FIFTH ANNUAL REPORT
ON McARTHUR RIVER PROJECT

McARTHUR RIVER MINERAL FIELD,
NORTHERN TERRITORY

McArthur River Project

Exploration Licence: 24814

BY

J.P. Howard

March 2011

Report No.20

DISTRIBUTION

1. Northern Territory Department of Minerals & Energy
2. Genesis Resources Limited
<table>
<thead>
<tr>
<th>PROJECT NAME:</th>
<th>McARTHUR RIVER</th>
</tr>
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<td>TENEMENTS:</td>
<td>Exploration Licences 24814</td>
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<td>McArthur River Mineral Field</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Calvert Hills  6363    1:100 000</td>
</tr>
<tr>
<td>COMMODITIES:</td>
<td>Base Metals, Manganese and Uranium</td>
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</table>
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LIST OF DIGITAL ATTACHMENTS

EL2418_2011_A_01_ReportBody
EL2418_2011_A_02_VTEMStannard
EL2418_2011_A_03_ExpenditureReport
1. INTRODUCTION

Manganese outcrops were known on the licence area in the 1950s (Murray, 1953). The largest manganese occurrence (now known as Masterton No.2) was investigated by Murray and assayed 63.3% Mn, 7.4% SiO2, 1.5% Fe, 0.4% P and 0.5% Al2O3. Later Shannon (1971 in Kastellorizos 2008) measured pods of MnO2 at Masterton with an aggregate length of 1400m and an average width of 6m. The depth extent in RC drill holes reported by Eupene (1992 in Kastellorizos 2008) was about 30m resulting in an estimated recoverable resource of approximately 50,000 tonnes (non-JORC compliant) in a number of manganiferous lenses.

In 1991 BHP carried out an airborne EM survey which covered the whole of Genesis’ licence area (Montanion et al, 1993) and was later examined by Genesis in the hope of mapping new manganese horizons (Cooper, 2007). Five zones of potential manganese mineralization were defined by anomalous electromagnetic response (figure 6 in Kastellorizos, 2010) outside the areas of known manganese outcrop and one (EM area 5) coincided with a stream sediment anomaly.

The electromagnetic response over these manganese outcrops was unable to be assessed because the available data from this old survey did not include a suitable ‘waveform’ file to generate conductivity depth slices and sections (Cooper, 2007 p 1).

However, "it is believed that the manganese mineralisation is structurally controlled and pod like, similar to the Woodie Woodie manganese deposits which are conductive and can be detected by airborne electromagnetics (Hashemi, 2005). Thus a Versatile Time Domain Electromagnetic (VTEM) survey was commissioned to cover the Masterton No2 manganese occurrences and surrounds in order to hopefully detect the known massive manganese occurrences, highlight other anomalies that may represent previously undiscovered or blind deposits at shallow depths and provide walk up drill targets” (Cooper, 2010, p1).

This report delivers the results of the VTEM Survey which was carried out by Geotech Airborne Pty Ltd Ltd on the 22nd June 2010 (Appendix 3 and digital file mmmmm). It also presents an interpretation of the data by consultant geophysicist, Matthew Cooper of Resource Potentials (Appendix 2) who states that the survey successfully detected the high grade manganese mineralisation at Masterton No.2. Cooper then lists a final set of extra targets for drilling (Appendix 4).

2. LOCATION AND ACCESS

The McArthur River project is located approximately 850 kilometres south east of Darwin in the Northern Territory and 450 kilometres north-west of Mount Isa in Queensland. The Exploration Licence (EL 24814) is easily accessed from the Carpentaria Highway and is 265 kilometres by road from the working port at McArthur River and 210 kilometres from the Borroloola Township.

Other topographic details are contained in the fourth annual report.
3. TENEMENTS

The project is comprised of one granted exploration licence (EL) with the tenement details summarised in Table 1 and their locations are shown in Figures 1. A Waiver of Reduction has been approved until 17th April 2012.

Table 1: McArthur River Project - Tenement Summary

<table>
<thead>
<tr>
<th>Project</th>
<th>Tenement Number</th>
<th>Status</th>
<th>Current Area</th>
<th>Current Holder</th>
<th>Granted Date</th>
<th>Expenditure Covenant ($)</th>
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<tbody>
<tr>
<td>McArthur River</td>
<td>EL24814</td>
<td>Granted</td>
<td>154 blocks</td>
<td>505.6 km²</td>
<td>18/04/06</td>
<td>$62,000</td>
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</table>

4. REGIONAL GEOLOGY & MINERALISATION

The regional geology and mineralization are described in previous annual reports (Kastellorizos, 2007, 2008, 2009, 2010).
5. LOCAL GEOLOGY & PREVIOUS WORK

The dominant lithologies within EL24814 are the Proterozoic carbonate rocks of the Karns Dolomite (McArthur Group) and sediment rocks of the Masterton Formation (Tawallah Group) (Kastellorizos, 2010, Figure 2). A general description of the geology of the exploration licence and previous work carried out is presented in previous annual reports.

Figure 2: McArthur River Project – Regional Geology with Prospect Location Map and outline of VTEM Survey
6. WORK CARRIED OUT

6.1 Electromagnetic survey proposal

Genesis commissioned Geotech Airborne Pty Ltd to propose an airborne electromagnetic and magnetic survey over the Masterton area, totalling 250 line km. The survey location is shown on Figure 2 and the Geotech proposed survey specifications are included as Appendix 1.

The geophysical system used comprised the following main instrumentation:
- a Time Domain EM system (VTEM) for locating conductive anomalies and mapping earth resistivities,
- a high-sensitivity proton pression magnetometer for mapping geological structure,
- a proton precession magnetometer base station for diurnal correction,
- a radar altimeter with an accuracy of approximately 1 meter, and
- a GPS navigation system which provided an in-flight accuracy of approximately three meters

6.2 Preliminary geophysical assessment

Resource Potentials assisted in the specification and implementation of the helicopter electromagnetic survey then provided ongoing quality control of the survey data. Preliminary processing and interpretation of the results is presented here as Appendix 2; the report discussed possible target anomalies and recommendations for future work, but these were refined and superceded in a later memo (Appendix 4), when all data was available.

The VTEM survey was flown by Geotech Airborne Pty Ltd on the 22nd June 2010, figure 2. The survey was flown on north-south lines on 100m spacings, with tie lines flown east-west with 1500m spacing totalling 57 lines for 220 line km. Survey data collected included the vertical (Z) component of the electromagnetic field, magnetics and digital terrain measurements.

The survey highlighted a number of strongly conductive and resistive features and defined significant structural trends.

The known manganese outcrops at Masterton No2 were clearly detected. The VTEM depicted a single to double peaked anomaly which indicted a steep dip and extended over two separate but semi continuous discrete zones. The response was visible in the profile data from early times (channel 13) to mid time (channel 25), indicating a finite depth extent (Figure 3). The anomalies corresponding to the Masterton No2 area (at 761200E, 8098060N and 760800E, 8097875N) measure approximately 600m and 300m in length, respectively.
The survey also defined a number of additional targets which are believed to be highly prospective for manganese mineralisation.

