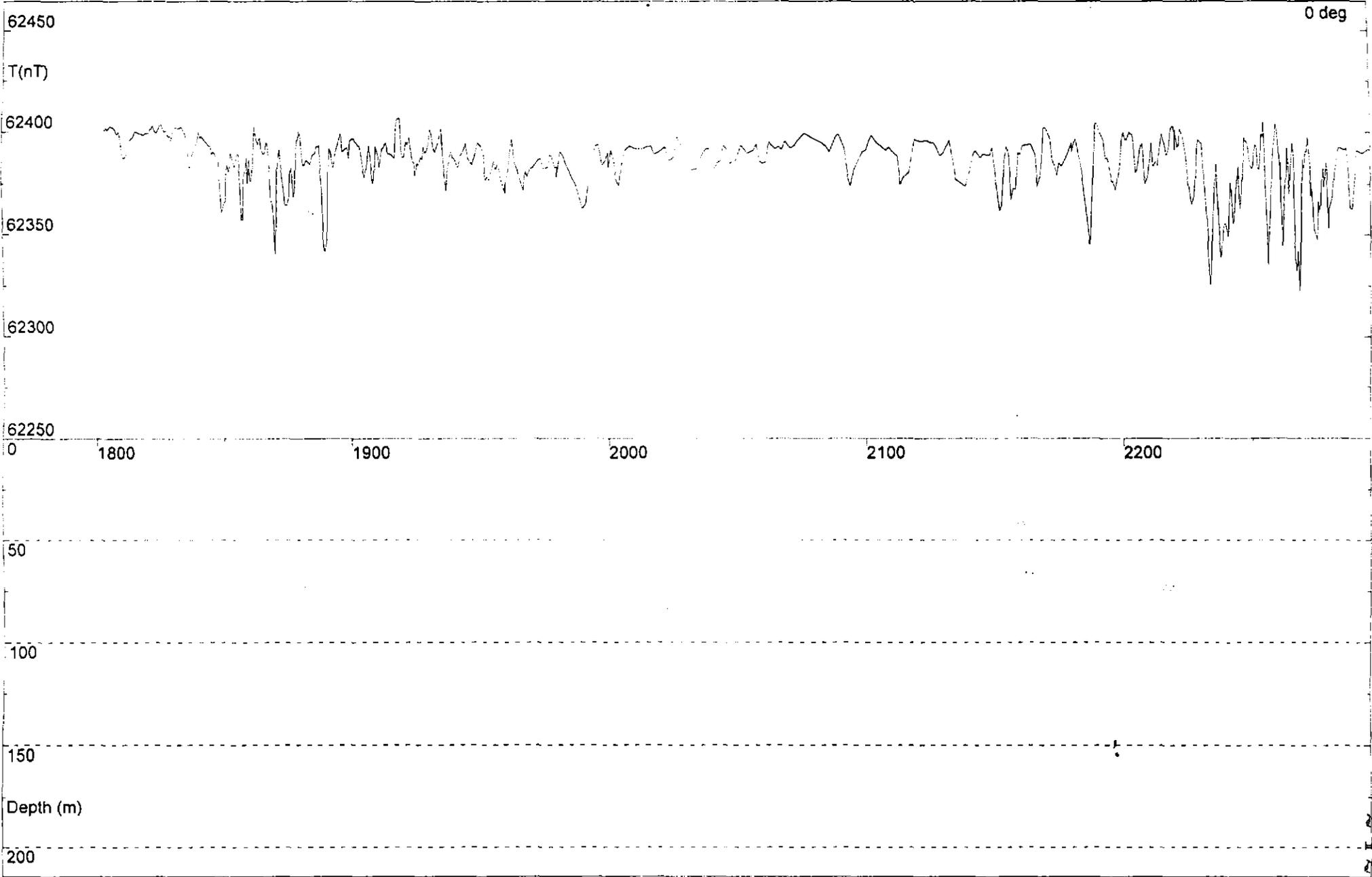
POTENT v3.06 Plan drawn at 10:54 30/01/1996 for Pasminco Exploration

242056



Observations: Pyramid
Profile #5; 2900
Model:
Calculation mode: Total Magnetic Intensity

242057



Observations: Pyramid
Profile #4: 2800
Model:
Calculation mode: Total Magnetic Intensity

242058

62450

0 deg

T(nT)

62400

62350

62300

62250

0

1800

1900

2000

2100

2200

50

100

150

Depth (m)

200

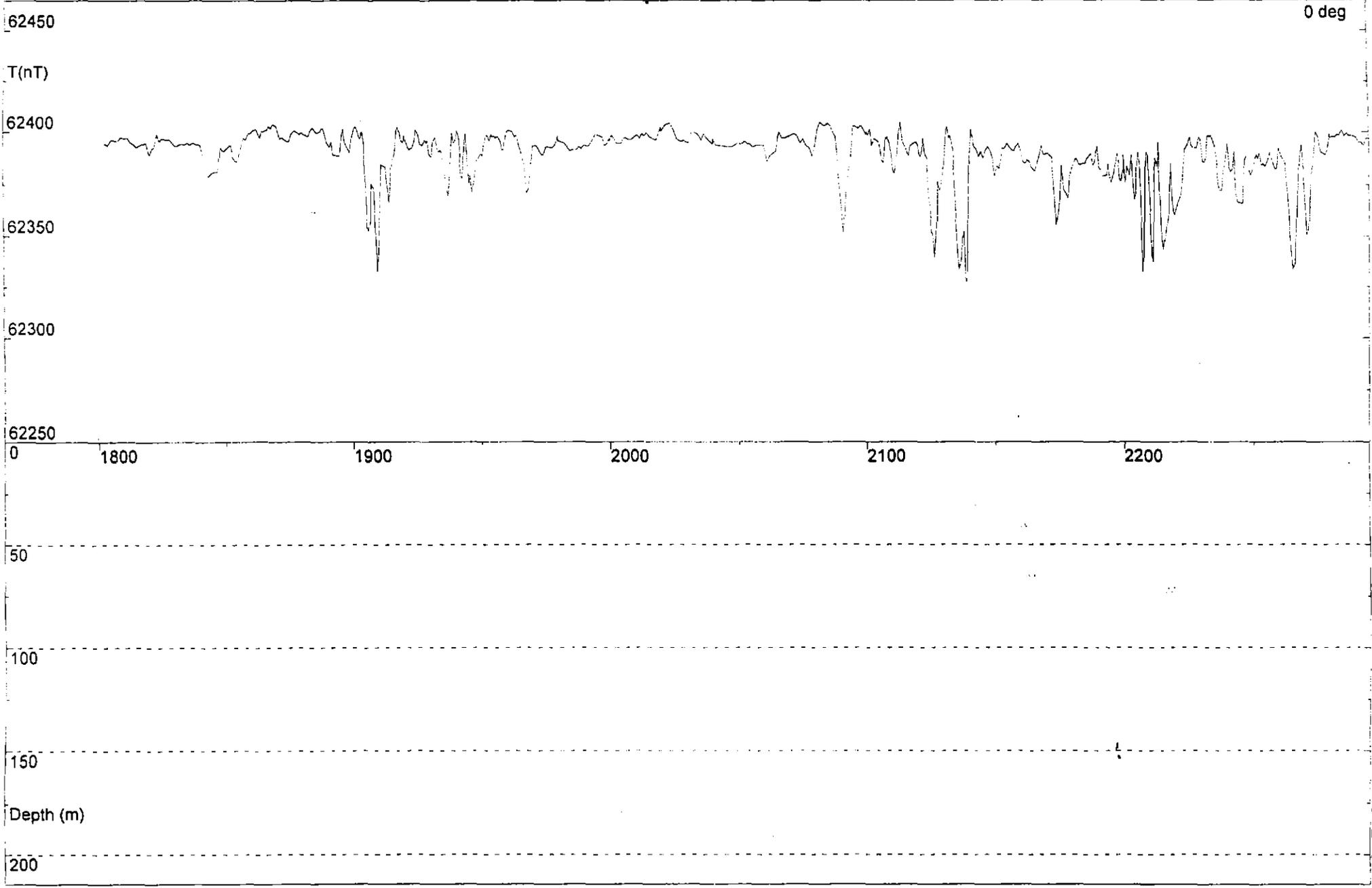
Observations: Pyramid

Profile #3: 2700

Model:

