



EMMERSON RESOURCES LTD

**Geophysics and Drilling Collaboration
Final Report for Rover Project 3D IP**

EL27372

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1. Summary

This report provides a summary of the 3D M.I.M. Distributed Acquisition System Induced Polarisation (3D IP) and Magnetotellurics (MT) survey completed in July and August 2017 by Emmerson Resources Ltd (Emmerson) and Joint Venture (JV) partner Evolution Mining (Evolution) on EL27372 in the Rover Mineral Field (Rover Field).

The survey was partially funded by the Northern Territory Government NTDPIR/NTGS under the CORE (Creating Opportunities for Resources Exploration) initiative and the Geophysics and Drilling Collaborations Program (Round 10 2017).

The Rover Field is located approximately 70km south west of the Tennant Creek Township, in the Northern Territory.

Emmerson entered into a Heads of Agreement (HoA) with Andromeda Exploration Pty Ltd (Andromeda) (formerly Adelaide Exploration Pty Ltd) with a Farm-In and Joint Venture to follow over the tenements subject to this application. Emmerson has operated in the Northern Territory and the Tennant Creek Mineral Field (TCMF) for 11 years and Andromeda has operated numerous exploration campaigns consisting of geophysical surveys and drilling in the Rover Field and more specifically the tenements subject to the HoA and this proposal. Work was conducted in accordance with “Exploration Licence 27292 & Substitute Exploration Licence 27372 Deed for Exploration” made between the Central Land Council (CLC) and Andromeda.

The survey was a program of 3D IP over the buried Rover Field. The cover depth has historically been a major constraint in undertaking detailed exploration, which if analogous to the well explored TCMF to the north, should yield multiple deposits. This survey aimed to de-risk otherwise very high cost diamond drilling through providing subsurface information on the depth of the cover, the unconformity between the Wiso Basin and Warramunga Formation and, test the efficacy of 3D IP in pinpointing sulphide rich ironstones below significant basin and Ooradidgee cover sequences.

The initial approved survey was to be undertaken in two stages consisting of an initial ‘Proof of Concept’ over the known Rover 4 (R4) prospect and if positive (defined by a IP anomaly), be followed by the next stage aimed at testing an inferred, metal fertile corridor that also hosts Rover 12 (R12), Rover 14 (R14) and Rover 16 (R16).

The survey commenced as proposed over R4, to evaluate the final products of 3D IP over a known ironstone in the Rover Field. The survey results were disappointing with the main chargeability response occurring immediately above the copper and gold mineralisation. It appears the chargeability response is associated with the clay alteration above the deposit. The resistivity data in both the MIMDAS and the MT survey has successfully mapped the base of the Ooradidgee sediments but there is no indication of the sulphide mineralization in the inverted resistivity sections.

The program changed from its original proposal to attempt to further test if pinpointing sulphide rich ironstones below significant basin and Ooradidgee cover sequences could be

achieved using 3D IP without committing all the planned expenditures, therefore Rover 11 (R11), more particularly R11 East (R11E) & R11 Central (R11C) were selected to be surveyed next, as it provided the a solid greenfields target. The results from R4 were repeated to some degree at Rover 11 where the broad chargeability response appears to map alteration rather than ironstone hosted sulphide mineralisation.

Considering these results the survey was terminated on the conclusion that the technique will not generate targets with a high enough probability of success to warrant additional work, and further spending would be wasted.

Acquisition of the data was been designed using 100m spaced 1100m lines with transmitters extending out of the single middle transmit line by 950m. Receiver spacing was 100m on the outside and 50m on the centre line while transmit locations were 50m inside and 100m outside the grid centred over the known magnetic anomalies.

This proposal provides a framework to better understand the Rover Mineral Field and has the potential to unlock additional sulphide rich, mineral deposits that have similarities to our Goanna discovery in the Tennant Creek Mineral Field. Goanna had both an EM and IP signature however, was not covered by Wiso basin sediments. Thus there is a significant technical risk in undertaking 3D IP in the Rover Field, somewhat mitigated by case studies from Rockface (Jervis) and also Olympic Dam (SA).

Emmerson engaged Geophysical Resources and Services Pty Ltd (GRS) to conduct the survey.

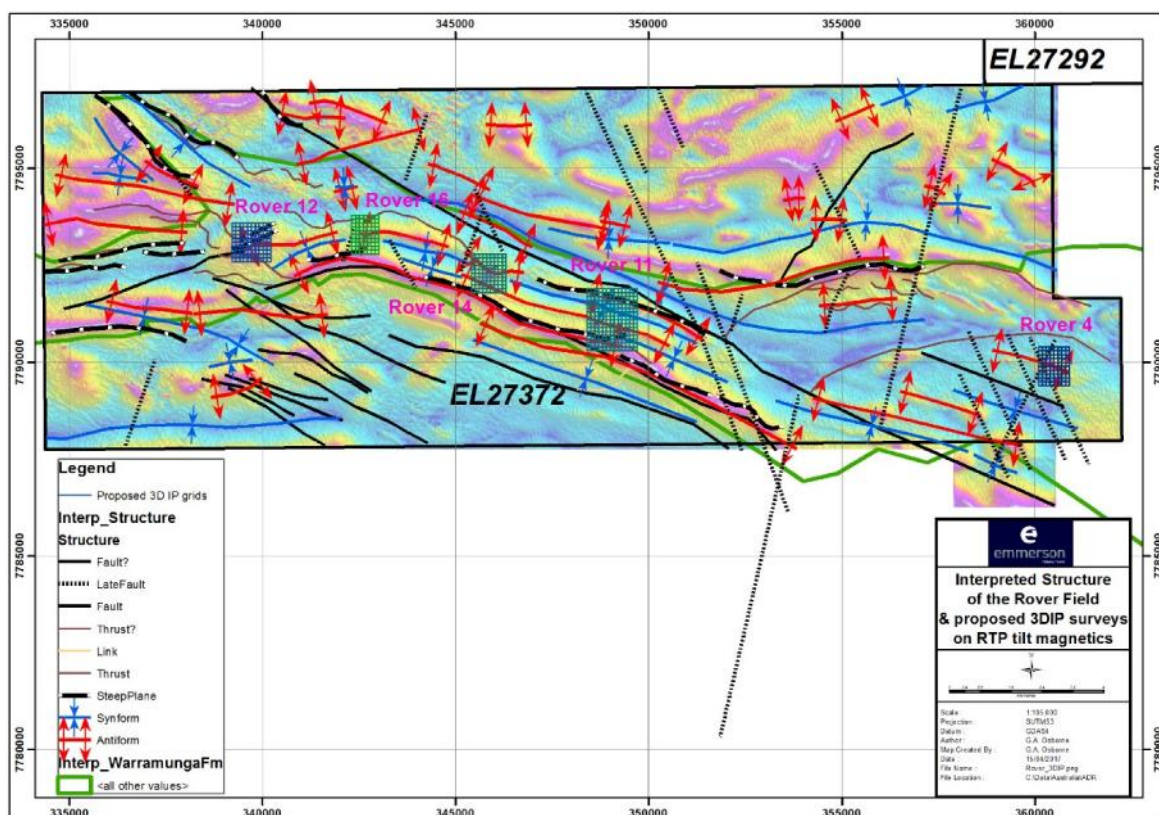


Figure 1: 3D IP Survey locations in the Rover Field (R4, R11, R12, R14 & R16).

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3. Introduction

This report provides a summary of the survey of 3D M.I.M. Distributed Acquisition System Induced Polarisation (3D IP) and Magnetotellurics (MT) at the Rover Field near Tennant Creek in the Northern Territory. The survey consisted of three blocks over separate prospects known as R4, R11C and R11E located approximately 75km south-west of Tennant Creek.

The survey was partially funded by the Northern Territory Government NTDPIR/NTGS under the CORE (Creating Opportunities for Resources Exploration) initiative and the Geophysics and Drilling Collaborations Program (Round 10 2017).

The survey was aimed at a program of 3D IP over the buried Rover Field. The cover depth has historically been a major constraint in undertaking detailed exploration, which if analogous to the well explored TCMF to the north, should yield multiple deposits. This survey aimed to de-risk otherwise very high cost diamond drilling through providing subsurface information on the depth of the cover, the unconformity between the Wiso Basin and Warramunga Formation and, test the efficacy of 3D IP in pinpointing sulphide rich ironstones below significant basin and Ooradidgee cover sequences.

a. Location, Access and Tenure

The Rover Field is located approximately 70km south west of the Tennant Creek Township, in the Northern Territory. Access to the Rover Field is south from Tennant Creek along the Stuart Highway for approximately 35km before turning west and utilising dirt, 4X4 and fence line tracks for approximately 60km, refer to figure 2. Emmerson entered into a Heads of Agreement (HoA) with Adelaide on 15 November 2016, with a Farm-In and Joint Venture to follow.

The following Exploration Licences constitute the tenements subject to the Rover HoA and subsequently this 3D IP Survey;

Exploration Licence
EL 27292
EL 27372

Table 1: Tenements subject to 3D IP Survey

All work was carried out under the supervision of Emmerson. Emmerson has operated in the Northern Territory and the TCMF for 11 years and consults regularly with stakeholders such as the CLC, Pastoral Stations and the community to ensure strong relationships are forged and maintained.

