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ZEEHAN EXPLORATION PROJECT

**EXPLORATION LICENCE 18/98
WEST COAST TASMANIA**

ANNUAL REPORT

FOR THE YEAR ENDED 23/10/99

EL18/98PT1
See folio 18

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Annual Report - Y.E. 23/10/99 - Zeehan Exploration
Project
Dragon Mining NL*
Anon
EL18/98

October 1999

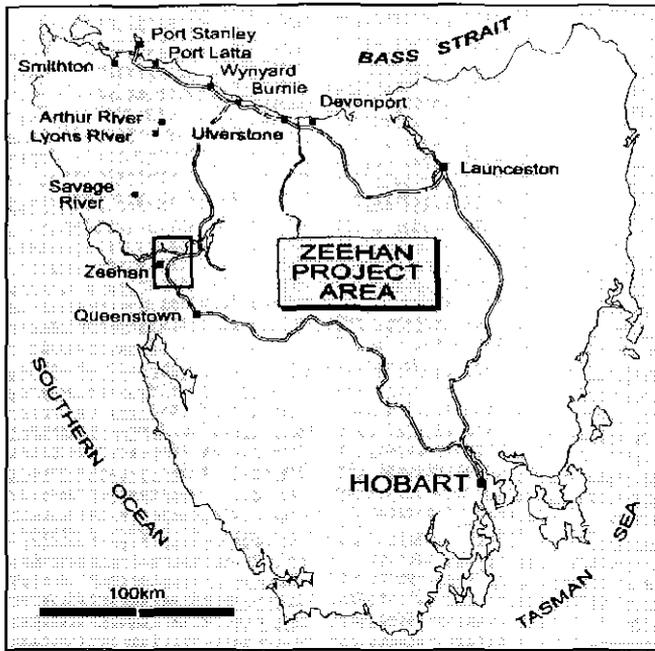
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370 000mN