Calculation mode: Total Magnetic Intensity

242059



Observations: Pyramid
Profile #2: 2600
Model:
Calculation mode: Total Magnetic Intensity

242060

62450

0 deg

T(nT)

62400

62350

62300

62250

0

1800

1900

2000

2100

2200

50

100

150

Depth (m)

200

Observations: Pyramid

Profile #1: 2500

Model:

Calculation mode: Total Magnetic Intensity

242061

0 deg

62450

T(nT)

62400

62350

62300

62250

0

1900

2000

2100

2200

2300

50

100

150

Depth (m)

200

Observations: Pyramid
Profile #5: 2400
Model:
Calculation mode: Total Magnetic Intensity

242062

0 deg

62450

T(nT)

62400

62350

62300

62250

0

1900

2000

2100

2200

2300

50

100

150

Depth (m)

200

Observations: Pyramid

Profile #4: 2300

Model:

Calculation mode: Total Magnetic Intensity

242063

62450

0 deg

T(nT)

62400

62350

62300

62250

0

2000

2100

2200

2300

2400

50

100

150

Depth (m)

200

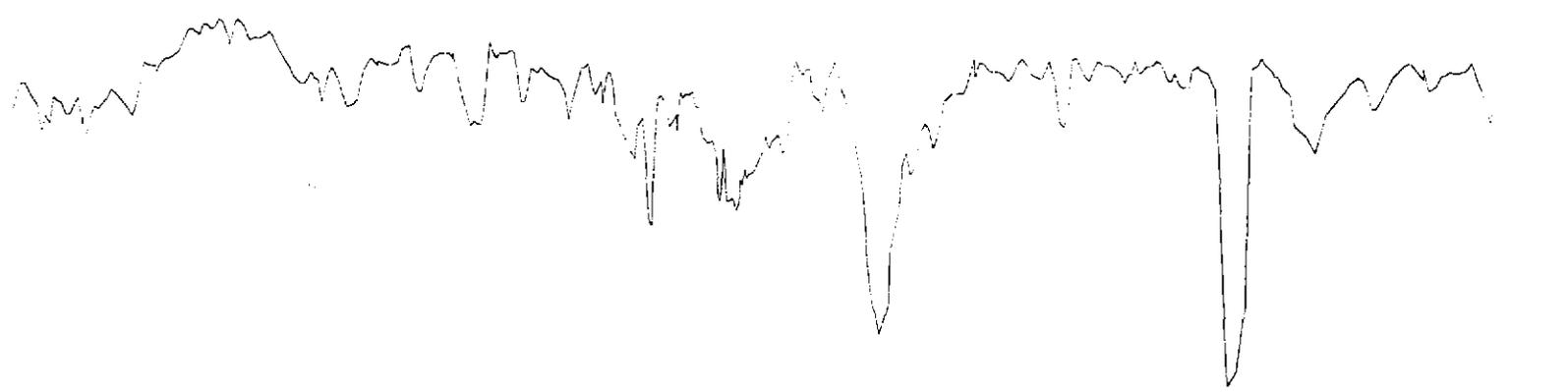
Observations: Pyramid

Profile #3: 2200

Model:

Calculation mode: Total Magnetic Intensity

242064



0 deg

62450

T(nT)

62400

62350

62300

62250

0

2000

2100

2200

2300

2400

50

100

150

Depth (m)

200

Observations: Pyramid

Profile #2: 2100

Model:

Calculation mode: Total Magnetic Intensity

242065

62450

0 deg

T(nT)

62400

62350

62300

62250

0

2000

2100

2200

2300

2400

50

100

150

Depth (m)

200

Observations: Pyramid

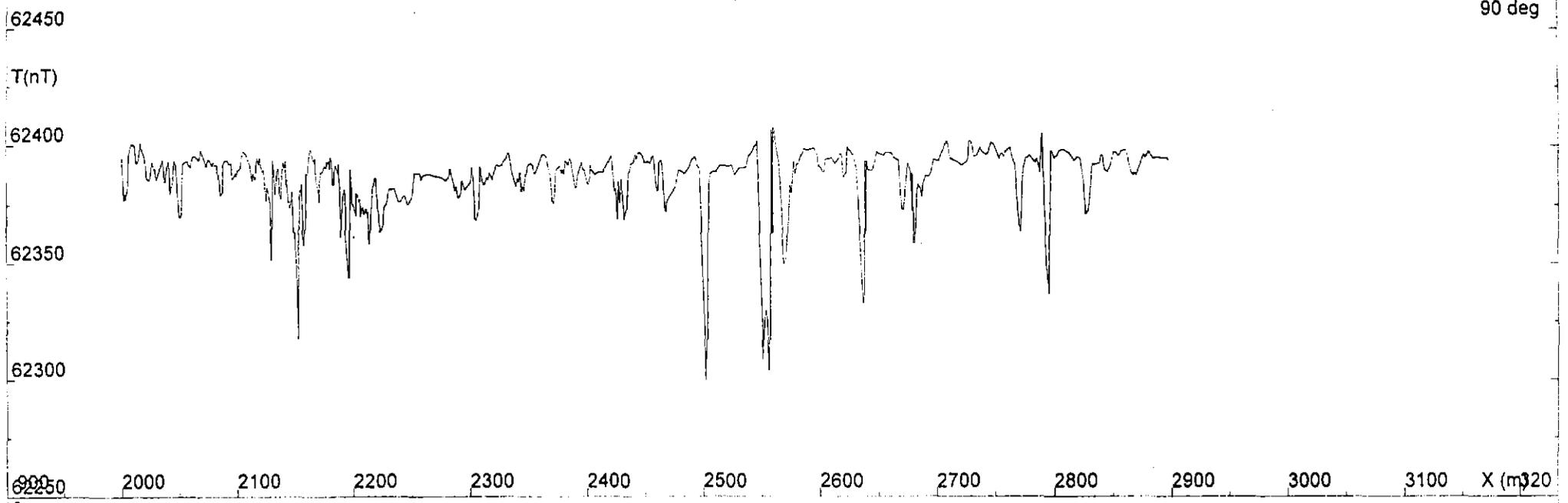
Profile #1: 2000

Model:

Calculation mode: Total Magnetic Intensity

242066

90 deg



Observations: Pyramid
Profile #6: 2000 (baseline)
Model:
Calculation mode: Total Magnetic Intensity

242067

APPENDIX 4

Metallurgical Report

METALLURGICAL EVALUATION OF OCEANA SAMPLES

Draft Report by Chris Mwaba, Pasminco Mining

Introduction

Twelve samples from the Oceana Pb/Ag Resource at Zeehan were received for metallurgical assessment. Based on information available, testwork was undertaken to determine the amenability of the material to a simple gravity upgrading process.

Upon receipt, each sample was assayed for base and precious metals. A composite/bulk sample was then made by simply combining the twelve individual samples. This composite sample was then sized by sieving and cyclosizing and each size fraction analysed for base and precious metals. Tables 1 and 2 show the assays obtained.

It is to be noted that because of the predominantly fine nature of the material, problems were encountered in sample preparation. For example, once dried, the material tends to cake/cement and thereafter needs breaking up, resulting in unintended crushing/size reduction of the original sample in the process.

Discussion

The Oceana deposit has been estimated to contain some 4M tonnes at 7.9% Pb, 2.1% Zn and 84g/t Ag. All the samples delivered to Rosebery were of substantially lower grade than the stated resource grade, apart from samples AS5 and AS6.

- The composite sample grade was 1.2% Pb and 2.4% Zn.
- Sizing data shows the composite sample to comprise predominantly fine material at 75% passing 15µm.
- In general, all the metals are evenly distributed throughout the size fractions. Of significance is the fact that approximately 75% of the metals are present in the - 15µm size fraction (Figure 1).