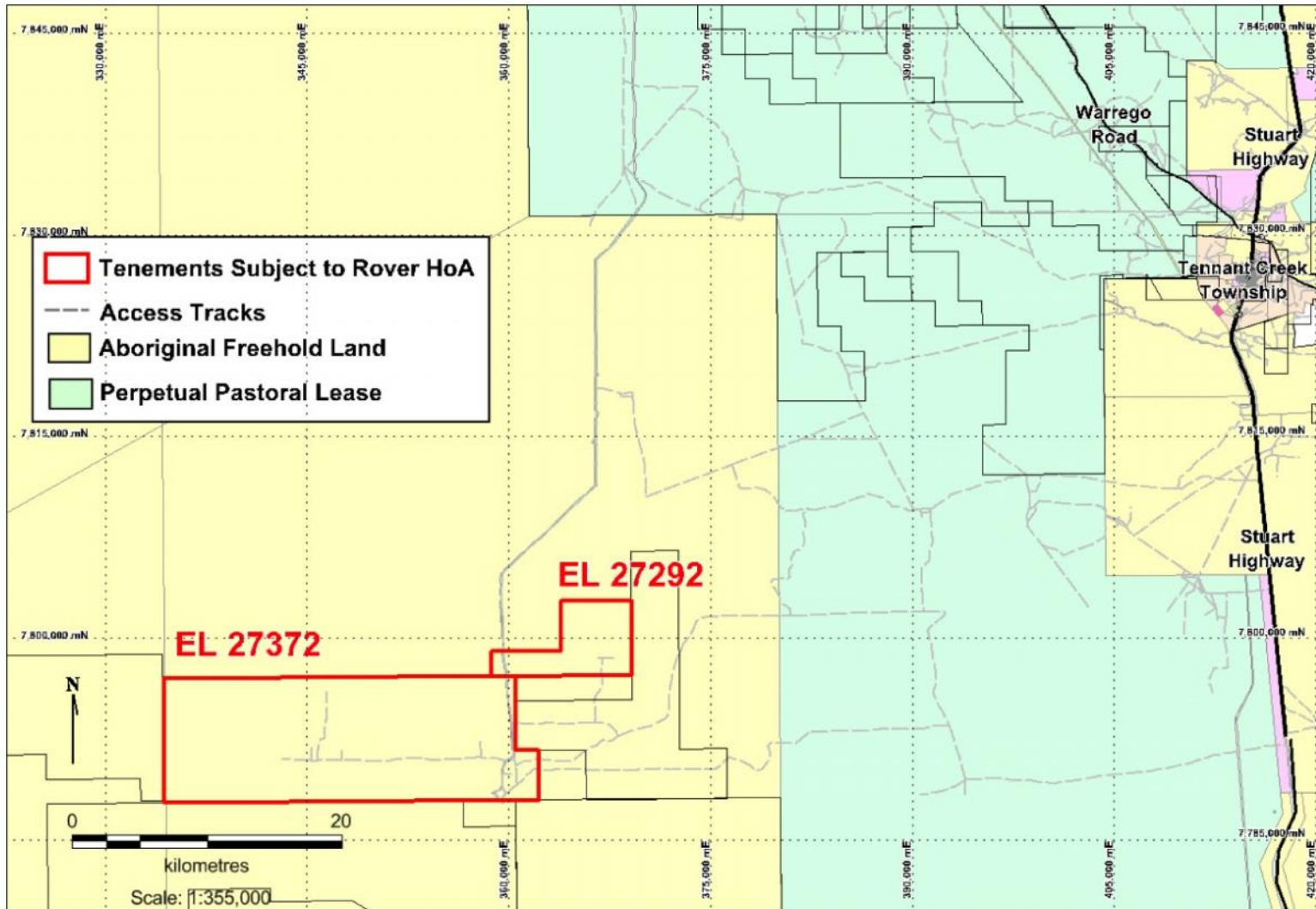


Figure 2: Location Map Showing access to the Rover Field and tenements subject to the HoA and the completed 3D IP survey.

4. Regional Context

Tectonic Interpretation

The Rover Field is separated from the Paleoproterozoic TCMF by the Bluebush gravity high representing a Paleoproterozoic eruptive centre for the Ooradidgee Group. Although the predominant lithologies are of felsic magmatic origin (extrusive and intrusive), considerable thicknesses of mafic-intermediate lithologies (extrusive and intrusive) and exhalative sedimentary rocks have been intersected in drilling, and these are interpreted as the source of the gravity anomaly.

Recent passive seismic surveying completed along the Stuart Highway (70km E of the Rover Field (Sippl, 2016) revealed the presence of a 10km vertical step in the depth to the Moho at the southern edge of the Warramunga Province, which is interpreted as a crustal-scale fault or shear zone demarcating an old block boundary within the North Australian Craton. This is coincident with the Bluebush area and the Kunayungku and Lake Surprise fault scarps which developed as a result of the 6.3-6.7 magnitude earthquake recorded at Tennant Creek on January 22nd 1988.

It is proposed that this feature is the result of crustal underplating of the Warramunga Province during the Tennant Event, the mafic underplate being responsible for the generation of early voluminous granites (TC Supersuite) and lesser mafic-intermediate intrusives as well as the slightly younger bimodal Ooradidgee Group extrusives and pyroclastics, refer to figure 3.

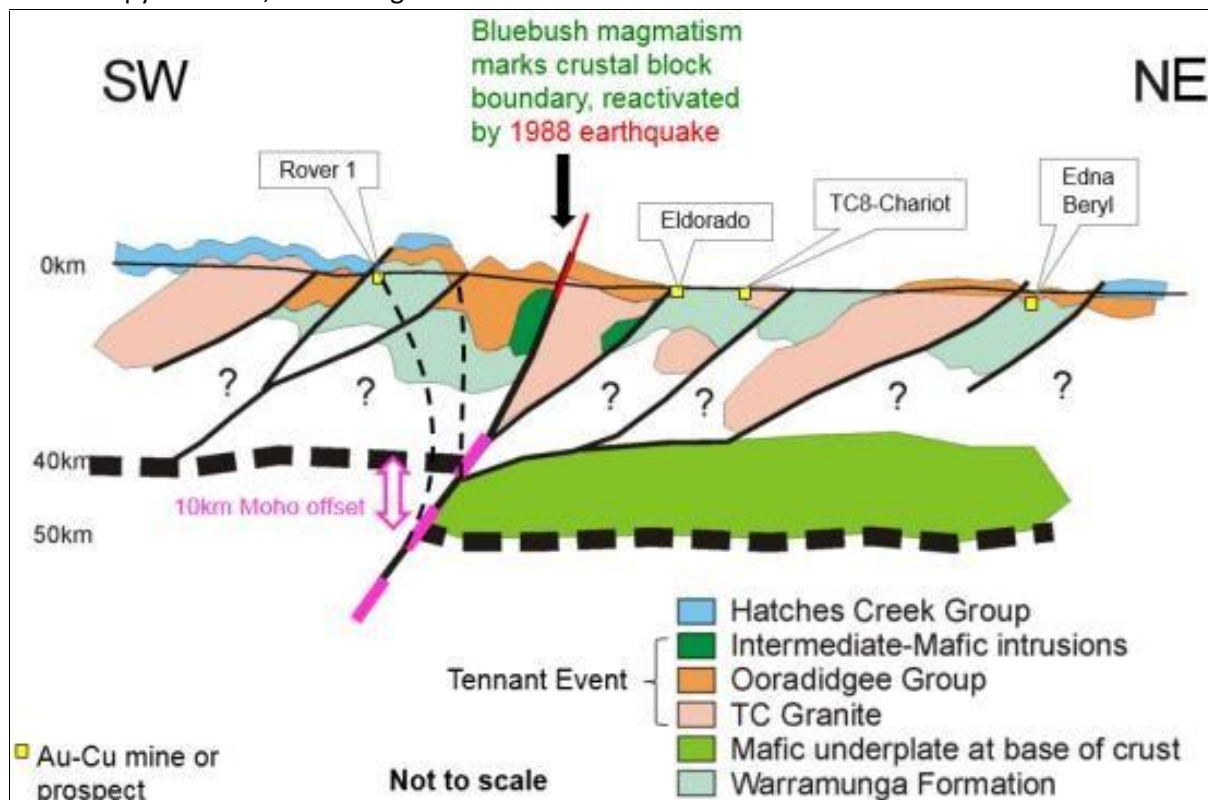


Figure 3: Diagrammatic section from Rover to the TCMF showing the relationship of the various crustal elements and interpreted structures. Dashed fault traces are an alternate interpretation.

Local Geology

The Rover Field - displays a more complete stratigraphic succession than the TCMF where the dominant lithologies are the ca 1862-1854Ma Warramunga Formation turbidites cut by

felsic and lesser mafic intrusives of the ca 1854-1840Ma Tennant Creek Supersuite. Part of the Rover Field's host rocks are also interpreted to belong to the Warramunga Formation but intrusives of the Tennant Creek Supersuite are lacking voluminous volcanics and volcanoclastic sedimentary rocks of the Ooradidgee Group (ca 1845-1840Ma) overlie the Warramunga Formation. These successions are unconformably overlain by sedimentary rocks of the Paleoproterozoic Hatches Creek Group and by the Cambrian Wiso Basin sediments.

Normandy interpreted the Rover Field within an inlier of Warramunga Formation overlain by, and structurally imbricated with, younger Ooradidgee Group lithologies. It is interpreted that the "inlier" is actually a horst as shown in Figure 4.

The dominant structures within the subject tenements are upright north verging folds (450m-600m wavelength) cut by steep faults, some of which may represent rotated thrust faults. This setting is identical to that within the TCMF. Late NNW and NNE brittle faults occur locally as well as ENE faults (Figure 5). Shear links suggest there has been late sinistral movement between the major faults.

Figure 5 shows the wavelength of the folds to the north of the interpreted Warramunga Formation is larger and at a different orientation to that within the Warramunga Formation, reflecting the polyphase history of the latter. To the south of the Warramunga Formation a series of minor parasitic folds (not shown but occurring between the series of WNW-trending axial planar faults between R26 and R8) delineate a large anticlinorium developed in Ooradidgee Group ± Hatches Creek group between the Warramunga Formation and the 1840Ma Granite (Figure 4).

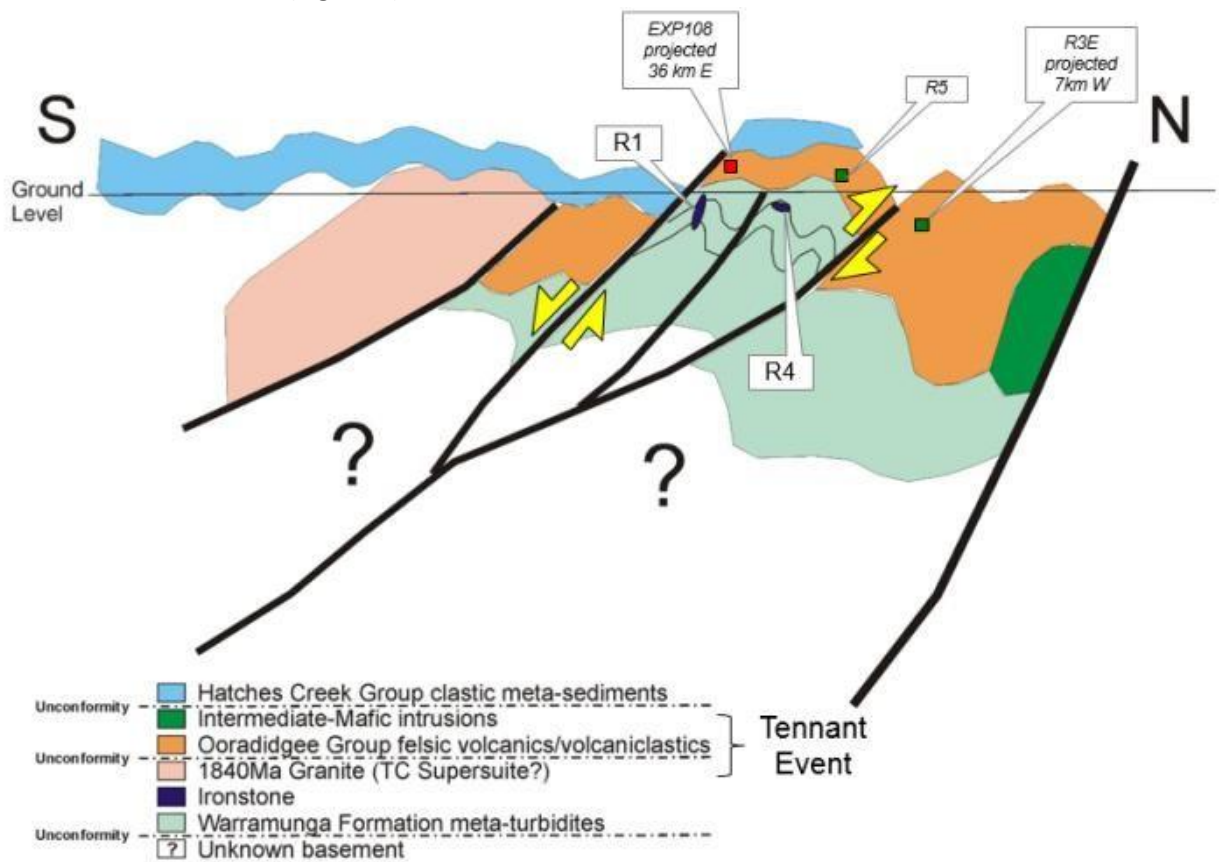


Figure 4: Diagrammatic section of the Rover area. Targets shown in italics are on adjoining WGR tenements and have been projected to show their relative stratigraphic location with respect to the ironstones in the Warramunga Formation. Thin black lines are interpreted stylized bedding traces.