RENISON BELL MINE
 (6.3mt @ 1.7% Sn)
 Murchison United NL



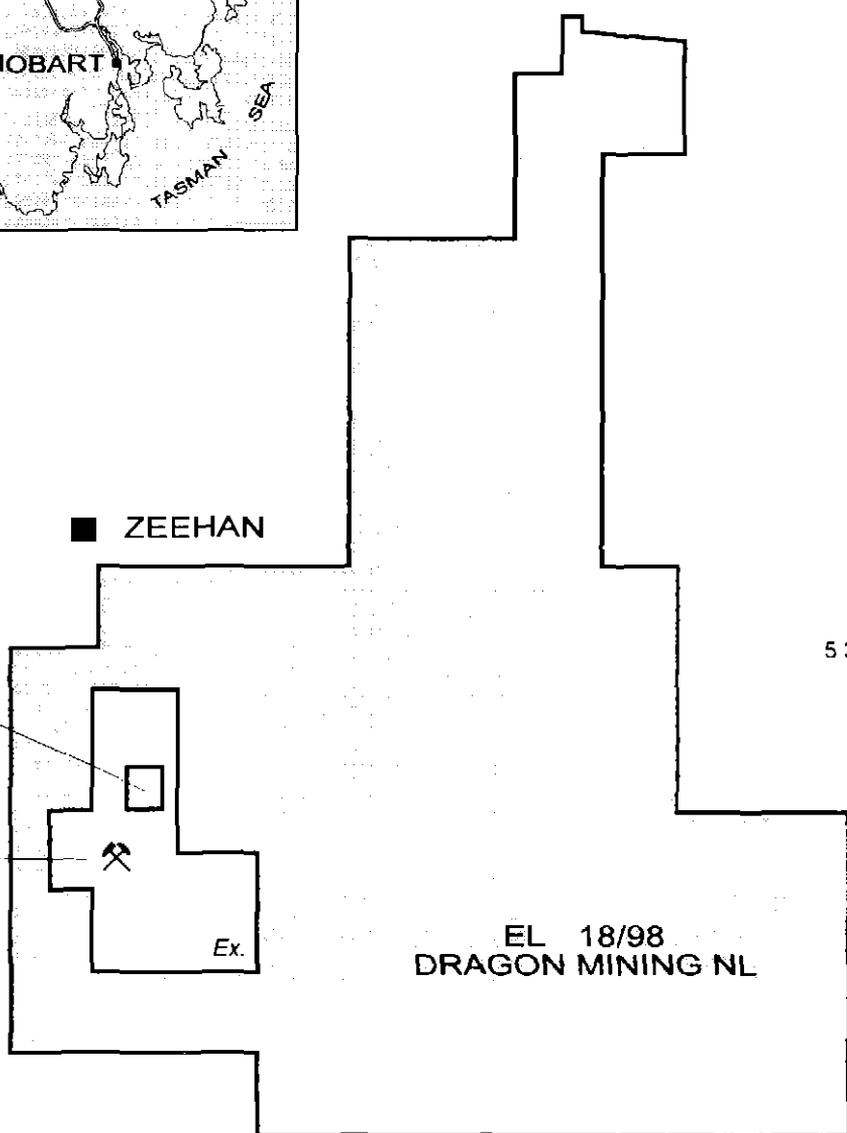
5 370 000mN

■ ZEEHAN

5 360 000mN

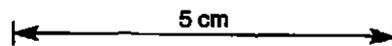
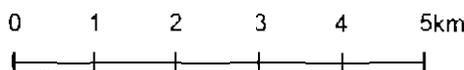
ZINC SLAG DUMP
 (451,000t @ 13.4% Zn)
 RL 9603
 Encore Metals Pty Ltd

OCEANA MINE
 4Mt @ 19.4%Pb, 4% Zn,
 106g/tAg
 or
 4Mt @ 2% Pb, 8%Zn,
 86g/tAg
 RL8809
 Arimco Mining Pty Ltd



5 360 000mN

EL 18/98
 DRAGON MINING NL



5 350 000mN

360 000mN

DRAGON MINING N.L.
ZEEHAN BASE METAL PROJECT

Figure 1

1. INTRODUCTION

The Zeehan exploration license E18/98 was granted to Dragon Mining in October 1998. In the course of the year a comprehensive review of existing data and follow up field inspections were completed. A number of targets prospective for silver –lead zinc-mineralisation were identified. Dragon now intends to select the most promising targets for further investigation culminating in drilling.

2. LOCATION AND ACCESS

The tenement is located in the north west of Tasmania (Figure 1), near the town of Zeehan, a silver mining centre active late last century and in the early part of this century. Sealed roads traverse the tenement. The tenement encompasses valley and hill terrains. Access by vehicles and on foot in the river valleys is often limited by very dense scrub. The hill slopes are less vegetated and can be traversed on foot or by vehicles along unformed exploration tracks.

3. GEOLOGICAL SETTING

The tenement geology consists mainly of conformable Ordovician-Devonian marine sequences. The sequence is moderately folded and subjected to thrust and wrench faulting. There is evidence of Devonian reactivation of Ordovician syn-sedimentary structures.

Quaternary or older weathering of limestone components of the sequence has produced black clays in low-lying parts of the topography.

4. MINERALISATION

In the Zeehan area the Gordon Limestone is considered highly prospective for "Irish Style" carbonate hosted silver-lead-zinc mineralisation. There are a number of known mineralised occurrences and former mines within or excised from the exploration license. The largest known occurrence is the Oceana Mine held under retention license RL8809. Resources at Oceana have been variously reported as 4Mt at 19.4% Pb, 4% Zn, and 106g/t Ag or 4Mt at 2% Pb, 8%Zn, and 86g/t Ag. Other smaller scale mineralisation occurrences within the Dragon license include the Blackjacks, Mariposa and Sunny Corner Prospects. Between 1893 and 1911 hand picking of the Mineralised veins at Mariposa produced 446 tonnes of lead and 22,000 ounces of silver from 1354 tonnes of ore.