Conclusions

The predominantly fine nature of the material makes it unsuitable for simple gravity concentration techniques. In addition, the apparent even distribution of the metal values over the size range tested suggests that sizing separation techniques would also be inappropriate.

Because of its fine nature, material is unsuitable for treatment on the existing process at Rosebery as its introduction into the flotation circuit would lead to a variety of problems related to ultra-fine particle flotation, including slime-coating, which would have a deleterious impact on concentrate grades and metal recoveries. Previous flotation tests performed on samples from the Oceana resource showed the material to

be incompatible with typical Rosebery feed because of the observed poor recovery properties of the Oceana material.

There may be some merit in continuing testing but on higher grade feed sources. This would, however, greatly depend on the practical aspects of the anticipated grade control during ore extraction. Also, where coarser material (than that tested here) is to be treated, alternative size reduction techniques (eg attrition type processes) rather than the impact processes currently used at Rosebery might prove beneficial in enhancing concentration process performance. However, the economics of such treatment processes may very well prove to be unattractive.

Recommendation

Testing should be continued on less oxidised, higher grade samples. Mineralogical studies should also be conducted in order to establish the character of the ore and identify potential concentration processes.

APPENDIX 5

OP4 Down Hole EM Survey



MEMORANDUM

TO: D Gardner

FROM: PW Basford

DATE: 2 October 1996

REF: pwb/96277

SUBJECT: DHEM - OP4: Oceana RL 8809

Summary

Hole OP4 was surveyed with DHEM in May, 1996. The only conductor observed in the data is from steele pipe left in the hole from 30-70m.

Conclusions and Recommendations

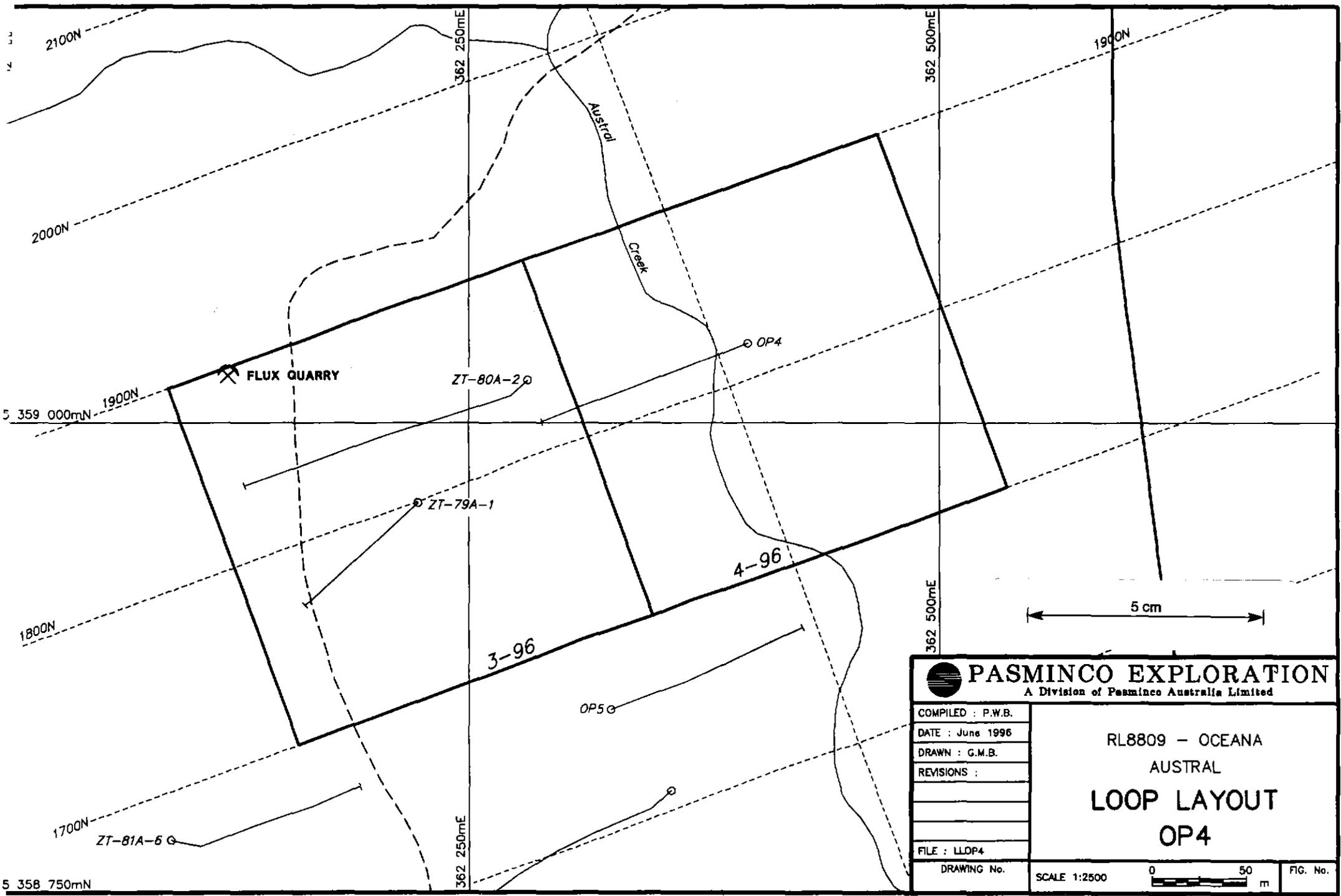
No conductive off-hole body is present proximal to DDH OP4.

Surveying

Two 200m by 200m loops were used for the survey, one placed over the collar (loop 4-96), the other west of the collar overlying the hole at depth (loop 3-96). The survey was recorded using a 10 msec time base and 0.5 msec ramp on the receiver. The transmitter had a very fast shut off (unknown speed) which causes ringing in the primary pulse as it decays. A 15 ohm resistor was placed in the loop to decrease the amplitude of the ringing. Twenty channels of data were recorded from 0.05 to 6.2 msec. A peak current of 4 Amps was circulated through both loops. The hole was read to a depth of 240m.

Loop 4-96 and 3-96

Both data sets show an in-hole conductor from 30m to 70m which correlates with metal drill pipe stuck in the hole. No other features are observable in the data.



 PASMINCO EXPLORATION A Division of Pasminco Australia Limited	
COMPILED : P.W.B.	RL8809 - OCEANA AUSTRAL LOOP LAYOUT OP4
DATE : June 1996	
DRAWN : G.M.B.	
REVISIONS :	
FILE : LLDP4	SCALE 1:2500 
DRAWING No.	

