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PASMINCO EXPLORATION
RL8809 OCEANA
ANNUAL REPORT
PASMINCO - ARIMCO JOINT VENTURE
OCTOBER 1990 - SEPTEMBER 1991

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SUMMARY

Retention Licence 8809, covering 5km² near Zeehan was granted to Arimco on 14 October 1988 to enable further investigation of the sub-economic Ag-Pb-Zn deposit at Oceana.

During the twelve months to September 1991 there has been no active field work within the licence area. Negotiations are at an advanced stage to form a joint venture agreement between Arimco and Pasminco, whereby Pasminco would commit to undertake further detailed studies of the Oceana deposit and explore other parts of the tenement. Preliminary evaluation of existing data, including exploration drill core, has commenced. Sampling of the principal styles of mineralization at the Oceana deposit was undertaken for metallurgical testwork at Rosebery. Unfortunately no meaningful results could be obtained from this brief program.

A major program of investigation is proposed for the forthcoming year, including geological and structural studies, mineragraphic and metallurgical testwork and diamond drilling.

1. INTRODUCTION

Retention Licence 8809 (Oceana) covering 5km², is located 1km south of Zeehan in Western Tasmania (see Figure 1). Title to the tenement is held by Arimco Mining Pty Ltd. Pasminco Australia Limited are currently finalising negotiations with Arimco to form a Joint Venture to evaluate the mineral potential of the licence area.

This report covers the period from October 1990 to September 1991. During this period there was no active field work, apart from a limited metallurgical sampling program. Preliminary evaluation of previous exploration data has also been undertaken.

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2. TENURE

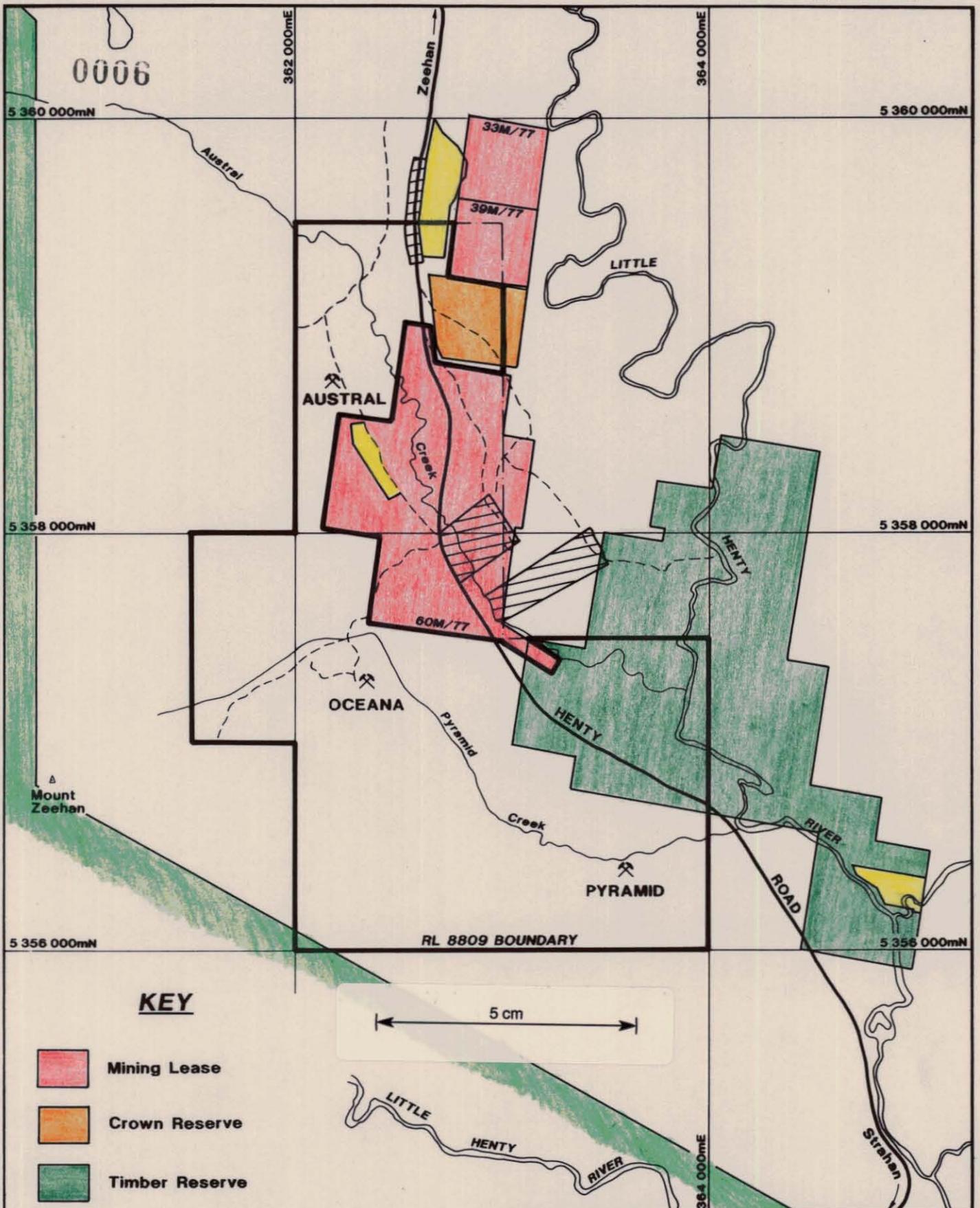
Retention Licence 8809, Oceana was granted to Cyprus Gold Australia Corporation on 14 October 1988 for a period of two years. The licence was retained from part of former Exploration Licence 4/78, which was relinquished on 14 July 1988.

