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COLLABORATIVE EXPLORATION INITIATIVE CEI004 – FINAL REPORT

CENTURY NORTH MT

RED METAL LIMITED
(Holder and Operator)

EPMs 25985 AND 27224

J. Pienmunne

Red Metal Limited

15 June 2021

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LICENCE HOLDER:	Red Metal Limited
OPERATOR:	Red Metal Limited
TENEMENTS:	EPM 27224, EPM 25985
REPORTING PERIOD:	December 2020 to May 31 2021
AUTHOR:	J. Pienmunne
STATE:	Queensland
LATITUDE:	-18º 27’ 55” to -18º 45’ 55”
LONGITUDE:	138º 26’ 4” to 138º 35’ 4”
1:250,000 SHEET:	Lawn Hill SE54-09
1:100,000 SHEET:	Musselbrook 6560, Lawn Hill 6660, Bowthorn 6561
MINERAL PROVINCE:	Lawn Hill Platform
COMMODITIES:	Pb Zn Ag
KEYWORDS:	Magnetotelluric Survey, Lawn Hill Platform, Century Mine, Termite Range Fault

SUMMARY

The Century North MT project is located 145 km southwest of Burketown and 10 -15 km northwest of the Century Pb – Zn – Ag mine. The project extends over EPMs 25985 and 27224 both held and operated by Red Metal Limited (Red Metal). Exploration is funded by OZ Minerals under the terms of the Greenfields Discovery Alliance agreement between Red Metal and OZ Minerals.

Deep penetrating magnetotelluric (MT) surveying across the Termite Range Fault immediately northwest of the Century Mine was used to map basin architecture and explore for local conductivity anomalies that may relate to third-order sub-basins or new styles of zinc or copper mineralisation.

The MT survey program comprised a total of 137 stations at nominal 500 m spacings along one 13.5 km long SSE – NNW line and six SW – NE lines ranging in length from 7.3 km to 10 km for a total of 64.5 line km.

Preliminary interpretation of the 2D resistivity models has identified some weak resistivity anomalies. The models appear to map the position of the Termite Range Fault as a conductivity feature on the SW – NE orientated lines.

The survey was conducted by Moombarriga Geoscience Pty Ltd in two campaigns; October – November 2020 and April – May 2021.

As the data has been collected only very recently these interpretations are preliminary and the modelling needs to be considered with other geological data.

3D modelling of the data may be considered in the future.

1.0 INTRODUCTION

The Century North MT project extends over EPMs 25985 and 27224 both held and operated by Red Metal Limited (Red Metal). Exploration is funded by OZ Minerals under the terms of the Greenfields Discovery Alliance agreement between Red Metal and OZ Minerals.

Deep penetrating magnetotelluric (MT) surveying across the Termite Range Fault immediately northwest of the Century Mine was used to map basin architecture and explore for local conductivity anomalies that may relate to third-order sub-basins or new styles of zinc or copper mineralisation.

2.0 LOCATION AND ACCESS

EPMs 25985 and 27224 are located 145 km southwest of Burketown and 10 -15 km northwest of the Century Pb – Zn – Ag mine within Lawn Hill Pastoral Station, with whom Red Metal has a Conduct and Compensation Agreement.

Access to the area is via the Wills Road and station tracks. The tenement area has low relief and is covered by light scrub.

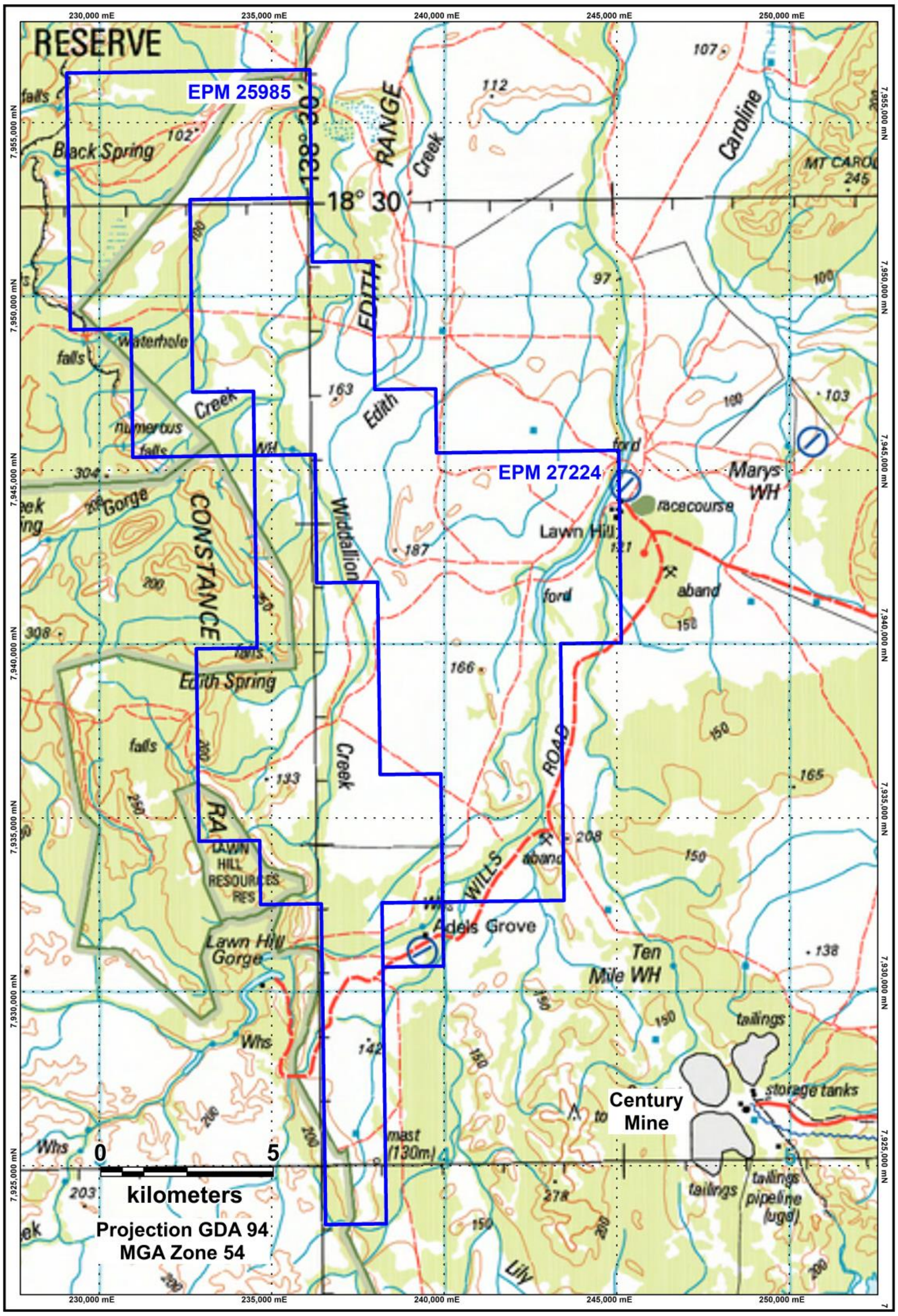

Figure 1: Location of EPMs 25985 and 27724

3.0 TENEMENT STATUS

EPM 27224 comprising 36 sub – blocks (Table 1) was granted to Red Metal on December 16, 2019 for a period of five years.

Table 1: EPM 27224 Sub-blocks

MAP	BLOCK	SUB-BLOCKS
Normanton	2239	a b c d e g h j k m n o r s t x y
Normanton	2311	c d g
Normanton	2167	f l q r v w x y z
Normanton	2166	d e j k o p u

EPM 25985 comprising 37 sub-blocks (Table 2) was granted to Red Metal on February 9, 2016 for a period of five years. The tenement was renewed in full for further five years on April 20, 2021 and is set to expire on April 19, 2026.

