

# **ZZ** EXPLORATION<sub>Pty Ltd</sub>

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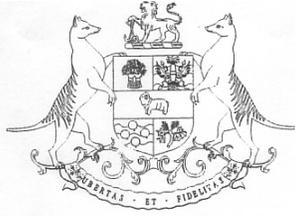
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**Comstock Mineral Field  
Exploration Licence 30/2002  
Annual Report For Period Ending  
December 2003**

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Prepared by  
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April 2004



*Oaths Act 2001*  
**Statutory Declaration**

**I,**

.....

.....

*(name, address and occupation)*

do solemnly and sincerely declare that .....

.....

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.....

*(facts)*

I make this solemn declaration under the *Oaths Act 2001*.

Declared at.....

*(place)*

on .....

*(date)*

.....

*(signature)*

Before me

.....

*(Justice, Commissioner for Declarations  
or authorised person)*

**Table of Contents**

<b>TABLE OF CONTENTS .....</b>	<b>3</b>
<b>SUMMARY .....</b>	<b>4</b>
<b>INTRODUCTION.....</b>	<b>5</b>
LOCATION.....	6
TENURE.....	7
<b>PREVIOUS EXPLORATION AND MINING.....</b>	<b>8</b>
<b>GEOLOGY .....</b>	<b>8</b>
REGIONAL GEOLOGY .....	8
<b>WORK COMPLETED JANUARY 2003 – DECEMBER 2004 .....</b>	<b>8</b>
REVIEW.....	8
REGIONAL EXPLORATION ACTIVITIES.....	8
<i>Newly acquired aerial photography .....</i>	<i>8</i>
<i>Structural air photo interpretation .....</i>	<i>8</i>
<i>Geological interpretation.....</i>	<i>8</i>
<i>Mapped gossans, lodes, faults &amp; soil geochemistry .....</i>	<i>9</i>
<i>Geophysics .....</i>	<i>9</i>
<i>Consultant geophysical review (EL30/2002).....</i>	<i>9</i>
<b>ENVIRONMENTAL DISTURBANCE AND REHABILITATION.....</b>	<b>10</b>
<b>CONCLUSIONS .....</b>	<b>10</b>
<b>EXPENDITURE .....</b>	<b>11</b>
<b>REFERENCES.....</b>	<b>11</b>
<b>LIST OF APPENDICES .....</b>	<b>13</b>
<b>FIGURES</b>	
FIGURE 1 - Location of ZZ Exploration Pty Ltd EL30/2002 .....	6
FIGURE 2 - Land Tenure within and around EL30/2002.....	7
<b>TABLES</b>	
TABLE 1 - Expenditure - January 2003 to December 2003 .....	11

**Summary**

There is potential for the discovery of new economic metallic deposits within EL30/2002, and the opportunity to extract and process minerals from existing deposits with known resources. ZZ Exploration Pty Ltd (ZZ Exploration) has focused on finding small (<0.5Mt) to large-scale (>100Mt) economic resources based on the testing of previously identified geophysical and geochemical anomalies.

EL30/2002 is of primary interest to ZZ Exploration as it largely encloses current mining tenements held by Oceania Tasmania Pty Ltd (Oceania) and covers the strike extent of the dominant mineralised structures within the tenements.

Exploration completed on EL30/2002 during the period January 2003 to December 2003 include a) collation and review of existing datasets, b) creation of a base-metal priority target definition map, c) geology surrounding the Comstock mining tenements, d) drill hole study for nickel potential within EL30/2002, and e) newly acquired (November 2003) aerial photography.

ZZ Exploration aim to be one of the leading mineral explorers in the Zeehan area and explore EL30/2002 for Category 1 mineral resources for its Comstock Gravity Plant.

### **Introduction**

Exploration Licence 30/2002 (EL30/2002) covers 8 square kilometres and is located directly west of Zeehan, western Tasmania (Figure 1). ZZ Exploration is a wholly owned subsidiary of Zeehan Zinc Limited, and holds the exploration rights to EL30/2002.