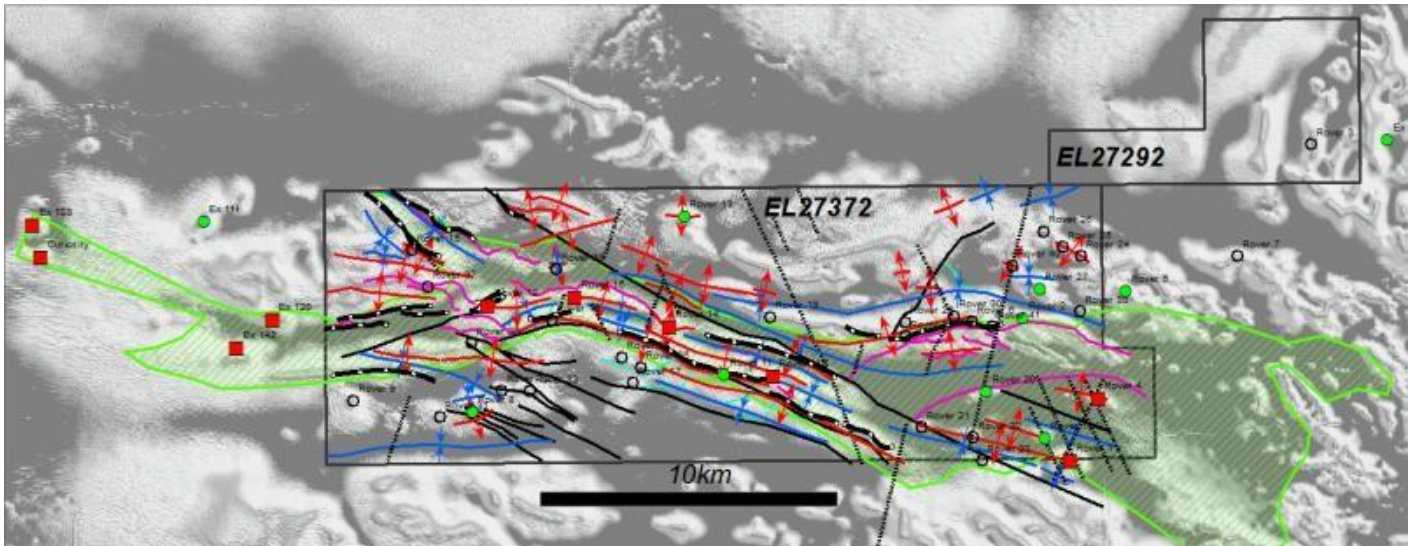


Figure 5: Background image is grey scale RTP-tilt magnetics. Hatched green area is interpreted to be underlain by the Warramunga Formation underneath the Wiso Basin cover and is smaller than that interpreted by Normandy, and the current interpretation extends the Warramunga Formation along the main WNW direction to Rover 15 and beyond. The area to the north and south of the hatched area is interpreted as Ooradidgee Group (beneath the Wiso Basin cover).

5. Previous Exploration

The Rover Field has a relatively juvenile exploration history compared with the TCMF. Rapid resource drilling by Andromeda and Westgold Resources (WGR) at the Rover 1 and 4 targets (\pm Exp108, Exp142) has resulted in exploration bias toward a select few targets, with little drilling elsewhere. Initial exploration by GeoPeko from 1971 to 1982 defined 18 targets in the Rover Field, 9 of which proved to reflect TCMF-style ironstone mineralization hosted in Warramunga Formation and 9 of which reflected disseminated magnetite in Ooradidgee Group volcanics. Within the subject tenements (EL27292 and EL27372) there are a total of 24 magnetic targets (including 15 of the historical GeoPeko Rover series targets), only 12 of which have been drill tested (Table 2), and of these, only 6 have \geq 4 diamond drill holes (DDH), the rest being one-hole tests. This contrasts strikingly with the exploration maturity of the TCMF where the majority of magnetic targets have been tested by multiple DDH. Impediments to previous exploration included:

1. Wiso Basin sediment cover thickness which increases gradually westwards from \sim 100m at Rover 4 in the East to in excess of 200m at Explorer 108 further west
2. False positive magnetic targets.

While the first impediment can be considered as an advantage for electrical geophysical prospecting as only basement is imaged without regolith interference, the aquifers within the Wiso Basin are considerable and dictate expensive exploration with diamond drilling. The second impediment relates to a high false positive rate in intersecting ironstones (typically the host to the gold and copper mineralisation) and then an even higher false positive in the ironstone being mineralised. For example, the historical exploration by GeoPeko averaged a 50% strike rate for ironstone targets, the rest representing disseminated magnetite in (Warramunga?) sedimentary rocks or Ooradidgee Group felsic volcanics, comparable with the TCMF.

Target	# Drill holes	Ironstone	Magnetic Sed/Volc
R1	67	Y	
R4	48	Y	(mostly drilled down dip)
R12	13	Y	
R11E/C	9	Y	R11W
R14	4	Y	(Peko drilled down dip)
R16	4	Y	
R2	1		Y
R8	1		Y
R13	1		Y
R20	1		?
R27	1		Y
R1N	1	Chl-Mt alteration	
12 targets	6 one hole tests	5 have >1g/t Au	

Table 2: Exploration summary of Rover Series Targets

The tenements subject to the 3D IP have been covered by detailed aeromagnetics and locally by ground gravity surveys surrounding local targets. Review of the former shows that immediately south of the main “Line of Lode” from R1-R11-R14-R15-R12-Exp142 there is a very continuous stratigraphic magnetic feature that extends for approximately 20 km from west of R1 to Exp142 (Figure 6). This feature has been drilled at R11 and represents magnetic volcanics, interpreted by Emmerson consultant geologist Grant Osbourne to belong to the Ooradidgee Group. Drilling of magnetic targets by WGR at Rover 2 and Rover 3 NE of R1 intersected similar magnetic volcanics, also with semi-continuous strike extents. It is proposed that such features can be used as proxies for stratigraphic bedding markers facilitating structural interpretation, in contrast with the TCMF where the magnetic sedimentary rocks represent an alteration and are only irregularly developed.

Deep IP has been proven to be very efficient in WGR tenements surrounding the subject tenements. There has been no IP executed on the tenements prior to this survey.

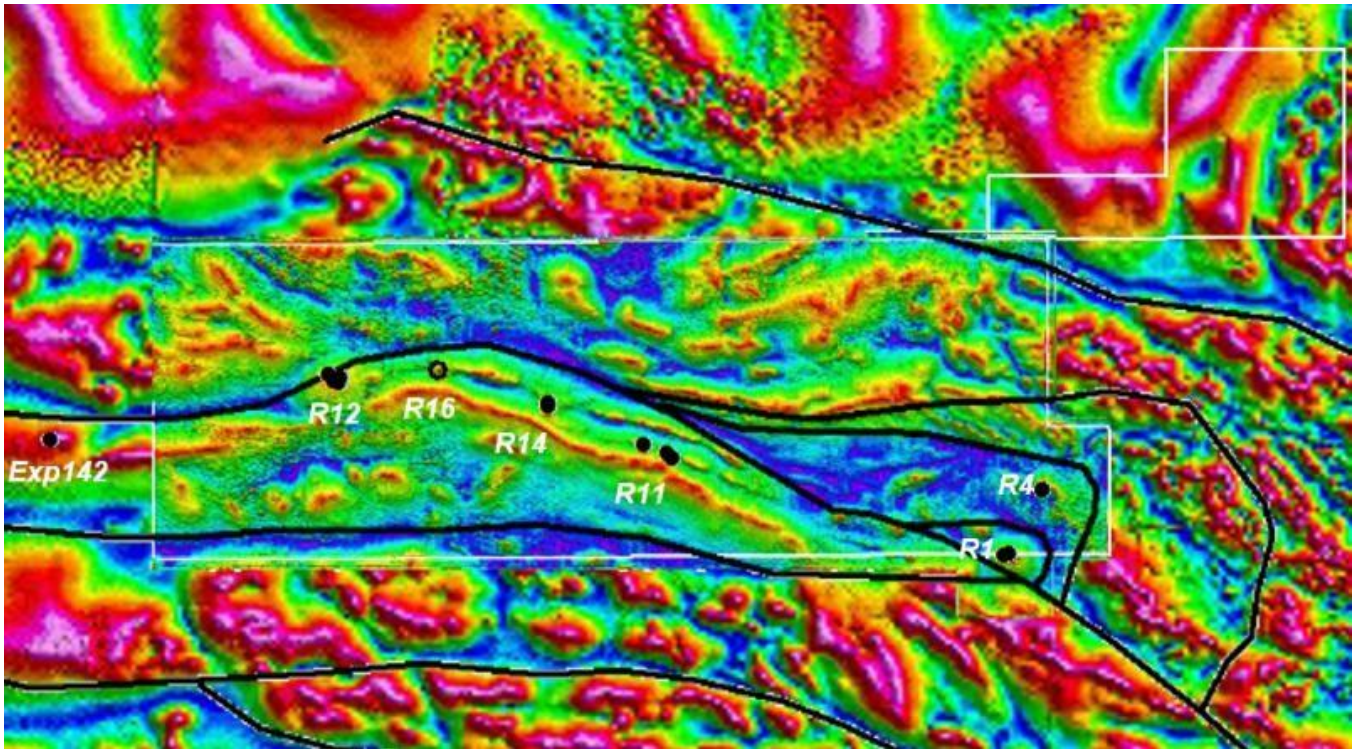


Figure 6: Tenements subject to the 3D IP Survey superimposed onto a Tilt derivative magnetic image composed of detailed data within the larger tenement overlying semi-regional data. Black lines are interpreted major north-verging thrust faults. Note the continuity of the stratigraphic magnetic bodies which will permit production of a reliable structural map.