Table 2: EPM 25985 Sub-blocks

MAP	BLOCK	SUB-BLOCKS
Normanton	2239	f l q v w
Normanton	2238	e k o p t u y z
Normanton	2311	a b f l q v
Normanton	2310	e
Normanton	2383	a
Normanton	2094	r s t u w x y z
Normanton	2166	b c g h n s t z

An application for the full renewal of the tenement was lodged on 7 December 2020. This application is pending at the time of writing of this report.

Both tenements were granted under the Native Title Protection Conditions v1.19(a) to satisfy the requirements of the expedited procedure S237 of the Native Title Act (Cth) 1993. The tenement occurs within a native land determination of the Waanyi People (QUD6022/1999).

4.0 REGIONAL CONTEXT

The Carpentaria Zinc Province is one of the most productive zinc, lead and silver geological terrains in the world and incorporates zinc prospective, mid-Proterozoic, sedimentary sequences from the Curnamona Craton in the south, Mount Isa Inlier in northwest Queensland to the McArthur Basin in the Northern Territory. The Carpentaria Province is globally unique as it hosts multiple large and several giant zinc-lead-silver deposits including Broken Hill, Cannington, Maronan, Dugald River, Mount Isa, Hilton-George Fisher, Lady Loretta, Century, Walford Creek, McArthur River and Teena.

Figure 2 shown the regional context of the Century North project relative to other large and giant zinc-lead-silver deposits in the Carpentaria Zinc Province with exposed Proterozoic geology (brown) and covered prospective terrains (grey). Zinc-lead-silver deposits in the Carpentaria Province vary in depositional age and basin setting but can be broadly classified into Broken Hill-types (Broken Hill, Cannington, Maronan) and silt and shale hosted Stratiform Types (Mount Isa, George Fisher, McArthur River, Dugald River) and Stratabound Types (Century).

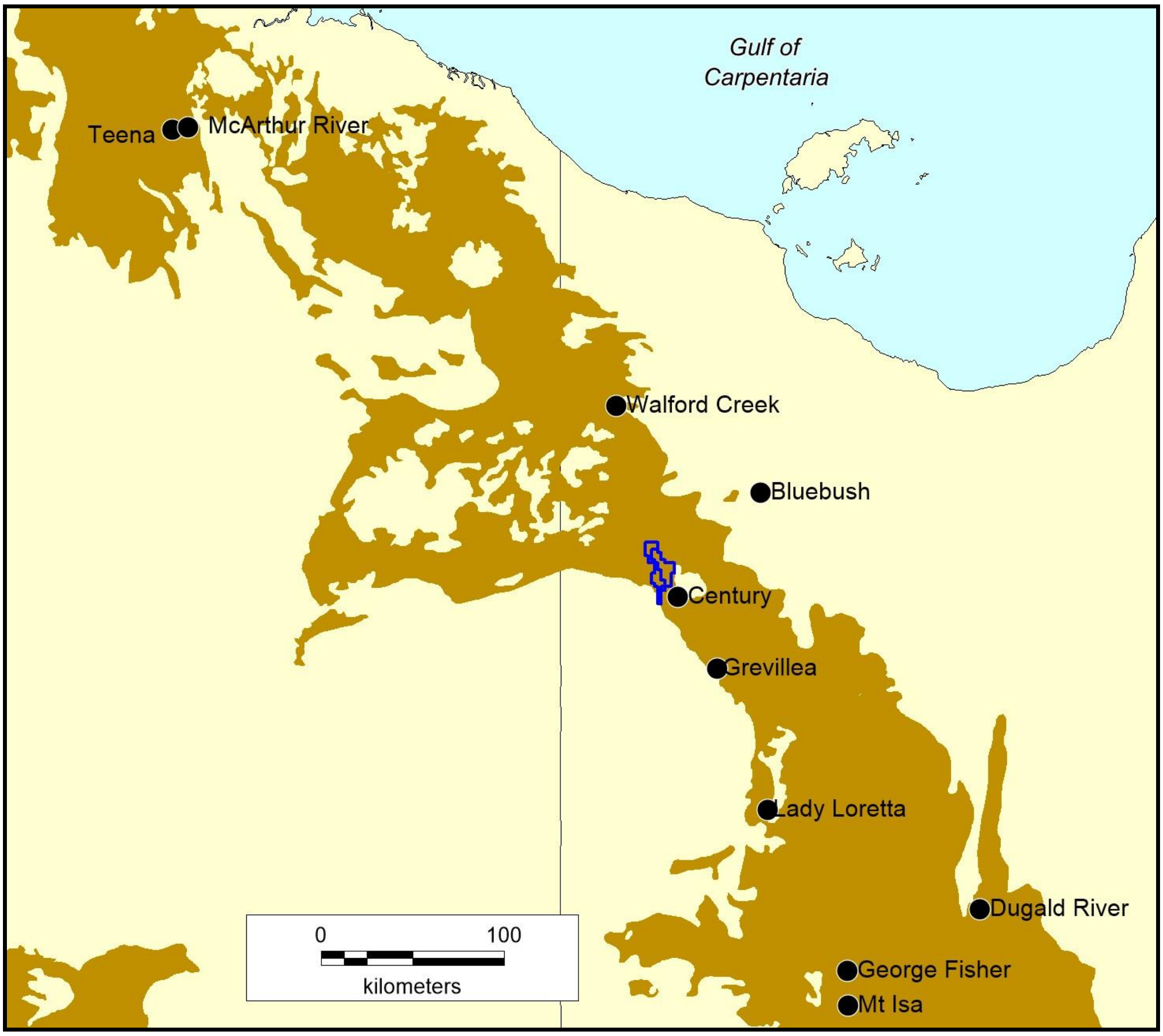

Figure 2: Regional Context

The giant stratiform zinc-lead-silver deposits such Mount Isa, Hilton-George Fisher, McArthur River are hosted in thickened, highly conductive sedimentary sequences dominated by fine-grained carbonaceous and iron sulphide-enriched silt, shale and mudstone packages. These sedimentary style deposits are mostly found in second order sub-basins adjacent to major regional faults that were active during sedimentation. The zinc prospective host sequences are often highly conductive and may be associated with a low magnetic response - making them detectable with combined electromagnetic and magnetic geophysical techniques.

Age dates for the major stratiform sediment hosted lead-zinc-silver mineral deposits range from 1660Ma at Mt Isa to 1640Ma at the McArthur River (HYC) deposit. Several sub-economic stratiform sulphide bodies occur in the northern Lawn Hill Platform in strata within these broad age ranges, most notably Bluebush and Grevillea in the lower River sequence. Century is interpreted as a large, stratabound ore deposit hosted within interbedded carbonaceous shale and siltstone with a younger age of 1595Ma in the Wide sequence. Figure 3 (adapted from Bradshaw et al, 2018) shows the stratigraphic position of stratiform/stratabound Zn-Pb-Ag mineralisation in the northern Lawn Hill Platform.