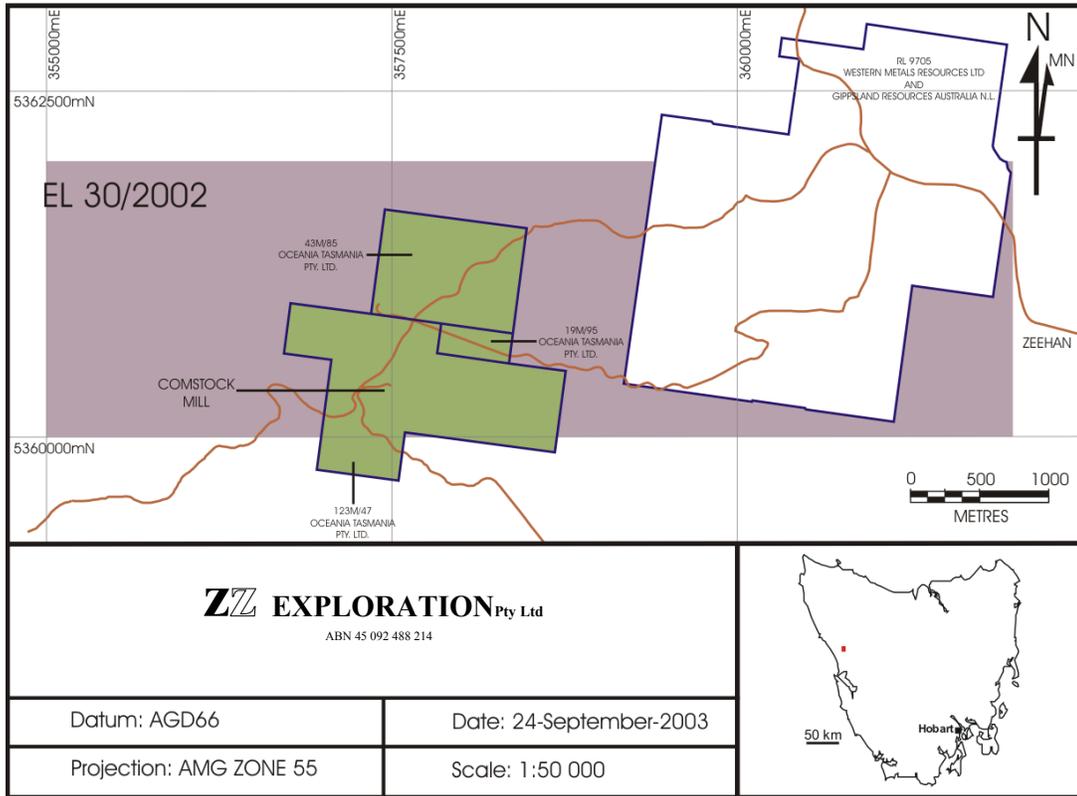
The main access to EL30/2002 is via Trial Harbour Road and a 4WD is required to negotiate the numerous partially overgrown former tramways that cross the area. EL30/2002 is dominated by flat open button grass plains, rolling hills, swamps, tea-tree scrubland and dense eucalyptus regrowth. The latter is particularly dense along creek beds and in other low-lying areas.

This report covers the period from January 2003 to December 2004. Work completed during this period includes:

- 1) The geology surrounding the Oceania Tasmania Pty Ltd mining tenements (Appendix 3).
- 2) Preliminary investigation of geophysical, image, company and map data to determine a) areas of greater significance for future exploration b) prioritise ground held under EL30/2002 and c) facilitate decisions regarding future possible relinquishments (Appendix 4 & 8A-K).
- 3) Report titled ‘Sampling report of drill holes SY005 and SY009’ by Farrell (2002). (Appendix 5).
- 4) Aerial photography flown November 2003 (Appendix 6).

ZZ Exploration has focused on finding minable extensions of the known Devonian granite-related deposits extending from the Comstock Mining Leases, as well as deposits of similar and/or litho-stratigraphic position.

