EL 16/2005 SHEFFIELD
EL 17/2005 NIETTA
EL 18/2005 CENTRAL CASTRA

ANNUAL TECHNICAL REPORT

FOR THE 12 MONTHS ENDING 21st SEPTEMBER 2008

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1. SUMMARY

This report details exploration work undertaken on EL's 16/2005 (Sheffield), 17/2005 (Nietta) and EL 18/2005 (Central Castra) for the period 21st September 2007 to 21st September 2008, the third year of the tenements. Work completed on the *project tenements* during the reporting period comprised:

- Ground EM on the McPherson's and Castra Road prospects for a total of 45 stations (1.125 line kms) and 196 stations (10.5 line kms) respectively
- Airborne EM coverage of all tenement areas using the VTEM helicopter borne EM system.

On the McPherson's grid, repeated attempts to overcome an oscillation or coupling between the loop and the transmitter failed, and no useable data was recorded on this grid

On the Castra Road grid, 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, and no follow-up has been recommended for this area.

The VTEM survey covered all of the tenement area with 200 metre spaced lines of varying orientation at a nominal fixed height. Data delivery has taken longer than anticipated for this survey, and only preliminary data and interpretations are presented here.

Work planned for the fourth year of the project tenements is focussed on testing these anomalies by ground work and diamond drilling where warranted. Additional fixed loop ground-EM is not considered necessary for ground truthing VTEM anomalies. Some more detailed compilation of existing work and current geology is needed across the Sheffield licence to determine the future work program there.

2. INTRODUCTION

This report details exploration work undertaken on Sheffield EL 16/2005, Nietta EL 17/2005 and Central Castra EL 18/2005 (which were granted group project status for reporting purposes on 11 April, 2006, herein referred to as *the project tenements*) during the period 21 September 2007 to 21 September 2008, the third year of these tenements.

The main targets on the project tenements 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 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 project tenements cover an area of moderate relief, which is occasionally heavily forested and incised (e.g. surrounding Lake Barrington, Leven River). It extends from the northeast slopes of Mount Roland (1233m ASL) near Beulah, west through the townships of Roland, West Kentish, Wilmot, Upper Castra and Nietta (Figure 1) towards the Loongana Range, as well as north through Preston and Central Castra towards Sprent. Access to the area is via numerous sealed arterial roads, minor sealed and unsealed roads, forestry tracks and numerous 4WD tracks in private property.

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 16/2005 Sheffield (105 sq km), EL 17/2005 Nietta (143 sq km) and EL 18/2005 Central Castra (52 sq km), were granted to Zinifex Australia Ltd on 21 September 2005 for a period of 5 years. The project tenements covers ground that fell vacant on the relinquishment of numerous tenements over a number of years. The location of the project 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 68 sq km (EL 16/2005 Sheffield), 60 sq km (EL 17/2005 Nietta) and 24 sq km (EL 18/2005 Central Castra).

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 project tenements exclude approximately 34 ha of Mining Leases, including 1639P/M, 1202P/M and 1827P/M on EL 16/2005, 1308P/M on EL 17/2005 and 1402P/M on EL 18/2005. A further 67 hectares of land are excluded as State or public Reserves (eg Forth Falls State Reserve on EL16/2005).

Other land tenures within the project tenement area include State/Multiple Use Forest, MDC Informal Reserve, forest communities managed by prescription, proposed private land reserve (RFA), Tasmanian forest community agreement, Crown Land, Regional Reserve, Forest Reserve 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 project tenements are 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 project tenements.

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 south of the licence, and the Housetop Granite outcrops across a large area to the northwest of the project tenements. 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 in the far eastern part 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 50% of the project 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 Project tenements:

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 project tenements are designed to cover these areas 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 was discussed in the previous annual report, 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 project tenements 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 on the project tenements, at a variety of geochemical and/or geophysical targets. The project tenements 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 project 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 project tenements (see Virgoe, 1990 and Fitzgerald, 1991). Other tenements held by Pasminco/Zinifex in the vicinity of the project tenements include 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 project tenements was vacant prior to the granting of EL's 16/2005, 17/2005 and 18/2005. 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 project tenements.

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 project tenements in September 2005.

TABLE 1: Previous tenement holders in the vicinity of the project tenements 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 project tenements 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 2007-2008 REPORTING PERIOD

Work completed on the project tenements for the 2007-2008 reporting period involved ground EM on two grids, and blanket coverage by airborne time-domain EM (VTEM).

6.1 Ground EM

Quantec Geoscience conducted ground-EM over two existing grids in January and February 2008. The McPherson's Grid (EL 18/2005) and the Castra Road Grid (EL 17/2005) were established during the second year of the tenements, and mapped and soil sampled soon after (see Hicks, 2006). Quantec survey specifications are shown in Appendix 1, 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.

Quantec attempted to read the **McPhersons grid** from two loops, as shown on Figure 3. It should be noted that for logistical reasons, the eastern edge of both loops were extended a few tens of metres further east so as to run along the edge of the road. Importantly, there was a low voltage power line which ran along this road in the vicinity of the loops. It was immediately apparent that there was an intense oscillation or ringing in the data, which swamped any genuine signal and this interference was evident in all channels (particularly at later times) along all lines attempted, with only a very small decrease in amplitude away from the loop edge. Several attempts to remove this interference failed, and test loops at an electromagnetically quiet area suggested that the instruments were working correctly so could not be the cause of this interference.