Figure 3: VTEM Z component (B-Field) profile over central portion of line 10240 highlighting double peak response over Masterton No2 manganese mineralisation. First profile is channel 13 and all profiles shown (from Cooper, July 2010. Appendix 2)

Figure 4: VTEM (B-Field) channel 13 image showing approximate outline of Masterton No2 manganese outcrop with Genesis 2008 rock chip samples.

Pink star = 50-60%Mn  Red star = 40-50%Mn  Yellow star = 20-30%Mn  Grey Star = <20%Mn
6.3 Geophysical data processing

Conductivity Depth Inversions (CDIs) and decay analysis were completed on the final VTEM data by David Stanndard of Resource Potentials. The CDIs were conducted using the software EMFLOW and the decay analysis using “Tau Slide”. These were used to generate profile sections, depth slices, conductivity wireframes and imagery. These data are presented as Appendix 3 and digitally as file nnnnn

Preliminary inversions on the B-Field data placed anomalous features at a considerable depth (>500m), which was considered outside the limitations for VTEM. Therefore the dB/dt response was utilised to generate the inversions.

A 3D voxel model was generated from the CDI's to display the geometry, depth and size of conductive features. This was used to create both depth slices and conductivity wireframes.

Deliverable products consisting of A3 sized conductivity–profile plots, conductivity depth slices, conductivity wireframes and EM and magnetic grids.

These products provided further information on the conductivity, geometry and depth extent of the known manganese occurrence and other defined anomalies.

6.4 Geophysical interpretation

Interpretation of this final processed data by Matthew Cooper of Resource Potentials, is shown firstly as a VTEM channel 13 image in Figure 4 and secondly as a Tau constant image (see definition in “Appendix” in Appendix 3) in Figure 5. The geological structure and relative responses of the known manganese outcrop and interpretated electrical anomalies are evident in these maps. This work refined and varied the previously defined targets listed in Appendix 2 and provided some insight into the depth extent of the high grade surface manganese at Masterton No2. A summary of the final selected target anomalies is included as Table 3.

The best anomalies (1st rank) were discussed in Appendicies 2 and 4 as follows:

- The known manganese outcrops at Masterton No2 have been successfully detected in the VTEM survey and are designated Targets 1 and 2 (Table 3). The VTEM depicts a single to double peaked anomaly indicting a steep dip, extending over two separate but semi continuous discrete zones over 1km. The response is visible in the profile data from early times (channel 13) to mid time (channel 25), indictating a finite depth extent, as shown in figure 3 (Appendix 2).
The conductivity depth inversion results confirm that the depth extent of the Masterton No2 manganese mineralisation is limited to 20m to 35m, as shown in the depth slices. Furthermore, the depth slices also suggest that the other anomalies selected, are also close to surface and depth limited. The conductivity depth inversion results also indicate that the dip suggested by the profiles at Masterton No2 is apparent and is most likely a flat lying conductor, as shown in the conductivity inversion section, Figure 6 (from Appendix 4).

Target 9 on Table 3 is a 200m long double peaked anomaly striking E-W that has similarities to the response over Masterton No2 from channels 13-30 (Appendix 2). This anomaly is only evident to the 15m depth slice, but has a corresponding tau anomaly, indicating that it represents a near surface conductor. As this target has a well defined double peaked anomaly it is still considered to represent a high priority target (Appendix 4).

Figure 5: Tau constant image for channels 13-22 showing target outlines and Genesis 2008 rock chip samples.
Pink star = 50-60%Mn Red star = 40-50%Mn Yellow star = 20-30%Mn Grey Star = <20%Mn
Table 2: Summary of target anomalies

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<th>Y</th>
<th>Length</th>
<th>Old Rank/ New Rank</th>
<th>Comment</th>
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<td>600</td>
<td>1/1</td>
<td>double peak anomaly corresponding to Masterton No2</td>
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<tr>
<td>760800</td>
<td>300</td>
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<td>759650</td>
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<td>1/2</td>
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<td>200</td>
<td>2/2</td>
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<td>761700</td>
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<tr>
<td>762000</td>
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Table 3: Proposed Drill collars

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7. CONCLUSIONS

- The VTEM Survey:
  - indicated the presence of known manganese mineralisation at Masterton No.2,
  - defined possible structural controls on mineralisation, and
  - identified nine electrical targets with manganese as a possible source

8. RECOMMENDATIONS

- A drilling program of 14 holes for 1050m is proposed to test targets 1-9 as shown on Figure 5 and Table 3.

- Geological mapping over the area and reconnaissance of all the VTEM targets should be completed prior to drilling, as this may further refine the proposed drilling program.
9. REFERENCES


Appendix 1

Proposal for a helicopter-borne time domain electromagnetic geophysical survey with a VTEM system
Proposal for a Helicopter-borne TIME DOMAIN ELECTROMAGNETIC Geophysical Survey with a VTEM system

For

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Project # A749

16 June 2010

GENESIS - PROPOSAL
INTRODUCTION

Geotech Airborne Pty Ltd is pleased to submit this proposal for a helicopter-borne geophysical survey for approximately 250 line-kms over the Macarthur Area in Australia.

GENESIS have requested a proposal for an airborne electromagnetic and magnetic survey for the purposes of investigating the mineral potential within the Macarthur project area. The survey location is detailed in the figures presented in section B1.

We propose the Geotech Versatile Time-Domain Electromagnetic (VTEM) geophysical system to survey your area, comprising the following main instrumentation:

- The VTEM Time Domain EM system for locating conductive anomalies and mapping earth resistivities
- A high-sensitivity proton precession magnetometer for mapping geologic structure and lithology.
- A proton precession magnetometer base station for diurnal correction.
- A Radar altimeter with an accuracy of approximately 1 meter
- A GPS Navigation System providing an in-flight accuracy up to 3 meters

The following are some of the features of our proposal, which will be of particular benefit to GENESIS:

- The latest technology Time Domain System, exhibiting significant advantages over other commercially available systems such as:
  - The industries highest signal/noise ratio and spatial resolution of conductors
  - Unparalleled depth of penetration AND highest resolution
  - 25 or 30 Hz base frequency
  - 26m Transmitter coil is the largest diameter loop size available on any airborne geophysical platform
  - Small footprint to discriminate smaller targets (eg. kimberlites)
- Superior “Repair or Replace” Time
  - The VTEM system is field repairable within a few hours using the on-site available spares kit, even after damage due to hard landings, etc.
  - Multiple systems available. – In the event of a serious system or aircraft failure for whatever reason, the ready availability of identical systems will ensure that their will be no delays.
- Concentric Transmitter – Receiver geometry ensures positive anomaly location
  - No need for ground follow-up resulting in huge time savings and cost savings.
  - Advanced trapezoid wave-form with a longer ‘on-time’ pulse width of 7 ms for more effective conductor saturation.
  - Helicopter Platform to provide the highest resolution survey.
- Mobilization to the survey site after signature of contract and is anticipated to be in June 2010.
  - Complete set of spares on site for this system
  - High-resolution proton precession magnetometer, resolution 0.02 nT, sampling 10 times per second
  - GPS satellite navigation utilizing latest NovAtel’s OEM4-G2 GPS receiver.
• Satellite Internet equipment (depending upon signal and local authority approvals) in the field to send the data from the field to the office daily. Data QC and data processing are done by experienced data processors; preliminary data may be made available on FTP site daily upon request.