6. Exploration Concept

Tennant Creek-style Au-Cu mineralization is spatially associated with hypogene iron oxide (magnetite-hematite) bodies located within very specific structural settings, in particular anticlinal fold closures or sheared fold hinge zones. Mineralizing fluids are interpreted to carry Au, Bi, Cu (and other trace elements Ag, Mo, Pb, Te, Se and Zn) that are deposited within deformed ironstones or immediately adjacent to these within enveloping zones of increased deformation that form due to pre- to syn-mineral strain partitioning.

Historically this style of mineralization is also known to occur in the Rover Field at the R1, R4, and Explorer 142 targets and ironstones with anomalous geochemistry having been drilled at the R11(E/C), R14, R16 and R12 targets, which are all located along 29km of strike of the same early WNW-trending thrust feature shown in Figure 7. Another 8km further West along the same feature after it bends northward lie the Explorer 108 and Curiosity Ag/Pb/Zn deposits. From east to west the spacing between the targets is 11km, 3.5km, 3.2km, 3.2km, 8.3km and 8.3km. Comparable periodicity along structures in the TCMF is 4km which may partly explain the perceived higher prospectivity at Rover.

The Au-Bi-Cu mineralization style in the Rover Field is identical to that of the TCMF with Au located on the periphery and brecciated exteriors of magnetite-hematite-jasper ironstones while Cu-Bi sulphides are also found here, as well as throughout brecciated ironstones. The ore zonation of basal Au succeeded upwards by Bi and Cu is present as documented in the TCMF, with higher gold grades preferentially located at the base of ironstone bodies and within underlying magnetite-chlorite feeder structures.

Extensive 2D Pole-Dipole IP surveying by Emmerson in the TCMF at the Gecko Camp along the Gecko Corridor reveals that these envelopes, and indeed the sulphide-bearing ironstones can be readily detected, and this technique together with HeliTEM led to the discovery of the Goanna deposit in 2012, in a previously undrilled area. The Gecko area outcrops with weathering extending until c150m below surface, and the IP anomalies were present until c350m depth.

WGR have also successfully used 2D IP surveying in the Rover Field even under c200m of Wiso Basin cover, attributing the discovery of the Curiosity Prospect (c473m down hole) through the use of high powered IP.

To be economic under these depths of Wiso Basin cover the mineralization needs to have high gold grades and experience within the TCMF shows such systems are typically sulphide-bearing.

The host ironstones to Tennant Creek-style mineralization are commonly tabular or even cigar-shaped however the Au-Cu mineralization typically is not evenly distributed throughout the ironstone, often favouring stress shadows developed at the apices, or flanks of the ironstones. While the 2D IP at the Gecko camp successfully defined the sulphide bearing corridor it was unable to provide any definition along the zone, since this technique cannot be projected laterally. Thus grid drilling by Emmerson assisted in better defining the Goanna mineralisation (within the Gecko corridor) – something that would be cost prohibitive in the Rover Field.

3D IP provided the potential to be able to define the 3D geometry of the target zones thus ensuring that drilling is optimally designed for success. In addition 3D IP represents a cost effective way of screening known Au-Bi-Cu anomalous magnetic ironstones in suitable structural settings for the presence of sulphides enabling effective drill testing

The R4 ironstone is shallow with depth to top varying from 127m at the west to 245m BGL at the east, and its sub-horizontal attitude is reminiscent of the West Gibbet ironstone in the TCMF, albeit with greater strike length. It is interpreted that the ironstone has replaced a permeable unit (sedimentary breccia) within a fold closure (cf. Gecko K44). Gold grades are controlled by the axial planar cleavage which dips steeply SW (69°/206°) similar to the Au ore at R1 (and as indicated by historical forward magnetic models) but the majority of drilling of the ironstone has been from North to South down dip of the cleavage targeting the largely barren ironstone.

3D IP has already been employed with great success at the Rockface deposit at the Jervois deposit east of Alice Springs. The survey contractor, QUANTEC Geoscience, has also successfully employed 3D IP at the Blackthorn Resources' Kitumba IOCG-type copper deposit located in Zambia's Central Province, approximately 200 km west of Lusaka. This deposit is associated with a massive hematite replacement breccia system and intrusive granitic rocks, which is a very similar lithological setting to the Tennant Creek and Rover fields. The survey significantly improved the understanding of the geology and the complex 3D structure of the property, and allowed exploration drilling to proceed in the most efficient and prospective manner.

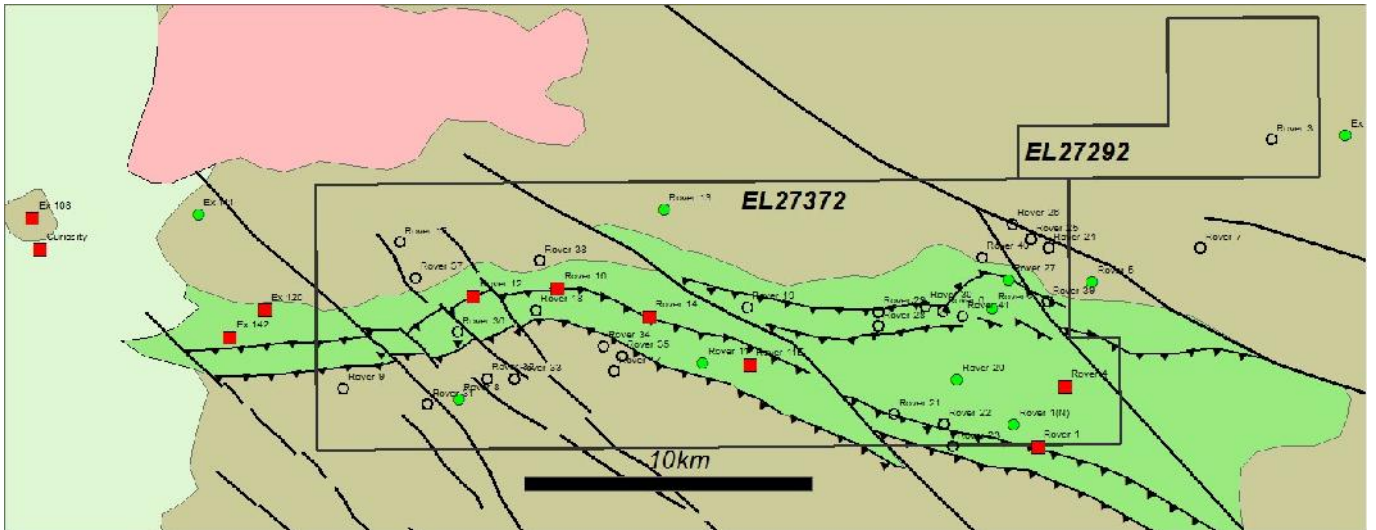


Figure 7: Location of the 2 ADN Rover tenements superimposed on Normandy 2001 geological interpretation (Clifford, 2001). Interpreted Warramunga Formation is coloured green, with Ooradidgee Group in beige, granite in pink and Wiso Basin in pale blue. Principal ironstone-hosted Cu-Au and Ag-Pb-Zn targets are shown as red squares, drilled targets without ironstone are shown as green dots and hollow dots represent undrilled targets. It should be noted that the Wiso Basin sedimentary rocks actually cover the entire area, the light blue area simply representing the approximate location where this cover is deeper than 200m.

7. Details of the Collaborative Program

Data Collection and Processing

Layout

The three prospects were surveyed with identical layouts. The transmitter (Tx) line was run through the central receiver (Rx) line and extended 950m north and south beyond the Rx points. Tx stations were collected at 100m intervals beyond the Rx points, and at 50m spacing at the midpoint between the Rx points. Rx points were at 50m spacing on the centre line and at 100m spacing for the flanking lines. The remote Tx used for the MT were placed ~3km orthogonally from the closest line, and the remote Rx was located near the dogbox, approximately at the centre of each layout. All potential dipoles were laid out and active for every Tx station so that readings could be taken synchronously across all dipoles. The survey layout is shown in Figure 8. The specifications for the IP and MT are shown in Table 3 and Table 4 respectively.

<i>I.P. Specifications</i>	
Receiver (Rx)	M.I.M. Distributed Acquisition System
Configuration	Pole-Dipole
Transmitter (Tx)	Zonge GGT-10
A-spacing	50 – 100m
Tx Frequency	25/256 Hz
Rx Sampling	400 samples per second
IP decay window	1.5 – 2.5 seconds

Table 3. IP survey specifications

MT Specifications	
Receiver	M.I.M. Distributed Acquisition System
Sampling Frequencies	100 & 1600 samples per second
Useable MT Frequency Range	0.5859 – 150 Hz
Dipole-length	50 - 100m
Array	MT E-Map

Table 4. MT survey specifications

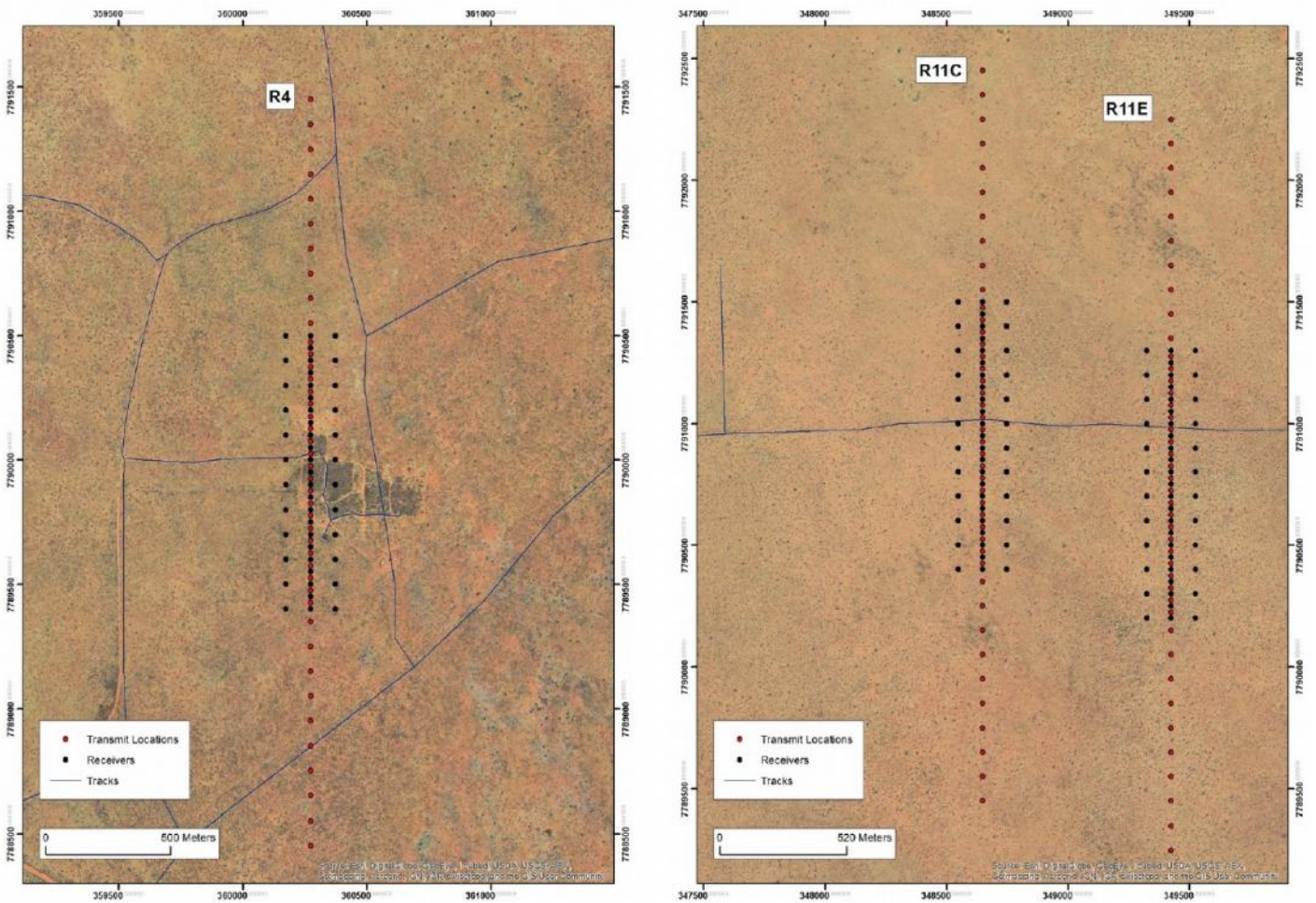


Figure 8. Field layout for the three prospects.