Location



**Figure 1.** Location of ZZ Exploration Pty Ltd - EL30/2002 (**purple** = EL30/2002 held by ZZ Exploration Pty. Ltd.; **green** = ML's 123M/47, 19M/95, 43M/85 held by Oceania Tasmania Pty. Ltd.; **white** with blue outline = RL 9705 held by Western Metals Resources and Gippsland Resources Australia N.L; **red** = roads and tramways).

Tenure

EL 30/2002 was granted to ZZ Exploration on the 7 February 2003 for a period of five years and applies to all Category 1 minerals. The licence covers 8 square kilometres (Figures 1 & 2). Excluded areas are a) any land owned or leased by the Commonwealth of Australia, c) mining leases, d) retention licences and e) Crown reservations. Refer to Appendix 1 for the EL30/2002 Schedule.

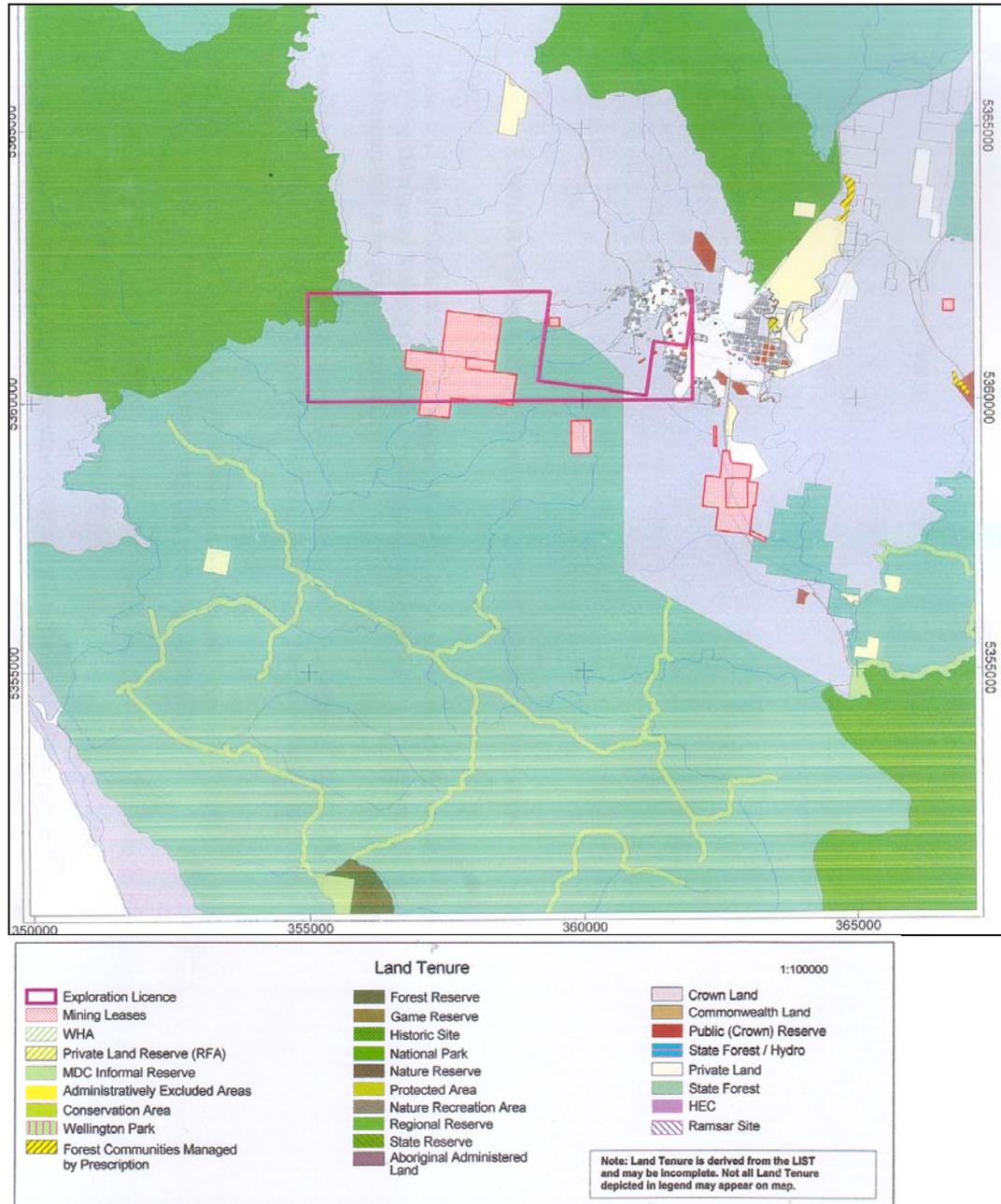


Figure 2. Land Tenure within and around EL30/2002.

## **Previous Exploration and Mining**

A review of previous mining and exploration is documented in Farrell (2001), Taylor, (1993) and Crossing (1992).

## **Geology**

### Regional Geology

EL30/2002 is geologically complex. It is dominated by deformed turbidites, carbonates and volcanics of the Neoproterozoic Oonah Formation. Sediments and volcanics of the Crimson Creek Formation and Dundas Group occupy the central and eastern portions; while gabbros, basalt flows and massive serpentinite of the McIvor Hill Complex (bounded by the Tenth Legion Fault) crop out in the SW portion of EL30/2002. Siluro-Devonian sediments of the Zeehan Sub-basin including the Crotty Quartzite, Amber Slate, Keel Quartzite, Austral Creek Siltstone, Florence Quartzite and Bell Shale are exposed in the eastern portion of EL30/2002. An ENE-trending Devonian granitoid spine associated with the Heemskirk Granite is shown to extend beneath EL30/2002 (Leaman & Richardson, 1989). The regional geology is described in Farrell (2001), Taylor (1993), Crossing (1992) and Blissett (1962).