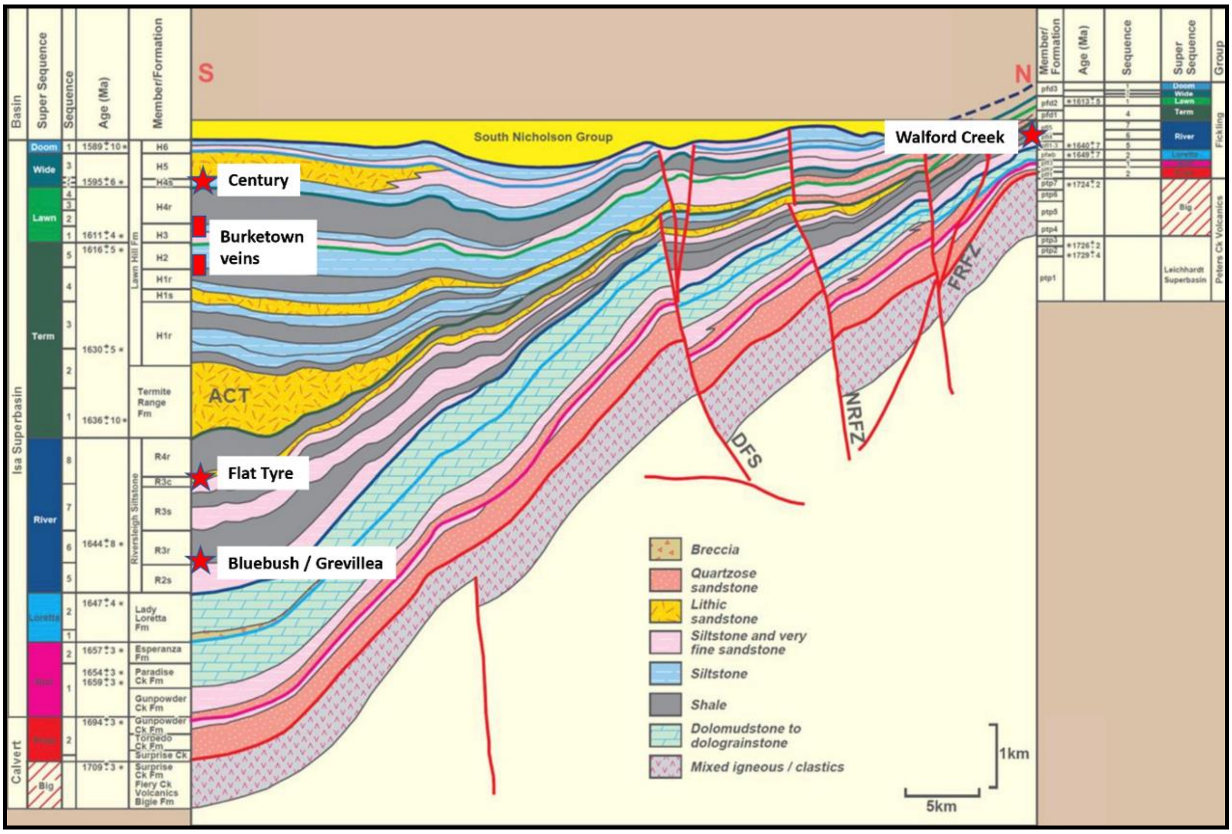

Figure 3: Stratigraphic position of Zn-Pb-Ag mineralisation

The Termite Range Fault is a regionally significant fault in the northern to central Lawn Hill Platform, continuous over 250 km strike and with up to 2000 m of vertical offset. It originated as a syn-sedimentary growth fault, controlling significant stratigraphic thickness in the Term sequence (see Figure 3), but was subsequently reactivated at least until the Cambrian (Andrews, 1998). An unexplained feature of the fault is its failure to cut the Widdallion Syncline 25 km NW of Century where regional map patterns imply strain was transferred to the NE-striking Ploughed Mountain or Tin Tank Fault.

5.0 PROJECT GEOLOGY

The Project area lies within the Lawn Hill Platform of the Mount Isa Block and is dominated by gently folded carbonate and siliciclastic sediments of the Proterozoic McNamara Group under variable thicknesses of Cenozoic and Mesozoic cover (0 to 300 m). Black soil plains and braided stream complexes dominate the area.

The McNamara Group is partly equivalent to the Mount Isa Group in the Leichhardt River Trough to the southeast and to the McArthur Group in the McArthur region to the northwest. The McNamara Group sediments are interpreted as sag-phase elements of "Cover Sequence 3" deposited between ~1720 and 1595 Ma. The "Cover Sequence 3" sediments of the Mt Isa Block host a number of world-class base-metal deposits including McArthur River (hosted in Barney Creek Formation of the McArthur River Group), Century (hosted in the Lawn Hill Formation of the McNamara Group), the Isa group of mines (hosted in the Urqhart Shale of the Mt Isa Group), and Cannington (hosted in clastic sediments of the Soldiers Cap Group).

Deposition of the McNamara Group on the Lawn Hill Platform was controlled by a network of normal and transfer structures activated by approximately NNW-SSE extension. Key structures active on the Lawn Hill Platform at this time were NW-trending transfer faults (Termite Range Fault) and ENE- to EW-trending extensional faults (Little River, Barramundi, Elizabeth Creek Fault Zone).

Pb-Zn mineralisation in the Mt Isa Block is hosted by carbonaceous, variably pyritic fine-grained siliciclastic sediments deposited adjacent to faults active between ~1700 and 1595 Ma. Extensional and transtensional faulting formed small, third-order basins that were the loci for deposition of anoxic strata. The faults also provided fluid pathways for the mineralising fluids.

The project is located along the Termite Range fault system immediately north of the giant Century zinc-lead-silver deposit. Figure 4 is a schematic section showing alteration adjacent to the Termite Range Fault around the Century deposit, and deeper conceptual orebodies.

The MT Survey was designed to map the three dimensional structure and stratigraphy adjacent to the Termite Fault system and highlight conductivity variations within stratigraphy or along the fault that may be indicative of alteration associated with new breccia or replacement styles of zinc or copper mineralisation