• Data processing and mapping, by experienced geophysicists, using the latest computer technology and state-of-the-art software.
Terms & Conditions (separate document)

Schedule A. Pricing and Payments

A1. Responsibilities
A2. Charges
A3. Payments
A4. Terms of Payment

Schedule B. Survey Area

B1. Outline of the Survey Area
B2. Flight Line specifications

Schedule C. Data Acquisition

C1. Helicopter
C2. Services provided by Geotech
C3. Survey Scheduling
C4. Flight Specifications
C5. Survey Instruments
C6. Field Personnel

Schedule D. Field Data Processing / Quality control

Schedule E. Products for Delivery

E1. Preliminary maps
E2. Final standard products
E3. Additional products

Schedule F. Acknowledgements
SCHEDULE A

PRICING AND PAYMENTS

A1. Responsibilities

The survey will be flown out of a camp or other facility provided by Geotech.

Geotech will provide:
- Quality control of the geophysical data, final data processing will be performed at a Geotech processing centre;
- Survey helicopter including survey experienced pilots and related helicopter costs, \textit{excluding} helicopter fuel;
- Accommodations and meals for the survey crew at the survey base;
- Local transportation for crew in and around the survey base at Camp;
- Positioned fuel for the helicopter at the survey site;

GENESIS will provide:
- acquisition of all local licenses and permits required to carry out the survey;
- detailed final location co-ordinates in WGS84 UTM of the survey area

A2. Charges

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<td>For an estimated</td>
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<td>Equipment and Crew mob to Base of Operations</td>
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<td>Helicopter Ferry from Boroloola to Site and Back</td>
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\textbf{Estimated Survey Charge} \hspace{1cm} $98,100.00$

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<td>Additional Fuel Charges per line-km</td>
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<td>Additional Camp (Accomodation &amp; Meals) Charges</td>
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\textbf{Estimated Total Survey Charge} \hspace{1cm} $114,600.00$

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\textbf{Estimated Survey Charge with B-Field} \hspace{1cm} $118,350.00$

\textit{ALL TAXES EXTRA, ALL PRICES ARE IN AUSTRALIAN DOLLARS}

Notes:
- Quotation conditional on the completion of a successful security and aviation risk evaluation of the survey area and is valid for 30 days.
- Geotech will be responsible for the cost of fuel, accommodation and meals for the Geotech crew, as well as local transportation.
- The survey will be flown in conjunction with Geotech's other projects within the immediate vicinity.
- Minimum line length is three kilometers;
- Standby Charges $3,600/day;

A standby day is defined by any day where any of the following takes place:
- survey production is less than 100 km after the equipment is installed (standby is not chargeable if the equipment or helicopter is inoperable for any reason);
- weather conditions prevent the crew to complete the installation;
- weather conditions prevent the crew from leaving the site after the survey is completed;

Standby charges will also apply for all days, or part days that are lost due to delays in acquiring local permits and licenses that are the responsibility of the Client, as well as the unavailability of on-site fuel for the helicopter. Standby charges will apply as well for any days or part days lost due to bureaucratic delays such as customs, etc., including delays entering and exiting the country.

A3. Payments

The minimum charge is defined as the number of estimated survey kilometres multiplied by the survey price per kilometre. The final survey charge is calculated on the basis of actual kilometres flown calculated by flight path.

The invoices shall be payable to the account, which will be provided on each invoice.

A3.1 Standard Preliminary Deliverables (no digital data released during course of survey)

Field preliminary maps will be prepared progressively throughout the actual survey flying. These maps will be provided in PDF format only. The maps will only be released upon receipt of payments as indicated below:

- 50% minimum payment before mobilization.
- 40% minimum payment when completion of flying
- 10% payment before delivery of final products.

A3.2 Optional Preliminary Deliverables (digital data released during course of survey)

If necessary, it can be arranged for digital data to be provided during the course of the survey. Digital data will be provided as long as CLIENT’s account remains in good standing. All invoices, with the exception of the mobilization invoice are due on receipt.

- 50% minimum payment before mobilization
- 20% minimum payment when flying begins.
- 20% minimum payment when completion of 50% of total flying.
- 10% billing/payment before delivery of final products.

A4. Terms of Payment

Geotech will issue invoices for payment as required, as per Section A3 above. These invoices will be due 14 days from receipt by the Client. Payments should be made by telegraphic bank transfer to Geotech’s bank. Instructions will be posted on all invoices. Late payments will be subject to a 1.5% per month late payment charge on 14 days overdue.
Final survey co-ordinates must be provided in WGS84 UTM and will be agreed upon in writing prior to commencement of survey operations.

The above area was generated using the following UTM coordinates supplied by GENESIS, assuming UTM Z 53S and the WGS84 spheroid.

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<th>Easting UTM53S</th>
<th>Northing UTM53S</th>
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### B2. Flight line Specifications

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<th>Line spacing</th>
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<th>Line-km</th>
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<tr>
<td>A749</td>
<td>100m</td>
<td>0 - 180</td>
<td>1500m</td>
<td>090 - 270</td>
<td>250</td>
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SCHEDULE C
DATA ACQUISITION

C1. Helicopter

Geotech will fly the survey with an AS350B3 helicopter (or equivalent) with the necessary cargo hook. This helicopter has the necessary range and flight duration to fly this type of survey.

C2. Services provided by Geotech

1. Supervision of the helicopter and its crew.
2. Provision of the necessary qualified personnel required to complete the survey.
3. Supply of the technical equipment with spares necessary to fly the survey in an expeditious manner.
4. Quality Control of the geophysical data.
5. Preparation and delivery to GENESIS of all the final products specified in Schedule E.

C3. Survey Scheduling

1. Survey preparations and mobilization to the survey area are expected to commence in June 2010 and the survey operations will take an estimated 2 Days.
2. Field preliminary maps will be prepared progressively throughout the actual survey flying and delivered in the field, if required.
3. Standard preliminary products will normally be delivered 2 weeks after receipt of the field data at Geotech’s processing centre and after the second payment, due upon completion of flying, is received.
4. Final maps and report will normally be delivered eight weeks after delivery of the preliminary products.

