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MEMORANDUM

To: Andy Bennett
Copy: James Fox
From: Lynelle Beinke
Date: May 15th, 2015
Subject: **Moline VTEM Review**

SUMMARY

Review of the 2011 VTEM data over the Moline EL has enabled the identification and prioritisation of targets based on their electromagnetic and magnetic response. Five priority 1, ten priority 2 and four priority 3 target areas, along with lithology targets, have been identified for follow up work. Follow up should entail field checking and review of other datasets to select targets to progress further.

1. INTRODUCTION

A review of VTEM data collected over the Moline EL in 2011 has been undertaken. The review encompassed imaging of electromagnetic (EM) and magnetic data and targeting via profile analysis of EM and magnetic data to identify Iron Blow / Mt Bonnie type anomalies. Targets have been prioritised and recommendations for follow-up work made.

2. SURVEY SPECIFICATIONS

The VTEM survey was flown by Geotech Airborne in July-August 2011 for Crocodile Gold Australia. Line orientation was 046°-226° and line spacing was 200m, Figure 1. Data was collected at a frequency of 25Hz with a nominal EM transmitter and receiver terrain clearance of 48m and magnetometer clearance of 70m. Further survey details can be found in Geotech Airborne (2011).

3. TARGETING

Targeting was undertaken on EM and magnetic profile (flight line) data using Geosoft's Oasis Montaj software. The methodology used was the same as that used in the Hayes Creek VTEM targeting (Beinke 2014). Targets were classified as priority 1, 2, 3, lithology or powerline, with 1 being the highest. In addition the most conductive and magnetic section of each lithological layer has been classified as priority 3 to enable the shallowest and most prospective portion to be field checked. All non-lithological targets were assigned to target areas.

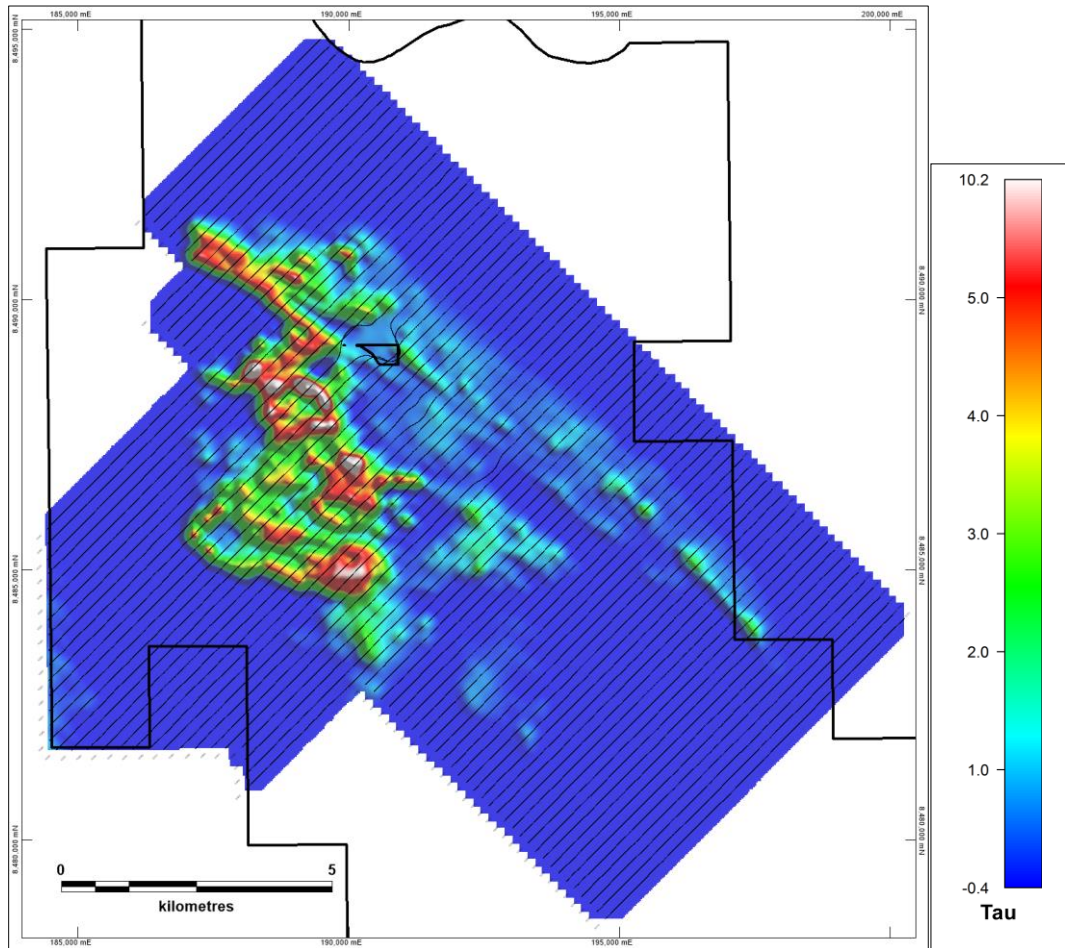


Figure 1. Moline 2011 VTEM survey flight lines, shown over tau.