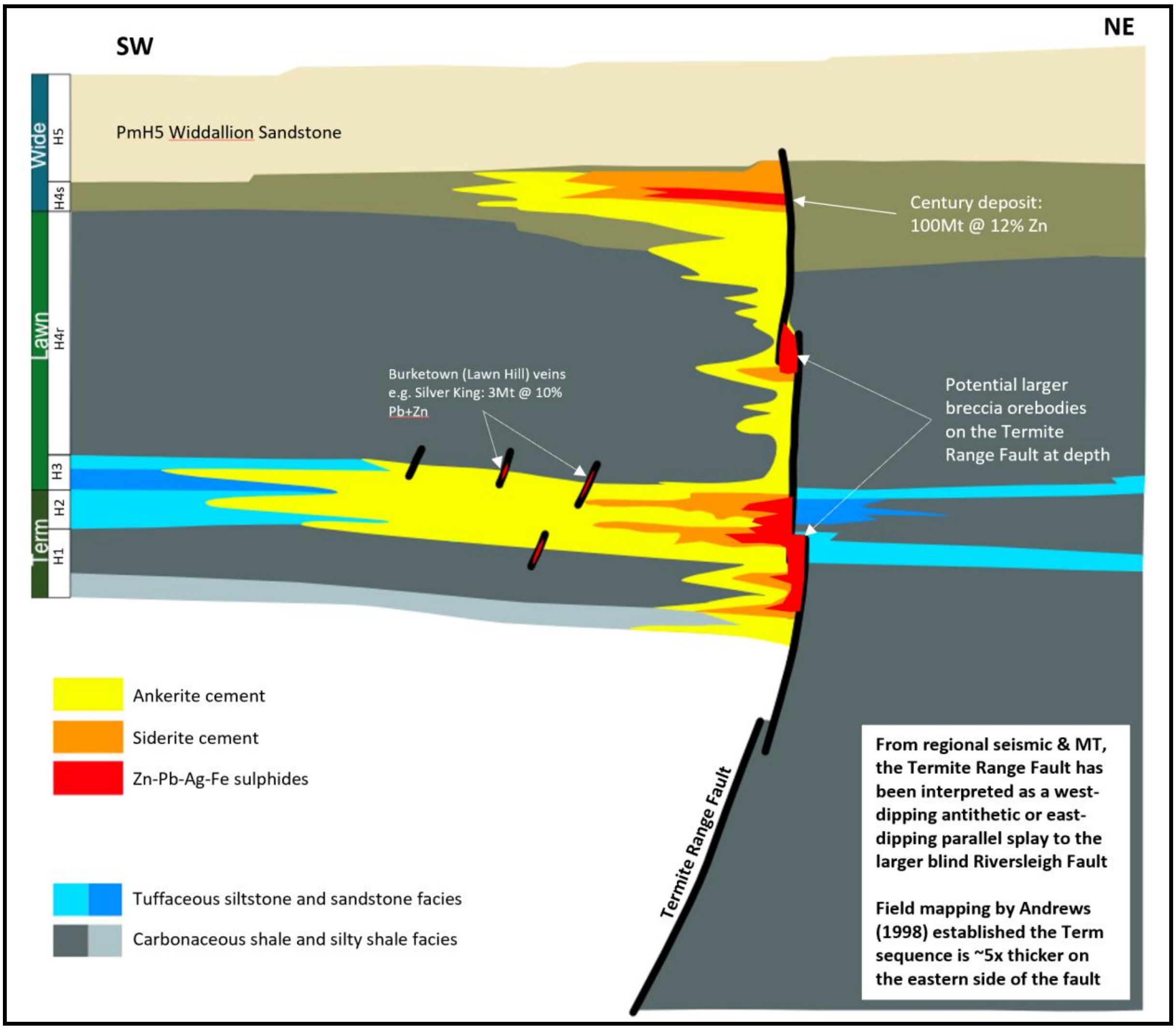

Figure 4: Schematic Section of the Termite Fault

6.0 PREVIOUS EXPLORATION

Historic exploration by Rio Tinto, Anglo American and MMG has defined weak Century-style mineralisation north of the Century deposit (best intercept 17 m @ 0.4% Zn). This and the stratabound structurally-controlled lodes at the historic Edith prospect confirm the presence of a Proterozoic mineralising fluid within Red Metal's project area (Figure 5).

In the early- to mid- 20th Century small-scale Ag-Pb-Zn mining of stratabound quartz-galena-sphalerite-siderite veins were prospected in the Edith area as part of the Burketown (Lawn Hill) Mineral Field. Modern exploration commenced when CRA pegged the area as part of the large Termite project and continued regional exploration after the 1992 discovery of Century. As most of the area is covered by Cenozoic black soil of the Armraynald Beds, work mainly consisted of shallow RAB drill traverses and induced-polarisation surveys.

Between 1998 and 1999 Rio Tinto (formerly CRA) and AngloAmerican (through JV with Rio) discovered a broad area of mineralised Century equivalent stratigraphy at Edith South, on the western side of the Termite Range Fault. Shales of unit H4s (Lawn Hill Formation) contain laminae of sphalerite & pyrite, and nodular siderite alteration, with an identical geochemical signature to the Century mineralisation. Follow-up drilling by MMG in 2008 confirmed mineralisation over an area at least 7 km by 3 km in a total of ten diamond drill holes with a best intercept of 17 m @ 0.4% Zn (drill hole DD98ES005).

The only previous MT surveying in the Lawn Hill area was a single line surveyed near Century Mine completed by researchers from the Predictive Minerals Discovery Co-Operative Research Centre (pmd*CRC) and Korean Institute of Geosciences and Mineral Resources (KIGAM) in 2007. Although the station spacing was about one kilometre, processing of the data (Murphy 2008) appears to broadly image the location of the Termite fault and more importantly, highlight conductivity variation in the top two kilometres that may be useful for mineral exploration targeting. Contact with former pmd*CRC staff and current Geoscience Australia and Geological Survey of Queensland staff indicated the original data was only held by KIGAM and attempts to contact KIGAM did not receive a reply.

7.0 CENTURY NORTH MT – COEI

Aim of the program was to utilise MT surveying over the Termite Range Fault to map basin architecture and explore for local conductivity anomalies that may relate to third-order sub-basins or new styles of zinc or copper mineralisation.

MT is a passive geophysical method which uses natural time variations of the Earth's magnetic and electric fields to measure the electrical resistivity of the sub-surface. As measured by the MT method, the resistivity obtained is a bulk property of a volume of Earth material and is associated with factors such as rock composition, porosity and permeability as well as rock fluid composition and temperature.

The Earth's magnetic field varies continuously in both time and space. By measuring at ground level sites time variations of the magnetic field and the electric field, the ratio of the electric and magnetic variations provides a measure of the electrical resistivity. Depth information is obtained by measuring the time variations over a range of frequencies. High frequencies penetrate the Earth to shallow depths only, while low frequencies penetrate deeper. Information is obtained from a few hundred metres depth to hundreds of kilometres depth.

The specific aims of the proposed program were:

- Surveying for local conductivity/resistivity anomalies that may represent breccia or stacked-lens mineralisation on, or adjacent to the Termite Range Fault.
- Mapping the geometry of the Termite Range Fault and Proterozoic stratigraphy, which may lead to further conceptual targets.

The MT survey program comprised a total of 137 stations at nominal 500 m spacings along one 13.5 km long SSE – NNW line and six SW – NE lines ranging in length from 7.3 km to 10 km for a total of 64.5 line km. The survey was conducted by Moombarriga Geophysics Pty Ltd in two campaigns; October – November 2020 and April – May 2021. The location of the stations are shown in Figure 5.

Appendix 1 contains site locations, EDICurves and Plots, 2D Inversion results and Moombarriga's Production Report.