Data Processing

Data were processed by GRS using their proprietary ‘Dirt-Burglar’ software.

MT

A classical MT processing approach was taken with slight modification; combining longer fast Fourier transform (FFT) lengths and Finite Impulse Response (FIR) filtering of the spectral ensembles to attenuate cultural noise and maximise the signal to noise ratio.

IP

IP data was processed and stacked, analysed and filtered in the Fourier domain, before returning to the time domain for parameter estimation.

QAQC

MT

For each dipole, recorded and 1D inverted apparent resistivity and phase were plotted against frequency. Results indicated clean impedance estimates between 1.17 and 200Hz. Cross-referencing with the remote Rx data reduced error estimates. At the lower end of the band, data quality decreases, due to fewer long wavelength telluric events that can be stacked. One such analysis is shown in Figure 9.

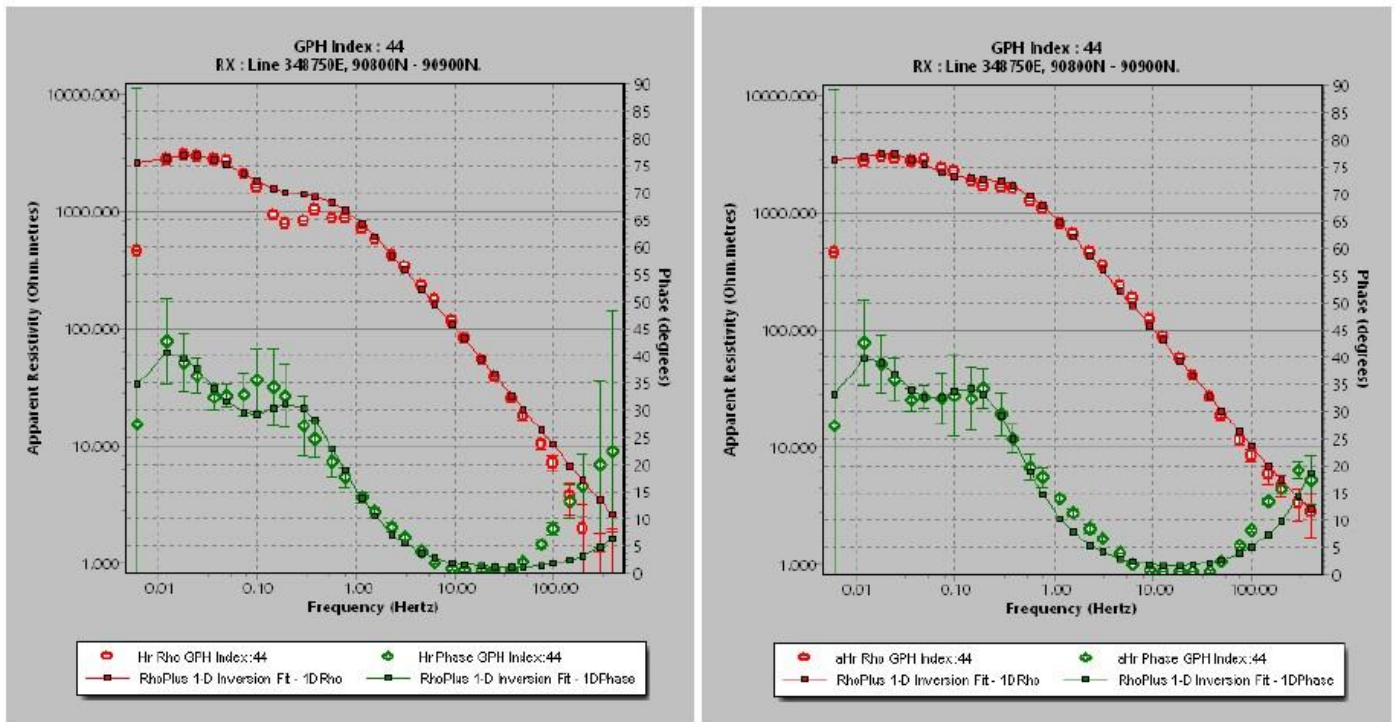


Figure 9. MT impedance curves. Left: No cross reference with remote Rx. Right: Cross referenced with remote Rx data.

IP

Data quality was evaluated by plotting current received against time. Signal quality was deemed good, apart from a slight drop in signal over R11C. Currents received ranged from 0.9-3.8A. An example time series plot is shown in Figure 10.

Modelling

MT inversions

2D MT data were inverted using MARE2DEM software. In order to prevent overfitting the data, a minimum floor error of 3.5% of apparent resistivity and 1 degree of phase was added to the standard deviation between the stacked ensemble results. The maximum number of iterations was set at 99.

IP

2D Resistivity and IP inversions

Resistivity and IP data were inverted in 2D using the UBC 2D code. Default parameters were used in all cases, except the chi factor parameter for IP convergence was specified between 0.15 and 0.4 creating 'tighter' models that more closely honour the data, and the geometry factor was set to favour vertical geometries. The results had a very close fit to the data, more than would normally be sought in a typical investigation. Pushing the inversion to this level was required to allow for coherent basement sources to materialise.

3D Resistivity and IP inversions

Resistivity and IP data were also inverted using the UBC 3D code. Poor quality data, identified by inspection of time series data, were removed from the dataset prior to inversion. Due to large data redundancy, the removal of these data was deemed inconsequential to the final output. Default parameters were used for the inversion, aside from the geometry parameters that specified a horizontal cover sequence and vertical geometries beneath. A two-layer model was specified as the reference model (rather than a constant halfspace). Similarly to the 2D results, the results had a very close fit to the data, more than would normally be sought in a typical investigation. Pushing the inversion to this level was required to allow for coherent basement sources to materialise.

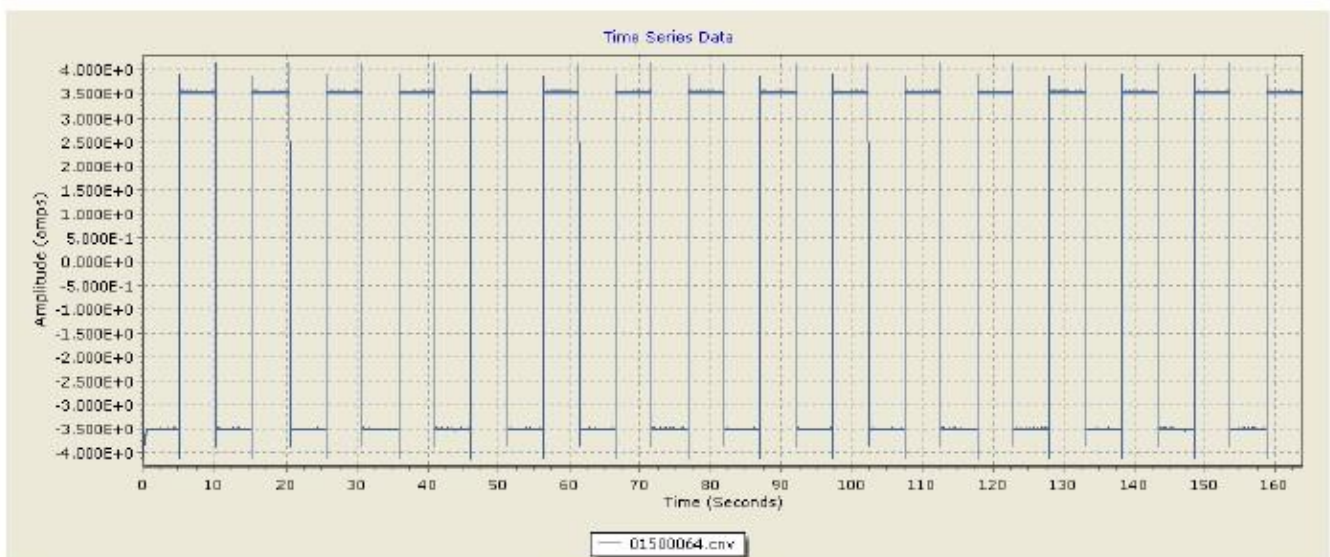


Figure 10. Example time series data at R11E.

8. Results and Interpretation

Results for the survey are shown in Figure 11 to Figure 14. R4 has significantly more drilling control (44 holes) compared with R11E (4 holes) and R11C (1 hole), and provides the best opportunity to make correlations between geophysical responses and the underlying geology.

For all three prospects, minimal variation is observed in the MT and resistivity sections, but all do show a conductive overburden overlying a resistive basement. At R4, there is a good correlation between resistivities below $\sim 30\Omega\cdot\text{m}$ and the depth of cover as indicated by logging in drill holes (Figure 15). This observation holds for R11E and R11C. Unfortunately, below the conductive overburden, there is minimal variation in the basement resistivity, precluding the identification of prospective structures.

Chargeability responds most strongly to disseminated sulphide mineralisation through electrode polarisation. In the 2D inversions, chargeability values observed through the survey are generally low, with maximum values of 20mV/V in the cover sequence, and less than 10mV/V in the basement. Minor chargeability anomalism is observed at R11C, predominantly in interpreted cover (Figure 12). Broad chargeability haloes are observed at R4 and R11E, potentially associated with the presence of disseminated pyrite, or more likely responding to increased clay content in the alteration halo of the ironstone. These broad signatures dominate the response and potentially mask the copper mineralisation seen in drilling below the chargeability anomaly at R4 (Figure 17). The lack of correlation between the chargeability and the known sulphide mineralisation and the broad nature of the response indicates the technique is of limited use in targeting this style of mineralisation at these depths.