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

Pasminco Australia Limited entered into negotiations with Hudspeth (Arimco) in late 1990 to reach an agreement to evaluate the base metal mineral potential of the licence area. A formal Joint Venture Agreement is expected to be completed next month. Under the terms of a Heads of Agreement, signed on 25 May 1991, Pasminco Exploration, a division of Pasminco Australia Limited, would manage and operate the Joint Venture. Pasminco would have the right to earn a 65% interest in the tenement by spending \$2 million within 9 years with \$1 million being spent in the first 5 years. Pasminco would be committed to a minimum expenditure of \$100 000 within the first year of the Agreement.

The licence covers an area of 5.5km² (see Schedule in Appendix 1). This area excludes a total of 1-1km² of the following Mine Leases: 60M/77 and 4W/77, held by Electrolytic Zinc Co (now Pasminco); 39M/77, held by JNR Enraght - Mooney (see Figure 2). Also excluded is 0.2km² of Crown Reserves. The Mine Leases 60M/77 and 4W/77 were subject to an Agreement, dated 2 March 1981, between EZ and Amoco Minerals Australia Company (transferred ultimately to Arimco). This Agreement has now lapsed and Arimco has no retained interest in either lease.

The land tenure of RL 8809 comprises: Crown Land; Private Property and Timber Reserve. 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

- Mining Lease
- Crown Reserve
- Timber Reserve
- State Forest
- Private Freehold Land
- Uncommitted Crown Land (within E.L. Boundary)
- National Estate Interim Listing

PASMINCO EXPLORATION <small>A Division of Pasminco Australia Limited</small>	
COMPILED : G.M.B. DATE : Sept., 1991 DRAWN : REF. : REVISIONS : DRAWING No.	RL 8809 - OCEANA LAND TENURE
SCALE 1:25,000 <div style="display: inline-block; text-align: center; margin: 0 10px;"> 250 0 250 m </div>	FIG. No. 2

3. PREVIOUS INVESTIGATIONS

Comprehensive accounts of past prospecting and mining activities in the Zeehan area, including the Oceana RL have been given in Taylor (1983) and Jones (1988). Jones (op cit) also presents a good summary of the more recent exploration undertaken by Amoco (Cyprus) during 1978-88.