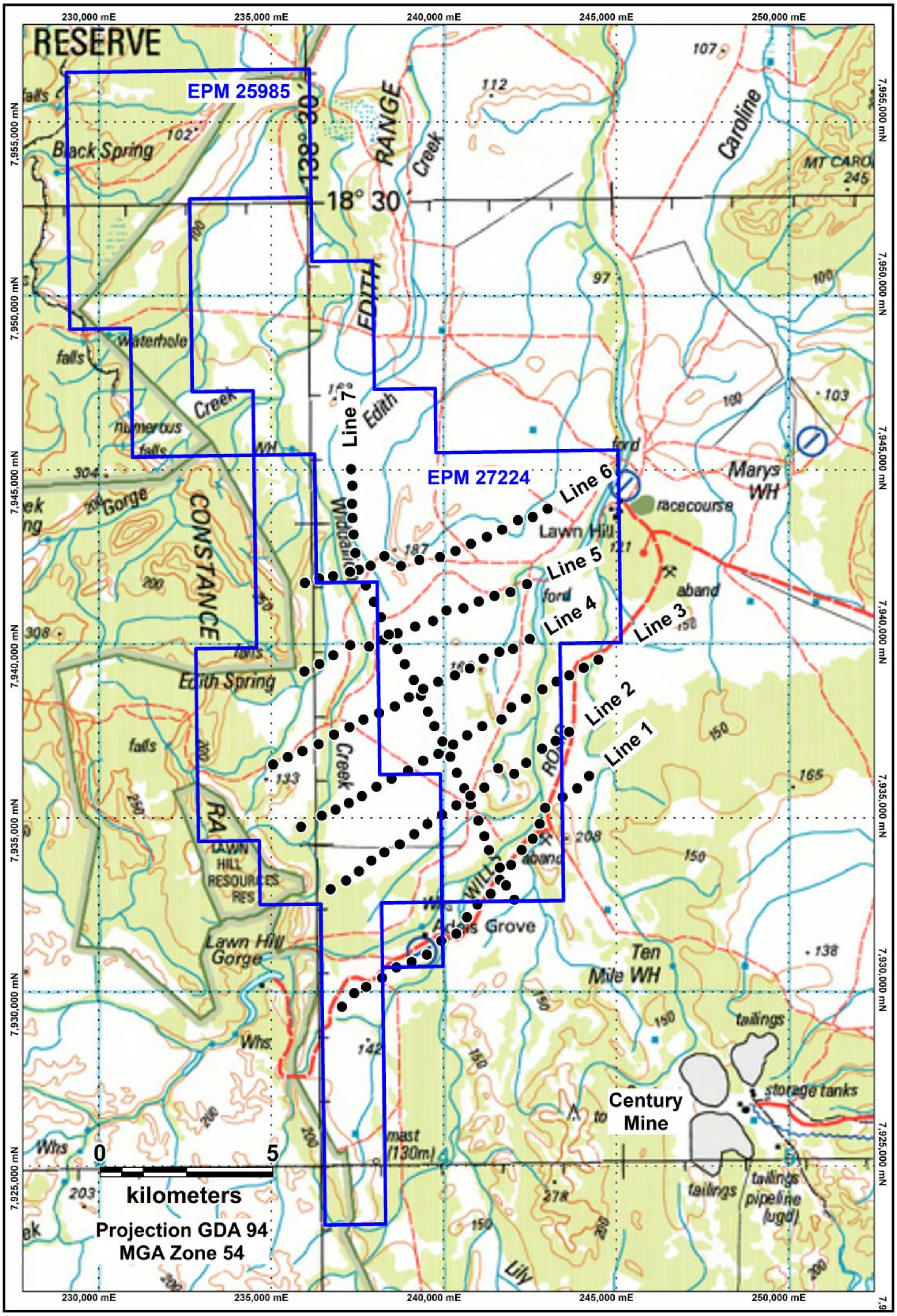

Figure 5: MT Stations

8.0 RESULTS

2D models were produced from the line data. Inversions were undertaken using the RLM-2D inversion algorithm, as implemented in CGG's GeoTools package. Inversions were done from a homogeneous half-space apriori with resistivity of 100 Ω.m. TM, TE and Tipper are inverted for using a step-wise approach, fitting TM and tipper data first, then including TE data. Error floors are reduced in a step-wise manner with target errors for apparent resistivity of 5% and 10% for TM and TE modes respectively, and phase errors of 2% and 6% for TM and TE modes respectively. Tipper data were fitted using a 2% error floor. Model smoothing parameters were reduced, where necessary, to improve final model misfit (RMS) by allowing more 'roughness' in the final model. Static shifts have been inverted for all sections.

Inversions were generally very successful in recovering the observed data, for the selected intervals. Model misfit (RMS) for all of the final models is between 1.57-2.01.

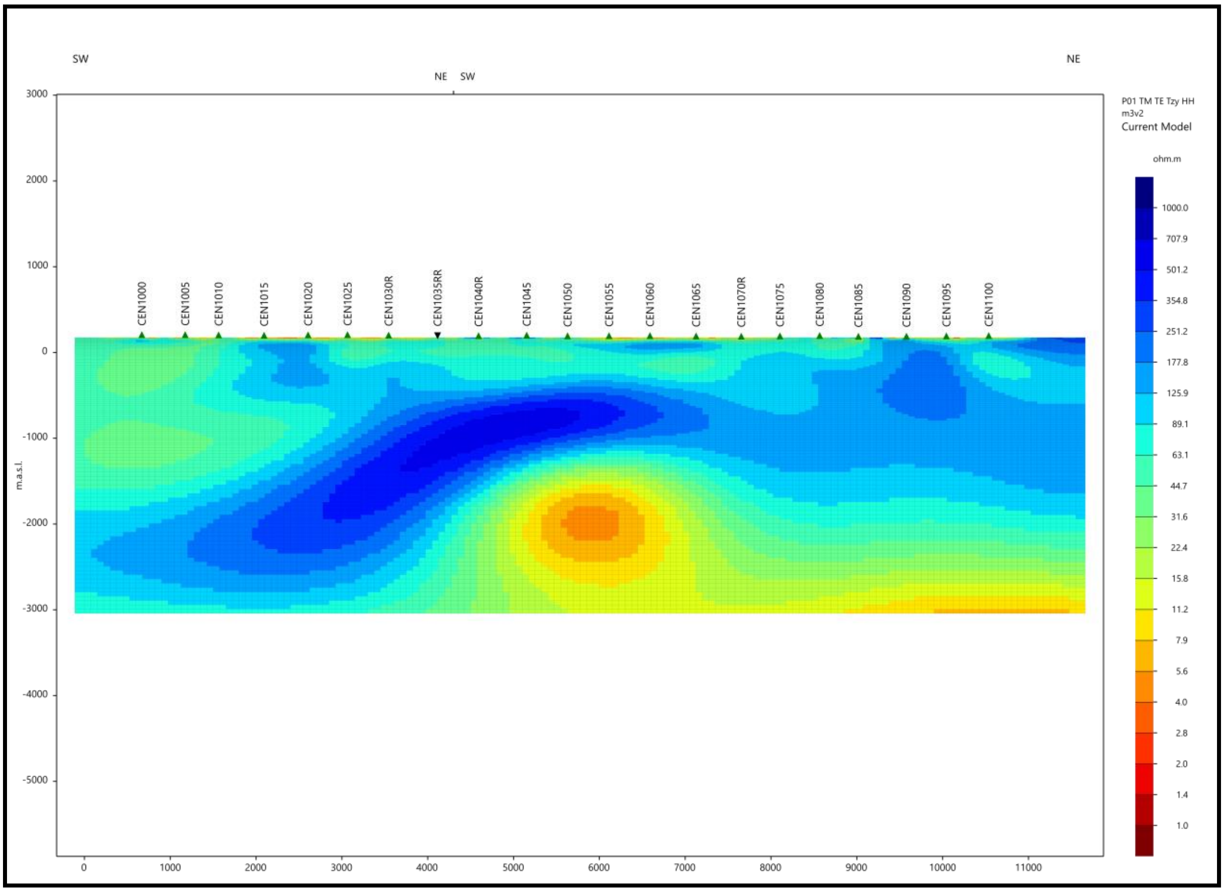

Figure 6: Line 1 2D Resistivity Model

Figure 6 shows the 2D resistivity model for Line 1. The model shows a series of moderately conductive, flat-lying layers, in turn, overlying a highly resistive layer. These layers are laterally extensive suggesting sedimentary layering. Beneath the resistive layer, a more complex electrical model is observed, with generally higher conductivity, which may characterise basement rock electrical properties. Conductive basement rocks and sedimentary layers both exhibit truncation and vertical offset which may be indicative of regional structures. Sub-horizontal sedimentary layers appear to thicken to the southwest. Highly resistive units which dominate the centre-southwest of the section appear to continue to the northeast but thicken east of the truncation of the sediments. We also observe the thinning of the shallowest and more conductive layers east of the truncation.