All phases of the survey scheduling will be coordinated with the requirements of the Client.

C4. Flight Specifications

1. Flight Lines

Line directions and spacing are as specified in Schedule B. The pilot will make every effort not to deviate from the flight plan more than 50m over a distance of 2km, but due to the terrain it could be more.

Optimum terrain clearances for the helicopter and instrumentation during normal survey flying are:

- Helicopter – 75 to 85 meters (tow cable dependant)
- EM sensor – 35 to 45 meters
- Magnetic sensor – 60 to 70 meters (tow cable dependant)

Terrain clearance may vary, based on the pilot's judgment of safe flying conditions around man-made structures or in rugged terrain.
2. **Airspeed**

Normal helicopter airspeed will be approximately 90 km/hr, but this may vary in areas of rugged terrain. With a data-recording rate of 0.1 point per second, geophysical measurements are acquired approximately every 2.5 meters along the survey line.

3. **Electromagnetic Data**

Data will be re-flown at the Contractor's expense when the standard deviation of the normally processed 6340 μs time gate EM channel exceeds 0.01 pico volts per Amp-m<sup>4</sup> continuously over a horizontal distance of 2 km under normal survey conditions, or when Geotech's on-site representative deems the data to be un-interpretable.
C5. Survey Instruments

1. VTEM System

The VTEM or Versatile Time Domain Electro Magnetic system is the most innovative and successful airborne electromagnetic system to be introduced in more than 30 years. The proprietary receiver design using the advantages of modern digital electronics and signal processing delivers exceptionally low-noise levels. Coupled with a high dipole moment transmitter, the result is unparalleled resolution and depth of investigation in precision electromagnetic measurements.

Key features include:
- Superior Exploration Depth – Over 400 metres
- Low Base Frequency (25 or 30 Hz) for Penetration through conductive cover
- High Spatial Resolution – 2 to 3 metres
- Improved Interpretability due to Receiver-Transmitter symmetry
- Spotting drill targets directly off of the airborne results
- Excellent resistivity discrimination and detection of weak anomalies
- Virtually impervious to spheric activity.

The system was designed to be field configurable to best suit a large variety of different geophysical requirements from deep penetration to optimizing the discrimination within a narrow range of resistivity values.

The system is easily transportable. It can be disassembled for packaging in relatively small units for shipping to surveys around the world.

In the event of damage to the EM bird in-flight or while being transported between survey sites, the unique design allows the easy replacement of any part of the system in the field. The transmitter loop can be assembled or disassembled in 3-4 hours.

The recent surveys flown with VTEM have produced superior results over the same test areas flown by competing airborne EM surveys. VTEM has flown the Reid-Mahaffy, Caber, Perseverance and Montcalm test ranges and the results have demonstrated that VTEM provides the Industries highest signal/noise ratio and conductor spatial resolution.

2. Magnetometer

A Geometrics/Scintrex split-beam total field magnetic sensor, with a sampling interval of 0.1 seconds and an in-flight sensitivity of 0.02 nT, will be utilized. The magnetometer will perform continuously in areas of high magnetic gradient with the ambient range of the sensor approximately 20k-100k nT. Aerodynamic magnetometer noise will not exceed 0.5 nT.
3. **Electronic Navigation - GPS**

A GPS system utilizing the Novatel OEM4-G2-3151W GPS receiver will provide in-flight navigation control. This system determines the absolute position of the helicopter in three dimensions. As many as 11 GPS satellites may be monitored at any one time. Autonomous GPS will be used for flight navigation.

4. **Altimeter**

An altimeter system will record the ground clearance to an accuracy of approximately 1 m. The altimeters will be interfaced to the data acquisition system with an output repetition rate of 0.5 second. Recording will be in digital form.

5. **Data Acquisition/Recording System**

A Geotech data acquisition system will be used. Data will be recorded on a PCMCIA flash card.

6. **Field Computer Workstation**

A dedicated PC-based field computer workstation will be used in the field for purposes of displaying geophysical data for quality control, calculating and displaying the navigation, producing preliminary EM anomaly information and diurnally corrected magnetic maps, and copying/verifying the digital data.

7. **Safety**

Installation of the survey equipment in the helicopter will be done by qualified personnel. An airworthiness approval certificate is maintained for all installations.

8. **Spares**

A normal compliment of spare parts and necessary test instrumentation will be available in the field.

9. **Base station**

A dedicated computer including high sensitivity base station proton precession magnetometer will be employed to record magnetic activity.

**C6. Survey Crew**

The survey crew will consist of at least the following personnel:

1. An experienced Geophysicist or Geophysical Technician/Project Manager to supervise the survey operations, perform quality control of the data and to assist in arranging the survey logistics and field operations.
2. A Geophysical Operator to maintain and operate the geophysical instruments.
3. An experienced Survey Pilot, who has demonstrated his ability to fly the geophysical instrumentation safely and within survey specifications.
4. An experienced Aircraft Mechanic will be on stand-by at the helicopter base and should be ready to be on the survey site with minimal delay.

Curriculum Vitae of the key personnel who may be utilized during the survey work are available upon request.
SCHEDULE D

FIELD DATA PROCESSING / QUALITY CONTROL

The field data processing includes the following quality control measures:

1. All digital data will be inspected on a daily basis to ensure that bad data is not present and to identify missing data sections.
2. A preliminary flight path map will be plotted and checked against survey specifications.
3. All digitally acquired survey data will be merged into a Geosoft Montaj database. Profiles will be edited to ensure completeness of all data traces.
4. The recorded EM data will be digitally processed to remove sferic events and filtered to reduce any system noise. Following the filtering process, base level adjustments will be made to the EM profile data, as required.

SCHEDULE E

PRODUCTS FOR DELIVERY

E1. Preliminary maps

The digital preliminary maps will be produced as soon after the completion of flying as possible. The products will include:

- Color magnetic map
- EM profiles map

The preliminary maps are provided in digital form.

E2. Final standard products

1. Final standard digital maps at a scale specified will be delivered in two copies on CD-ROM or DVD-ROM.
   
   - Color magnetic map
   - EM profiles map at a logarithmic scale

2. The processed digital data will be delivered in two copies on CD-ROM or DVD-ROM. The line data will be delivered in the Geosoft Montaj GDB format. The maps will be delivered in the Geosoft Montaj MAP format. Full descriptions of the digital data formats will be included in the final report and as text files on each CD-ROM

3. Operational report will be delivered in two copies. The report will provide information pertaining to the acquisition, processing and presentation of the data.
E3. Additional products

The following additional products can be produced, if required.