242073

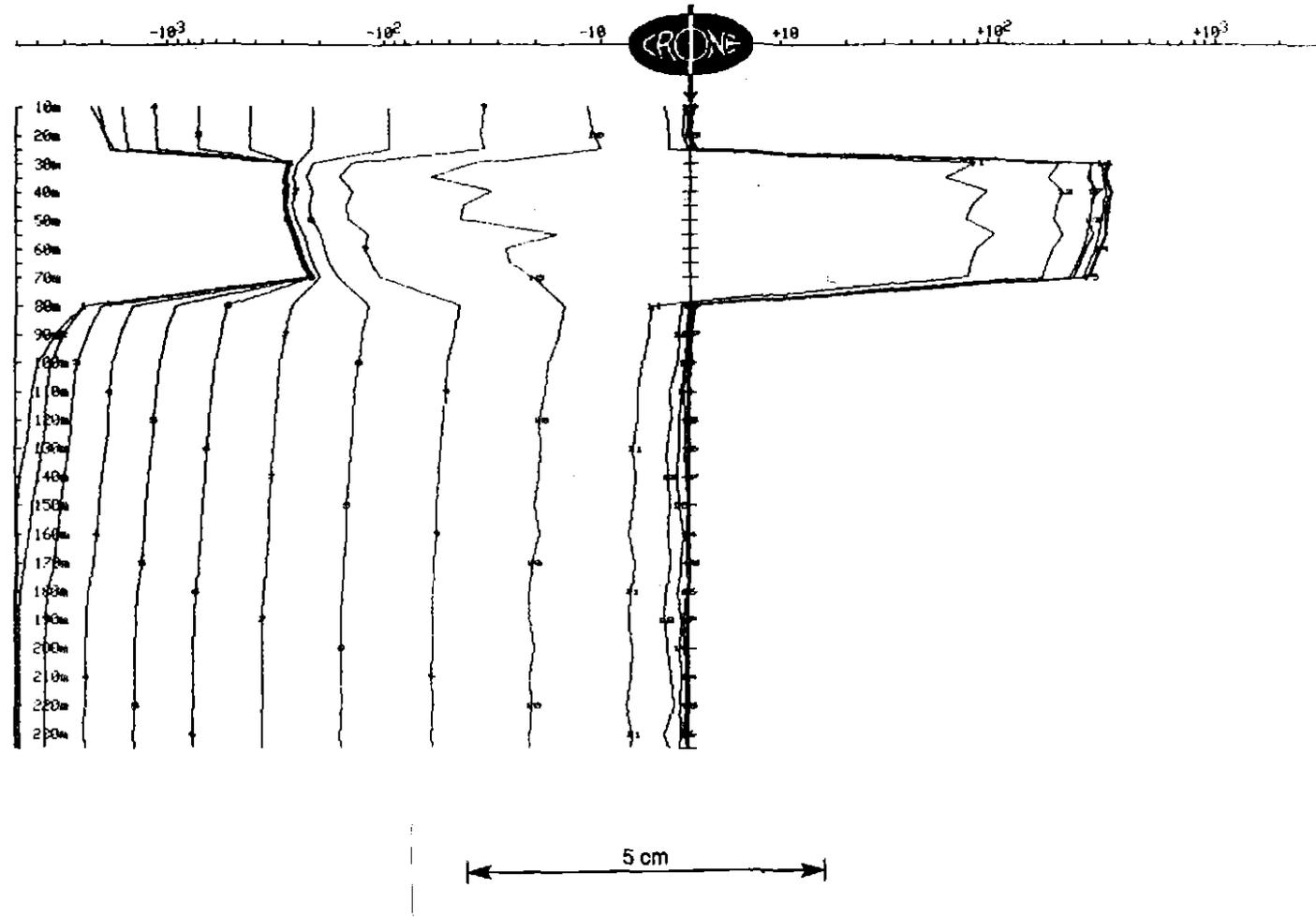
Pasminco Exploration BOREHOLE PEM

Client : BURNIE, Tasmania
Grid : Austral
Date : May 13, 1996

Hole : OP4
Tx Loop : 3-96
File name : OP412.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:2500



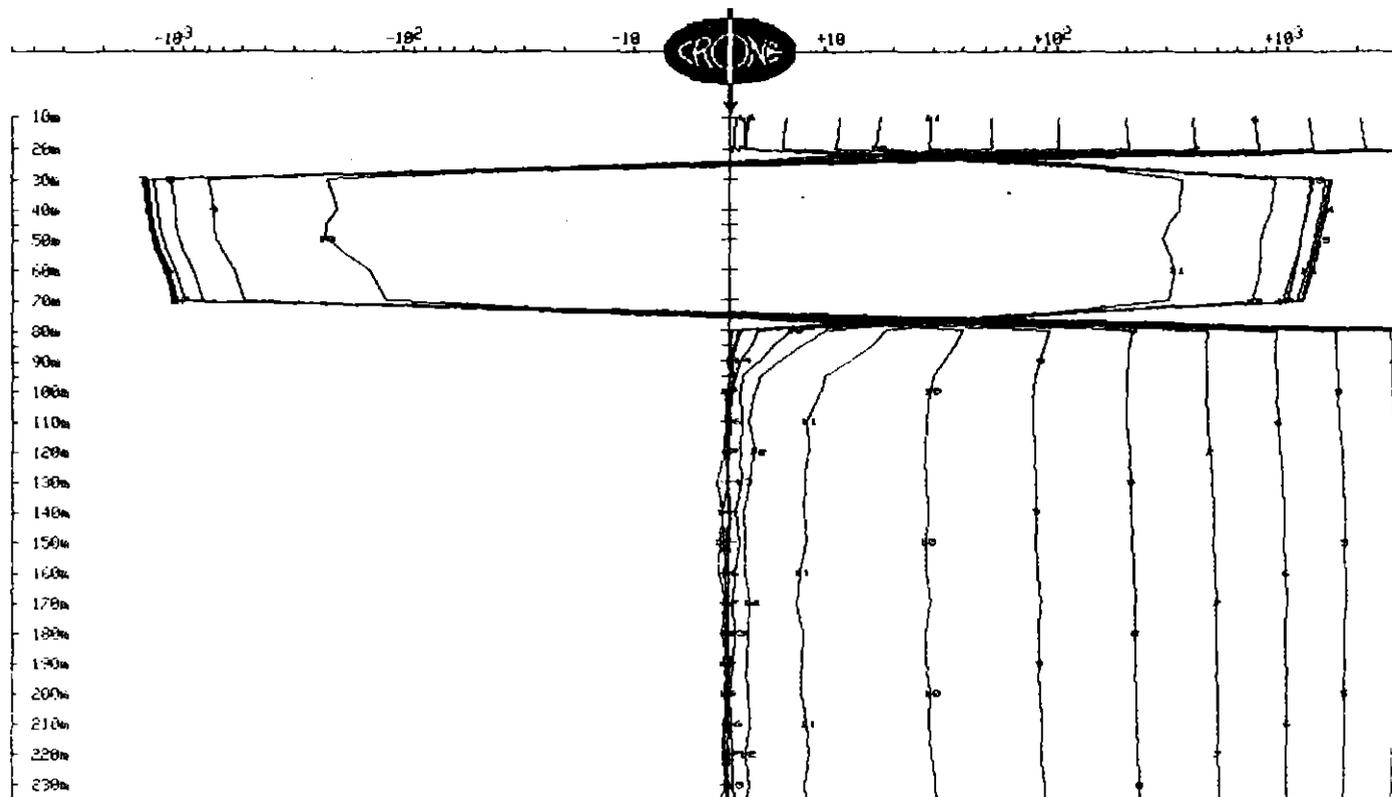
Pasminco Exploration
BOREHOLE PEM

Client : BURNIE, Tasmania
Grid : Austral
Date : May 13, 1996

Hole : OP4
Tx Loop : 4-96
File name : OP4.PEM

Z COMPONENT dBz/dt nanoTesla/sec - 17 channels

Scale: 1:2500



APPENDIX 6

Petrology Report



A.C.N. 008 127 802

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Mineral Services Laboratory
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Thebarton SA 5031
AUSTRALIA

Telephone (08) 416 5200
Facsimile (08) 352 8243
Telex AA82520

242077

PO Box 338
Torrensville Plaza SA 5031

31 January 1996

Mr Mark Saxon
Pasminco Exploration
GPO Box 886
BURNIE TAS 7320

REPORT G625500G/96
PETROLOGY OF NINE SAMPLES

YOUR REFERENCE: Letter received 8 January 1996

SAMPLE IDENTIFICATION: 75328-36

MATERIAL: Aircore drill chips

LOCATION: Western Tasmania

DATE RECEIVED: 8 January 1996

WORK REQUIRED: Petrography and mineragraphy (9 Code PET 3.1.2), X-ray diffraction analysis (9 Code XRD 3), sizing (9 Code SIZE 2.1) and chemical analysis (18 Code MET1)

Investigation and Report by: Frank Radke

Dr Keith J Henley
Manager, Mineralogical Services

The results contained in this report relate only to the sample(s) submitted for testing. Amdel Ltd accepts no responsibilities for the representivity of the sample(s) submitted.

hk

PETROLOGY OF NINE SAMPLES

SUMMARY

The nine samples submitted may be subdivided into the following three groups.

- (1) A quartz and chert-rich sample (75328) with only traces of carbonate.
- (2) Four samples (75329-32) comprised mainly of siderite with minor pyrite, marcasite and sphalerite. The pyrite and marcasite typically form granular aggregates although some framboidal pyrite is present.
- (3) Four samples (75333-36) comprised mainly of a substituted siderite with minor pyrite and sphalerite. The pyrite has a framboidal texture and much of the sphalerite has a colloform texture.