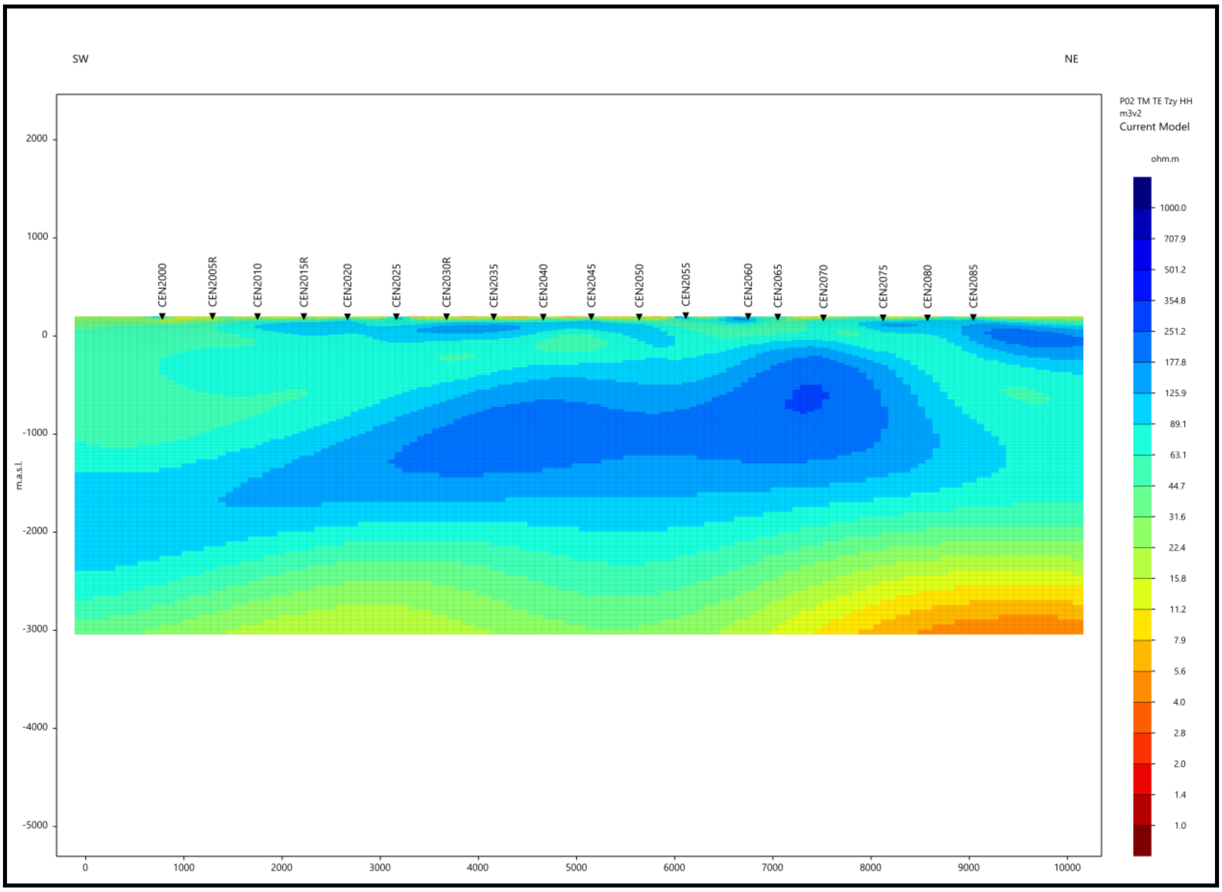

Figure 7: Line 2 2D Resistivity Model

The 2D resistivity model for Line 2 (Figure 7) shows similar thickening of the layered conductive sequences to the southwest and the underlying resistive layer. While the resistive layer is not as prominent as on Line 1, it has similar geometry and lateral extents. Some truncations of this layer are also observed toward the eastern end of the profile. The conductive layer at depth is also imaged in this model, however, there is clear undulations or offsets in this layer which might indicate a regional structural control.

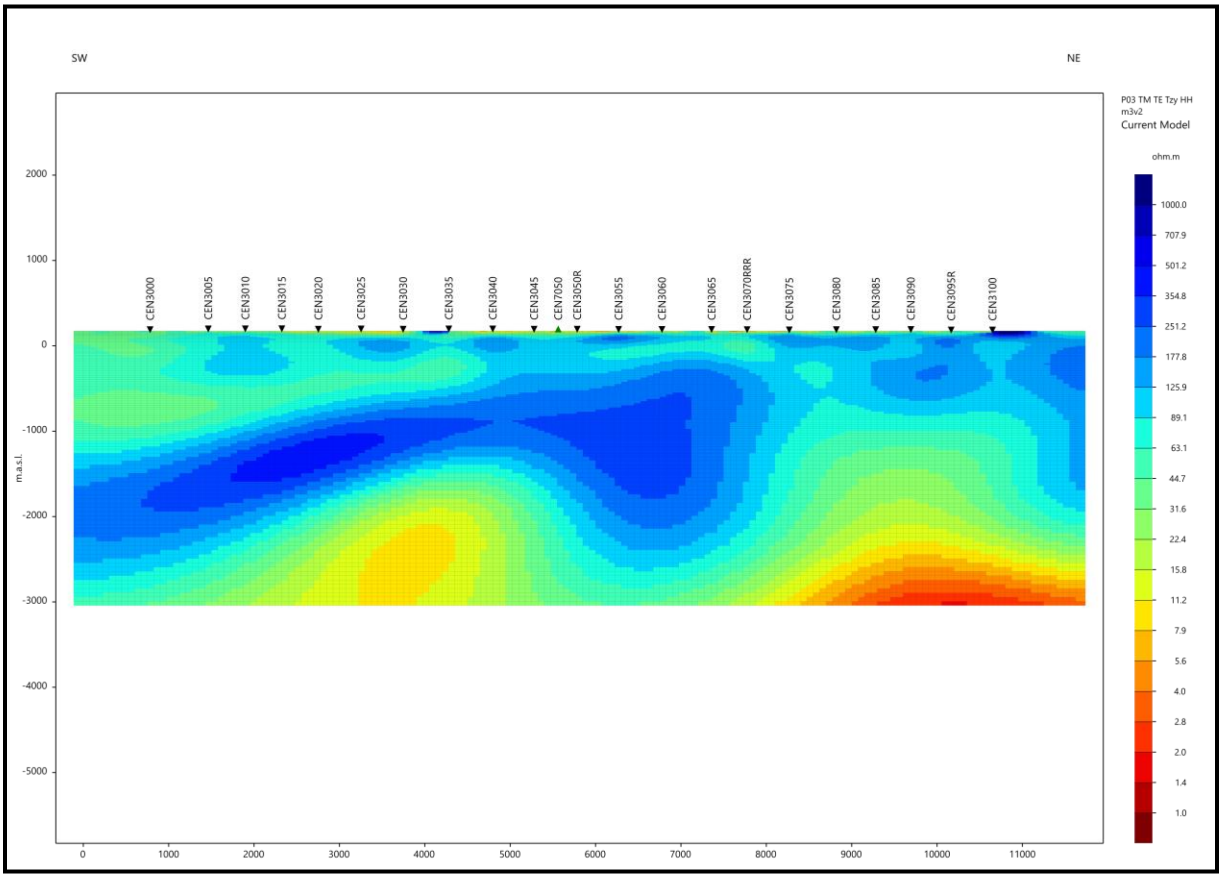

Figure 8: Line 3 2D Resistivity Model

The 2D resistivity model for Line 3 (Figure 8) shows conductive layers thickening from 500-1000 m to the west of the profile. The underlying resistive layer is prominent and appears to be truncated in two places. In the centre of the line, the deep conductive layer steps down before shallowing again. Where this layer deepens, the resistive layer thickens considerably. Further north, the resistive layer is relatively thin and flat lying. This offset in the deep conductor suggests there may be some large-scale regional structures controlling the distribution of these layers in this part of the survey area.