4. RESULTS

The targets are shown in Figures 2 and 3 and the target areas in Figures 4 and 5. The target areas are summarised in Table 1. There are five priority 1 and ten priority 2 target areas. It is recommended that these areas be field checked and other datasets be reviewed to allow selection of targets to progress. There are four priority 3 target areas. These should be field checked and other datasets reviewed once the higher priority areas have been assessed.

The priority 3 lithology targets should be prioritised based on geology. Those that cannot be explained by lithology along with those that correspond to prospective lithologies should be field checked, followed by review of the VTEM and magnetic data.

Modelling of the EM and magnetic data should be undertaken on all targets that are considered prospective.

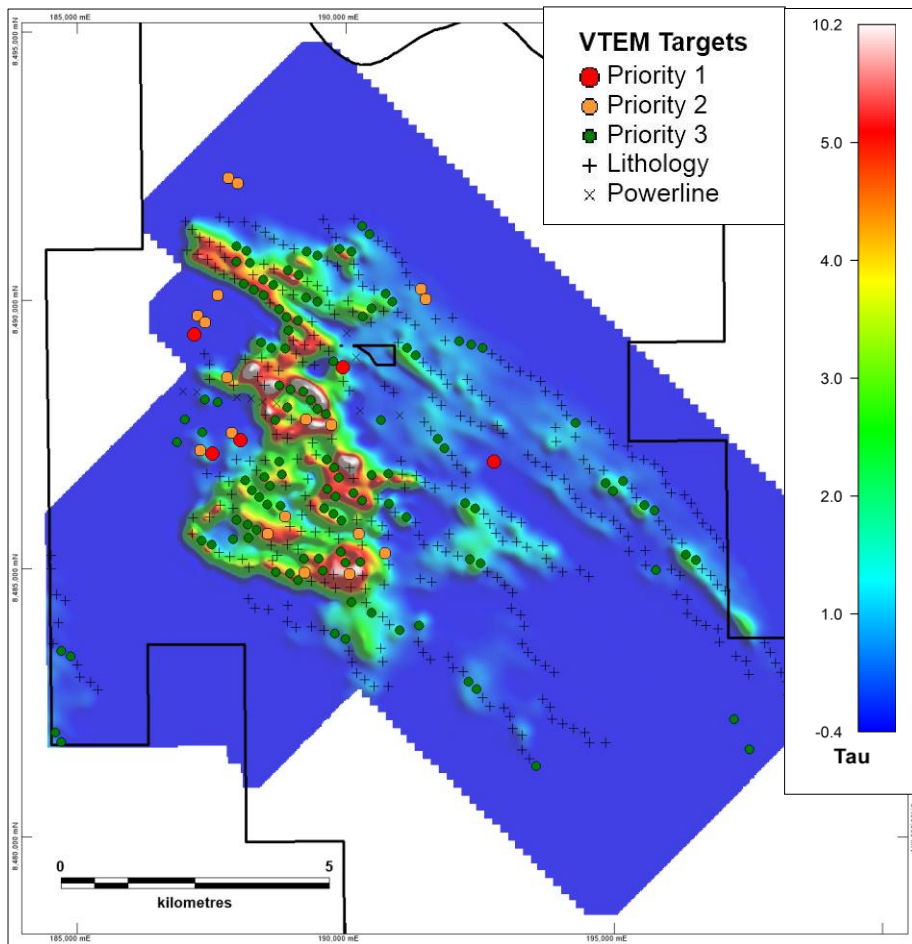


Figure 2. Moline 2011 VTEM targets, shown over tau.