The earliest report of mining activity at Oceana dates from 1890 when small-scale trenching was undertaken. During the next 3 years the Oceana Silver Mining Co extracted approximately 1000t at 39% Pb and 14.5oz/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 4.79oz/t Ag up to 1960 when the mine closed again.

The Cyprus exploration program focussed on carbonate hosted lead-zinc-silver mineralisation within their EL 4/78. During the 10 years of this licence's tenure Cyprus undertook a major program of geological mapping, geochemistry (bedrock auger and costean sampling) geophysics (IP, EM, gravity and magnetics surveys) and diamond drilling (25 holes for a total of 6690m) within the current area of RL 8809. This work culminated in the delineation of an ore resource of 2.4 million tonnes of 9.2% Pb, 4.0% Zn, 73g/t Ag at the Oceana Mine. Significant untested potential for similar mineralisation was also recognised over several other prospects, including Oceana South, Austral and Pyramid.

Since RL 8809 was granted, Hudspeth (Arimco) have not undertaken any significant work, due to the prevailing unfavourable mineral economics associated with the ore resource, outlined above.

4. GEOLOGY

A comprehensive description of the regional geological setting and the local geology and mineralization of the Oceana area has been given in Taylor (1983) and (1989), Jones (1988) and Williams (1989).

In summary, the geology of the Zeehan area comprises a sequence of deformed Proterozoic to Devonian sedimentary and minor volcanic units. The older sediments were deposited in an arcuate basin, the Dundas Trough, which developed by rifting of a Precambrian basement. The post-Cambrian units were deposited in an extensive, mostly shallow marine environment. Several major episodes of deformation are recorded in the Zeehan district associated with tectonic activity in the Upper Proterozoic, Cambrian and Devonian periods. A high level granitoid intrusion, the Heemskirk Granite, was emplaced into the sequence in the Devonian. The present distribution of this sequence is shown in Figure 3 and the key geological components are summarized in Table 1.

The major structural elements in the Zeehan area comprise predominantly north west trending fold axes and major WNW trending faults, such as the Pyramid and Baltstrup Faults (see Figure 3). Subsidiary WSW and SW trending faults, such as the Oceana Fault, have important structural and possible genetic relationships to Ag-Pb-Zn mineralization. Taylor (1983, 1989) suggests that the Oceana deposit was formed as sedimentary exhalative mineralization in the Ordovician associated with deep basin ore fluids channelling up the Oceana Fault zone. His argument is supported by the results lead isotope studies. Previous workers have favoured the Devonian Heemskirk Granite as the source of the metals with hydrothermal deposition into favourable structural trap sites. An important part of the proposed investigations will be to resolve these different models.

Table 1

GEOLOGICAL SUMMARY, ZEEHAN AREA

(after Williams, 1989)

AGE	FORMATION	SEDIMENTATION	TECTONIC/IGNEOUS ACTIVITY
Devonian	Bell Shale Florence Quartzite.	Shallow marine mudstone and quartz sandstone.	Heemskirk Granite intrusion Tabberabberan Orogeny Disconformity.
Silurian	Austral Creek Siltstone Keel Quartzite Amber Slate Crotty Quartzite.	Shallow marine quartz Sandstone, mudstone minor limestone	
Ordovician	Gordon Limestone Moina Sandstone Mt Zeehan Conglomerate	Shallow marine limestone Shallow marine and terrestrial quartz sandstone, conglomerate	Deformation, uplift
Cambrian	Crimson Creek Formation	Deeper marine mudstone, turbidite lithic wacke	Basaltic volcanics
eo-Cambrian	Success Creek	Shallow marine quartz sandstone, dolomite	Penguin Orogeny
Upper Proterozoic	Oonah Formation	Turbiditic quartzwacke, mudstone	

5. WORK COMPLETED 1990-1991

There was no active field work undertaken during the twelve month period from October 1990 to September 1991 within RL8809, Oceana. During this period the following work associated with the tenement has occurred:

1. Negotiations to form a joint venture between Arimco and Pasminco.
2. Preliminary review of existing data including examination of Amoco/Cyprus exploration drill core and prospect areas in the field.
3. Discussions with Geological Survey personnel regarding the scope of the proposed re-mapping of the Zeehan Sheet and the results of their early investigations.
4. Collection of nine(9) samples of drill core for metallurgical testwork at the Rosebery Mill.