Sphalerite occurs in all the samples and is thought to account for much of the zinc in these samples. It is possible that zinc could also be substituted for iron in the siderite but electron microprobe analysis would be needed to determine the carbonate composition.

PETROLOGY OF NINE SAMPLES

1. INTRODUCTION

A total of nine samples were submitted by Pasminco Exploration for petrological analysis to identify the zinc-bearing minerals and discover whether the zinc is within the fine or chip component. After discussions with Mr Mark Saxon of Pasminco Exploration it was decided to carry out the following programme.

- (1) Sizing of a portion of the sample at 38 μm and chemical analysis of the +38 μm and -38 μm size fractions for lead and zinc to determine if either of these elements is concentrated in the finer size fraction.
- (2) Bulk mineralogy of each sample by X-ray diffraction.
- (3) Petrographic and mineragraphic examination of a polished thin section of the +38 μm size fraction.

2. PROCEDURE

A riffled portion of each sample was sized by wet sieving at 38 μm . The +38 μm and -38 μm size fractions were analysed for lead and zinc and the distributions of these elements between the two size fractions calculated. A portion of each pulverised sample was also examined by X-ray diffraction analysis to determine the major minerals present.

Polished thin sections (TSC65312-20) were made of each +38 μm size fraction and examined by transmitted and reflected light microscopy.

3. ELEMENTAL DISTRIBUTIONS

The chemical analyses of the +38 μm and -38 μm size fractions as well as the distributions of lead and zinc with particle size are given in Table 1. Also given in Table 1 are actual assays of the head samples submitted by Pasminco Exploration for easy comparison with the calculated head assays. In general there is good agreement between the calculated and actual assays although in some cases quite large discrepancies are apparent.

4. MINERALOGY BY X-RAY DIFFRACTION

The minerals present in these samples as determined by X-ray diffraction are given in Table 2 which lists the minerals detected in each sample using the give semi-quantitative abbreviations. All of the samples except for sample 75328 contain a carbonate, which is almost certainly siderite, as the major component. The siderite in sample 75329-75332 has a d-spacing typical of siderite (2.80Å) while samples 75333-75336 contain a carbonate with a slightly larger d-spacing which could represent siderite containing some substitution by manganese or zinc. Determination of the exact composition of these carbonates would require electron microprobe analysis.

Sample 75328 differs from all of the other samples in having quartz as the major mineral.

All of the other minerals were detected at relatively low levels.

5. PETROGRAPHIC AND MINERAGRAPHIC DESCRIPTIONS

The individual petrographic and mineragraphic descriptions follow. From the X-ray diffraction analysis the carbonate in the samples is thought to be siderite although in sample 75333-75336 it is probably a substituted siderite. In the petrographic descriptions the carbonate has merely been called carbonate rather than siderite although the rocks have been named siderite. Varying amounts of quartz and finely granular chert are present in these samples and is the major mineral in sample 75328.

Sphalerite and pyrite were observed in all of the samples and it is considered likely that most of the zinc in the samples occurs in sphalerite. It is possible that some of the zinc in the samples could be substituted in the siderite but electron microprobe analysis would be required to determine the presence of zinc in the carbonate.

SAMPLE 75328, +38 μm : TSC65312

ROCK NAME Chert

HAND SPECIMEN

This is a dark grey to black rock containing angular fragments up to about 1 cm in size which are cemented by a dried clay.

POLISHED THIN SECTION

This sample consists mainly of angular quartz grains below 0.2 mm in size and finely granular chert fragments up to several millimetres in size. Many of the chert fragments in particular have a translucent, yellowish-brown to orange colour possibly due to very finely divided iron oxides although iron oxides could not be detected by reflected light microscopy. Phyllosilicates including finely divided birefringent mica flakes are also present in the sample. Traces of carbonate were noted as very small inclusions within some angular quartz grains.

The sulphides consists of pyrite, marcasite and sphalerite many of which occur as large, angular fragments up to a few millimetres in size. Many of these large fragments consist of framboidal to slightly recrystallised pyrite and marcasite intergrown with sphalerite. Some of the pyrite and marcasite occurs in irregular bands which have a coarser grain size while pyrite forms framboidal aggregates up to 0.1 mm in size which are distributed through the sphalerite. In transmitted light the sphalerite has a moderately dark, reddish-brown colour suggesting a moderate iron content.

This is a sample of chert containing sulphide mineralisation comprised of pyrite, marcasite and sphalerite. The sample appears to contain enough sphalerite to account for the zinc content of the sample.

SAMPLE 75329, +38 μm : TSC65313

ROCK NAME Siderite/chert

HAND SPECIMEN

This sample consists mainly of small, sand-sized particles although some larger, grey to reddish-brown particles up to about 1 cm in size are present.

POLISHED THIN SECTION

This sample consists mainly of angular particles ranging up to about 1 mm in size although a small number of larger particles up to several millimetres in size are present. The particles consist of subequal proportions of carbonate and quartz/chert. Many of the carbonate particles have turbid, finely granular characters although some larger, coarser grained carbonate particles are also present. Some quartz forms angular, essentially liberated grains up to 0.2 mm in size but other quartz forms finely granular chert particles. Some quite large chert particles ranging up to several millimetres in size are present in the thin section.

Sulphides comprise about 5 to 10% of the sample and consist mainly of pyrite/marcasite and sphalerite although a trace of galena was also noted. Some large particles consist of sphalerite intergrown with minor chert and moderate amounts of pyrite which occurs both as framboids and as irregular, polycrystalline aggregates. The polycrystalline pyrite aggregates contain intergrowths of marcasite. Some of the polycrystalline aggregates have poorly polished areas which appear to be possible remnant framboids. The sphalerite forms anhedral patches up to about 1 mm in size which have a reddish-brown colour in transmitted light suggesting a moderate iron content. Anhedral galena grains up to 0.05 mm in size were noted as fine intergrowths with carbonate.

Some of the carbonate has a translucent, reddish-brown iron stained colour possible due to finely intergrown iron oxides although these are generally difficult to distinguish in reflected light.

This sample consists of both fine grained quartz and chert as well as a granular carbonate. Most if not all of the zinc in the sample is most likely in sphalerite.

SAMPLE 75330, +38 μm : TSC65314

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of angular, dark brown to grey particles up to about 1 cm in size along with a very small number of pale grey particles.

POLISHED THIN SECTION

This sample consists mainly of carbonate which forms coarsely granular, sparry textured aggregates with a typical grain size of about 0.1 to 0.2 mm. Some of the carbonate forms finer grained aggregates some of which have a turbid, micritic character. Minor quartz forms disseminated grains below 0.1 mm in size as well as finely granular, cherty aggregates. Most of this quartz occurs either as individual, liberated particles or as inclusions or intergrowths with fine grained carbonate. Some chert forms irregular cherty aggregates in fine grained carbonate. Some of the larger carbonate patches have a translucent, reddish-brown colour and could contain fine intergrowths of iron stained clay.

The major sulphides in this rock are marcasite and pyrite. Both the marcasite and pyrite occur mainly as polycrystalline aggregates up to several millimetres in size. In some larger chips the pyrite and marcasite form bands alternating with carbonate bands. Significant proportions of the pyrite and marcasite also occur as angular, essentially liberated particles. Minor sphalerite forms anhedral grains and aggregates ranging up 0.5 mm in size which are generally intergrown with the pyrite and marcasite. In some cases large pyrite and marcasite areas have marginal intergrowths of irregular sphalerite. The sphalerite has a dark red colour in transmitted light suggesting a moderate iron content.

Some carbonate chips contain fine intergrowths of translucent, reddish-brown limonitic material which exhibits a finely banded character.

This sample consists of a relatively fine grained siderite containing sulphide mineralisation comprised mainly of pyrite/marcasite along with minor sphalerite. It is considered likely that most if not all of the zinc in this sample occurs in sphalerite.

SAMPLE 75331, +38 μm : TSC65315

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of angular, brown fragments up to about 1 cm in size.

