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PACE DPY9-42 Mt. Woods

**ASSESSING THE POTENTIAL FOR
ISCG-STYLE Cu-Au MINERALISATION
WITHIN THE MT. WOODS INLIER**

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ABSTRACT

Exploration for **Iron Oxide Copper Gold** mineralisation on the eastern Gawler Craton since the discovery of Olympic Dam in 1975 has targeted positive gravity and magnetic anomalies due to the high abundance of associated haematite and/or magnetite. Cu-Au mineralisation within the Cloncurry district of the Mt. Isa Inlier (Queensland), though broadly classified as IOCG, actually comprises a suite of mineralising styles, ranging from classic magnetite-rich breccia through to a sulphide-rich vein system which contains minimal or no Fe oxides. It was postulated that the sulphide rich end-member ISCG style mineralisation (**Iron Sulphide Copper Gold**) should also occur within the eastern Gawler Craton, but has eluded discovery as they are unlikely to present as gravity anomalies because of the lack of hematite breccia and commonly aren't directly associated with strong magnetite alteration. Different exploration methodologies are required when searching for massive sulphides (especially pyrrhotite) that are typically electrically very conductive and thus detectable by EM surveying.

Following a comprehensive review of Cloncurry mineralisation styles and a complimentary review of key indicators in the Mt. Woods Inlier (from the OZ Minerals database), a number of potential sites were selected for further work, including ground geophysics and proof of concept drill testing. An initial phase of ground EM surveying within the Mt. Woods Inlier delineated strong basement conductors at two prospects (Jupiter and Taurus) which were then drill tested (5 holes, total 1867.4m).

Significantly, Cu-bearing, sulphide-rich lithologies were intersected at both prospects and the style and nature of mineralised sulphide-rich vein and breccia intersected in the drill holes indicate FeS-rich hydrothermal fluid flow and validate the hypothesis that ISCG- style mineralisation should occur on the Gawler Craton.

At the Jupiter Prospect, a pyrrhotite-matrix breccia contains a network of massive pyrrhotite, chalcopyrite and graphite and returned 15m @ 0.21% Cu from 235m. At the Taurus Prospect, basement EM conductors predominantly reflect thick graphitic schist, but also present and contributing to the ground response at Bellatrix (DD16TUR016) are pyrrhotite + chalcopyrite veins and breccia. These mineralised veins are rich in pyrrhotite and chalcopyrite, and lack other mineral constituents including quartz, calcite and iron oxides. Best intersections in DD16TUR016 were:

- 9 m @ 0.41% Cu from 242m, including 1 m @ 1.67% Cu from 246 m,
- 3.6 m @ 0.44% Cu from 366.4m, including 1 m @ 1.15% Cu from 367m,
- 1.7 m @ 1.89% Cu and 0.29 g/t Au from 377.5m,
- 4.2 m @ 0.3% Cu from 386m.

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1 INTRODUCTION

Past exploration for Mesoproterozoic Cu-Au mineralisation in the Mt. Woods Inlier and elsewhere in the eastern Gawler Craton has focused on classic IOCG-style mineralisation through the use of gravity and magnetic surveys targeting very high abundance of Fe oxides (magnetite and haematite) associated with the Cu-bearing hydrothermal fluids. This has resulted in discoveries at Prominent Hill and Cairn Hill along with hydrothermal haematite at Peculiar Knob, but the discovery success rate for new IOCG-style deposits has declined as most of the higher amplitude magnetic and gravity anomalies have been drill tested.

Cu-Au mineralisation within the Cloncurry district of the Mt. Isa Inlier, though broadly classified as IOCG (Iron **O**xide **C**opper **G**old), actually comprises a suite of mineralising styles, ranging from classic magnetite-rich breccias (Ernest Henry Mine) to sulphide-rich vein systems which contain minimal or no Fe oxides (e.g. Eloise Mine, Kulthor, Artemis Prospect). It is reasonable to assume that this ISCG style mineralisation (Iron **S**ulphide **C**opper **G**old) might also occur within the eastern Gawler Craton, but has remained undiscovered to date as completely different exploration methodologies are required to aid in their discovery. Lithologies very rich in sulphides are electrically conductive and hence amenable to discovery by EM surveying in comparison to the magnetic and density characteristics of haematite and magnetite when exploring for IOCG style mineralisation.

In late 2015, Minotaur Exploration and OZ Minerals formed an exploration alliance over 6 tenements held by OZ Minerals within the Mt. Woods Inlier and, after a comprehensive review of the pre-existing geological, geophysical and drilling data, various targets were perceived to have potential for ISCG-style mineralisation. Reconnaissance ground EM surveys at the Andromeda, Blue Wing, Epsilon, Joes Dam South and Mercury prospects were unsuccessful, but strong basement conductors were delineated and drill tested at the Taurus and Jupiter Prospects. Subsequent drilling cumulated in 3 holes for a total of 1192m at Taurus and another 2 holes for a total of 676m at Jupiter, all on EL5210 and partially funded under PACE Drilling Project DPY 9-42.