5.1 Metallurgy

Rob Harley, Senior geologist with Arimco, collected a total of nine samples of core from holes previously drilled by Amoco/Cyprus at Oceana. Each sample was taken from mineralization over intervals of 1 metre, either as quartered - core or as chips from zones of broken or weathered core. The samples were selected to represent three styles of mineralization:

1. Epigenetic - oxide zone.
2. Epigenetic - sulphide zone.
3. Stratiform - sulphide zone.

Details of this sampling program including drill hole numbers, sample depths and previous assays are given in Appendix 2.

Three samples of each of the above 3 styles of mineralization were submitted via Geoff Iliff, Chief Geologist, to Naryan Krishnan, Research Metallurgist at Pasminco Mining Rosebery for metallurgical testwork. Unfortunately no meaningful work could be undertaken on the samples due to the present restricted operation of the Rosebery Mill. It is proposed to retrieve these samples and re-submit them to a commercial laboratory which is set up to undertake controlled bench metallurgical testwork.

6. PROPOSED PROGRAM 1991-1992

The future program proposed for RL8809 has two principal objectives: firstly, to confirm and increase the existing Pb-Zn-Ag resource at Oceana and secondly, to delineate other potentially economic mineralization elsewhere within the tenement.

During the 12 month period from October 1991 to September 1992 the following specific program is proposed:

1. DATA EVALUATION Reassess all the results from previous exploration and mining activities in terms of recently developed models for the Oceana style of mineralization.
2. GEOLOGY Undertake detailed geological mapping across the whole tenement, emphasising structural geology and distribution of Gorden Limestone beneath cover. Incorporate recent results from regional remapping of the Zeehan Sheet by the Geological Survey.
3. STRUCTURAL MODEL Develop a structural geological model with an emphasis on controls to mineralization. This work will include a detailed analysis of the existing magnetic and gravity data as well as satellite Thematic Mapper images.
4. METALLURGY Initiate controlled metallurgical test work of the Oceana mineralization suite. This work should be accompanied by comprehensive petrographic and mineralographic studies of the host rocks and mineralization.
5. DRILLING The first phase of diamond drilling should commence during this period to test the best targets generated by the above investigations. It is proposed that a minimum of 500m of drilling be completed by September 1992.

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KEYWORDS

LEAD, ZINC, SILVER, LIMESTONE, FAULT, CARBONATE HOSTED, ORDOVICIAN,
METALLURGY.

Locality ZEEHAN, OCEANA, AUSTRAL

REFERENCES

- Jones, P.A., 1988. Geological Report Retention Licence Application Oceana - Austral Zeehan Tasmania. Unpublished Cyprus Report No.574, May 1988.
- Taylor, S., 1983. Review of Amoco Exploration of Gordon Limestone in EL4/78 and Assessment of Pb-Zn Potential of Gordon Limestone in West - Central Tasmania. Unpublished EZ Report, March 1983.
- Taylor, S., 1989. in Geology and Mineral Resources of Tasmania, Eds Burrett, C.F. and Martin, E.L. Geol Soc Aust Special Publ. 15, 1989 pp 221-223.
- Williams, E., 1989. in Geology and Mineral Resources of Tasmania, Eds Burrett, C.F. and Martin, E.L., Geol Soc Aust Special Publ. 15, 1989 pp 468-499.