<table>
<thead>
<tr>
<th>Product</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM anomaly map (minimum US$1000)</td>
<td>US$3.00/ line-km</td>
</tr>
<tr>
<td>Apparent conductivity map for a selected time gate</td>
<td>US$100/ channel as a Geosoft Database channel</td>
</tr>
<tr>
<td></td>
<td>US$250/ channel as a Geosoft Database channel and in map form</td>
</tr>
<tr>
<td>Late Channel Time Constant (Tau) calculated on Automatically selected time gates and discriminated by correlation coefficient</td>
<td>US$200 as a Geosoft Database channel</td>
</tr>
<tr>
<td></td>
<td>US$350 as a Geosoft Database Channel and in map form</td>
</tr>
<tr>
<td>Magnetic derivative data (IGRF removed, 1st, 2nd vertical gradient, horizontal gradient, Reduction-to-the-Pole, analytical signal)</td>
<td>US$100 per process as a Geosoft Database channel</td>
</tr>
<tr>
<td></td>
<td>US$250 per process as a Geosoft Database channel and in map form</td>
</tr>
<tr>
<td>Digital Terrain map (derived from the radar altimeter and GPS height)</td>
<td>US$250 per sheet</td>
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<tr>
<td>Resistivity-depth section on paper</td>
<td>US$100 per section (minimum US$1000)</td>
</tr>
<tr>
<td>Customer designed map</td>
<td>US$300 per sheet</td>
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Additional copies:

<table>
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<th>Additional copies:</th>
<th>Cost</th>
</tr>
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<tr>
<td>Paper copy from existing files</td>
<td>US$80 per sheet</td>
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<tr>
<td>Mylar copy from existing files</td>
<td>US$120 per sheet</td>
</tr>
<tr>
<td>Extra paper copy of the report</td>
<td>US$40</td>
</tr>
<tr>
<td>Extra copy of a CD/DVD</td>
<td>US$40</td>
</tr>
</tbody>
</table>
SCHEDULE F

ACKNOWLEDGEMENTS

1. The client agrees to acknowledge in all press releases and other publications that the survey was flown with the VTEM time-domain system. The client also agrees that Geotech may advertise that the VTEM system was used by the client in the event that news articles are published purporting to a discovery in the Survey area, providing that the client approves the advertisement, which approval will not be unreasonably withheld.

2. Geotech will not divulge any information with respect to the Survey to third parties.

3. Until payment is received in full, the information, documents and data pertaining to the Survey shall remain the property of Geotech.

Proposal Accepted,
SIGNED for and on behalf of
Genesis Resources Limited

SIGNED for and on behalf of
Geotech Airborne Pty Ltd

Name: Pedro Kastellarizos
Title: Managing Director
Date: 17/06/2010

Name:
Title:
Date:
Appendix 2

McArthur VTEM survey – preliminary report
MEMORANDUM

To : Pedro Kastellorizos
From : Mathew Cooper
Subject: McArthur VTEM Survey – Preliminary Report
Date : 13th July 2010

Key Points

- The VTEM survey has successfully detected the known high grade manganese mineralisation at Masterton No2, defined as 2 separate conductors over a strike of 900m.
- An interpreted east-west trending structure extending across the survey area has been interpreted from the VTEM data and is thought to control the high grade manganese at Masterton No2.
- An additional 10 targets that are believed to be highly prospective for manganese mineralisation have been defined.
- Follow up work and a scout drill program for 1400m have been proposed.

Introduction

The McArthur manganese project is located in the north east of the Northern Territory close to the Queensland border. The project consists of a single tenement EL24814 and contains the known high grade manganese occurrence Masterton No2, figure 1. Previous reviews of the available geophysical and geological data by Resource Potentials in 2007 and subsequent reconnaissance rock chip sampling in 2008 confirmed the location of the occurrence and the tenor of the manganese mineralisation. It is believed that the manganese mineralisation is structurally controlled and pod like, similar to the Woodie Woodie manganese deposits which are also conductive and can be detected by airborne electromagnetics (Hashemi, 2005). A such a Versatile Time Domain Electromagnetic (VTEM) survey was commissioned to cover the Masterton No2 manganese occurrences and surrounds in order to hopefully detect the known massive manganese occurrences, highlight other anomalies that may represent previously undiscovered or blind deposits at shallow depths and provide walk up drill targets.

Resource Potentials assisted in the planning and implementation of the helicopter electromagnetic (HEM) survey then provided ongoing quality control of the survey data and completed preliminary processing and interpretation of the results.

This memo briefly outlines the survey specifications, results, target anomalies and provides recommendations for future work.
Survey Specifications

The VTEM survey was flown by Geotech Airborne Pty Ltd on the 22nd June 2010, figure 2. The survey was flown on north-south lines on 100m spacings, with tie lines flown east-west with 1500m spacing totalling 57 lines for 220 line km. Survey data collected included the vertical (Z) component of the electromagnetic field, magnetics and digital terrain. The EM data was collected using 49 time channels recording out to 12ms after transmitter turn off. The Z component data was supplied as both dB/dt and B-Field. The system specifications and channel times are shown in tables 1 and 2.

Figure 2: VTEM system in flight.
The system specifications are outlined in table 1 below.

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<td>Tx(^1) coil diameter, m</td>
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<td>Tx number of turns</td>
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<td>Rx(^2) coil diameter, m (X &amp; Z)</td>
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<td>Rx Effective Area, m(^2) (X &amp; Z)</td>
<td>19.45 - 101</td>
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<tr>
<td>Distance: EM loop – helicopter (metres)</td>
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<tr>
<td>Distance: mag bird - helicopter (metres)</td>
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<tr>
<td>Loop Flying Height, m</td>
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<td>Pulse Width, ms</td>
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<td>Waveform</td>
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Table 1: VTEM system specifications.
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</table>

**Table 2:** VTEM time channel windows after transmitter turn off.
Results and Interpretation

The results presented here are based on the preliminary channel data delivered by Geotech. It is likely that the final data will only make small variations and the locations of the main features described here will not change.

The VTEM survey has highlighted a number of strongly conductive and resistive features and defined significant structural trends. In general the early time channels reflect surficial or near surface geology, and later time channels deeper bedrock geology. Strong near surface conductors can be evident through all time channels as the primary transmitted EM field cannot penetrate the conductive material and the recorded secondary EM field then limited to this material.

The relationship of regional conductive and resistive features to geology has not been addressed here instead the focus is limited to defining discrete anomalous zones that represent targets for manganese mineralisation.

The known manganese outcrops at Masterton No2 have been successfully detected in the VTEM survey. The VTEM depicts a single to double peaked anomaly indicating a steep dip, extending over 2 separate but semi continuous discrete zones over 1km, figure 3. The response is visible in the profile data from early times (channel 13) to mid time (channel 25), indicating a finite depth extent, figure 4. This will be able to be confirmed once the final data is received and inversions are completed. The double peaked response is more developed over the 200m interval from line 10240 to 10260, which may reflect the amount or form of the massive manganese in outcrop. The asymmetry and magnitude of the double peak suggests a south dip in the B-Field data. At late channel times the anomalies become resistive responses when compared to the surrounding data, which could be a potential discriminator for defining other targets in the survey, figure 5.