The 3D inversions only resolve chargeability anomalies in the top 100m from the surface, which is known from the drilling and 2D IP inversions to be the cover material.

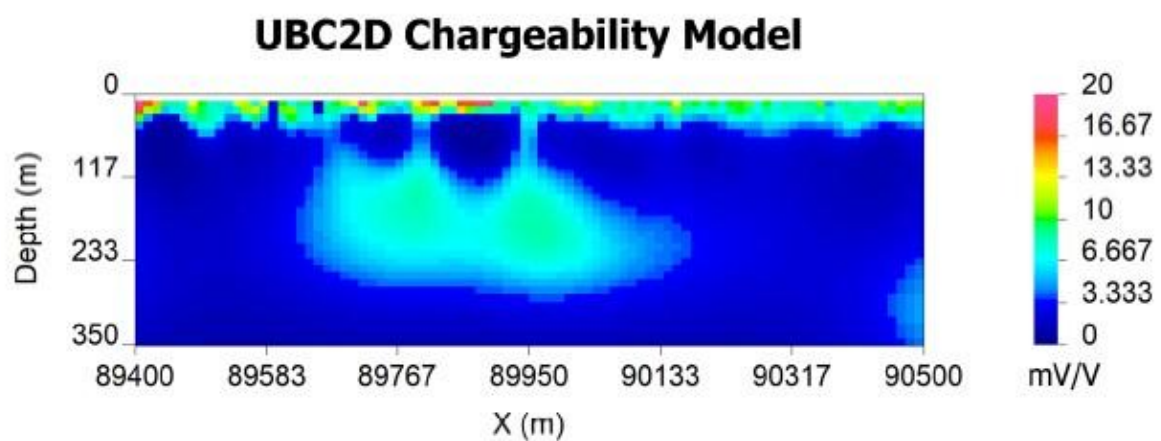
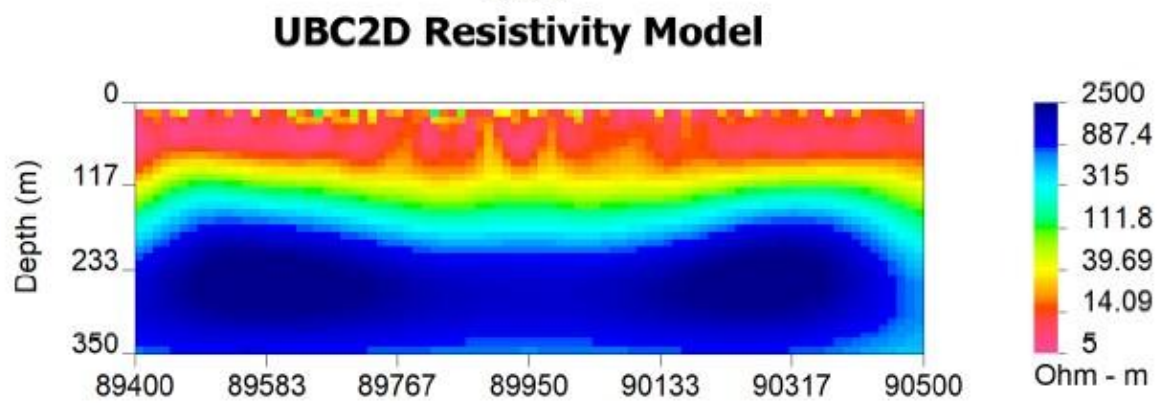
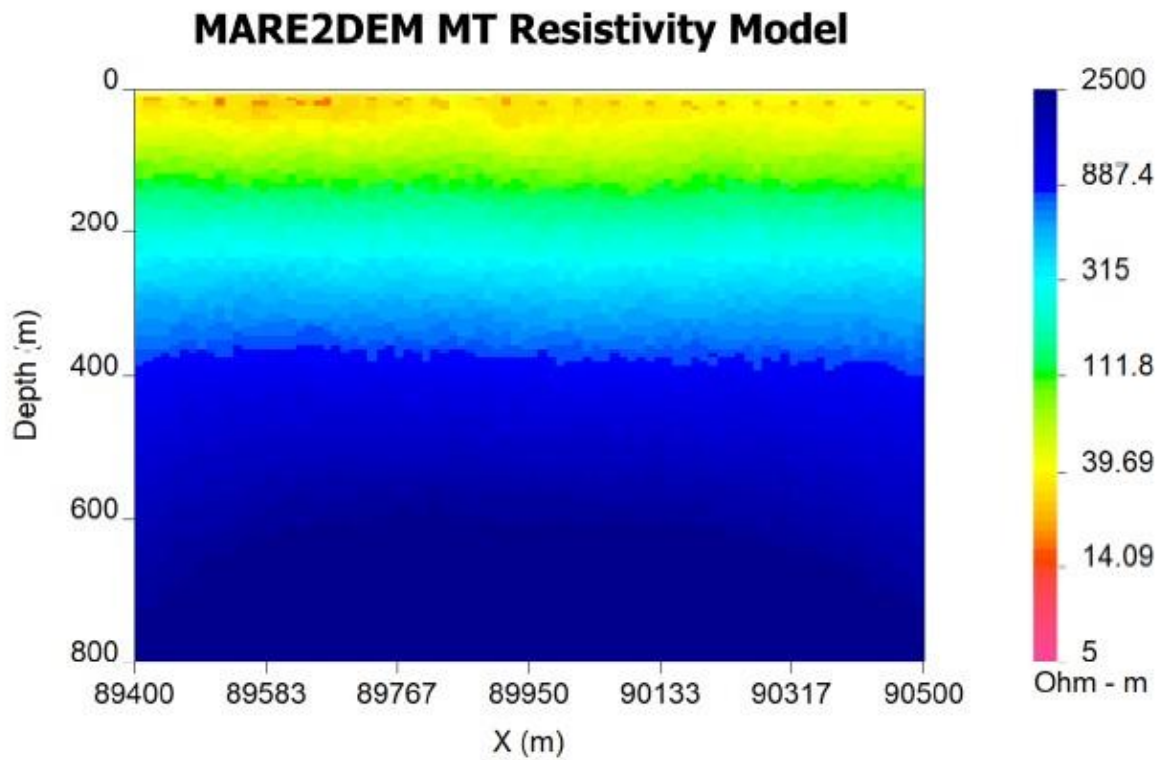


Figure 11. Rover 4 - inversion results. Line easting 360275E. Add 770000 to northings shown on the x-axis.

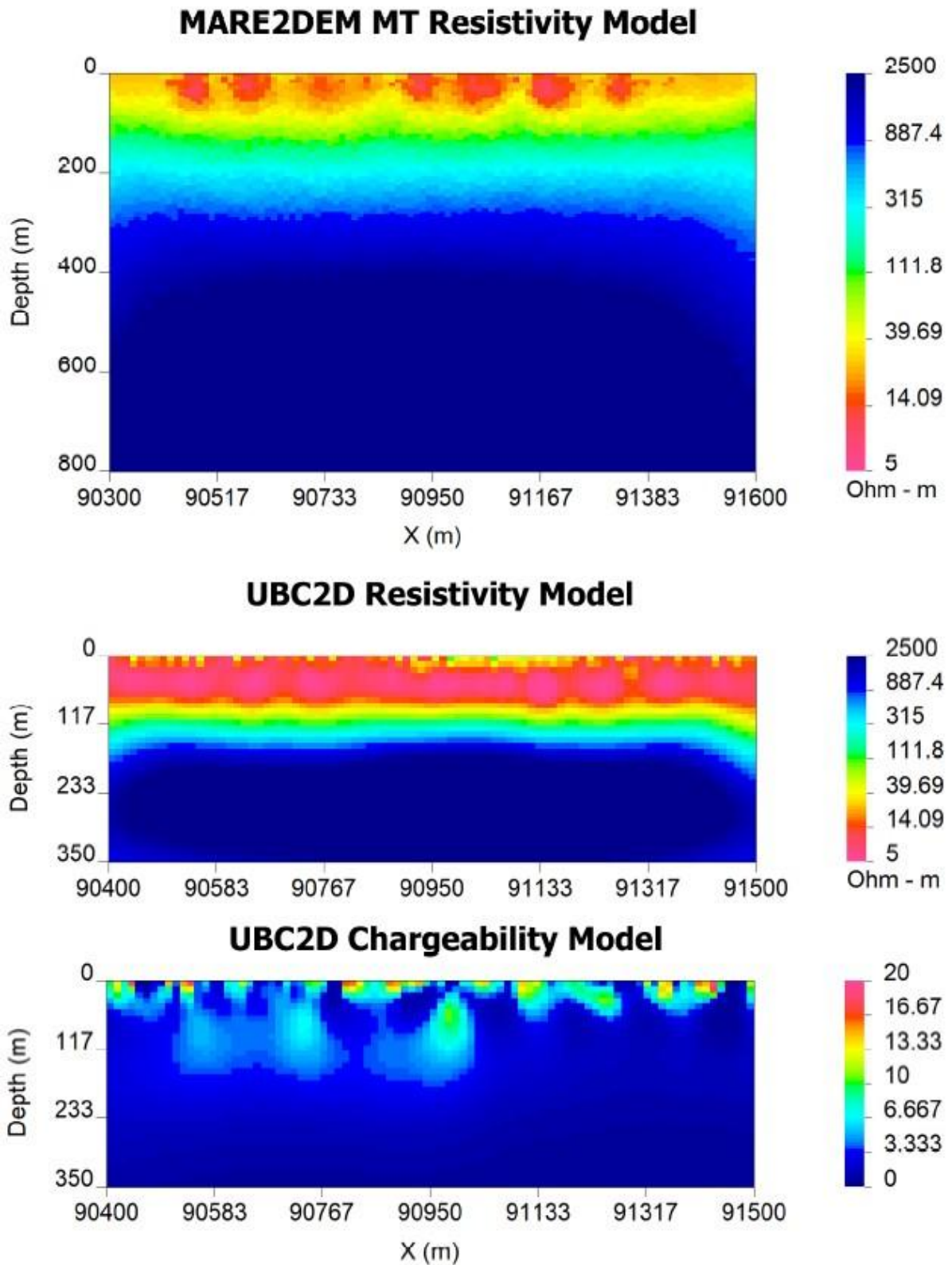


Figure 12. Rover 11C - inversion results. Line easting 348650E. Add 770000 to northings shown on the x-axis.