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Appendix 1

SCHEDULE RL8809

Commencing at a south west corner of the area whose grid co-ordinates are 362 000 metres E. 5 356 000 metres N. thence grid north to 5 357 000 metres N. grid west to 361 500 metres E. again grid north to 5 358 000 metres N. grid east to 362 000 metres E. aforesaid again grid north to 5 359 500 metres N. again grid east to 363 000 metres E. grid south to 5 357 500 metres N. again grid east to 364 000 metres E. again grid south to 5 356 000 metres N. thence again grid west to the point of commencement.

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Appendix 2

METALLURGICAL SAMPLES

Memo by R. Harley

November, 1990

20 November 1990

Mr G Iliff
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Pasminco Mining
PO Box 21
ROSEBERY TAS 7470

ARIMCO N.L.
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North Sydney
NSW 2060
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Fax 956 5144

Dear Geoff,

OCEANA PROSPECT, ZEEHAN - METALLURGICAL SAMPLE

On Thursday 15 November, I delivered to your office in Rosebery, core samples from Arimco's Oceana prospect near Zeehan. These samples were collected to provide Pasminco with material for metallurgical testwork.

Three broad sample groups were collected:

Sample A	Epigenetic mineralization, oxide zone;
Sample B	Epigenetic mineralization, sulphide zone;
Sample C	Stratiform mineralization, sulphide zone.

The epigenetic mineralization refers to generally coarse grained mineralization located close to the Oceana Fault and is interpreted as being a replacement style with ore fluids sourced from the Oceana Fault. The stratiform mineralization occurs in narrower zones in excess of 200 meters from the Oceana Fault and is possibly a distal style of mineralization.

Three sub-samples have been provided for each of the three samples (i.e. 9 samples in all). These sub-samples are individually bagged and could be tested separately or wholly or partially combined dependent on metallurgical requirements. The sub-groups are taken from quarter-core or approximately one quarter of chips/weathered material in areas of very broken or weathered core.

It is basically impossible to get individual 1 to 2 meter samples that would be representative of the overall grade of the resource. To do this would require sampling from larger intercepts and mixing of oxide, transition and sulphide ore types.

It should be noted that EZ have already conducted some preliminary metallurgical testwork on Oceana core in either 1982 or 1983. Three individual samples were tested being:

.../

- a) Epigenetic (Northern) Zone - High grade sulphide mineralization
ZT-79-2: 111-112m = 1 meter of 23.1% Pb, 39.9% Zn, 191 ppm Ag
- b) Epigenetic (Northern) Zone - Low grade sulphide mineralization
ZT-79-2: 125-126m = 1 meter of 1.7% Pb, 2.8% Zn, 4.7 ppm Ag
- c) Stratiform (Southern) Zone - Sulphide(?) mineralization
ZT-80-4: 304-305m = 1 meter of 12.9% Pb, 0.5% Zn, 72 ppm Ag

EZ also apparently conducted some petrological studies on some of the mineralization.

ZT-80-4: 251.5-251.6m	EZ sample 60810
ZT-80-4: 253.95-254m	EZ sample 60811

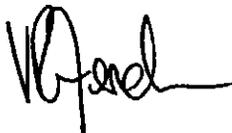
It is possible further petrology was conducted on other mineralized zones. This information would be available in EZ reports or Amoco/Cyprus reports currently held in Pasminco's Melbourne office. Examination of petrological data and the previous metallurgical data would provide your metallurgists with useful information prior to completing further testwork.

I have probably provided more sample (both in weight and number) than may actually be required. I would be grateful if you could return any unused sample to Arimco.

Details of the samples are attached as are drill logs for each of the holes from which the samples were collected. I have previously provided you with a longitudinal section so you can determine roughly where each sample comes from within the resource.

Should you have any further enquiries, please contact either myself or Bryce Roxburgh in our Sydney office.