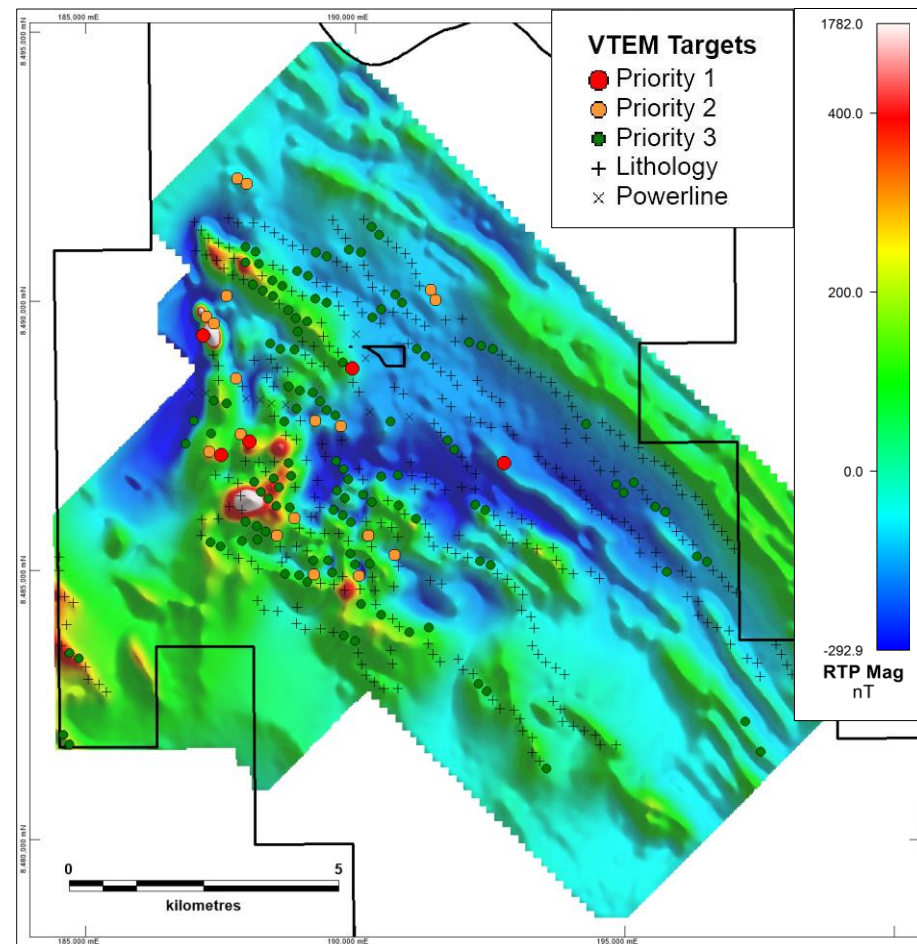


Figure 3. Moline 2011 VTEM targets, shown over RTP magnetics.

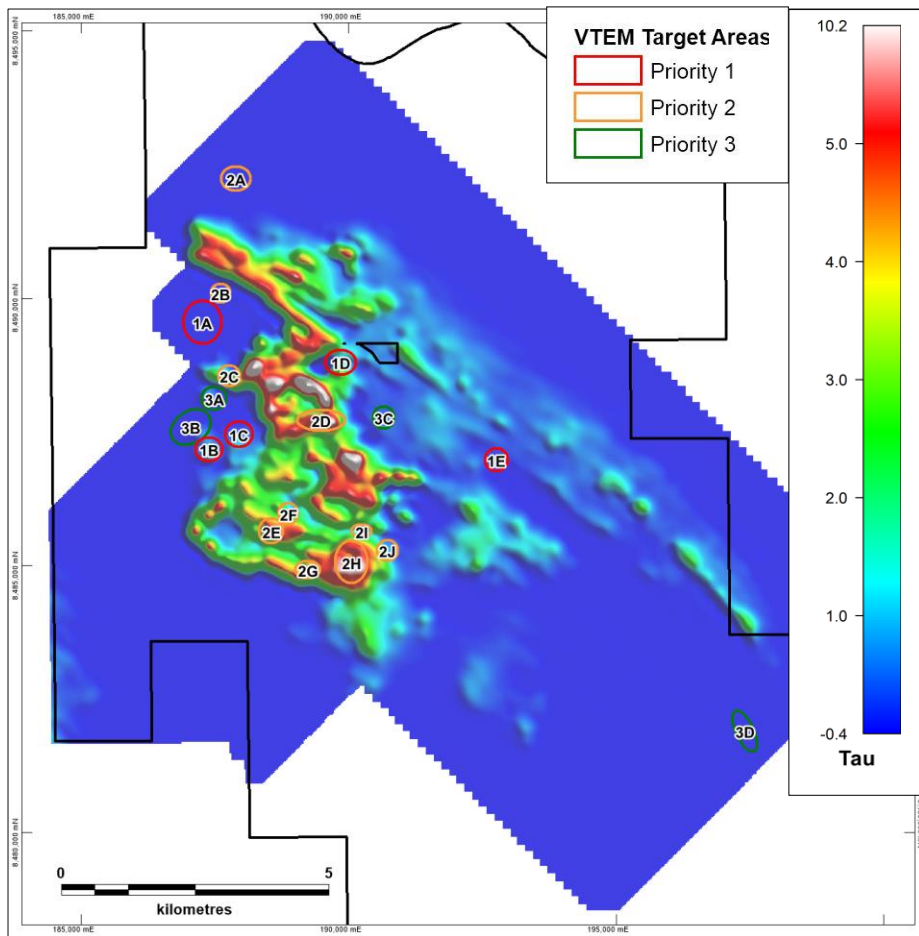


Figure 4. Moline 2011 VTEM target areas, shown over tau.