POLISHED THIN SECTION

This sample consists mainly of granular carbonate mosaics with a typical grain size below 0.1 mm. Some of the carbonate forms finely granular, sparry aggregates while other carbonate forms much finer grained, slightly turbid, micritic aggregates. Although carbonate is the major mineral present smaller amounts of quartz/chert and what is thought to be an iron stained clay are also present.

Some fragments consist mainly of a very finely divided, translucent clay intergrown with carbonate and minor quartz. These fragments have a weakly foliated texture and are thought to represent clay-rich regions. The sample also contains some angular chips ranging up to a few millimetres in size comprised of very fine grained, cherty silica. Some of the carbonate clasts also contain fine intergrowths of chert or very finely disseminated quartz below 0.05 mm in size. Quartz also occurs as individual, angular particles ranging up to 0.2 mm in size.

The major sulphides in this sample are pyrite and marcasite along with minor sphalerite. Much of the pyrite and marcasite form recrystallised, granular aggregates some of which have weakly banded character. Pyrite also occurs as round, framboidal aggregates intergrown with carbonate and to a lesser extent with sphalerite. Most of the sphalerite is associated with pyrite as anhedral grains generally below 0.2 mm in size. In transmitted light the sphalerite has a reddish-brown colour suggesting a moderate iron content.

This is a recrystallised sideritic rock containing sulphide mineralisation comprised mainly of pyrite and marcasite along with minor sphalerite.

SAMPLE 75332, +38 μm : TSC65316

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of angular fragments up to about 1 cm in size with a medium to dark brown colour.

THIN SECTION

This sample consists mainly of granular carbonate which rarely exceeds a grain size of 0.1 mm. Most of the particles consist of granular carbonate aggregates although a significant number of finer particles below 0.1 mm in size consist of single carbonate crystals. Most of the carbonate forms a relatively fine grained, sparry intergrowth although some carbonate forms a much finer grained, turbid, micritic aggregate. Some of the larger particles have a translucent, reddish-brown colour and are thought to consist largely of an iron stained clay with fine intergrowths of carbonate.

Both quartz and chert are present in the sample as fine intergrowths with the carbonate and as individual particles. The chert has a very finely granular texture and forms irregular patches in some larger carbonate fragments as well as some large fragments up to few millimetres in size which contain minor intergrown carbonate. The quartz occurs as angular disseminated grains generally below 0.1 mm in size within larger carbonate fragments and angular, liberated particles ranging up to 0.2 mm in size.

The major sulphides present are pyrite and marcasite which generally form recrystallised, granular aggregates some of which form individual particles up to 0.5 mm in size. Some pyrite also forms fine, framboidal aggregates but these are much rarer in this sample than in the previously described samples. This sample contains only traces of sphalerite mainly as fine intergrowths with framboidal pyrite.

One larger carbonate fragment contains some vague microstylolitic structures which have slight concentrations of finely divided opaque material. This opaque material is thought to be a very poorly crystalline carbonaceous matter.

This is a recrystallised siderite containing sulphides comprised mainly of pyrite and marcasite along with traces of sphalerite.

SAMPLE 75333, +38 μm : TSC65317

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of brown, angular fragments up to about 1 cm in size.

POLISHED THIN SECTION

This sample consists mainly of a medium grained carbonate which forms granular mosaic showing a range of textures. Some of the carbonate form irregular granular aggregates while other carbonate forms small rhomb-shaped crystals. Some samples consist of fine grained carbonate containing intergrown carbonate rhombs. Some of the carbonate rhombs have a concentric zoned character. Significant proportions of the carbonate have a translucent, reddish-brown colour suggesting that it contains fine iron oxide intergrowths although in reflected light iron oxides could not be detected. Unlike the previously described samples this sample contains no chert or quartz.

Sulphides are present only at very minor levels and consist of both pyrite and sphalerite. The sphalerite forms banded, colloform textured aggregates and the pyrite typically forms small framboids which are associated with the sphalerite. Some large rhombic carbonate aggregates contain marginal and interstitial intergrowths of sphalerite which have a very finely granular texture. The sphalerite in this sample has a translucent, reddish-brown colour suggesting a moderate iron content.

This is a carbonate-rich rock locally having a banded, colloform character as well as a recrystallised character forming rhomb-shaped crystals. The sample contains minor sulphide mineralisation comprised mainly of colloform sphalerite and framboidal pyrite.

SAMPLE 75334, +38 μm : TSC65318

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of angular particles up to about 1 cm in size with a medium to dark brown colour.

POLISHED THIN SECTION

This sample consists mainly of carbonate with a range of textures including granular aggregates, rhomb-shaped crystals and a small proportion of banded, colloform textured aggregates with a slightly recrystallised character. Some of the rhomb-shaped carbonate crystals have a concentrically zoned character. Locally the carbonate has a translucent, reddish-brown colour possibly due to finely intergrown iron oxides although in transmitted light iron oxides could not be detected.

The sulphides in this sample consist mainly of pyrite and sphalerite. The pyrite typically forms small, framboidal aggregates below 0.05 mm in diameter or irregular patches up to 0.2 mm in size. Much of the sphalerite is associated with the framboidal pyrite as interstitial intergrowths or as patches containing disseminated framboids. A small proportion of the sphalerite has a banded, colloform texture including a very fine, radiating fibrous character. In transmitted light the sphalerite has a reddish-brown colour suggesting a moderate iron content. Other pyrite forms very finely granular aggregates. Traces of galena were noted locally as fine intergrowths with sphalerite.

This is a carbonate-rich rock containing minor sulphide mineralisation comprised mainly of framboidal pyrite and finely granular to colloform sphalerite.

SAMPLE 75335, +38 μm : TSC65319

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of medium brown chips ranging up to about 1 cm in size.

POLISHED THIN SECTION

This sample consists mainly of a granular carbonate mosaic showing a range of textures including relatively coarsely granular mosaics with a maximum grain size of 0.2 mm, fine granular mosaics and colloform textured carbonate.

Some of the carbonate also forms zoned, rhomb-shaped crystals. Some of the large chips consist of carbonate aggregates comprised of weakly zoned crystals exhibiting a vague rhomb-shape. Some of the carbonate aggregates have a translucent, reddish-brown colour possibly due to finely intergrown iron oxides although none could be positively identified in reflected light. *Minor interstitial quartz* was noted locally as intergrowths with some carbonate aggregates.

Some of the chips contain intergrowths of what is thought to be a finely divided, iron stained clay. These chips have a translucent, reddish-brown colour.

Sulphides are present at very low levels and consist mainly of pyrite and sphalerite with traces of galena. The pyrite forms finely disseminated framboids below 0.05 mm in size while the sphalerite forms anhedral intergrowths with carbonate ranging up to 0.1 mm in size. In transmitted light the sphalerite has a reddish-brown colour suggesting a moderate iron content. Galena forms very finely divided intergrowths with carbonate which are generally below 0.05 mm in size. Galena was noted locally as concentrations around a translucent brown carbonate which occurs in a coarser grained, white carbonate.

This is a sideritic rock showing a variety of textures including some colloform textures containing minor amounts of fine intergrown sulphides including in framboidal pyrite, sphalerite and galena.

SAMPLE 65336, +38 μm : TSC65320

ROCK NAME Siderite

HAND SPECIMEN

This sample consists of angular fragments up to 1 cm in size which have a medium to dark brown colour.

POLISHED THIN SECTION

The major mineral in this rock is a carbonate which forms granular mosaics as well as somewhat translucent, reddish-brown aggregates some of which have a banded, colloform texture. Locally the carbonate has a much deeper reddish-brown colour and could contain fine intergrowths of iron stained clay. Some of the carbonate forms rhomb-shaped crystals with a zoned character and other carbonate forms very finely granular, micritic intergrowths. Some of the zoned carbonate contains reddish-brown coloured bands which could contain concentrations of iron oxide or possibly concentrations of a reddish-brown sphalerite although these minerals could not be identified in transmitted light.

