EL 17/2005 NIETTA

RELINQUISHMENT REPORT

FINAL REPORT ON EXPLORATION ACTIVITIES
TO
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1. SUMMARY

This report details exploration work undertaken on EL 17/2005 (Nietta) for the life of the tenement. Work comprised:

- Regional mapping, sampling and compilation of existing data
- Mapping and soil sampling of the Castra Road grid
- Ground EM on the Castra Road grid for a total of 196 stations (10.5 line kms)
- Airborne EM coverage of the tenement areas using the VTEM helicopter borne EM system (278.3 line kms)

Mapping and soil sampling identified weakly anomalous trends in soil geochemistry corresponding to weakly altered volcaniclastic sediments and dacite lavas. Ground EM was recommended to follow up these zones, and two loops of data were collected. A veneer of conductive bedrock overlaid a uniformly resistive basement. This produced an unambiguous platform from which anomalous responses could be identified. Unfortunately, no anomalous responses were identified in the data.

The VTEM survey covered all of the tenements in this area with 200 metre spaced lines of varying orientation at a nominal fixed height. Within the Nietta tenement, there were no responses identified that were thought to represent target mineralisation.

The Nietta tenement was recommended for relinquishment at the end of its third year.

2. INTRODUCTION

This report details exploration work undertaken on Nietta EL 17/2005 since granting on 21 September 2005.

The main targets on the tenement are Cambrian Rosebery or Hellyer type, Zn-Pb-Cu-Au-rich VHMS mineralisation hosted by the Mount Read Volcanics (MRV).

The initial plan was to explore the licence as part of a package of adjoining project tenements using a combination of reviewing previous exploration data, geological mapping, whole rock and conventional soil geochemistry, followed-up by selected ground time-domain EM, then drilling of areas of interest.

The Nietta tenement covers an area of moderate relief, which is occasionally heavily forested and incised (e.g. surrounding the Wilmot River). It extends from just west of Wilmot, north to Upper Castra and then west through Nietta towards Native Track Tier (Figure 1). Access to the area is via numerous sealed arterial roads, minor sealed and unsealed roads, forestry tracks and numerous 4WD tracks in private property.

Geodetic datum for all spatial data is ADG66_(zone55) unless stated otherwise.

2.1 Attribution

The following personnel were responsible for the work carried out on the project tenements during the reporting period:

Senior Exploration Geologist:	Darren Hicks – OZ Minerals.
Senior Field Technician:	Craig Archer - CM Archer P/L.
Geophysical Contractors:	Quantec Geoscience
Geophysical Contractors:	Geotech Airborne Pty Ltd
Geophysical Consultant:	Dr Jovan Silic – Flagstaff GeoConsultants
Geophysical Consultant:	Rob Angus – RAMA Geoscience

3. LAND TENURE

EL 17/2005 Nietta (143 sq km) was granted to Zinifex Australia Ltd on 21 September 2005 for a period of 5 years. The tenements covers ground that fell vacant on the relinquishment of numerous tenements over a number of years. The location of the tenements is shown on Figure 1, and the tenement exploration history is addressed in Section 5 below. A reduction was approved on 22 April 2007 resulting in current tenure of 60 sq km (EL 17/2005 Nietta).

On July 18th 2008 the name of Zinifex Australia Limited was changed to OZ Minerals as a result of a corporate merger between Zinifex Ltd and Oxiana Ltd.

The Nietta tenement excludes approximately 4 ha of Mining Leases, and a further 15 hectares of land are excluded as Crown Reserves or State or Public Reserves.

Other land tenures within the project tenement area include State/Multiple Use Forest, MDC Informal Reserve, forest communities managed by prescription, Tasmanian forest community agreement, Crown Land, and abundant private property all of which are available for exploration under the Mineral Resources Development Act 1995.

4. GEOLOGY

4.1 Regional setting

The regional geological framework of the Mt Read Belt (MRB) is subdivided, from an exploration perspective, into three elements. The central MRB covering the area of outcrop from south of Queenstown to north of Hellyer, the northern MRB covering the area from Back Bluff eastwards through Gowrie Park and Mole Creek, and the Southern MRB comprising areas west and south of Macquarie Harbour. The Nietta tenement is in the east-central part of the northern MRB.

Basement in the Central and Northern MRB is of Precambrian age, comprising predominantly greenschist facies metasediments with minor basalts and dolerites. Higher grade amphibolite and eclogite facies are also present within the Precambrian. This Precambrian basement, termed the Tyennan Block, lies to the south of the tenement.