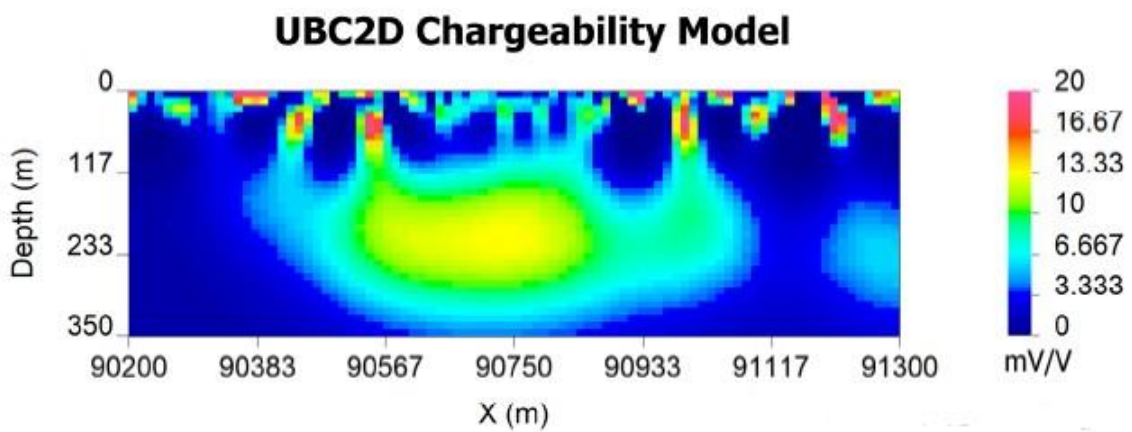
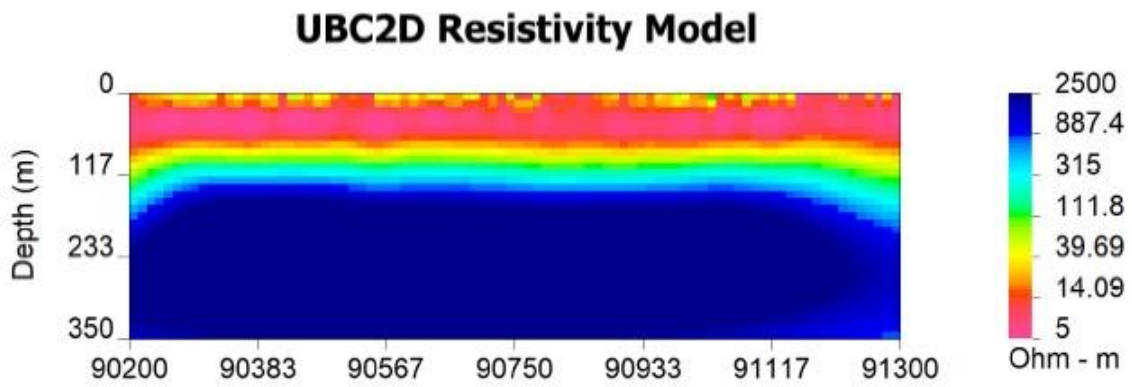
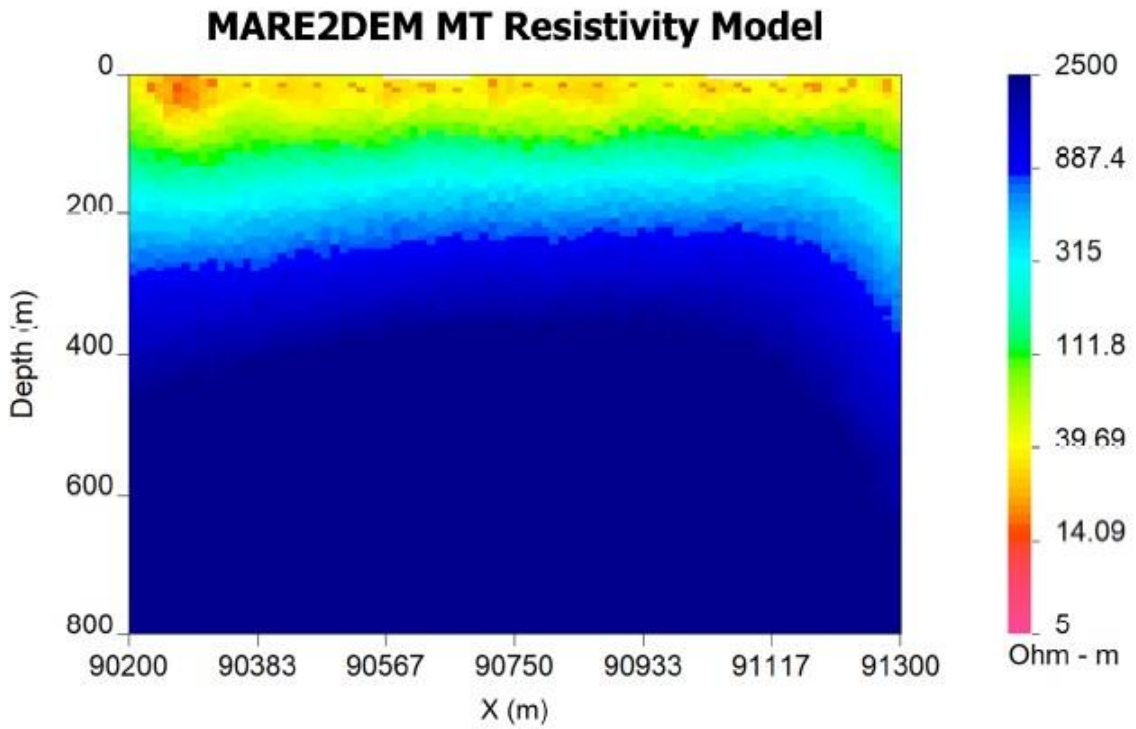


Figure 13. Rover 11E - inversion results. Line easting 349325E. Add 770000 to northings shown on the x-axis.

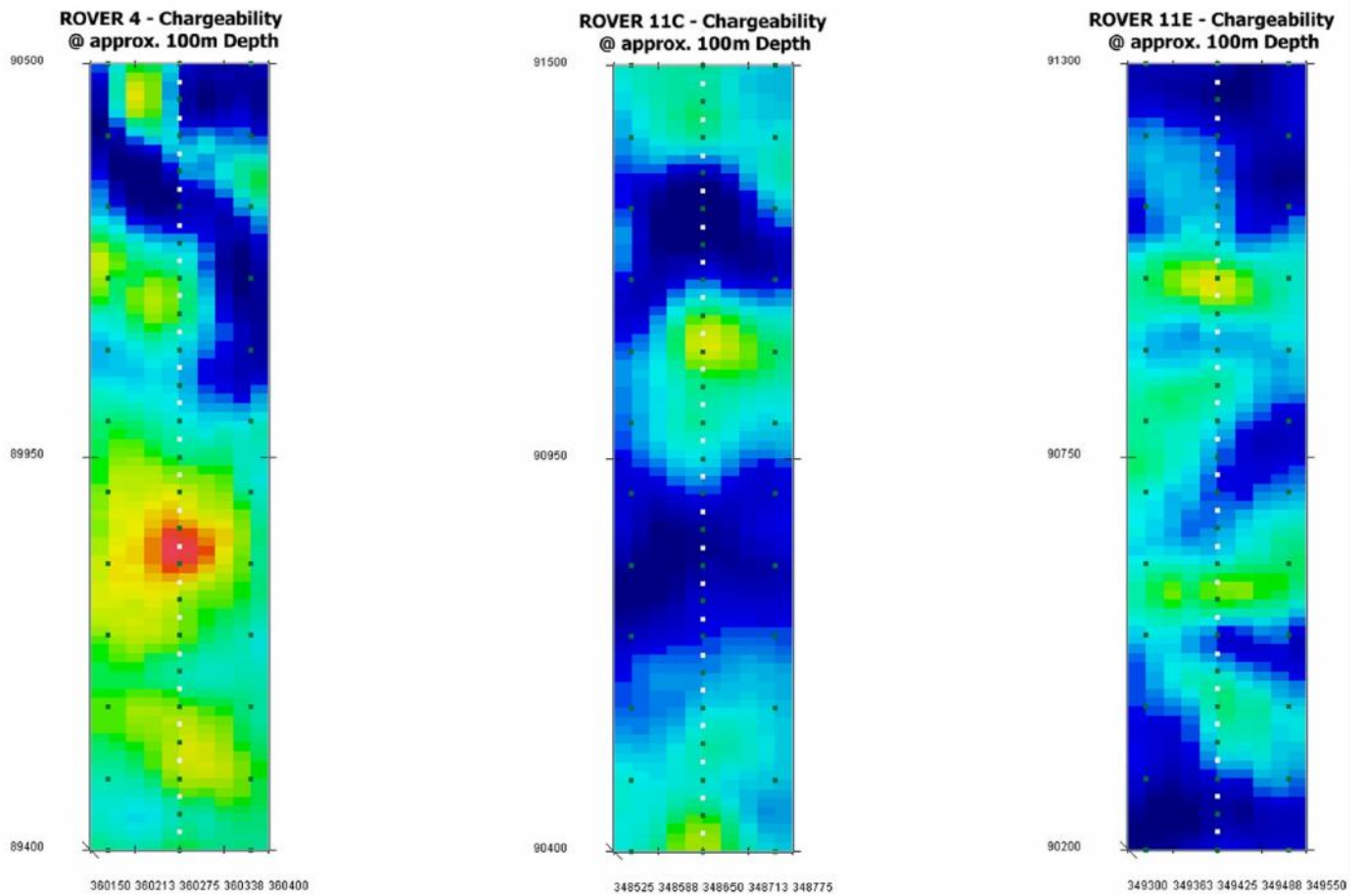


Figure 14. 3D IP chargeability slices - ~100m depth.

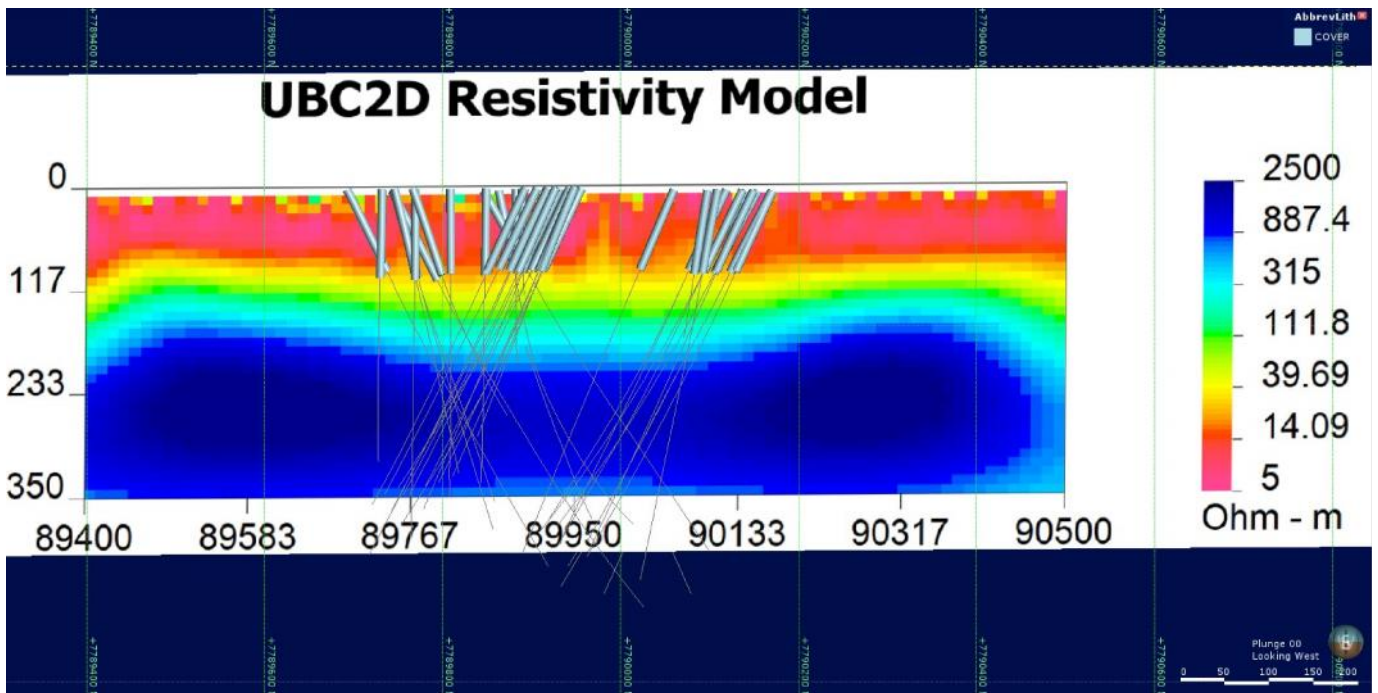


Figure 15. Rover 4 resistivity model with logged cover in drilling (blue tubes). Cover depth corresponds well with resistivities below $\sim 30\Omega\cdot\text{m}$.