The age of the base metal mineralisation in the Zeehan area is subject to debate but it would appear to be related to either the Devonian Heemskirk Granite or the underlying Cambrian Mt Read Volcanics.

5. PREVIOUS EXPLORATION

Previous exploration has focussed on a series of prospects within the Gordon Limestone, these include Blackjacks, Mariposa, Sunny Corner, Bannockburn, Westerway, Tom Creek, Leatherwood and Pyramid. In summary exploration to date is as follows:

1) North Broken Hill Ltd

Conducted drilling (12 holes) on the Mariposa vein in the late 1940's and early 1950's. No positive results were reported.

2) AMOCO

In 1984 (and 1985?) AMOCO conducted exploration around the Mariposa, Blackjacks and Sunny Corner Prospects. This work involved mapping, soil sampling, VLF, costeaming and diamond drilling (20 holes for a total of 2,000m). The results of this work are yet to be obtained by Dragon. Core from the drilling program is housed in the MRT core store in Hobart.

3) EZ (Pasminco)

EZ focussed on the Pyramid Prospect thought to be the strike extension of the Oceana mineralisation. Work consisted of mapping, ground magnetics, and short hole diamond drilling. The data is available on the MRT open file system.

4) RIO TINTO EXPLORATION

Rio Tinto carried out exploration over all of the prospects listed above in the period 1992 to 1996 and was directed towards finding 100Mt sized ore bodies. Work included mapping, aircore and "wacker" bedrock sampling, detailed helimag, 16 diamond drill holes (for 3,500m) and a basin analysis. All the data is held in the MRT open file system. Rio Tinto's exploration confirmed the geological complexity of the area and found localised but highly anomalous geochemical signatures. Drilling intersected mineralisation but either too low grade or too narrow in width to be potentially economic. The project was terminated abruptly and some of the best targets remain untested.

4. WORK COMPLETED

Dragon has undertaken a review of the project geology and significant results from previous exploration. This was followed up with a field inspection. Subsequently Simon Tear, formerly a geologist with Rio Tinto exploration was commissioned to

report on the overall prospectivity of the license area, and this report is contained in Appendix 1. Tear's conclusions are as follows:

- 1) Rio Tinto's exploration was curtailed before some of the most prospected targets could be tested, and all their exploration was focussed on large-scale (100Mt) ore bodies.
- 2) The potential exists for multiple 1Mt ore bodies within the Gordon Limestone beneath Quaternary cover or at shallow depth.
- 3) There may however be problems with surface weathering effects creating metallurgically complex secondary mineralisation.

5 CONCLUSIONS AND RECOMMENDATIONS

While the Zeehan Exploration license 18/98 has been subject to considerable previous exploration attention prospective targets remain to be tested for ore bodies of modest scale (around 1Mt). Dragon's exploration priorities are now as follows:

- 1) Check identified target areas on the ground for access and local geology.
- 2) Undertake detailed local geochemical surveys using RC drilling or "wacker" coring to penetrate surficial cover.
- 3) Carry RC drilling of the most prospective targets.

The proposed exploration will be carried out in compliance with the Industry Safety and Mines Schedule A conditions for work on exploration licences. With the use of existing tracks for access the environmental impact of this exploration will be kept to minimum.

Table 1 Annual expenditure on Zeehan Exploration Project E18/98

**ZEEHAN
EL 18/98**

	\$
Assay	100
Drilling	
Contractors & Consultants	2,700
Wakelin - Geological	1,074
Vehicle & Equipment	273
Field, Camp Supplies	
Maps	855
Survey	
Tenement Fees & Rates	
Tenement Administration	
Travel	2,538
General & Administration	
Total Exploration Expenditure	
Overhead @ <10%	452
Application Fees	
Other Acquisition Cost	
Native Title Payments	
Total	7,992

APPENDIX 1

Prospectivity Report for EL 18/98

Zeehan Base Metals Project

Dragon Mining NL

By Simon Tear

**Prospectivity Report for ELA 18/98
Zeehan Base Metal Project**

Dragon Mining N.L.