Cambrian volcanism and sedimentation developed on the Precambrian continental crust and, in the Central MRB, is subdivided into the Eo-Cambrian Tholeiitic Crimson Creek Formation (CCF), the mid to late Cambrian Dundas Group and the predominantly calc-alkaline, Mt Read Volcanics (MRV).

The CCF was deposited in shallow but rapidly subsiding basins comprising basaltic lavas and volcaniclastics, turbidites, carbonates, chert and minor evaporites. This formation is not exposed in the licence area. Ultramafic cumulates and volcanic equivalents were thrust onto the CCF in the mid Cambrian. They are absent from the licence area.

The MRV, in the Central MRB, form a 200 km long by 20 km wide north-south trending belt along the eastern side of the Dundas Trough, adjacent to and in some areas onlapping and intruding the Precambrian basement. The northern extension of the MRV swings eastwards around the northern margin of the Tyennan Precambrian block. The volcanics include intermediate to felsic lavas, subvolcanic porphyries and granites, volcaniclastics and basement-derived sedimentary rocks. The MRV host five economically significant volcanic hosted massive sulphide deposits all of which lie in the Central MRB.

During late CVC to early Tyndall Group time, Cambrian granitoids intruded the volcanic pile. The majority of the granitoids occur along the eastern margin of the volcanics and stitch the volcanics to the Tyennan Block.

Cambrian volcanism and sedimentation was followed by predominantly basement derived late Cambrian to Devonian age sedimentation, including siliciclastic conglomerate, sandstone and limestone. These sequences occur within, and peripheral to, the project area.

At least two phases of regional compression were associated with the mid Devonian Tabberabberan Orogeny. The development of folding, cleavage and regional thrusts in lower Palaeozoic rocks were associated with this event. Fold trends in the licence area are variable, some NW, and lesser E-W.

Deformation was followed by the extensive intrusion of Devonian to Carboniferous granitoids of batholitic proportions. The Dalcoath Granite (and associated hornfels aureole) outcrops southeast of the licence, and the Housetop Granite outcrops across a large area to the northwest of the tenement. The Devonian granites are associated with carbonate replacement Sn mineralisation at Renison Bell and Mount Bischoff, and the Pb-Zn-Ag vein deposits of Zeehan and possibly the Tullah Fields. A similar setting may be interpreted for the base metal vein deposits in the district (eg. Round Hill workings).

The Ordovician and older rocks to the far east of the licence are unconformably overlain by marine sediments, including tillite, forming the basal units of the Permian Parmeener Supergroup. Small bodies of Jurassic dolerite intrude the Permian sediments and older rocks.

After substantial erosion of this terrane, extensive Tertiary flood basalts and subvolcanic sediments were deposited. Basalt flows cover as much as a third of the tenement area. In the Quaternary, talus deposits have developed on the lower slopes of Mt Roland and alluvial deposits have formed in the valley of major rivers.

4.2 Nietta tenement:

One of the main problems with exploring in the Fossey Mountain Trough was perceived to be making correlations with the well-known stratigraphy of the Central Mount Read Volcanics, in particular locating equivalents of the “Holy Host” (i.e. the top of the CVC or it’s equivalent). A recent review, using the whole-rock geochemical data from the Tasmanian 3D model, and additional data in Zinfex’s database, defined several areas of felsic volcanics with geochemical signatures equivalent to the top of the CVC at Rosebery. The Nietta tenement (as part of the project tenements) was designed to cover an area of potential “Holy Host” stratigraphy.

A series of new maps have been produced by MRT, giving geological coverage at 1:25,000 across the project tenements (WTRMP). A comprehensive overview can be gained from the 1:100,000 WTRMP sheet and accompanying report (Corbett and McClenaghan, 2003) and, as is discussed below, further mapping by Dr Corbett has been focussed on discriminating the affinities and correlates of inferred central MRV units in the project area. A summary map of this work by Dr Corbett is contained in Hicks, 2006 and 2007. Shown here (with current tenure) in Figure 2 is the 1:25,000 published Geology, from which the geological legend should be referenced.

5. PREVIOUS EXPLORATION

The area encompassed by the Nietta tenement has had an irregular exploration history for base metals starting in the 1960's, with current philosophies and methods applied since the mid 1970's. It is believed that up to six surface drill holes have been collared close to or on the project tenements, at a variety of geochemical and/or geophysical targets. The Nietta tenement can still be considered under-explored, as the majority of work described below only partially overlaps with current tenure, with much of this current tenure rapidly discounted through early regional surveys.