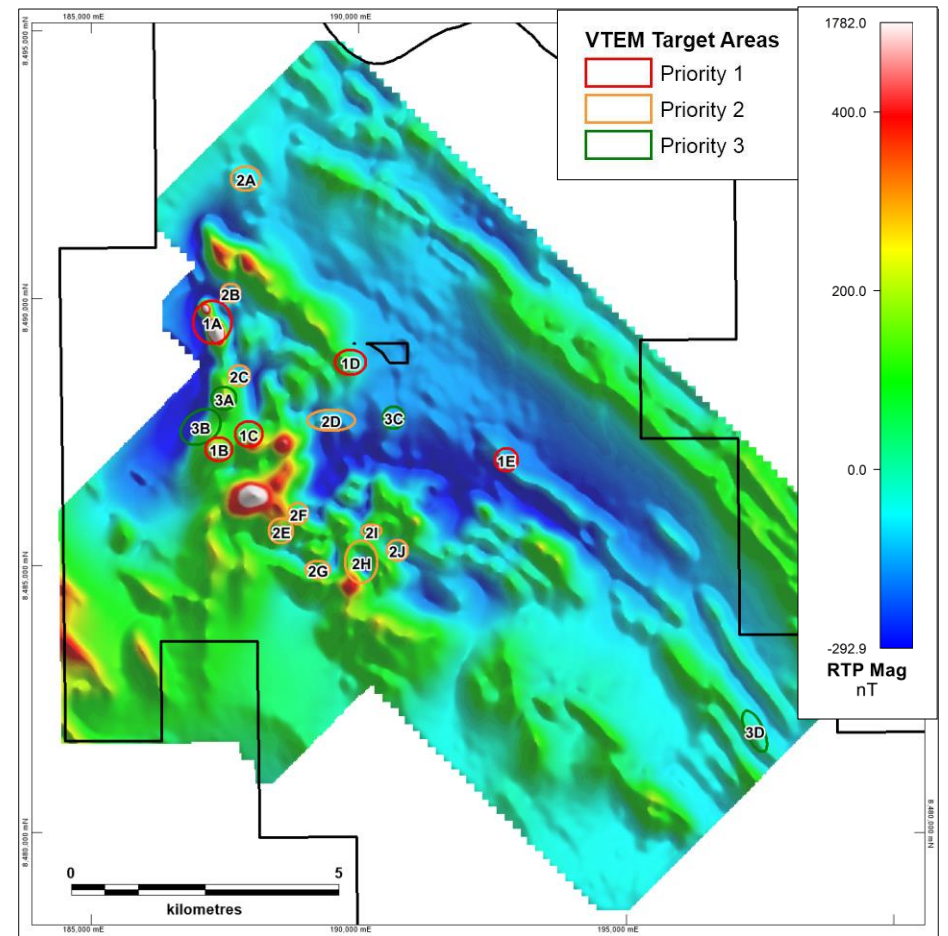


Figure 5. Moline 2011 VTEM target areas, shown over RTP magnetics.

Target	Priority	Comments
1A	1	mag
1B	1	mag
1C	1	mag
1D	1	mag
1E	1	weak mag, culture??
2A	2	no mag
2B	2	no mag
2C	2	
2D	2	no/weak mag
2E	2	mag
2F	2	mag
2G	2	no mag
2H	2	varying targets with/without mag
2I	2	
2J	2	
3A	3	powerline??, mag
3B	3	mag
3C	3	weak mag
3D	3	weak mag

Table 1. Moline VTEM target areas.

CONCLUSIONS AND RECOMMENDATIONS

Targeting has been undertaken over the Moline EL using the 2011 VTEM data. Targets have been selected and prioritised by reviewing the EM and magnetic data profiles.

It is recommended that priority 1 and 2 target areas be followed up first, followed by priority 3 target areas and lithologies. Follow up should encompass field checking and review of other datasets (geology, geochemistry, radiometrics etc.). The EM and magnetic data should then be reviewed and modelled for all target areas that are considered prospective.

REFERENCES

Beinke, Lynelle, 2014. Hayes Creek Project – VTEM Targeting.
Terra_Resources_Phoenix_HayesCkTargeting_V1.pdf.

Geotech Airborne, 2011. Survey and logistics report on a helicopter borne versatile time domain electromagnetic (VTEM) survey on the Burnside, Moline and Maud areas Australia for Crocodile Gold Australian Operations. AA1057_Report.pdf.