## **Work Completed January 2003 – December 2004**

### Review

ZZ Exploration is in the progress of reviewing Devonian granite-related sediment-hosted (carbonate and shale) metallic minerals (specifically Zn-Pb-Ag-Fe), Ni enriched base-metal deposits associated with Devonian granite-related hydrothermal fluids interacting with Cambrian Mafic-Ultramafic Complexes and Ordovician carbonate-hosted (Irish-type?) Pb-Zn-Ag deposits within the Gordon Group Limestone and correlates.

ZZ Exploration's program has focussed on 1) open file search and compilation of newly acquired data and models into coherent maps and sections, 2) ground testing of geological fact and interpretive maps, including structural assessment and interpretation, 3) review of regional and localised magnetic, electromagnetic and gravity anomalies identified from data collation to evaluate the base-metal priority target definition potential, 4) examination of possible geophysical and geochemical anomalies, that comprise down-hole geochemical analysis.

### Regional exploration activities

#### *Newly acquired aerial photography*

An aerial survey (Appendix 6) was commissioned by ZZ Exploration to be flown over EL30/2002 at 1:12000 during November 2003. This was completed in conjunction with a regional survey (Zeehan area) conducted by the Department of Primary Industry, Water and Environment. The photographs will be used to evaluate conditions of tracks, vegetation growth, and geological mapping.

#### *Structural air photo interpretation*

EL30/2002 is traversed by a series of NW-WNW trending faults including the Tenth Legion, Balstrup, Bendall's and Sylvester Faults, which have been interpreted to be major fluid conduits for the Comstock massive sulfide deposits. A series of unnamed NW-WNW and NE-NNE trending faults have been identified through field mapping and as lineaments on aerial photographs (1984 aerial photograph) (Appendix 8A).

#### *Geological interpretation*

A review of the geology of the Oceania mining tenements (123M/1947, 19M/1995, 43M1985, 9M/2002) and its surroundings (EL30/2002 – Appendix 3) was completed by

Tear (2002). This has been undertaken in an attempt to refine the interpretation of the complex structural history of the area.