Modern exploration commenced in the 1960's with regional geological compilations (eg. Burns, 1957, Whiting, 1970) and aeromagnetics surveys (eg Zarzavatjian, 1966; Webb, 1968; Chestnut, 1967) focusing on broad areas and less relevant commodities or styles of mineralisation.

As is often the case, the first phase of focussed exploration (1970's) delineated most of the currently known anomalies within and adjacent to the project tenements. Tenements EL 19/72 (see Porter, 1976, who provide comprehensive summaries of exploration on the tenement area to that date) and EL 7/73 (see Barker, 1975 and Clementson and Flis, 1983) have overlaps with the project tenements.

After a break of several years, exploration became more focussed on Cambrian VHMS style mineralisation, again with only partial overlap onto the project tenements. Work on EL 8/77 (Caithness, 1986), EL 36/79 (eg Wright, 1983), EL 33/83 (Vivian, 1984a & b), EL 43/85 (eg. Sise, 1987) and EL 49/87 (Randell, 1988) led to the identification of a limited number of new prospects. An apparent trend throughout the 1980's and early 1990's was for explorers to re-assess the geology, previous exploration and open-file data, complete variably detailed reconnaissance with some follow-up, and then relinquish the licence having deemed the area a low probability of significant base metal discovery. EL 19/90 (Jones, 1991) and EL 42/92 (Vicary, 1994) are good examples of this. Some quite focussed exploration was conducted by RGC exploration on EL 15/92 (Vicary, 1995a) but areas of interest did not overlap on the current tenure.

Zinifex has previously explored parts of the tenement area. Geopeko managed exploration on behalf of the E.Z. Co. (who became Pasminco, who became Zinifex Ltd, who have now become OZ Minerals) in EL 96/87, which reverted to Pasminco control during 1990. There is some overlap of EL 96/87 into the tenement area (see Virgoe, 1990 and Fitzgerald, 1991). Other tenements held by Pasminco/Zinifex/OZ Minerals in the vicinity of the Nietta tenement includes EL 3/1998 (Lake Barrington) and EL 13/2000 (Paradise). Both tenements were prematurely relinquished in 2002, primarily due to internal factors at the time.

The ground which makes up the Nietta tenement was vacant prior to the granting of 17/2005. The most recent exploration appears to be that of Pasminco on the Lake Barrington and Paradise tenements. However, none of the work completed by Pasminco on these licences overlaps onto the current Nietta tenement.

Table 1 lists previous tenement holders in the Sheffield-Castra-Nietta area, and Table 2 gives an overview of work completed prior to the granting of the Nietta tenement in September 2005.

TABLE 1: Previous tenement holders in the vicinity of the Nietta tenement area

Company	Reference	EL	Granted	Relinquished / JV	Relevant Prospects	Previous Tenements
1. AMEG	Webb, 1968	8/65	?	?	Nil	Regional
2. BHP	Chesnut, 1967; Cochrane, 1970	15/65	1965	1970	Nil	Regional
3. Scamander Mining Co	Whiting, 1970	14/70	?1970	?	Nil	Regional
4. CRAE	Porter, 1976; Purvis, 1978	19/72	1972	?1978	1,2,3, ?4, 9, 10	10/73
5. Asarco	Barker, 1975	7/73	1973	JV to CRAE, 1975	5, 6, 7	-
6. CRAE	Clementson, 1982; Temby, 1985	7/73	CRAE post 1983	1988	7, 8	7/73
7. CRAE	Caithness, 1986	8/77	1985 JV	?1987	3, 1, ?9	?
8. Shell, CRAE	Wright, 1983; Hungerford, 1989, 1990	36/79	1980	1990	11, 3	2/76, 19/72
9. AMAX	Vivian, 1984a & b	33/83	1983	?1984	5, ?10	-
10. Aberfoyle	Sise, 1987; Wallace, 1991	43/85	1986	1991	8, 12	49/82
11. Billiton	Randell, 1988	49/87	1987	1988	Nil	-
12. Geopeko	Virgoe, 1990;	96/87	1987	JV to PasEx 1990	1,2,3, 4	-
13. Pasminco	Fitzgerald, 1991	96/87	1990	1991	1, 2, 3, 4	96/87
14. Noranda	Jones, 1991	19/90	1990	1991	?5	-
15. RGC Expl	Vicary, 1995c	15/92	1992	1995	12,	11/88, 15/92
16. RGC Expl	Vicary, 1995a, b	42/92	1993	1996	1, 2, 3, 11	Various