Sulphides are present only at trace levels and consist mainly of sphalerite and pyrite. The sphalerite forms anhedral aggregates ranging up to 0.1 mm in size which commonly contain framboidal pyrite intergrowths. Most of the pyrite occurs as disseminate framboids. A small proportion of the sphalerite has a banded, colloform texture. Traces of galena were also noted as finely disseminated, anhedral grains below 0.05 mm in size which tend to be concentrated within vague veins. Some of the sphalerite forms colloform, banded aggregates with a radiating fibrous texture. In transmitted light the sphalerite has a reddish-brown colour suggesting a moderate iron content.

This is a sideritic rock containing minor pyrite and sphalerite.

TABLE 1: ZINC AND LEAD DISTRIBUTIONS WITH PARTICLE SIZE

Size Fraction (µm)	Sample								
	75328	75329	75330	75331	75332	75333	75334	75335	75336
Sample Distribution (Wt %)									
+38	60.1	47.9	90.5	93.6	62.9	93.3	93.7	93.5	96.5
-38	30.9	52.1	9.5	6.4	37.1	6.7	6.3	6.5	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Zn Assay (%)									
+38	6.99	1.92	1.41	0.76	0.66	2.23	1.42	1.38	1.14
-38	7.67	5.43	4.88	2.74	1.01	3.99	3.48	3.46	2.33
Total (calc)	6.6	3.75	1.7	0.9	0.8	2.3	1.6	1.5	1.2
Actual assay	4.4	4.1	2.2	2.2	1.0	2.1	2.1	1.4	1.4
Pb Assay (%)									
+38	0.19	0.74	0.06	0.04	0.04	0.84	0.98	1.28	0.50
-38	0.80	0.50	0.21	0.17	0.07	2.19	2.03	3.20	0.93
Total (calc)	0.36	0.61	0.07	0.05	0.05	0.9	1.0	1.4	0.5
Actual assay	0.4	0.4	0.1	0.1	0.1	0.9	0.9	0.7	0.7
Zn Distribution (%)									
+38	63.9	24.5	73.3	80.2	52.6	88.6	85.9	85.1	93.1
-38	36.1	75.5	26.7	19.8	47.4	11.4	14.1	14.9	6.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Pb Distribution (%)									
+38	31.6	57.6	73.1	77.4	49.2	84.2	87.8	85.2	93.7
-38	68.4	42.4	26.9	22.6	50.8	15.8	12.2	14.8	6.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 2: MINERALOGY BY X-RAY DIFFRACTION

Mineral	Sample								
	75328	75329	75330	75331	75332	75333	75334	75335	75336
Siderite (2.80Å)	-	D	D	D	D	-	-	-	-
Siderite (2.82Å)	-	-	-	-	-	D	D	D	D
Siderite (2.84Å)	-	-	-	-	-	Tr	Tr	Tr	Tr
Quartz	D	A	Tr	A	A	-	-	Tr	Tr
Muscovite	Tr-A	A	Tr	A	A	-	-	-	Tr
Sphalerite	A	Tr-A	Tr						
Pyrite	A	Tr	A	Tr	Tr	Tr	Tr	-	-
Marcasite	-	-	A	Tr	-	-	-	-	-
Goethite	-	-	-	-	-	Tr	Tr	Tr	Tr

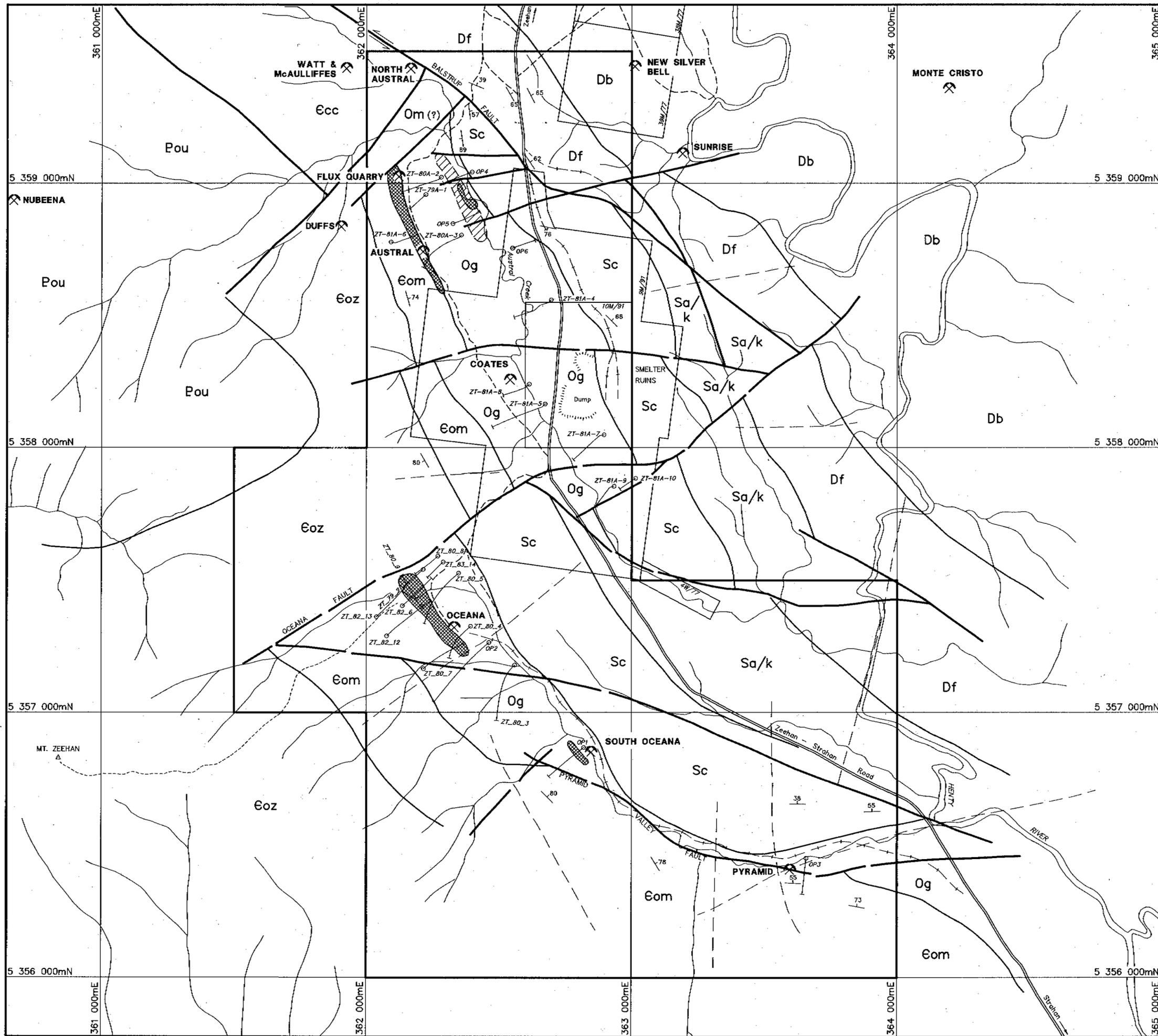
Semi-quantitative Abbreviations

- D = Dominant. Used for the component apparently most abundant, regardless of its probable percentage level.
- CD = Co-dominant. Used for two (or more) predominating components, both or all of which are judged to be present in roughly equal amounts.
- SD = Sub-dominant. The next most abundant component(s) providing its percentage level is judged above about 20.
- A = Accessory. Components judged to be present between the levels of roughly 5 and 20%.
- Tr = Trace. Components judged to be below about 5%.