Of other significance is an interpreted almost east-west trending structure which runs through (and beyond) the known manganese mineralisation at Masterton No2 and may be an important control on the mineralisation as the Woodie Woodie deposits also follow major structures (Hashemi 2004) figure 6.

The anomalies corresponding to the Masterton No2 area have been selected as targets 1 and 2 and centred on 761200E, 8098060N and 760800E, 8097875N respectively. Target Anomaly 1 is 600m in length and target anomaly 2 300m.

Outside of the Masterton No2 area ten target anomalies have been selected figure 6, of which four have been selected along or closely associate to the interpreted E-W structure. The target anomalies are explained further below.

Target Anomaly 3 – centred on 759650E, 8097600N Ranking 1
Is a single peaked anomaly evident over 6 lines from 10070 to 10120. The response is evident over 16 channels from 13 to 27. It significance is that it is a discrete anomaly located along the interpreted E-W structure that runs through the Masterton No2 manganese occurrence.

Target Anomaly 4 – centred on 761795E, 8098000N Ranking 3
Is a single peak anomaly at the northern end of a broad conductive response. The response is only evident from channels 13-20 suggesting a short depth extent, over a 200m strike. It is also located along the interpreted E-W structure that runs through the Masterton No2 manganese occurrence.
Figure 3: VTEM (B-Field) channel 13 image showing approximate outline of Masterton No2 manganese outcrop with Genesis 2008 rock chip samples.

Pink star = 50-60%Mn  
Red star = 40-50%Mn  
Yellow star = 20-30%Mn  
Grey Star = <20%Mn
Target Anomaly 5 – centred on 762300E, 8097880N Ranking 1
Is a 600m long single peak anomaly following the interpreted E-W structure that runs through the Masterton No2 manganese occurrence. It is evident on line 10330 to 10400 and is best developed on line 10340 where the response goes from channels 13-30.

Anomaly 6 – centred on 763400E, 8098000N Ranking 2
Is a 200m long single peak anomaly that develops into a double peak at late times. It strikes North West, and is located close to the interpreted E-W structure that runs through the Masterton No2 manganese occurrence. It is evident on line 10460 to 10480 and is best developed on line 10480 where the response goes from channels 13-30.

Anomaly 7 – centred on 760950E, 8097600N Ranking 3
Is a discrete 200m long single peak anomaly striking north east. It is evident on line 10220 to 10230 where the response goes from channels 13-30.

Anomaly 8 – centred on 761700E, 8097445N Ranking 2
Relates to the strongest single peak response in the survey. It extends over 400m but is best developed on line 10300 where the response is a maximum. The anomaly is visible from channels 13-30. Given the size of this magnitude of this anomaly it may represent highly conductive overburden.

Anomaly 9 – centred on 762250E, 8097350N Ranking 1
Is a 200m long double peaked anomaly striking E-W that has similarities to the response over Masterton No2. It extends from line 10340 to 10360 and is best developed on line 10360 where the response goes from channels 13-30.

Figure 4: VTEM Z component (B-Field) profile over central portion of line 10240 highlighting double peak response over Masterton No2 manganese mineralisation. First profile is channel 13 and all profiles shown.
Figure 4: VTEM (B-Field) Z component channel 40 image showing approximate outline of Masterton No2 manganese outcrop with Genesis 2008 rock chip samples.

Pink star = 50-60%Mn
Red star = 40-50%Mn
Yellow star = 20-30%Mn
Grey Star = <20%Mn
Figure 6: VTEM (B-Field) Z component channel 13 image with target anomaly outlines and interpreted major structures.
**Anomaly 10** – centred on 760500E, 8098200N Ranking 2
Is a 300m long NE-SW striking single peaked anomaly that develops into a double peak in later time channels. It extends from line 10160 to 10190 and is best developed on line 10190 where the response goes from channels 13-40.

**Anomaly 11** – centred on 760700E, 8096775N Ranking 3
Is a 200m long discrete single peaked anomaly striking E-W. It is only developed in early time channels 13-23 which suggests that it is a near surface feature. The anomaly correlates to a topographic high which makes it more interesting and possibly not related to conductive overburden.

**Anomaly 12** – centred on 762000E, 8096250N Ranking 3
Is a poorly developed double peak early time channel anomaly that becomes a single peak anomaly to the east. It extends over 500m striking ENE from line 10310 to 10360 and is best developed on line 10340 where the response goes from channels 13-23. It is located in a topographic low and along drainage thus may represent weathered structure and conductive overburden.

The target anomalies are summarised in table 3.

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**Table 3:** Summary of target anomalies.

**Proposed Drilling and Follow up Works**

A scout drilling program of 14 holes for 1400m is proposed to test targets 1-7 as they are located along or close to existing roads and tracks in the area, figure 7. Collars have also been provided for targets 8 and 9 and should be considered for completion in the same program, table 4. All drill holes have a set depth of 100m, but this could be extended as necessary by the geologist on site. The collar locations should be considered preliminary at this stage as they need to be refined once the final data has been delivered by Geotech.

It is recommended that further processing of the VTEM data be complete once the final data is received. This should include generation conductivity inversions and depth slices, and may allow for better definition on the depth extent of target conductors.

Geological mapping over the area and reconnaissance of all the VTEM targets should be completed prior to drilling, as this may further refine the proposed drilling program.
Table 4: Proposed Drill collars

Conclusions

The VTEM survey at McArthur has successfully detected the known high grade surface manganese at Masterton No2. It has also defined a number of additional targets which are believed to be highly prospective for manganese mineralisation. The results presented here are based on the preliminary data delivered by Geotech. The results and proposed drilling will need to be reviewed once the final data is received.

It is recommended that further processing of the data be complete to generate conductivity inversions and depth slices, which will assist in the final targeting and drill planning. In addition geological mapping over the project area and reconnaissance of all the VTEM targets should be completed prior to drilling, as this may further refine the proposed drilling program.

References


Appendix 3

McArthur VTEM survey-CDI’s and associated deliverables
MEMORANDUM

To : Genesis Resources Ltd  
From : David Stannard - Geophysicist  
Subject: McArthur River VTEM Survey – CDI’s and associated deliverables  
CC :  
Date : 20 September 2010

Conductivity depth images (CDI’s) have been generated from a versatile time-domain electromagnetic (VTEM) survey over Genesis Resources Ltd’s McArthur River Project. B-Field and dB/dt EM data was acquired and processed in June/July 2010 by GeoTech Airborne and then provided to Resource Potentials in early August, 2010. The McArthur River Project consists of 54 survey lines (plus three tie-lines) flown with an N-S orientation and line spacing of 100m.

Several trial inversions were conducted to ascertain the best parameters to be applied in the inversion process to both the B-Field and dB/dt data. Inversions were calculated using the EM inversion package, EMFlow. Preliminary inversions on the B-Field data placed anomalous features at considerable depth (>500m), which was considered outside the limitations for VTEM, as such the dB/dt response was utilised to generate the inversions.