Prospects: 1= Crosby Ck, 2= Loyetea Nth, 3= Loyetea Sth [incl. Tulip Tree Ck], 4= Castra Rd, 5= Wilmot, 6= Razorback Ridge [?aka Loyetea Sth], 7= Lake Barrington Cu, 8= Stonebridge, 9= Prestons Ag, 10= McPhersons, 11= Challenger2 [aka - Native Track Tier], 12= Beulah.

TABLE 2: Previous work on the Nietta tenement area by other Companies

Company	Year	Exploration Activities
1, 2, 3: AMEG, BHP, Scamander Mining Co.	1965 - 1970	Regional aeromagnetics, data review – old school thinking, no prospects of relevance, poorly documented, often without specific tenement information.
4. CRAE	1972 - 1978	CRAE conducted the first (and probably most successful) modern exploration program in the vicinity of the project tenements. The exploration program (EL 19/72) can be summarised chronologically as follows: • Geological compilation (1972) and inspection of known mineralisation, including **Preston** Ag and **McPhersons** prospects. • Stream sediment sampling program (1973, unknown no. of samples) detected only low level

Company	Year	Exploration Activities
		base metal concentrations. The best was from the **Crosby Creek** area (380ppm Zn, 70ppm Pb) • A 5-line 10m spaced soil sampling program was designed to follow-up this area 600ppm Zn, 1210ppm Pb, 480ppm Cu being peak values obtained) • More regional soil sampling in 1973-74: 15 km2 using 400m x 20m grid. Best results: 5100ppm Pb 244ppm Zn, 200ppm Cu – defined the **Castra** anomalies • Further regional soil sampling and mapping in 1975, at various scales. Reasons for sampling new areas were due to geological interpretation of depositional environments. Best results not given, but defined the **Loyetea North** and **Loyetea South** anomalies. • Airborne EM flown April 1975 across most of tenement • Magnetics, IP and auger sampling completed on **Crosby Creek** prospect in 1975. Best results from the auger work was 3000ppm Pb, 500ppm Zn and 400ppm Cu. • 3 diamond drillholes completed for 652m at Crosby Creek prospect in 1975 (DD 75 CC1 to DD 75 CC3) • Blanket gradient-array IP over **Crosby Creek** and **Loyetea** prospects • 2 diamond drillholes completed for 500.30m at **Loyetea South** prospect in 1976 (DD 76 LS1 & DD 76 LS2) • Concluded that the highest order anomalies have been tested, recommended some further work at Crosby Creek and Loyetea South prospects, proposed a JV of tenement.
5, 6: ASARCO, CRAE	1972 - 1978	There is some overlap of ground originally held by Asarco under EL 7/73. During tenure, Asarco completed the following • regional stream sediment (25 samples) and rockchip (67 samples) sampling, mapping and review/evaluation. They identified low-level anomalies at **Loyetea South** and **Wilmot** before the tenement was joint ventured with CRAE. CRAE joint ventured into this large tenement in 1976 to assess targets generated through Asarco's stream sampling programme. CRAE, who also held EL 10/76, explored the area from 1976-1988. The majority of prospects that were explored by CRAE in EL 7/73 were not on the current project tenements. However, the **Wilmot** anomaly (and possibly the **Stonebridge** anomaly) are, and were followed up with more detailed stream and soil geochemistry, as well as VLF-EM and ground magnetics. The eventual conclusion reached by CRAE was lack of evidence and tenor of mineralising systems, but still some (low) potential for such systems to occur in the district. CRA relinquished EL 7/73 in 1988.
7. CRAE	1985 - 1987	CRAE explored EL 8/77 (which has a small overlap with the project tenements) for a brief time by: • Regional drainage sampling program – unknown number of samples, but this program identified **Crosby Creek** and **Loyetea South** anomalies again. • Recommended re-sampling of **Crosby Creek** and **Loyetea South** drillcore to vector towards Au and base metal mineralisation.
8. SHELL (BILLITON) - CRAE JV	1980 - 1990	EL 36/79 has a small overlap with current tenure. Across EL 36/79, Shell completed the following: • Airborne magnetics and radiometrics • Regional INPUT airborne EM • Regional drainage and soil geochemistry. The one anomaly coincident with current tenure is **Tulip Creek** (also known as **Loyetea South**). Shell found only low order, sporadic anomalism and poor repeatability, so recommended no follow-up. CRAE began exploring this JV tenement in 1985, but focussed on areas outside current tenure. Detailed