Yours sincerely,



ROB HARLEY
SENIOR GEOLOGIST

Attachment

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SAMPLE A

EPIGENETIC MINERALIZATION - OXIDE

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3 Sub-samples

a) ZT-82-11

7-8m = 1 meter of 5.05% Pb, 3.2% Zn, 24 ppm Ag, 30 ppm Cu

Weight = 0.6 kg

b) ZT-82-11

8-9m = 1 meter of 8.4% Pb, 3.1% Zn, 38 ppm Ag, 80 ppm Cu

Weight = 0.5 kg

c) ZT-80-9

4-6m = 2 meters of 10.7% Pb, 2.2% Zn, 23 ppm Ag, 36 ppm Cu

Weight = 0.95 kg

Note:

Although these intercepts are shallow and the host is weathered, some sulphide is still present in the very clayey matrix. Hence the samples are not true representatives of oxide ore.

SAMPLE B EPIGENETIC MINERALIZATION - SULPHIDE

3 Sub-samples

a) ZT-79-2

113-114m = 1 meter of 43.7% Pb, 31.3% Zn, 252 ppm Ag, 341 ppm Cu

Weight = 1.4 kg

b) ZT-79-2

126-127m = 1 meter of 13.4% Pb, 2.23% Zn, 40 ppm Ag, 69 ppm Cu

Weight = 1.1 kg

c) ZT-82-13

279.5-280.5m \approx 37% Pb, 5.6% Zn, 400 ppm Ag, 230 ppm Cu

Weight = 1.6 kg

Notes:

- i) Sample (a) is essentially massive galena/sphalerite with very little gangue material. Weathered zones are located within 3 to 4 meters of the intercept.
- ii) Sample (b) contains several high grade patches with possibly unmineralized altered limestone(?) host. It may not be suitable therefore, to mix with sample (a) for metallurgical testwork.
- iii) Sample (c) is from a possible separate ore zone to (a) and (b). It appears similar to mineralization defined as the stratiform type (Sample c) and although it is located adjacent to the Oceana Fault, it may not be the same as mineralization intersected in ZT-79-2.
- iv) Assay value for Sample (c) is taken from interval 280-281m, however sample collected from 279.5-280.5m has stronger sulphide mineralization and head grade could therefore be significantly higher than that stated.