Previous experience with inverting VTEM data was used to assess the results of the inversion. In regions where the EM profile has high amplitude in all channels, suggestive of a near surface conductor, the inversion has modelled a shallow conductive layer accordingly. This indicates that the inversion process has produced a reasonable geological result. Pdf’s were then made displaying both the VTEM profile response and the CDI’s.

Profiles of the total magnetic intensity, reduced to poles (TMI RTP) and Tau constant parameter have also been included on the pdf. A description of the tau parameter methodology is attached in the appendix. These should be used to assist with the interpretation of anomalous features within the CDI.

A 3D voxel model was generated from the CDI’s to display the geometry, depth and size of conductive features within the survey. This was used to create both depth slices
and conductivity wireframes, which have been provided with this memo. Depth slices were generated at 5m intervals from 10 to 50m deep, 10m to 100m depth and 25m to 300m. These depth slices represent a plan view of the CDI’s. It should be noted that the location of conductive features will move away from the peak of the EM response with depth. Topography was not applied in the depth slices. Close checking of the depth slice imagery to the CDI’s should be conducted if used to target drill holes.

The conductivity wireframes are a form of grade shell of the CDI voxel model. Four wireframes have been provided with isosurface values of 65mS and 80mS, with two being corrected to RL.

Imagery for the B-Field and dB/dt channels were generated for channels 15, 20, 25, 30, 35, 40 and 45, along with tau constants and are provided as MapInfo TAB files with this memo. Channel grids differ from depth slices as they represent a conductivity variation with respect to time, not depth. This is especially important as some strong conductive features visible in the later time channels may represent near surface features therefore differences may be apparent between the late time channels and the deeper depth slices.

Deliverable products consisting of A3 sized conductivity-profile plots, conductivity depth slices, conductivity wireframes and EM and magnetic grids for the McArthur River VTEM survey are attached with this memo.

The data provided herein are based on the processing and review of data obtained or supplied on behalf of Cleveland Mining Limited. It should only be considered as a guide only and the authors do not take any responsibility or liability for any commercial decisions or work carried out by Cleveland Mining Limited, any related party, or subsequent parties, or actions resulting from them.
Calculation of the tau parameter ($\tau$) can be used to help distinguish between conductors, overburden and background. The tau parameter is the EM field decay time constant, dependent upon the conductance and EM response amplitude of a target, not the depth. Good conductors will generally have a higher tau constant in the later time channels than surrounding barren areas, allowing them to be identified. An automated tau calculator can be applied to a VTEM dataset to identify and evaluate potential targets.

To calculate the tau parameter, a time window ‘slides’ over a curve decay and determines the latest channel which has both a response and a decay (Figure 1).

![Figure 1: The time window slides over a decay and calculates the tau parameter for a specified number of channels.](image)

The calculator is governed by the expression:

$$\tau_i = t_{i+k} - t_i / \ln\left(\frac{A_i}{A_{i+k}}\right)$$

Where $t_i$ and $A_i$ are the centre time and response amplitude for the $i$th channel and $k$ is the channel interval used to calculate tau.

The calculation of tau is restricted by a minimum amplitude response ($A$) known as the threshold. This threshold is the minimum EM response that will be used to determine tau. If all channels within the time window have a response that is greater than the threshold value then the tau parameter will be calculated. If however, a channel is not above the threshold then the window will slide along one channel and attempt to calculate tau again. This process is repeated until a solution is found.

---

1 Alexander Prikhodko, Automatic estimate of Transient Time Constant by sliding winwo TAU_slide.gx
MEMORANDUM

To : John Parker
From : Mathew Cooper
Subject: McArthur VTEM Survey – Final Target Reconciliation
CC :
Date : 4th November 2010

Summary

Final processing and review of the VTEM survey data at McArthur has confirmed previously defined targets and provided some insight into the depth extent of the high grade surface manganese at Masterton No2.

Review of the final data and processed products indicates that only 3 of the initial 5 high priority targets remain, with the others downgraded to lower rankings.

This memo compares some of the results presented in the previous memo and may be considered an addendum to that memo completed on preliminary data, and prior to conductivity inversions and other processed products being completed.

Introduction

Twelve VTEM anomalies were initially defined from preliminary VTEM data supplied from the field. These were selected on the time-channel responses only and not reconciled to conductivity depth inversion products. After delivery of the final dataset further processing was completed by Resource Potentials, including generation of conductivity depth inversions and production of conductivity depth slices and profiles. These products provided further information on the conductivity, geometry and depth extent of the known manganese occurrence and other anomalies defined.

Data Processing

Conductivity Depth Inversions (CDIs) and decay analysis were completed on the final VTEM data. The CDIs were conducted using the software EMFLOW and the decay analysis using “Tau Slide”. These were used to generate profile sections, depth slices, conductivity wireframes and imagery. A more in-depth explanation of the processing and products generated was supplied with the data delivered to Genesis in September 2010.
Results and Interpretation

Comparison of the preliminary imagery to the final imagery showed an overall improvement in the data, with the most obvious improvement being a reduction or removal of the system lag or parallax observed in the preliminary data. However the location of the anomalous peaks have not significantly changed and as such the locations of the anomalies previously provided are considered valid. An example of this is provided as figure 1, which compares the B-Field Channel 13 image generated from the preliminary and final data.

Of the additional processed products generated the “tau” imagery is considered particularly useful and represents the strength of a conductor via calculating the its decay. An example of a tau image calculated for early to mid time channels 13 to 22 is shown with target outlines as figure 2. The figure shows a good correlation to the target areas defined initially from the channel data only.

The subsequent paragraphs will provide comment to statements made in the preliminary memo. Excerpts from the previous memo will be highlighted in Italics and the new explanations in bold.

_The known manganese outcrops at Masterton No2 have been successfully detected in the VTEM survey. The VTEM depicts a single to double peaked anomaly indicating a steep dip, extending over 2 separate but semi continuous discrete zones over 1km. The response is visible in the profile data from early times (channel 13) to mid time (channel 25), indicating a finite depth extent, figure 4._

_The conductivity depth inversion results confirm that the depth extent of the Masterton No2 manganese mineralisation is limited to 20m to 35m, as shown in the depth slices represented in figures 3-5. Furthermore the depth slices also suggest that the other anomalies selected, are also close to surface and depth limited._

_The conductivity depth inversion results also indicate that the dip suggested by the profiles at Masterton No2 is apparent and are most likely a flat lying conductor, as shown in the conductivity inversion section, figure 6._

_Target Anomaly 3 – centred on 759650E, 8097600N Ranking 1 – New 2_

_Is a single peaked anomaly evident over 6 lines from 10070 to 10120. The response is evident over 16 channels from 13 to 27. It significance is that it is a discrete anomaly located along the interpreted E-W structure that runs through the Masterton No2 manganese occurrence._

_This anomaly is only evident to the 15m depth slice, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone rather than manganese and even though it has a discrete tau response is considered to have a lower priority for follow up work and has been downgraded to a ranking of 2._
Figure 1: Showing comparison of preliminary and final B-Field Channel 13 image, with outline of Masterton No2 manganese outcrop with Genesis 2008 rock chip samples. Top = Preliminary. Bottom = Final
**Target Anomaly 4** – centred on 761795E, 8098000N Ranking 3 – **New 3**

Is a single peak anomaly at the northern end of a broad conductive response. The response is only evident from channels 13-20 suggesting a short depth extent, over a 200m strike. It is also located along the interpreted E-W structure that runs through the Masterton No2 manganese occurrence.