Company	Year	Exploration Activities
		work has been completed on the Challenger II anomaly (also known as **Native Track Tier** anomaly) which has possible strike extensions into the western portion of EL 17/2005 Nietta.
9. AMAX	1983 – 1984?	EL 33/83 coincides with much of the central and southeastern parts of the project tenements. AMAX completed the following activities in 1983 and 1984: • Review of existing geophysical and geochemical data • Minor check sampling of anomalous drainages and rock chip locations • Reconnaissance and rock chip sampling (with samples sent for whole rock analysis) in the vicinity of **McPhersons** anomaly • Further stream (48 samples) and rock chip (20 samples) sampling • DIGHEM airborne EM (360 line km) over part of the tenement This latest work failed to highlight areas worthy of follow-up, and AMAX surrendered the tenement.
10. ABERFOYLE	1986 - 1991	The northern portion of EL 43/85 overlaps with part of the southeastern area in the project tenement. Aberfoyle completed significant exploration across their tenement, but only minor parts of interest coincide with current Zinifex tenure. Work completed on relevant areas includes: • Some regional mapping traverses, and limited grid mapping at the **Stonebridge** prospect • Minor portion of a UTEM survey on the **Stonebridge** grid, no anomalies detected. Aberfoyle downgraded the prospectivity of much of the overlapping areas of EL 43/85 and current tenure quite early in the tenement life, and therefore little work has been completed.
11. SHELL/BILLITON	1987 - 1988	Billiton tackled this area in a similar manner to previous explorers – regional reviews and stream sediment sampling programs. Details are: • 69 sample sites giving 1-3 sq km coverage, both conventional ¼"BLEG and -80# samples were collected. Sample sites where cultural interference was too high were either not sampled or flagged as possibly contaminated. Approximately 10 anomalies were identified (none within current Zinifex tenure) but almost all failed to reproduce when re-sampled. The tenement was abandoned based on these results and a re-assessment of the regional geology.
12, 13: GEOPEKO, PASMINCO	1987 - 1991	Geopeko (and Pasminco) document a thorough examination of existing data and clever application of further exploration methodology in their 1987-1991 tenure (EL 96/87). While no new anomalous areas were identified, several were re-visited, extended and probably fully tested to current thinking at the time. This work can be summarised by prospect as follows: **Loyetea South (Tulip Tree Creek** grid**):** • 2 new lines cleared and sampled (rock chip instead of C-horizon due to scree cover) – only 3 of 30 samples anomalous (>200ppm Pb) – closes off anomalous zone on grid • Ground magnetics **Crosby Creek:** • A new 7-line grid of 11.5 kms was cut to the SE of CRAE's old grid, geologically mapped • Rock chip (162 samples) or C-horizon soils (291 samples) collected on these lines at 20m spacing – six samples anomalous in Pb, and 20 in Zn define a new area of interest southeast of CRAE's 1976 work. An offset Cu anomaly (low level) is also defined. • 4 BLEG and 2 standard stream sediment samples collected – assays at background levels. **Regional work**: • Eleven samples were analysed for Pb-isotopes – 5 from Tulip Tree Creek grid, 2 from McPhersons prospect, 1 from Preston Ag prospect, and 3 from CRAE diamond drillholes from