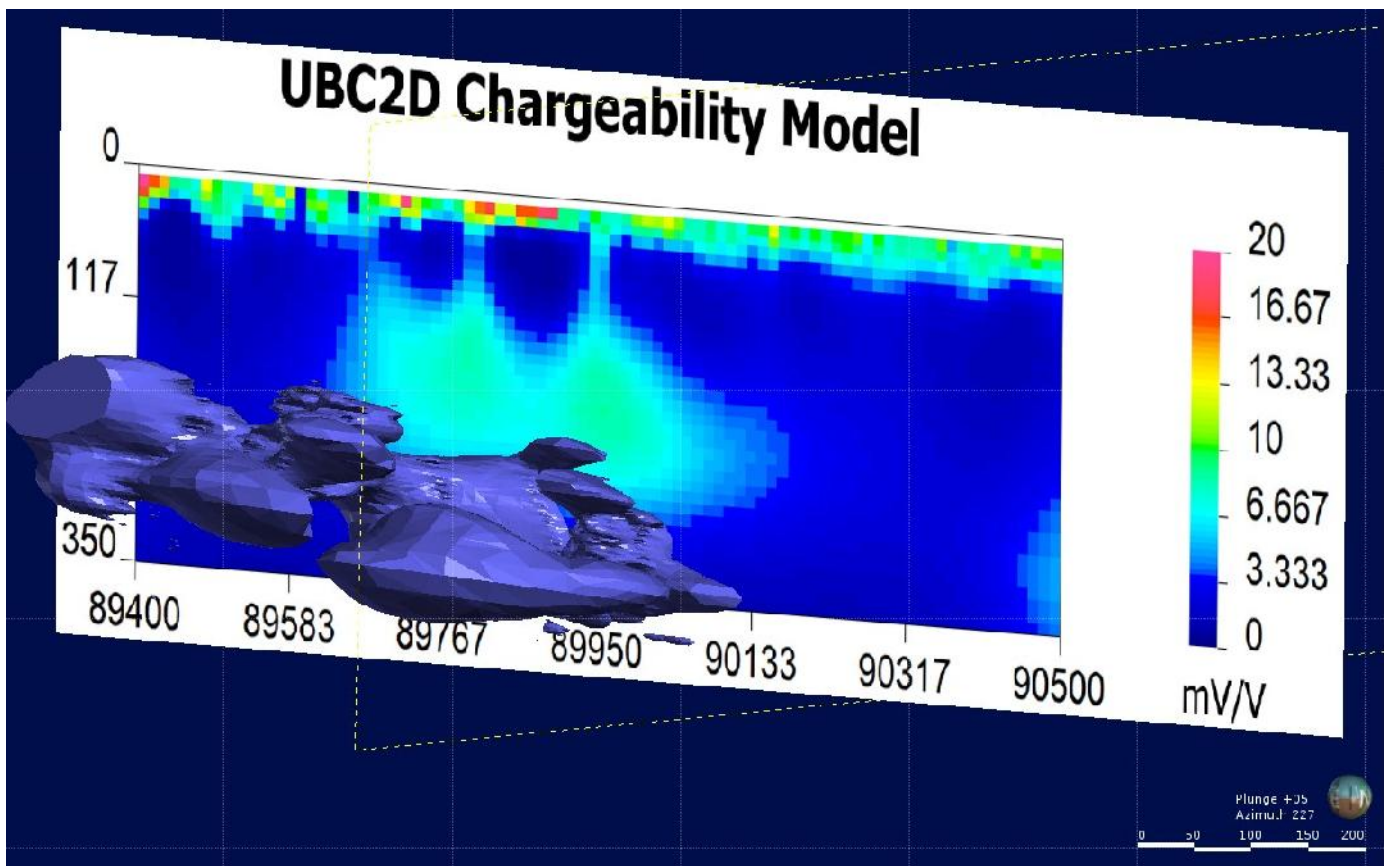


Figure 16. Oblique view of R4 chargeability model with ironstone modelled by drilling.

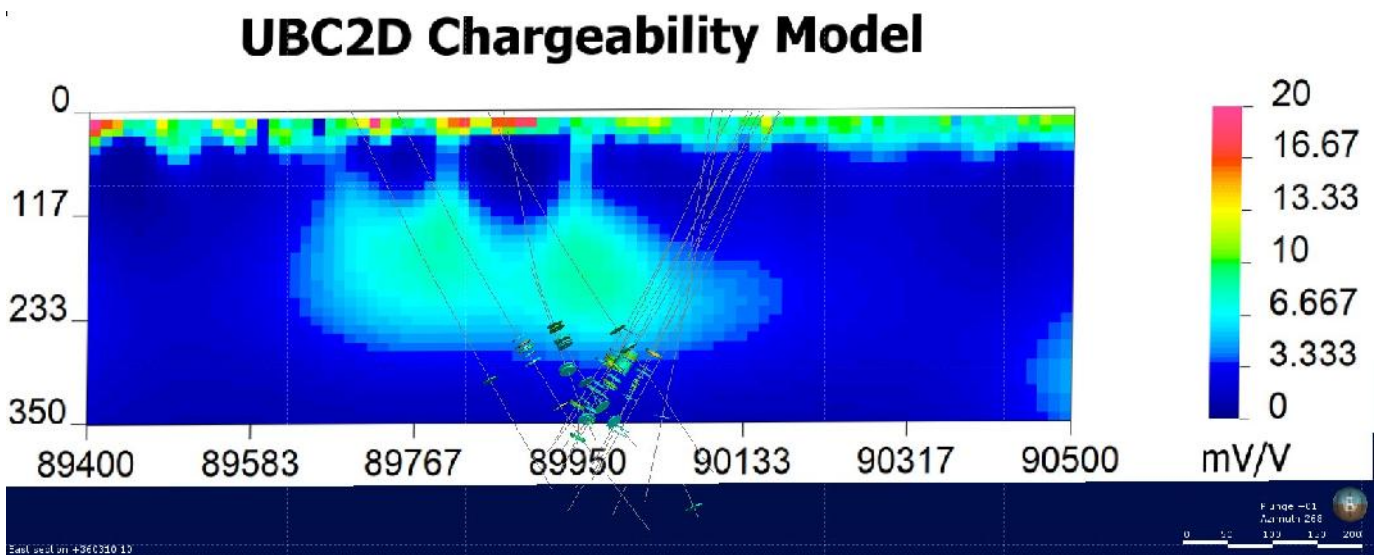


Figure 17. R4 chargeability model and Cu intercepts greater than 2500ppm.

9. Conclusion

Given the broad nature of the chargeability anomalies and the lack of detail in the MT and resistivity images below the conductive overburden, the technique does not appear to adequately assist in vectoring towards ironstone related mineralisation in the Rover field.

Considering these results the survey was terminated on the conclusion that the technique will not generate targets with a high enough probability of success to warrant additional work, and further spending would be wasted.

10. References

- Burke R. 2013. Target Generation 2013. Target Generation 2013: Rover Field, NT. Unpublished internal MS PowerPoint Presentation to MetalsX Resources Limited. 57 slides.
- Clifford B. 2001. Information Memorandum. The Babylon Field. Tennant Creek District, Northern Territory. Unpublished Normandy Exploration Internal Report. 39p 7 Appendices.
- Donnellan N. 2013. Warramunga Province: in Ahmad M and Munson TJ (compilers) 'Geology and mineral resources of the Northern Territory.' Northern Territory Geological Survey Special Volume 5, pp9:1–9:61.
- Drown C, 2015. Rover Gold Copper Project. Unpublished MS PowerPoint Presentation available on ADN website. July 2015.
- ENCOM 2008. Confidential geological interpretation completed for Westgold Resources Limited.
- Johnstone A and Donnellan N, 2001. Tennant Creek integrated interpretation of geophysics and mapped geology (First Edition). Northern Territory Geological Survey, Alice Springs.
- Maidment D, Huston DL, Donnellan N, and Lambeck A, 2013. Constraints on the timing of the Tennant Event and associated Au–Cu–Bi mineralisation in the Tennant Region, Northern Territory: Precambrian Research, v237, pp51-63.
- MLX, 2015. Stunning Drill Results From Rover 1. MetalsX limited ASX release dated 9 January 2015.
- Osborne G, 2015. Review of AND Rover Project. Consultant for Emerson Resources Ltd, Perth. August 2015.
- Page T, 2010. Tennant Creek Bluebush 'Iron Oxide Copper Gold Exploration in Covered Terrain' (EL 24966) - Final Report to NTGS by Territory Uranium Company Ltd. Geophysics and Drilling Collaborations Round 2 Results – Drilling. "Bringing Forward Discovery". 18p.

Rankin LR, 2006. Structural Setting of the Rover Field and Tennant Creek East Tenements, Tennant Creek Inlier, NT. Geointerp Confidential Report 2006/7 for Navarre Resources P/L. May 2006.

Rowston P, 2017. 3D MIMDAS Survey Rover Prospect, Australia, Acquisition & Modelling Report, QLD. Geophysical Resources & Services Pty Ltd for Emmerson Resources Ltd. July 2017.

Sippl C. 2016. Moho geometry along a north–south passive seismic transect through Central Australia. *Tectonophysics* v676, pp56–69.

Smith J, 2000. NTGS-AGSO geochronology project, report 2. Australian Geological Survey Organisation, Professional Opinion 2000/15.

Webb R. 2009. The Rover 1 Gold-Copper Deposit, Northern Territory, Australia. Unpublished internal report to Westgold Resources Limited.