This anomaly is only evident to the 15m depth slice, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone rather than manganese and as such is considered to have a lower priority for follow up work. In addition, it displays a strong circular resistive zone from 20-35m, which is similar to what is observed at Masterton No2 from 40m. As such the target is still considered worthy of investigation and the ranking remains unchanged.
Figure 3: 10m conductivity depth showing target outlines and Genesis 2008 rock chip samples.
Pink star = 50-60%Mn Red star = 40-50%Mn Yellow star = 20-30%Mn Grey Star = <20%Mn
Figure 4: 20m conductivity depth showing target outlines and Genesis 2008 rock chip samples.
Pink star = 50-60%Mn Red star = 40-50%Mn Yellow star = 20-30%Mn Grey Star = <20%Mn
Figure 5: 30m conductivity depth showing target outlines and Genesis 2008 rock chip samples. 
Pink star = 50-60%Mn Red star = 40-50%Mn Yellow star = 20-30%Mn Grey Star = <20%Mn
Target Anomalies 1 + 2 representing the known Mn outcrops are still considered Ranking 1.

Target Anomaly 5 – centred on 762300E, 8097880N Ranking 1 – New 2
Is a 600m long single peak anomaly following the interpreted E-W structure that runs through the Masterton No2 manganese occurrence. It is evident on line 10330 to 10400 and is best developed on line 10340 where the response goes from channels 13-30.

This anomaly is only evident to the 15m depth slice, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone along the interpreted E-W structure, rather than manganese and as such is considered to have a lower priority.
Anomaly 6 – centred on 763400E, 8098000N Ranking 2 – New 2
Is a 200m long single peak anomaly that develops into a double peak at late times. It strikes North West, and is located close to the interpreted E-W structure that runs through the Masterton No2 manganese occurrence. It is evident on line 10460 to 10480 and is best developed on line 10480 where the response goes from channels 13-30.

This anomaly is only evident to the 15m depth slice, but has a corresponding tau anomaly, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone along the interpreted E-W structure, rather than manganese and as such is considered to have a lower priority than initially proposed for follow up work. In addition, it displays a strong circular resistive zone from 25-35m, which is similar to what is observed at Masterton No2 from 40m. The target is located in area of elevated topography, as such the target is still considered worthy of investigation, and remains with a ranking of 2.

Anomaly 7 – centred on 760950E, 8097600N Ranking 3 – New 3
Is a discrete 200m long single peak anomaly striking north east. It is evident on line 10220 to 10230 where the response goes from channels 13-30.

This anomaly is only evident to the 15m depth slice, but has a corresponding tau anomaly, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone along an apparent NE structure rather than manganese. It is located in a topographic low, which may increase the likelihood of it representing a surficial conductor not related to manganese. As such the ranking has been downgraded to a 3.

Anomaly 8 – centred on 761700E, 8097445N Ranking 2 – New 3
Relates to the strongest single peak response in the survey. It extends over 400m but is best developed on line 10300 where the response is a maximum. The anomaly is visible from channels 13-30. Given the size of this magnitude of this anomaly it may represent highly conductive overburden.

Similar to the other targets this again is evident in the near surface depth slices to 15m, and likely confirms what was previously speculated that it is due to a highly conductive surficial feature. The ranking has been downgraded to 3 for this target.

Anomaly 9 – centred on 762250E, 8097350N Ranking 1 – New 1
Is a 200m long double peaked anomaly striking E-W that has similarities to the response over Masterton No2. It extends from line 10340 to 10360 and is best developed on line 10360 where the response goes from channels 13-30.

This anomaly is only evident to the 15m depth slice, but has a corresponding tau anomaly, indicating that it represents a near surface conductor. As this target has a well defined double peaked anomaly it is still considered to represent a high priority target.

Anomaly 10 – centred on 760500E, 8098200N Ranking 2 – New 3
Is a 300m long NE-SW striking single peaked anomaly that develops into a double peak in later time channels. It extends from line 10160 to 10190 and is best developed on line 10190 where the response goes from channels 13-40.
This anomaly is only evident to the 15m depth slice, but has a corresponding tau anomaly, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone along an apparent NE structure rather than manganese. In addition, it displays a strong circular resistive zone from 25-35m, which is similar to what is observed at Masterton No2 from 40m. Due to its discrete size and trend along a structure the target is still considered worthy of investigation but has downgraded to a ranking of 3, as it lies across a topographic valley.

**Anomaly 11 – centred on 760700E, 8096775N Ranking 3 – New 3**

Is a 200m long discrete single peaked anomaly striking E-W. It is only developed in early time channels 13-23 which suggests that it is a near surface feature. The anomaly correlates to a topographic high which makes it more interesting and possibly not related to conductive overburden.

This anomaly does not display a discrete response in the conductivity depth slices and only has a weak tau response. As such it remains with a ranking of 3.

**Anomaly 12 – centred on 762000E, 8096250N Ranking 3 – New 2**

Is a poorly developed double peak early time channel anomaly that becomes a single peak anomaly to the east. It extends over 500m striking ENE from line 10310 to10360 and is best developed on line 10340 where the response goes from channels 13-23. It is located in a topographic low and along drainage thus may represent weathered structure and conductive overburden.

This anomaly is evident to the 30m depth slice, and has a corresponding tau anomaly, indicating that it represents a near surface conductor. This could be due to weathering or a clay zone along an apparent NE structure within a topographic low rather than manganese. However, the conductivity and tau response appears is more developed in the eastern end of the target area and has been upgraded to a ranking of 2.

The target anomalies are summarised in table 1.

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**Table 1**: Summary of target anomalies.
Proposed Drilling and Follow up Works

A scout drilling program of 14 holes for 1050m is proposed to test targets 1-7 as they are located along or close to existing roads and tracks in the area, figure 7. Collars have also been provided for targets 8 and 9 and should be considered for completion in the same program, table 4. All drill holes have a set depth of 75m, but this could be reduced or extended as necessary by the geologist on site.

Geological mapping over the area and reconnaissance of all the VTEM targets should be completed prior to drilling, as this may further refine the proposed drilling program.

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Table 4: Proposed Drill collars