Company	Year	Exploration Activities
		Crosby Creek. All possess Cambrian Pb signatures, the significance of this noted. • 34 rock samples were submitted for detailed thin section petrological description.- mostly from Tulip Tree Creek and Crosby Creek, but also Preston Ag and Loyetea Sth drillholes. This petrology confirmed most field names used. • Zinc ratios were determined for 32 samples with >200ppm Pb from similar areas to those sent for petrology. Results suggest 6 samples (core form Crosby Creek, rockchip from McPherson's Prospect) have classic Cambrian VHMS signatures, while Prestons Ag Prospect and 2 other samples show Cambrian vein-style mineralisation signatures • An attempt was made to re-interpret regional aeromagnetics, radiometrics and gravity data for the tenement, but failed to see through local effects from numerous intrusive bodies. • The negative geochemical anomaly at Castra Road was interpreted to represent possible evidence of ore systems (hydrothermal depletion), and its prospectivity was highlighted by mapped zones of sericite-pyrite-silica alteration. Management of exploration in EL 96/87 reverted to Pasminco in July 1990, after which time no new work was completed and the tenement was relinquished in April 1991.
14: NORANDA	1990 - 1991	No results of relevance to current Zinifex tenure arose from the very limited review Noranda completed across EL 19/90. There is a small overlap with parts of the Nietta tenement, but no anomalies were identified or recommendations for further work made by Noranda before relinquishment.
15, 16: RGC EXPL.	1993 - 1996	RGC Exploration were active in two areas in the mid 1990's. 1. The first of these (EL 15/92) has a very small overlap with current Zinifex tenure and no results of interest. 2. The second area was in EL 42/92, partly overlapping the Nietta portion of the project tenements. Work completed by RGC in this area consisted of: • 1:10,000 geological mapping and compilation which tied the geological sequences at **Tulip Tree Creek** with the **Crosby Creek** area. • Collection and assaying 9 rock chip samples from the Leven Canyon area (outside current tenure) • Re-logging of the 3 **Crosby Creek** diamond holes. RGC were discouraged by the lack of mapped hydrothermal alteration, and chose not to extend tenure.

6. WORK COMPLETED ON EL 17/2005:

Work completed on the Nietta tenements for the life of the tenement involved mapping and soil sampling, ground EM, and blanket coverage by airborne time-domain EM (VTEM).

6.1 Preliminary Geological investigations (Year 1):

The rationale behind the selection of this tenement, and the adjacent package, is explained in a report by Dr Keith Corbett, reproduced in Appendix 1. Also included in this appendix are data from regional reconnaissance across the district.

6.2 Soil sampling and mapping (Year 2):

Mapping:

Based on the recommendations from Dr Corbett in the first year of the licence, the Castra Road Grid was established over the area between the Castra Road prospect, the Preston's Silver prospect and a new discovery by Dr Corbett of intense silica-sericite-pyrite outcropping in a small quarry within a timber plantation.

The Castra Road grid covers a large area of variable geology. It was mapped at 1:2,500 scale over several days in August 2007. The level of detail has also varied according to land use, with several distinct zones. The soil profile in general is mature and well developed, with variations due to poorer soil developed over large areas of Owen Conglomerate. The West Gawler River runs through this grid and outcrop is sporadic along the riverbed, almost absent for some distance away from the river due to scree/soil slopes except where the river cuts areas of Owen Conglomerate (resistive weathering). Forestry plantations of both Pine and Blue gum are more common on this grid, particularly in the western half of the grid. Outcrop is very limited in these areas also, and significant dispersion is apparent. Recent harvesting and re-planting has further disguised and dispersed outcrop in these areas.

The west and central north of the grid (herein geographic references are to local grid) is dominated by outcrop and scree slopes of Owen Conglomerate. A significant ridge of Owen Conglomerate runs E-W along lines 4000N and 4200N, west into the smaller valley formed by the West Gawler River. A smaller but sharper ridge of Owen cuts diagonally across the southwest corner of the grid. There is one small window of Tertiary Basalt on the grid, in the far northeast corner, with poor to nil outcrop over private farmland.

Mapping has revealed several Mt Read Volcanics correlate rock types across the grid. The main units are again a variably feldspar-phyric dacitic volcanic (VLDA) and a fine-grained ashy volcaniclastic siltstone (CFSI). Other significant units linked to this stratigraphy include a quartz-feldspar porphyry intruding in both the central south and the mid east, and a well developed black shale to siltstone ?capping the volcano-

sedimentary pile in the central west (and also seen near the Castra Road Prospect). Minor variations to the volcaniclastic siltstone include coarser ?pumiceous units, and (along line 4400N) more rhyolitic volcanics. Details of the outcrop geology for this grid are shown on Plan 1.

The grid is cut by a series of faults as shown on the interpretive geology map (Plan 2) with an unknown offset or sense of movement. There is good exposure of these faults along Castra Road, and in every case, the position of the fault is marked by the strong development of pyrite-silica-sericite+/-tourmaline alteration and intense shearing. Extensions of these structures are evident in several locations on the grid away from road cuttings (eg. Sample #379953). Vicary (2006) suggests the major fault within this set of structures may be a Cambrian structure re-activated during regional Devonian deformation. The only other structural information collected on the grid was several bedding readings, again from the CFSI unit, indicating a moderate to westerly dip to stratigraphy, generally trending to the north, but showing a broad folding consistent with the regional geology.