2 REGIONAL EXPLORATION MODEL

The Cloncurry District in the eastern Mt. Isa Inlier (Queensland) is a region renowned for its IOCG-style copper gold deposits (e.g. Hitzman et al., 1992; Williams and Pollard, 2001; Groves et al., 2010). These include the world-class Ernest Henry Mine and several deposits

along the Mt. Dore structural corridor (Mt. Elliott/SWAN & Starra), including the Merlin Mo-Re Deposit. Most show a strong structural control associated with the waning stages of the Isan Orogeny and spatial association with felsic plutonism of the ~1550–1500 Ma Williams – Naraku Batholith (Mark et al., 2000, 2006; Oliver et al., 2004; Williams et al., 2005; Marshall and Oliver, 2008; Babo et al., 2017) (Figures 1–2). Most are surrounded by alteration haloes, including albite, Na-Ca alteration and proximal K-Fe alteration synchronous with the Cu-Au mineralisation. Due to the level of erosion, no ~1550-1500 Ma volcanics or volcanic sediments – an age considered to be broadly synchronous with IOCG mineralization elsewhere in Australia – are preserved in the present day Mt. Isa succession.

Of the deposits in the Cloncurry District, the Cu-Au mineralised, magnetite-rich breccia at Ernest Henry Mine best fits the classic IOCG model. However, a spectrum of mineralisation styles is evident through to sulphide-rich systems (e.g. Eloise Mine) where Fe is present as Fe sulphides and which lack Fe oxides (magnetite and/or haematite). Zoned mineral deposits also occur where Cu-Au mineralisation may be present both within magnetite-rich and magnetite-poor phases, the magnetite-poor parts of the system typically being rich in pyrrhotite (e.g. Osborne and Mt. Elliott Mines). Thus in the Cloncurry District, Cu-Au deposits form a suite from magnetite-dominant classic IOCG deposits, through transitional deposits where some magnetite may be present, to an end member where Fe present occurs within sulphides, predominantly pyrrhotite, chalcopyrite and pyrite, and which are better classified as ISCG-style deposits. The ISCG end member deposits appear to be typically smaller in size, but have higher copper grades (Table 1); they also generally lack deleterious elements such as U and F.