ZZ Exploration geologist James Farrell has reviewed and created an interpretive map (Appendix 8C) of the geology and structure based from existing data from RGC Exploration Pty Ltd (Crossing 1989, 1990, 1991, 1992), Richardson (2000), and Farrell (2001).

*Mapped gossans, lodes, faults & soil geochemistry*

ZZ Exploration has compiled a series of maps from past reports showing location of gossans, mineralised Zn-Pb-Ag lodes from Crossing (1992), interpreted structures from Farrell (1992) (Appendices 8B) and soil geochemistry from Gatehouse (1990) (Appendix 8B). A list of known old workings, prospects and deposits within EL30/2002 are shown in Appendix 2.

*Geophysics*

A series of geophysical maps (Appendices 8E-L) have been created from high-resolution airborne electromagnetic (EM) and magnetic surveys conducted by Geo Instruments Pty Ltd (Geo Instruments 1999, Lewis 1999a, 1999b).

Magnetic anomaly (C1) shown in Appendix 8E, has been identified as a sulphide-bearing magnetite and pyrrhotite body derived from drill holes SY005 and SY009. Selected samples were collected to test for the presence of the mineral pentlandite (Fe, Ni)<sub>9</sub>S<sub>8</sub> within drill holes SY005 and SY009 (Appendix 5). No significant nickel was found in the samples analysed.

*Consultant geophysical review (EL30/2002)*

In December 2003, ZZ Exploration commissioned Ochre Australia Pty. Ltd. to complete a Phase 1: 'Image Processing and Target generation' map over EL30/2002 (Appendix 4).

Phase 1 includes:

Characterising available datasets, including geophysical satellite, topographic and report data.

- a) Preliminary processing of main datasets including, where available, magnetics, radiometrics, gravity and EM
- b) Comparison with mapped geology and geological trend
- c) Preliminary target definition
- d) Summary report

Below are some target concepts sought by ZZ Exploration:

**Target concepts for Devonian granite-related sediment-hosted Zn-Pb-Ag deposits:**

- a) Carbonate-replacement associated with extensions of known structures (e.g. Sylvester, Balstrup, Bendall's and the Tenth Legion Faults) as well as other structures active during the Tabberabberan Orogeny and/or associated with Devonian granite emplacement (e.g. Balstrup Massive Sulfide Body and Bendall's Sulfide Body).
- b) High-grade mineralised linkage structures associated with tensional opening between major faults (e.g. Allison's Lode).
- c) Zn-Pb-Ag sulfide replacement of Upper Oonah Formation carbonates at lithological and sheared lithological contacts (e.g. Main Lode and Hooke's Lode).

- d) Stratabound Zn-Pb-Ag sulfide replacement of Upper Oonah Formation carbonates (e.g. Boss Lode).
- e) Known Zn-Pb-Ag lodes and Upper Oonah Formation carbonates extending from the Comstock Mining Leases.
- f) Outcropping Fe-stones along strike from, and similar to those within the Comstock Mining Leases.

**Target concepts for Ni-enrichment associated with Devonian granite-related hydrothermal fluids interacting with Cambrian Mafic-Ultramafic Complexes:**

- a) Granite-related magnetite-pentlandite enrichment associated with lithological/faulted contacts between Mafic-Ultramafic Complexes and Oonah Formation carbonates, carbonaceous shale, siltstones and sandstone.
- b) Pyrrhotite-pentlandite deposits hosted by Oonah Formation sediments proximal to Mafic-Ultramafic Complexes.
- c) Massive pyrrhotite-pentlandite deposits proximal to Mafic-Ultramafic Complexes and associated with magnetite-serpentine skarn localised (at depth) along major structures.