Apart from the structurally focussed alteration mentioned above, there is poorly exposed scattered weak chlorite-sericite alteration of the coarser volcaniclastic units, especially in the central south of the grid.

No base metal sulphides were observed on the grid except for traces of galena at the Prestons Ag Prospect. Pyrite was observed at several road cuttings where faulting has focussed (?remobilised) fluids. Grab samples from the pyritic alteration are enriched in base metals (see Appendix 2), with sample #379954 reporting 774ppm Cu, background Pb and Zn, but 659ppm As and 39ppb Au. Other grab samples from this grid reported background levels, or very slight enrichment, of base metals.

Soil sampling:

The Castra Road grid was sampled on a 50m x 200m density; that is, every 200 metre cross line was sampled at 50 metre spacing. A 70mm diameter hand auger was used to collect approximately 0.5 kg of sample from between 20-50cm depth, over a period of 4 days in August, 2007. Field crews collected information on soil colour, depth of sample, surface vegetation and where possible, a GPS co-ordinate of each sample location. Sampling information is listed in Appendix 2.

Samples from this grid were dispatched to Genalysis, Adelaide for analysis. Details of methods used, detection limits, etc are contained in the Laboratory report, also in Appendix 2. Plan 3 shows sample locations and samples numbers on this grid.

Assays have been presented as a series of colour contoured plans at 1:10,000 scale in Appendix 2. Due to the lack of variance in the assay results for Au, Ag, Cd and Fe these elements were not plotted or contoured. Remaining elements are discussed below.

Ba and As +/- Zn, Ni, Pb and Mn all show a moderate to high lithological response to the Owen Conglomerate discussed in the mapping section above. In some cases, ground truthing is required to check the exact extent of the Owen boundaries as the soil assay

data suggests clearly defined boundaries slightly offset from mapped boundaries in areas of poor outcrop.

There is a weak to moderate lithological trends displayed in the Mo, Mn, As, Ni, Pb and Zn assays, with both the black shale and the qtz-feld porphyry (QFP) easily outlined by these assays. In this respect, the soil data is deemed reliable and correlates well with the mapped outlines of these units (c.f. Plan 2). The expected "swamping" of data by the Owen Conglomerate has not eventuated, and more confidence can be placed on lower level anomalies

Anomalous assays indicative of mineralisation are less common and often of lower amplitude. Precious metals did not report any anomalous assays, and in fact reported below detection in virtually every sample. Indicator elements (As, Ba, Mn, Ni, Cd, Mo and Fe) show sporadic low-level anomalies, which are difficult to separate from the lithological trends mentioned above. There is a Ba-As-Ni coincident response of interest centred on the area SE side of Castra Road on lines 3800N and 3600N (see Plan 2 and Appendix 2). As, Ni, Mn and Mo assays create a multi-element feature on the southern most two gridlines between approx 3200E and 3500E, roughly coincident with a mapped coarse volcaniclastic conglomerate (see Plan 2)

Base metals (Cu, Pb, Zn) show a relatively coherent multi-element anomaly across several samples on lines 3400N and 3200N, which is along strike from the Prestons Ag Prospect. Some dispersion from the shale mapped here may be the cause however. There is also a smaller peak of Pb-Zn-Cu assays at approx 3400E on line 4400N that requires ground checking, due to cultural interference. Other features from the base metal assays across this grid are again single point spikes of lower interest.

6.3 Ground EM (Year 3)

Quantec Geoscience conducted ground-EM over the Castra Road grid in January and February 2008. Quantec survey specifications are shown in Appendix 3, but briefly, the fixed loop EM specs are as follows. The receiver was a SMARTem with tri-axial fluxgate magnetometer sensors. A standard RVR coil receiver was also used to collect the vertical component of the impulse response. The transmitter used for this job was a Zonge GGT-10 running at 4.1667 Hz with a ramp time of 0.2 ms. Readings were attempted every 25m on the McPherson's grid and every 50m on the Castra Rd grid on lines 100m and 200m apart respectively. Data was inspected by Contract Geophysicist Rob Angus from RAMA Geoscience, Brisbane during the survey, as well as providing all interpretations herein.

Two transmitting loops were then established on the **Castra Road grid** as shown in Figure 3. The 200m spaced lines were read at 50m spacing along the grid lines shown on Figure 3.