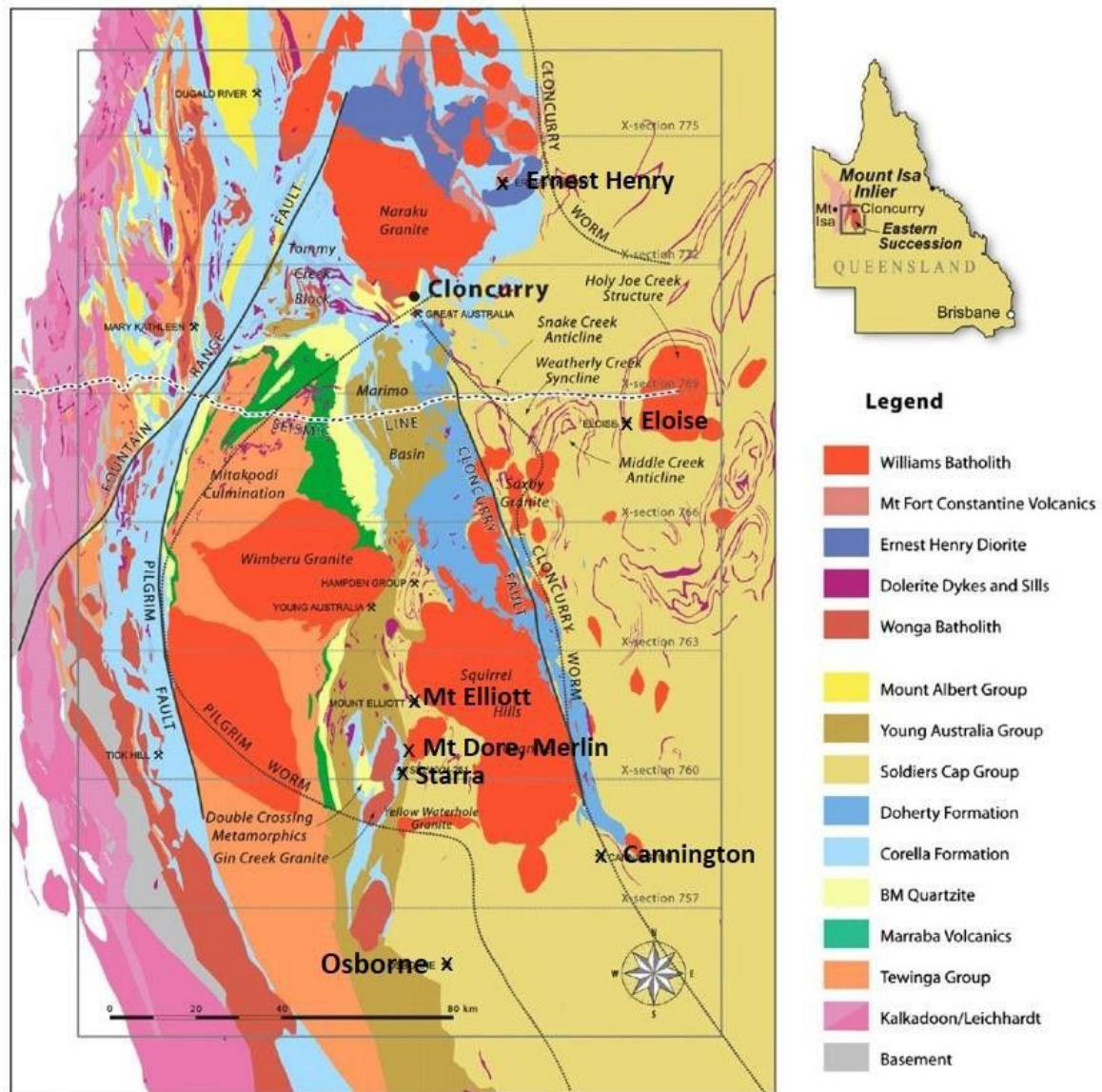


Figure 1: Major IOCG deposits in the Cloncurry district (excluding Cannington Mine), modified from Austin and Blenkinsop (2008)