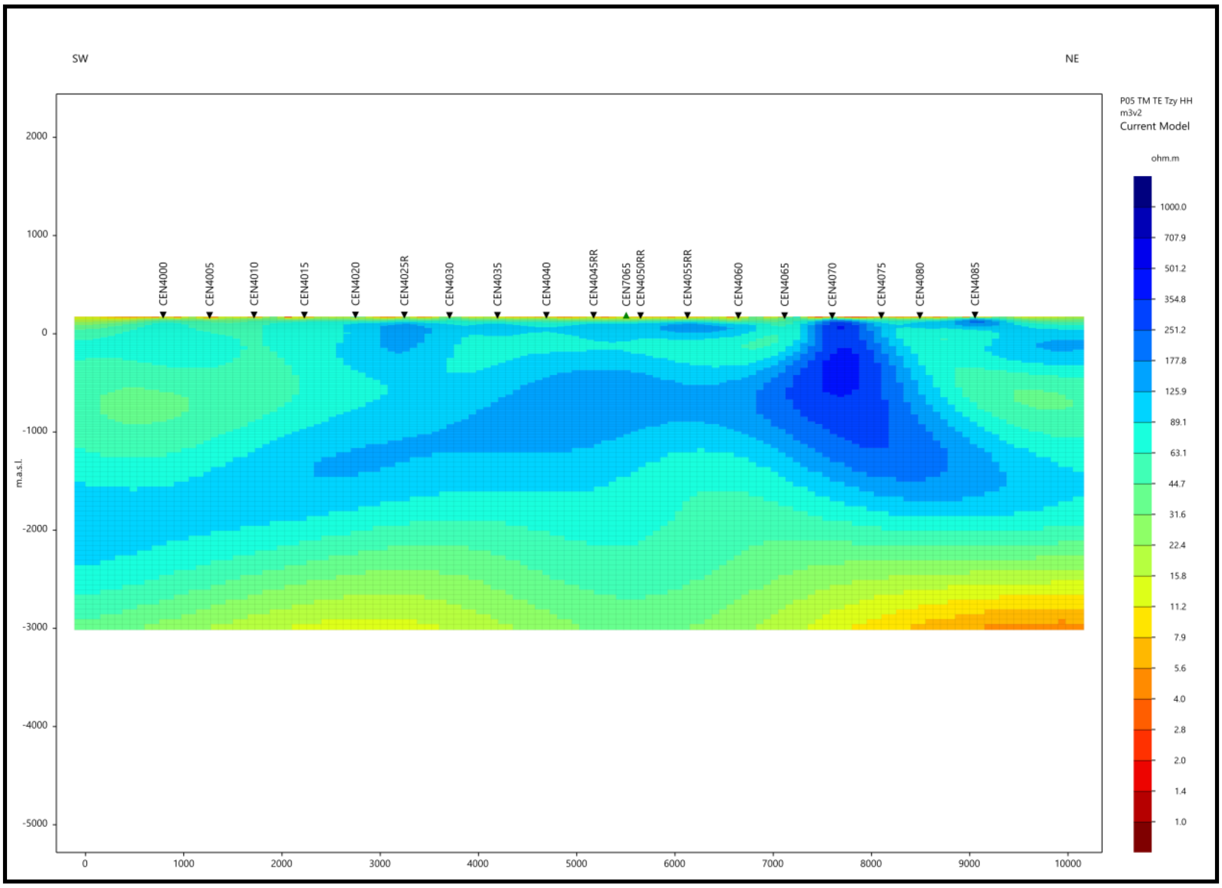

Figure 9: Line 4 2D Resistivity Model

The resistivity model for Line 4 (Figure 9) exhibits a weakening of the resistive layer anomaly, though extents and geometry can still be interpreted. This affect may be the results of a near-surface resistive anomaly in the eastern part of the profile which starts to dominate. Shallow conductive layers are again observed to the west as well as steps in the conductive deeper layer which suggests the presence of regional structures. The juxtaposition of the emerging resistor with the deeper conductor may also suggest structurally controlling faults.

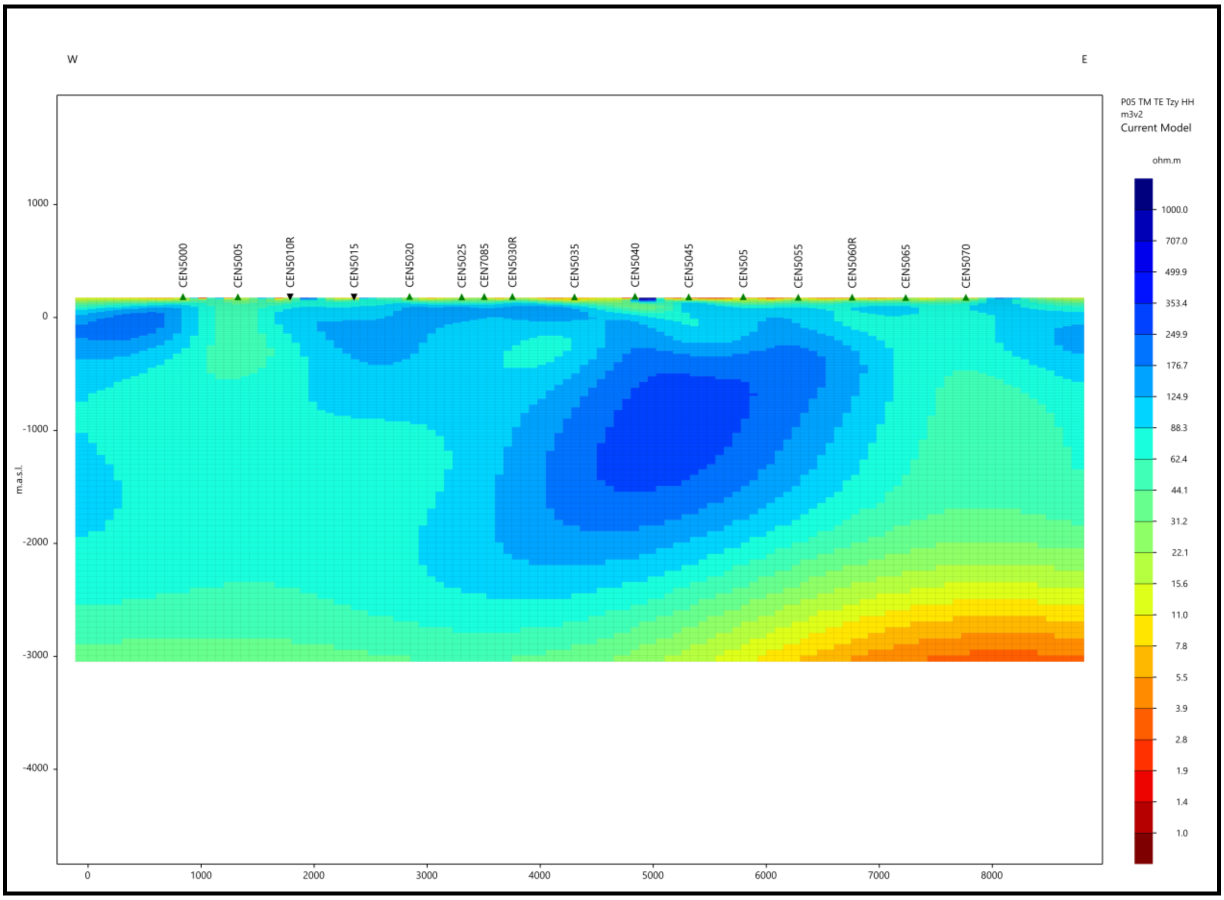

Figure 10: Line 5 2D Resistivity Model

Unlike models from the other east-west orientated profiles, the resistivity model for Line 5 (Figure 10) shows no clear resistive layer depth. Similarly, there is no clear wedge of conductive layers thickening to the west, and the key feature of this model is a zone of higher resistivity, located in the eastern half of the model. The deeper conductive layer is observed in this section but appears marginally deeper and does not exhibit much structure.