The collection of data at this grid proceeded smoothly with no interference or equipment problems. As interpreted by Rob Angus in Appendix 3, the data suggests quite clearly

that there is a veneer of moderately conductive cover up to 50 metres thick over a uniformly resistive basement. Given the resistive environment, any slightly conductive targets would produce a significant contrast in this EM data. There were no such anomalous responses identified in the data unfortunately, and no features were recommended for follow-up. Profiles and 3-dimensional conductivity-depth images (CDI's) from the Fluxgate receiver are also contained in Appendix 4.

6.4 VTEM (Year 3)

Geotech Airborne Pty Ltd flew airborne EM (VTEM) across the entire tenement package in March and April, 2008, as part of a larger survey of Zinifex tenure in Tasmania. Approximately 278.3 line kilometres of data was collected across this tenement

Block 3 (the Nietta tenement EL 17/2005) was flown in an AMG northeast-southwest direction, flight lines were a nominal 200 metres apart, and the helicopter flew at a nominal height of 80 metres at 80 km/hr, although topography and culture prevented this in some instances. The sensor was at a nominal 30 metre height above ground level. Full details of all survey specifications and results are contained in Appendix 5, or alternatively available at the contractors website (www.geotechairborne.com).

Preliminary data was examined throughout the survey period by consultant Geophysicist Dr Jovan Silic, of Flagstaff GeoConsultants, Melbourne, Victoria. From this a series of images have been produced at early (channel 10), mid (channel 20) and late (channel 25) times, as shown on Figures 4, 5 and 6 respectively.

No highly ranked features were identified in the preliminary data from the Nietta licence. Anomalous responses were checked against topographic and land use maps to identify obvious cultural sources. After this first pass, no features were recommended for further investigation.

7. CONCLUSIONS

During the **first year** of tenure, work across the project tenements was of a regional nature and comprised regional and prospect scale mapping, geological interpretations and correlations to the main MRV stratigraphy to the southwest, collection and analysis of 58 whole-rock surface samples, and 78 petrological descriptions. This detailed wholerock sampling and petrological characterisation has indicated a lack of CVC-equivalents through the project tenements, as well as an absence of Rosebery Host Rock sequences and any large areas of hydrothermally altered rocks. However, the possibility that the host position may feasibly occur in the Sheffield licence, where the only occurrence of Suite-3 mafic volcanics has been documented, was identified.

As a result of the geological investigation of the license area in year one, work during **year 2** of the tenement focused on the two most prospective areas. At the Castra Road Grid (17.65 line km), host of the Preston Silver Prospect and several pyritic shear zones, 345 samples were collected. Clear lithological responses for several elements highlight the extent of Owen Conglomerate outcrop and scree. Bedrock responses from inferred mineralisation were more subtle on this grid, but there are at least 2 areas of coincident base metal anomalism. Mapping showed a series of re-activated structures with pyrite-sericite-silica alteration. Outside of these structures however, very little alteration of interest was noted despite several zones of coarse volcaniclastics, which could preferentially absorb such alteration.

The program at the Nietta licence during **year 3** consisted of ground-EM follow-up of areas of interest defined by the mapping and soil sampling described herein, and VTEM airborne EM over the entire tenement package. Results from the ground EM were disappointing, with no anomalous responses identified on the grid.

An opportunity arose to utilise the helicopter borne deep searching airborne EM system (VTEM) while it was in the State, so the entire tenement was flown at 200m spacing with flight line orientations tailored to best couple with inferred regional strike. The survey was flown by Geotech Airborne in April and May 2008, however final data delivery did not occur until the very end of the reporting period.

No anomalous VTEM responses were identified in the Nietta Licence. Any initial features were downgraded when compared to topographic maps and land use data, and thought to be due to cultural features such as buildings and powerlines.

The exploration potential of this tenement has been downgraded, and no targets remain to be tested. The tenement should be relinquished at the current anniversary.

8. KEYWORDS & LOCALITY

Keywords

Geology, Fossey Mountain Trough, Nietta, MRV, Preston Silver Mine, Castra Road Prospect, soil sampling, mapping, ground EM, VTEM

Locality

1:250,000 BURNIE SK 55-3

1:100,000 INGLIS 8015, FORTH 8115.

1:25,000 CASTRA 4242, LOYETEA 4042, LOONGANA 4041, WILMOT 4241, SHEFFIELD 4441.

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