APPENDIX 6

Petrology of mineralised samples from Austral Grid Air Core Drilling

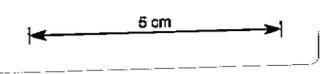
Sample Number	Hole Number	Depth m
75328	18/1340	3 - 4
75329	18/1340	5 - 6
75330	18/1340	12 - 13
75331	18/1340	13 - 14
75332	18/1340	14 - 15
75333	18/1320	12 - 13
75334	18/1320	13 - 14
75335	18/1320	14 - 15
75336	18/1320	15 - 16



LEGEND

- Db Bell Shale
Laminated mudstone with minor siltstone
- Df Florence Quartzite
Pale grey-white fine sandstone or siltstone.
Abundantly fossiliferous in part
- Sa/k Amber Slate/Keel Quartzite
- Sc Crotty Quartzite
Interbedded sandstone, siltstone, mudstone
- Og Gordon Limestone
Fossiliferous micrite dominated limestone.
Weathers to black mud
- Eom Maina Sandstone
Quartz sandstone, common bioturbation
- Eoz Mt. Zeehan Conglomerate
Siltastic cobble-boulder conglomerate
- Ecc Crimson Creek Formation
Dark green-grey volcanoclastic greywacke to siltstone
- Pou Oonah Formation
Siltstone and shale

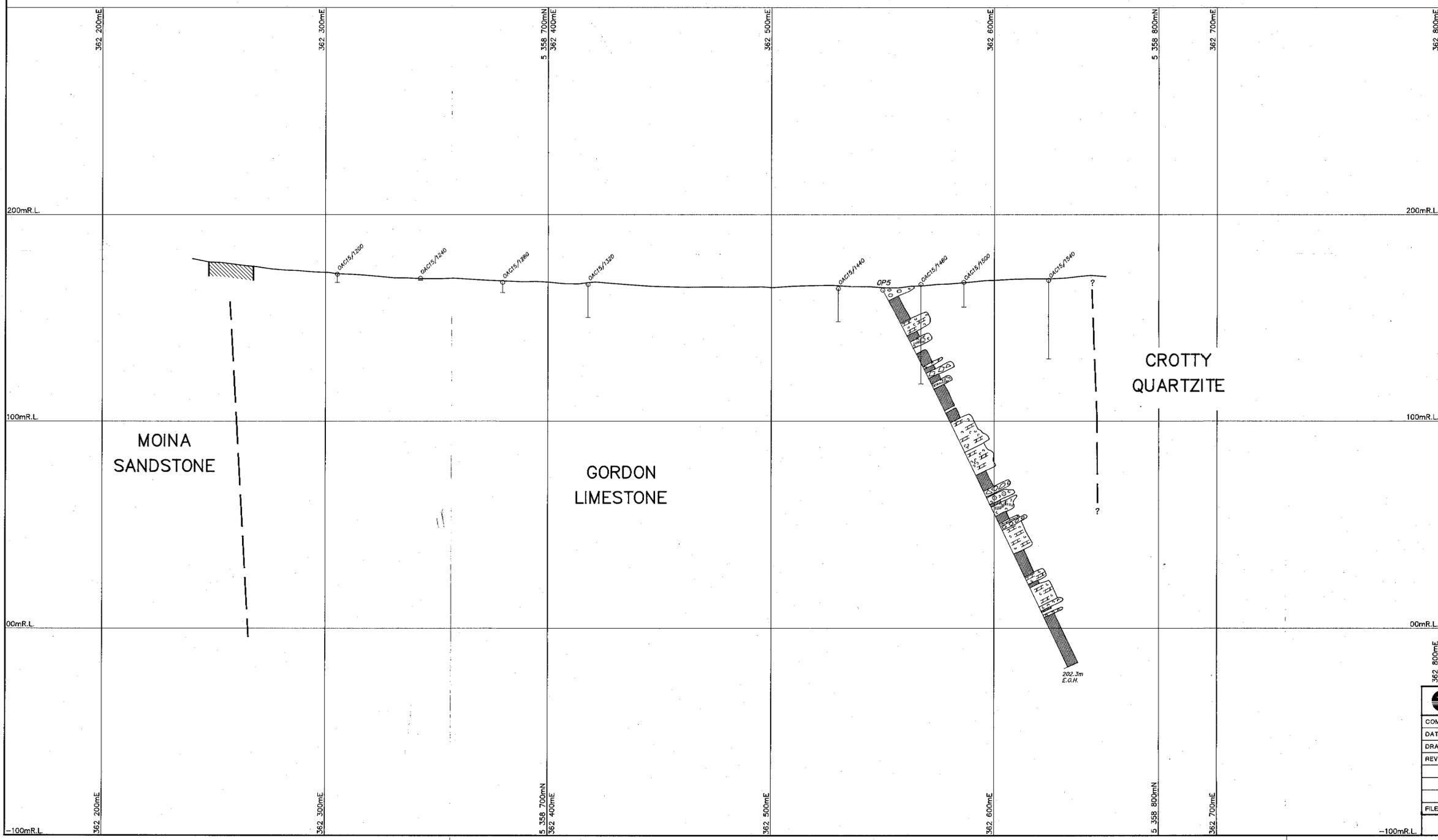
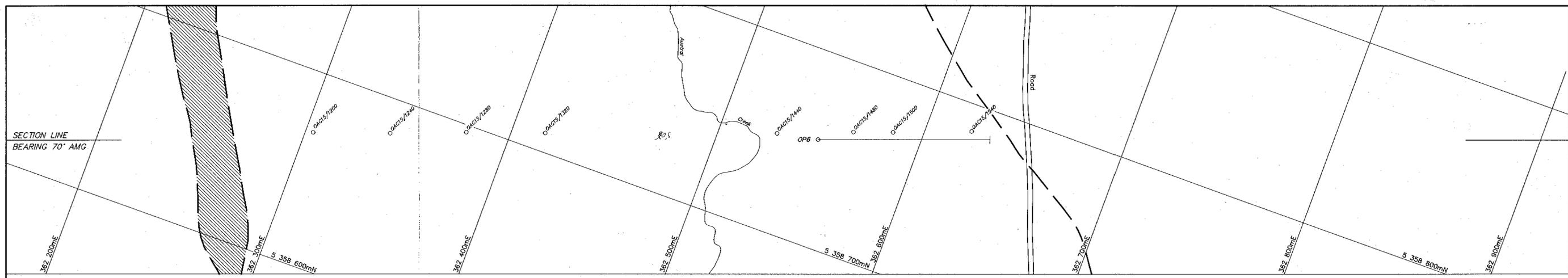
- Airphoto Lineament
- Geological Contact
- Fault
- Siderite intersected in aircore drilling
- Ironstone derived from mineralization



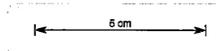
96-3922

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P/E AUG'96. PASMINGO EXPLORATION
D.C.GARDNER & S.M.DIBBEN

PASMINGO EXPLORATION A Division of Pasmingo Australia Limited	
COMPILED : F.G.F. DATE : Oct., 1991 DRAWN : G.M.B. REVISIONS : M.S.S. DATE : May 1995 DATE : Sept., 1995	<p style="font-size: 1.2em; margin: 0;">242093</p> <p style="margin: 0;">RL8809 - OCEANA</p> <p style="font-size: 1.5em; margin: 0;">INTERPRETIVE GEOLOGY</p>
FILE : 10_OCIGL DRAWING No. 311-GL-006	SCALE 1:10,000 FIG. No. 6



- LEGEND**
- Clastic mudstone
 - Quartz sandstone
 - Micrite - Rare fossil fragments
 - Wackestone - Fossil debris in micritic matrix
 - Dolostone - Few primary textures preserved
 - Grainstone - with early dolomite alteration
 - Nodular limestone - Limestone nodules in clastic mudstone matrix
 - Mineralization/Alteration (non diagenetic)
 - Pug zone - Deteriorated core
 - Shelly debris
 - Lithic clasts
 - Bioturbation
 - Veining
 - Large coral heads
 - Younging
 - Oncoid, Ooid
 - Fenestral porosity
 - Breccia



96-3922

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P/B AUG'96 PASMINGO EXPLORATION
D.C.GARDNER & S.M.DIBBEN

PASMINCO EXPLORATION A Division of Pasmingo Australia Limited	
COMPILED : P.M.Q.	242094
DATE : July 1996	R.L. 8809 - OCEANA JV
DRAWN : G.M.B.	AUSTRAL
REVISIONS :	DRILL SECTION
	OP6
	BEARING 70° AMG
FILE : OP6_A1	
DRAWING No. 311-DR-061	SCALE 1:1000 FIG. No. 8