Report Prepared by :-

Simon Tear

(BSc(Hons), ARSM, MIMM, MAusIMM, PMIAEG)

January 1999

Abstract

Strong potential exists within EL 18/98 for small, metallurgically simple, base metal orebodies hosted within the Ordovician-aged Gordon Limestone. Competitor exploration work has shown that such bodies exist in the Limestone outside of the current Dragon Mining licence area. There is a good level of work by previous operators of the licence that can allow for a more penetrative data interpretation and target identification.

The vast majority of the previously collected data and drillcore is available as part of the open file system at the Mineral Resources of Tasmania offices in Hobart. A digital copy of a detailed helimag survey is also available. The remaining data is available as hard copy only

Likely targets would consist of small, stratabound, elongate lenses or lozenge-shaped orebodies with a moderate plunge and potentially at modest depths. Key features to further exploration are an appreciation of the significance of localised but highly anomalous surface geochemistry, an understanding of the regional structure and the structural controls on mineralisation including plunge parameters, and the lithological characteristics and behaviour of the preferred host lithologies. Re-interpretation of the helimag data is considered a priority particularly for structural data.

The Gordon Limestone in the Zeehan area has many analogies to Irish-type carbonate hosted zinc orebodies.

Prospectivity Report for EL 18/98 Zeehan Base Metal Project

Introduction

This report aims to address the relative exploration merits of EL 18/98 granted to Dragon Mining N.L. The three following points will be attended to :-

1. Prospectivity of the ground for >0.5Mt base metal orebodies.
2. Previous significant exploration data and its availability.
3. The probable nature of targets definable at present or from further data interpretation.

The level of past work is quite substantial with the final operator, Rio Tinto abandoning its search mid-program.

Prospectivity

The opportunities for economic base metal accumulations within the Gordon Limestone in the Zeehan area are good, ably demonstrated by the ensuing points :-

1. Existence of the stratabound Oceana Pb/Zn Mine and the Grieves zinc deposit
2. The presence in the past of several small scale mining operations
3. An abundance of high level and localised bedrock geochemical anomalism, some of which is both unexplained and untested by drilling
4. Extensive work by previous operators has provided good geological control and removed the need for any grassroots exploration; however, many targets remain untested
5. Weakly magnetic siderite alteration occurs as haloes to zinc mineralisation providing a bigger target (see the Century Deposit, NW Queensland)
6. The geological setting is similar to that for Irish-type deposits
7. Previous operators sought much larger targets on wide spaced grids (400m line spacing generally)
8. No in depth data interpretation completed
9. Data re-interpretation in conjunction with extensive local knowledge of structural and lithological controls of mineralisation and the effects of weathering phenomena can help identification of further drill targets. Most of these ideas were not available during previous exploration
10. Cambrian age dates for some of the mineralisation (good for an Irish-type scenario)

Geology of EL18/98

The predominant rocks of the EL consist of a conformable Ordovician-Devonian sedimentary sequence deposited initially in a shallow marine environment that deepened during the Devonian.

Quaternary weathering of the limestone has produced a black clay that overlies the outcropping limestone. There is possibly a pre-Quaternary weathering episode(s) that has also weathered the limestone to a black clay. This latter weathering is thought to be locally very penetrative particularly down faults and parts of the Gordon Limestone/sandstone contacts (over 100m depth).

The sequence is moderately folded but significant thrusting and wrench faulting related to Devonian tectonism has caused reactivation of Ordovician syn-sedimentary faults and thus complicated the geological issue.

Mineral Deposits in the Gordon Limestone

The Gordon Limestone is considered prospective for Irish-type carbonate hosted deposits. The major mine within the formation is the Oceana Mine, held under Retention Licence RL8809, with two differing reported grades a) 4Mt @19.4% Pb, 4% Zn and 106g/t Ag (Taylor and Mathison) or b) 4Mt @2% Pb, 8% Zn and 86g/t Ag (Burrett and Martin). Several small scale occurrences exist elsewhere within the Dragon Mining EL. These can be found at the Blackjacks, Mariposa and Sunny Corner prospect areas. The Mariposa occurrence was a hand picking operation that produced 1354 tons for 446 tons of lead and 22000oz of silver from 1893 to 1911. It is believed that the other occurrences were of a similar nature.