**Target concepts for Ordovician carbonate-hosted Pb-Zn-Ag deposits within concealed Gordon Group Limestone (±correlates) and overlying sediments:**

- a) Syngenetic (?) stratiform carbonate-replacement in the middle portion of the Gordon Limestone.
- b) Epigenetic (?) submarine gravitational debris flow breccias related to coeval tectonism (Pre-Tabberabberan) at the margins of the depositional basin.
- c) Pre-Tabberabberan listric roll-overs or domal structures.
- d) Structurally controlled vein or breccia zones in sediments overlying the Gordon Limestone.

**Environmental disturbance and rehabilitation**

Exploration over EL30/2002 was environmentally low impact due to the existence of numerous sealed and unsealed roads and tracks. ZZ Exploration is confident that the experience of developing the Comstock Mine will greatly assist in exploring the potential of EL30/2002 and that any future developments will be carried out in an environmentally sensitive, responsible and competent manner.

**Conclusions**

During 2003, ZZ Exploration has focused its effort on reviewing the mineral deposits within EL30/2002 (Appendix 2). These investigations have established priority areas (Appendix 4) which could contribute resources to the nearby Comstock Plant.

ZZ Exploration intends to carry out exploration for all category 1 minerals over EL30/2002. Several short-term targets have been prioritised which include:

- 1) Reviewing priority targets as described in Appendix 4 that include minable extensions of the known Devonian granite-related deposits extending from the Comstock mining tenements.
- 2) Sampling of shallow targets.
- 3) Relinquishment of areas assessed by ZZ Exploration as having a low potential for discovery of economic mineral deposits.

Commodity prices have been low over the past few years, however, recent increases over the past months will make future projects more viable for extraction of base metals.

## Expenditure

**Table 1.** Expenditure - January 2003 to December 2003

<b>Expenditure Statement</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Total</b>
Geology	12,252.53	3,757.50	13,820.40	12,636.00	<b>42,466.43</b>
Geochemistry					-
Geophysics - air				2,200.00	<b>2,200.00</b>
Geophysics - ground					-
Feasibility studies	968.00			583.00	<b>1,551.00</b>
Rehabilitation					-
Drilling (metres)					-
Gridding (line km)					-
Administration	1,344.75	411.75	1,697.04	1,944.47	<b>5,398.01</b>
Other	227.00	360.00	3,150.00	4,025.65	<b>7,762.65</b>
<b>Total</b>	<b>14,792.28</b>	<b>4,529.25</b>	<b>18,667.44</b>	<b>21,389.12</b>	<b>\$ 59,378.09</b>

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**List of Appendices**

- Appendix 1** Schedule from Exploration Licence 30/2002.
- Appendix 2** Location of Deposits within EL30/2002 (MIRLOCH mineral locations).
- Appendix 3** Tear, S., 2002. Geology surrounding the Comstock mine (Benmore Exploration Pty. Ltd.).
- Appendix 4** Ochre Australia., 2003. Investigation of geophysical and image data over the Zeehan field. Unpublished Report.
- Appendix 5** Farrell, J. N, 2002., Sampling Report for SY005 and SY009. Unpublished.
- Appendix 6** Aerial Photography flown over the Comstock Mining Leases and EL30/2003 (27-11-2003).
- Appendix 7** Zinc Prices (London Metal Exchange) – Jan 01, 2003 to Dec 31, 2003.  
Lead Prices (London Metal Exchange) – Jan 01, 2003 to Dec 31, 2003.  
Silver Prices (London Fix) - Jan 01, 2003 to Dec 31, 2003.
- Appendix 8**
- A: Structural interpretation over aerial photograph
  - B: Mapped gossans, lodes & faults
  - C: Interpretive and structural geology
  - D: Surface geochemistry and soil survey grid
  - E: Total magnetic intensity, lodes & drill holes
  - F: Electromagnetic image 385 Hz\_NNE lines
  - G: Electromagnetic image 385 Hz\_WNW lines
  - H: Electromagnetic image 6606 Hz\_NNE lines
  - I: Electromagnetic image 6606 Hz\_WNW lines
  - J: Electromagnetic image 34133 Hz\_NNE lines
  - K: Electromagnetic image 34133 Hz\_WNW lines
  - L: Elevation, drill holes and structures