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SAMPLE C

STRATIFORM MINERALIZATION

3 Sub-samples

a) ZT-80-4

250-251m = 1 meter of 12.5% Pb, 12.7% Zn, 128 ppm Ag, 105 ppm Cu

Weight = 1.0 kg

b) ZT-80-4

252-253m = 1 meter of 29.4% Pb, 10.9% Zn, 200 ppm Ag, 192 ppm Cu

Weight = 1.4 kg

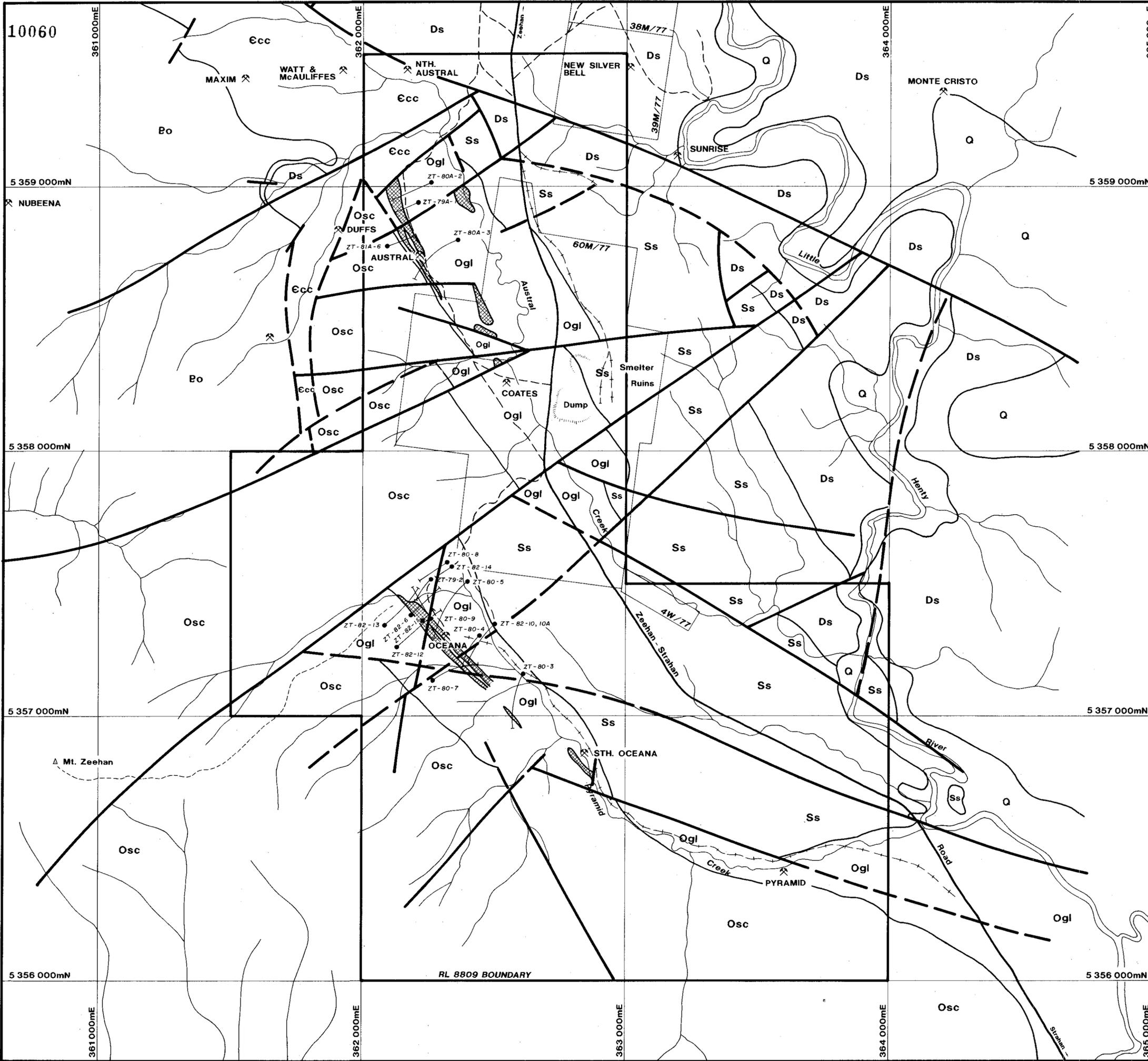
c) ZT-80-4

255-256m = 1 meter of 11.9% Pb, 3.7% Zn, 98 ppm Ag, 156 ppm Cu

Weight = 0.75 kg

Note:

Although sub-sample (c) is typical of the average grade of the overall resource, it cannot be considered typical of the average grade of the sulphide mineralization.

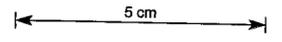
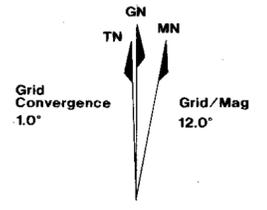


LEGEND

- QUATERNARY**
- Q Alluvium, talus
- DEVONIAN**
- Ds Bell Shale, Florence Quartzite
- SILURIAN**
- Ss Austral Creek Siltstone, Keel Quartzite, Amber Slate, Crotty Quartzite
- ORDOVICIAN**
- Ogl Gordon-Limestone Ironstone
 - Osc Moira Sandstone, Mt. Zeehan Conglomerate
- CAMBRIAN**
- Ecc Crimson Creek Formation
- PROTEROZOIC**
- Po Onah Quartzite, Slate, Minor Volcanics

Geology after Cyprus 1980

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RL 8809 - OCEANA

GEOLOGY

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DRAWING No. SCALE 1:10,000 FIG. No.