Outside the Dragon Mining lease but within the Zeehan area the other main limestone hosted deposit is Grieves (held under a retention licence by Allegiance Mining N.L.). There is no published figure for Grieves but there is potential for a resource of <0.5Mt at an economic zinc grade. The mineralisation is complex consisting of a number of zinc species presumed to have developed from weathering. None of these weathering phenomena were reported from Oceana.

Both Oceana and Grieves have orebody morphologies indicative of a substantial stratabound component but it is worth noting that both deposits occur in different lithostratigraphic positions, a feature common to the Irish orebodies.

The original prognosis for the formation of these base metal accumulations was credited to epigenetic veining associated with the Devonian-aged Heemskirk Granite. However research undertaken by the University of Tasmania has revealed Pb-isotope data for Grieves to be of Cambrian age and thus sourced from the underlying Mt. Read Volcanics. Melbourne University maintains that the Oceana mineralisation was Devonian-aged but there maybe some doubt about this.

A common alteration feature associated with mineralisation is siderite (iron carbonate), which seems to manifest itself in two forms :-

1. Dark brown, coarse grained zones/veins? often with wallrock brecciation eg at Mariposa
2. Brown-grey fine grained zones overprinting host rock mineralisation eg Blackjacks, Pyramid and Sunny Corner

The latter phase is slightly magnetic and is thought to represent an alteration halo to stratabound zinc mineralisation.

Summary Characteristics of Irish Orebodies

1. Structurally controlled stratabound deposits
2. Lens shaped orebodies; either single or multiple lenses
3. Sphalerite and galena mineralogy; metallurgically simple
4. Orebodies have no distinguishing geophysical signature unless they have a pyrite capping unit
5. Host formations comprise shallow water shelf carbonates unconformably overlying folded island arc volcano-sedimentary rocks
6. Different lithostratigraphic positions for ore
7. Large (>70Mt), medium (10-20Mt) and many smaller orebodies at 1Mt.
8. Flat lying and difficult to detect even at shallow depths
9. Ferroan dolomite (iron carbonate) is a key alteration feature; thought to form a lateral halo to ore

Previous Exploration

The Gordon Limestone was divided for the purposes of exploration into a number of prospects; these are Blackjacks, Mariposa, Sunny Corner/Bannockburn, Westerway, Tom Creek, Leatherwood and Pyramid. The following is a breakdown of work completed by different explorers.

1. North Broken Hill

Work consisted mainly of drilling the Mariposa 'vein' (12 holes) with seemingly unsuccessful results (late 1940's early 1950's).

2. AMOCO

This consisted of a more systematic exploration approach beginning in 1984. Several exploration methods were used including mapping, soil sampling, VLF surveys (and possibly IP), costeaming and diamond drilling (approximately 20 holes for 2000m). All data was reported to the MRT and is available as microfiche reports. Mapping was generally done at a scale of 1:2500. AMOCO covered the Blackjacks, Mariposa (50% of the diamond drilling) and Sunny Corner areas.

3. EZ (Pasminco)

Work was undertaken on the Pyramid prospect thought to be along strike from the Oceana Mine. Work consisted of mapping, geochemical sampling (probably soil sampling), ground magnetics and short hole diamond drilling. Subsequent Rio Tinto work, including drilling, has shown that this area is complex and thus not very well understood. The EZ data is available in the MRT open file report system.