The decision was made to 'flip' the loop across the grid, in case the oscillation was being caused by a coupling between the loop and the powerline. The western edge of the loops was retained, while the eastern edges relocated to 6800mE (see figure 3) and cross-lines dragged west to complete the new loops. Unfortunately, the oscillation was still present (albeit at a smaller amplitude) and after examining two days worth of data, the decision was made to abandon this grid and move to the larger Castra Road grid. No useable data was collected on this grid.

Two transmitting loops were then established on the **Castra Road grid** as shown in Figure 4. The 200m spaced lines were read at 50m spacing along the grid lines shown on Figure 4. Apart from the size of the loops and station spacing, survey specifications for this grid are identical to the previous grid.

The collection of data at this grid proceeded smoothly with no interference or equipment problems. As interpreted by Rob Angus in Appendix 1 and 2, 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 contained in Appendix 2.

6.2 VTEM

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. Data presented here also includes the Groove Creek tenement (EL 16/2007) as this formed a contiguous block with the Castra tenement (EL 18/2005). Approximately 741.3 line kilometres of data was collected across these three project tenements (945.5 line kilometres when the adjacent Groove Creek tenement is included).

Due to differing regional strike across the project tenements, there were three different blocks of data collected with differing flight orientations. Block 3 (the Nietta tenement EL 17/2005) was flown in an AMG northeast-southwest direction, Block 4 (the Castra tenement EL 18/2005 and adjacent Groove Creek EL 16/2007) was flown AMG east-west, and Block 5 (the Sheffield tenement EL 16/2005) was flown AMG north-south. 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 Appendices 3 and 4, 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 for each of these three blocks at early (channel 10), mid (channel 20) and late (channel 25) times, as shown on Figures 5 to 13.

Numerous features were identified in the preliminary data. These were checked against topographic and land use maps to identify obvious cultural sources. After this first pass, only three features were recommended for further investigation. These features are listed in Table 3 below.

As mentioned above, the final VTEM data was only delivered on the tenement anniversary, so final interpretations have not been completed. Once final data is received, processed and interpreted additional features may be recommended for follow-up. If this is the case, this will be reported in the next annual report for these tenements.

TABLE 3: List of VTEM anomalies recommended for further investigation

Target No.	Easting (AGD66_z55)	Northing (AGD66_z55)	Easting (WGS84_z55)	Northing (AGD66_z55)	Comments
Blk_04_5	431219	5430433	431331	5430615	Check for culture
Blk_04_6	430568	5430386	430680	5430568	Check for culture
Blk_05_5	442043	5412928	442155	5413110	Very strong IP effect

7. CONCLUSIONS & RECOMMENDATIONS

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 McPhersons Prospect on the Central Castra EL 18/2005, 402 samples were collected across a new 9.85 line km grid, which was mapped at 1:2000 scale. The soils assays provided clear responses to the peripheral Tertiary Basalt, and a low level but anomalous multi-element response centred about the existing McPhersons Prospect. Mapping illustrated an alteration trend in this area along strike, within an alternating sequence of dacitic lava/intrusives and ashy siltstones. 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.

Due to the focus of exploration on the above two prospective areas, no work was completed on the Sheffield EL 16/2005 during the reporting year. There is still a need to complete some detailed mapping and prospecting near the Stonebridge Prospect at Paradise (EL 16/2005), where minor gossan development in andesitic and felsic volcanics has been observed but no detailed historical follow-up documented. Equivalent Rosebery host lithologies may occur within the stratigraphy in this area.

The program during **year 3** of the project tenements 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 a technical failure on the first grid, and no anomalous responses identified on the second 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 package was flown at 200m spacing with varying 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. Consequently, data presentation and interpretation has been based on preliminary field data only.

A number of anomalous responses were identified in most areas. The majority of these were downgraded, when compared to topographic maps and land use data, and thought to be due to cultural features such as buildings and powerlines. To date, only one unexplained feature has been recommended for modelling when the final data becomes available.

The forward program for **year 4** of the project tenements is two-phase. Firstly, any prospective VTEM anomalies will be modelled, mapped and drill tested directly where warranted. Secondly, the Sheffield (and Groove Creek) tenement will be examined in more detail to identify areas prospective for target mineralisation. Mapping, soil sampling and gEM may be conducted prior to identifying any drill targets, especially on the Sheffield licence.

8. EXPENDITURE

Expenditure by OZ Minerals Australia Ltd on the project tenements EL 16/2005, EL 17/2005 and EL 18/2005 during the 12 month period ending 21st September 2008 was

$ 328,832.26

A detailed breakdown of this expenditure is presented below.

Personnel	$ 11,661.00
Travel & Accommodation	$ 3,690.99
Consultants & Contractors	$ 16,746.96
Geological Consultants	$
Geochemical Consultants & Assays	$ 27,295.34
Geophysical Surveys & Contractors	$ 230,496.44
Drilling	$
Stores & Supplies	$
Vehicles Plant & Equipment	$ 97.00
Land	$ 6,270.00
Computing	$
Office	$ 2,680.69
SUB-TOTAL	$ 298,938.42
Administration Fee (10%)	$ 29,893.84
Total Tenement Expenditure =	**$ 328,832.26**

9. KEYWORDS & LOCALITY

Keywords

Geology, Fossey Mountain Trough, Castra, Nietta, Sheffield, MRV, Preston Silver Mine, Castra Road Prospect, McPhersons Prospect, 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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