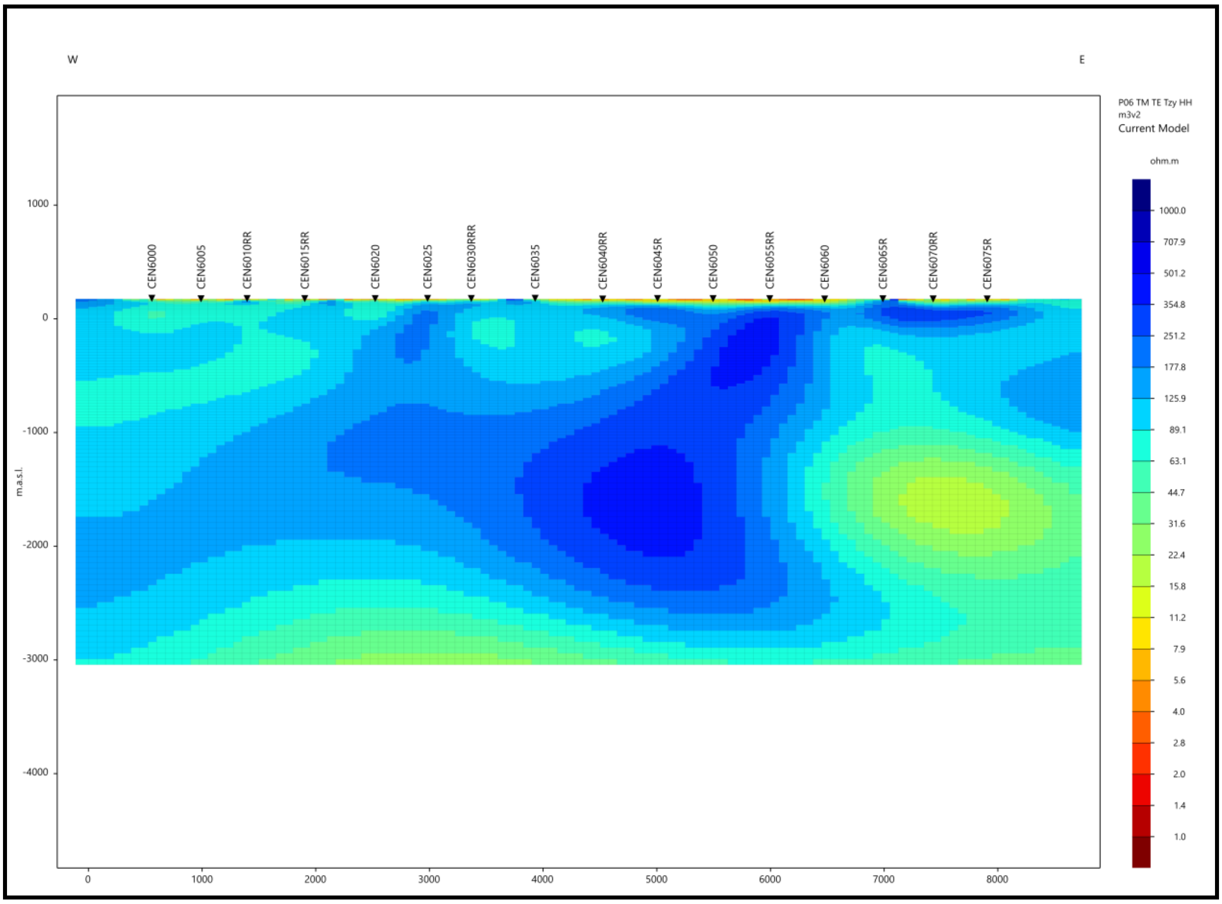

Figure 11: Line 6 2D Resistivity Model

The model for Line 6 (Figure 11) also images a more localised resistive anomaly in the eastern part of the profile, similar to Line 5, but also images the familiar layered geometry further to the west. The deeper conductive layer appears to shallow to the east and is juxtaposed against this resistor which suggests structural control.

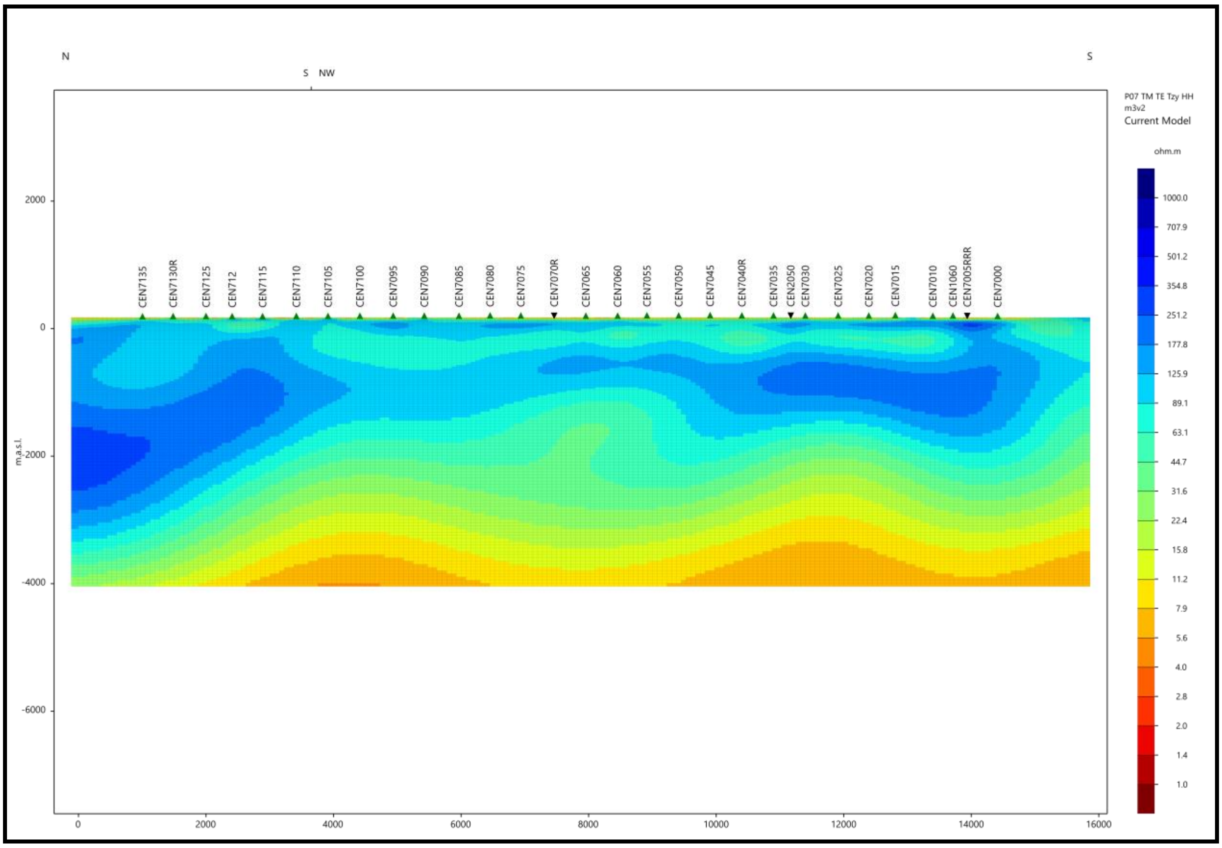

Figure 12: Line 7 2D Resistivity Model

Line 7 (Figure 12) resistivity model correlates with the geometry of models from the east-west profiles. A conductive layer, approximately 500 m thick, overlies a more resistive layer between 700-1000 m thick. To the south, these layers are relatively flat lying but appear to thicken to the north. While thickening of the overlying more conductive layers to the north is not clear, there is considerable thickening of the underlying resistive layer at the northern end of the profile. There is also some thickening of the resistive layer at the southern end of the profile. This thicker section appears constrained to the north and south.

Undulation and thickening of these layers create a stepped appearance in the model. These discrete changes in geometry suggest the profile may be cut by several regional geological structures i.e., faults, which have constrained these changes. Given the sedimentary environment, this may represent compartmentalisation of a sedimentary basin.

At greater depth, conductivity significantly increases for much of the survey area, which may suggest conductive basement rocks, or deeper conductive sedimentary horizons. Conductivity of this deeper layer remains relatively uniform along Line 7. Undulations in the top of this layer and some truncation may indicate the structures controlling the shallower layers also control the geometry of this layer too.

9.0 INTERPRETATION OF RESULTS

Preliminary interpretation of the 2D resistivity models has identified some weak resistivity anomalies. The models appear to map the position of the Termite Range Fault as a conductivity feature on the SW – NE orientated lines.

As the data has been collected only very recently these interpretations are preliminary and the modelling needs to be considered with other geological data.

10.0 RECOMMENDATIONS FOR FURTHER WORK

3D modelling of the data may be considered in the future

12.0 APPENDIX 1. MT DATA

See separate file Century North MT Data.zip