4. Rio Tinto Exploration

Substantial work was completed over all prospect areas listed above as part of the company's Zeehan Zinc Project (1992-6) and included mapping, aircore/wacker bedrock sampling, a detailed helimag survey, diamond drilling (approximately 16 holes for roughly 3500m) and a basin analysis study. This work confirmed the potential for Irish-type deposits. It also delineated the localised but highly anomalous geochemical nature of the bedrock and some of the geological complexity but failed to find ore grades in combination with ore widths. All data is available as MRT open file reports. The helimag data is available digitally at a one off cost of \$75. Some of the geological maps were digitally produced in colour and thus will not photocopy easily. Most maps for each prospect were at 1:2500 scale. Digital acquisition of the mapping data is unlikely in line with Rio Tinto company policy.

Rio Tinto's program was terminated abruptly with one drillhole stopped within a weakly mineralised siderite zone at a favourable stratigraphic position. Some of the company's better targets on EL 18/98 remained undrilled. Their exploration focus was for 100Mt sized orebodies

The innovative helimag survey had flight lines that ran perpendicular to formation strike even in folded areas. Subsequent data processing by the contractor took nearly a year with the result that minimal interpretation was undertaken. Certainly no target identification was completed. Bob Richardson of MRT has suggested that better processing of the data will greatly enhance the amount of available geological information that can be used for delineating targets. It is important to note that the fine grained siderite alteration is slightly magnetic and detectable in the helimag results.

The basin analysis work helped to explain some of the incongruities from the diamond drilling. It also highlighted areas of geological anomalism, which incorporated back into the data interpretation, may assist the ore search.

Drillcore from the AMOCO and Rio Tinto exploration programs was amalgamated at Rio's Zeehan Store and subsequently transferred en masse to the MRT core store at Hobart. The whereabouts of the North Broken Hill core is unknown.

Probable Nature of Targets

The main target is likely to be an elongate lens- or lozenge shaped zinc (and lead) orebody. It would potentially have a moderate plunge and it may outcrop but not necessarily be exposed due to Quaternary cover. Approximate dimensions of an orebody are likely to be 250m by 120m by 10m (at a density of 3.5g/cm³ gives 1Mt). The maximum dimension is nearly half the distance between the geochemical sample lines.

There may be problems with weathering, which at Grievess has produced a complex secondary zinc mineral assemblage. Areas of flat dip where potential ore-bearing target horizons have not been exposed to the weathering influence may have a simple unweathered zinc mineralogy eg Oceana. The risk is that these flat areas may be deep and thus rendering exploitation uneconomic.

The helimag survey was not properly interpreted. Reprocessing of the data will benefit the interpretation of structural data and thus assist targeting more favourable structures for mineralisation. The improvement in resolution from reprocessing the data is considered to be an order of magnitude better than the images presented by Rio Tinto in the open file reports (Bob Richardson, MRT). In addition to better structure delineation, reprocessed data could reveal zones of siderite alteration related to mineralisation, identify ore-related geological anomalies and better define the position of favourable host lithologies.

Other base metal target types may include large scale epigenetic veining but diamond drilling results to date are not encouraging. However, most of Rio Tinto's exploration would have been directed away from the surface scratchings in the belief that the size potential was limited.

Notwithstanding the Gordon Limestone, stratabound base metal opportunities on EL18/98 are considered poor. The only other possibility is a speculative grassroots play within the Devonian Bell Shale.

Nickel plays might exist in the ultrabasics at the northernmost part of the EL.

Recommendations for further work

- *Deskbound Work*

1. Open file search of the relevant company reports and compiling up the data into coherent maps (and sections)
2. If required convert data to MAPINFO tables; digitising required
3. Acquire the helimag digital data and reprocess the images
4. Complete a more incisive interpretation of all the data and identify targets either for infill surface sampling or for drilling

- *Fieldwork*

1. Check the validity and accuracy of the ground grids (grids not located with GPS; there are some small locational discrepancies with the helimag data)
2. Check identified target areas for favourable geological signs and accessibility
3. Undertake geochemical sampling, either wacker (approx \$7/m) or aircore (approx \$15/m)
4. Undertake drilling : RC (approx \$25/m) may be a preferred route rather than diamond drilling (\$100+/m)

Simon Tear
January 1999