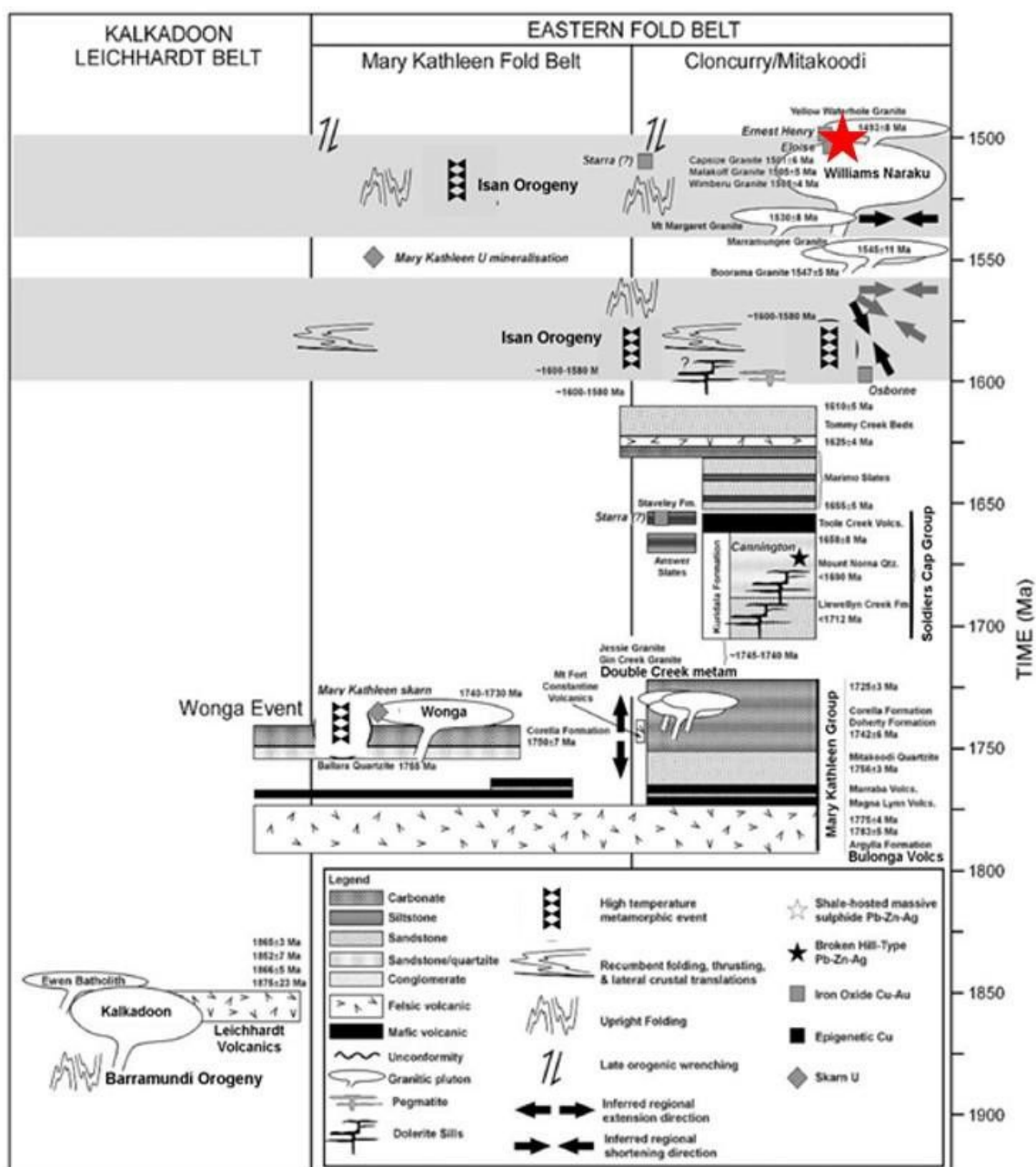


Figure 2: Summary stratigraphy and deformational history for the eastern Mt. Isa Inlier, modified from Betts and Giles (2006).

Copper Deposits	Size (Mt)	Cu %	Au g/t		Contained Cu (Mt)	Contained Au (Moz)
Ernest Henry	>230*	1.1	0.54		2.53	3.99
Mt. Elliot/SWAN	210	0.52	0.32		1.09	2.16
Mt. Elliott (only)	14.6	1.24	0.63		0.18	0.09
Mt. Dore \$	108	0.6	0.1		0.65	0.35
Osborne	22^t	2.8	1.02		0.62	0.72
Little Eva	106	0.52	0.1		0.55	0.34
Starra	37	1.2	1.6		0.44	1.9
E1 Group	52	0.77	0.23		0.4	0.38
Eloise	10^t	3.5	0.93		0.35	0.3
Rocklands	30	1	0.21		0.3	0.2
Kulthor	4.6	1.5	1		0.07	0.15
^t Estimated production * Estimated production + remaining resource \$ Not strictly either IOCG or ISCG style						

Table 1: Select Cu-Au deposits and resources within the Cloncurry district. Classic IOCG deposits (black font) whereas ISCG and transitional IOCG/ISCG deposits are in red font

IOCG-style haematite breccias on the eastern Gawler Craton occur at Olympic Dam, Prominent Hill and Carrapateena where mineralisation is intimately associated with plutonism (Hiltaba Suite) and felsic volcanism (Gawler Range Volcanics) and formed at or near the ~1590–1585 Ma palaeo-unconformity. Conceptually, a similar broad range of Cu-Au mineralisation styles, as in the Cloncurry district of the Mt. Isa Inlier, could also be present within the eastern Gawler Craton. However, past exploration activities have focused on the classic haematite- and/or magnetite-bearing IOCG style and exploration has also been hampered by the considerable thickness of Neoproterozoic cover sediments. The Mt. Woods Inlier with its shallower cover (predominantly 50–250 m) and variety of geological units and structures is an ideal area to test the exploration hypothesis that ISCG-style mineralisation occurs within the Gawler Craton.

3 REGIONAL GEOLOGY OF THE MT. WOODS INLIER

The Mt. Woods Inlier is a multiply deformed Paleoproterozoic to Mesoproterozoic orogenic belt bordering an Archaean craton (Mulgathing Complex). Its basement architecture results from four major deformational events, including the Paleoproterozoic predominantly-ductile Kimban Orogeny (~1740–1690 Ma) and Ooldean Orogeny (~1660–1630 Ma) and

Mesoproterozoic predominantly-brittle Hiltaba Event (~1600–1570 Ma) and Kararan Orogeny (~1580–1550 Ma) (e.g. Ambrose and Flint, 1981; Flint, 1993; Daly et al., 1998; Betts et al., 2003; Belperio et al., 2007; Chalmers, 2007; Jagodzinski et al., 2007; Freeman and Tomkinson, 2010; Forbes et al., 2011).

Paleoproterozoic rocks (Mt. Woods Metamorphics, Skylark Metasediments, Wallaroo Group equivalents) predominantly consist of high-grade schist, gneiss, migmatite, calcsilicate and banded iron formation, with some lower metamorphic grade limestone and pelite and a probable depositional age(s) <1750 Ma. The metamorphics have been intruded by the foliated Engenina Adamellite (crystallisation age ~1690 Ma) and possibly mafic bodies of the Peter Pan Supersuite (Figure 3).

Mesoproterozoic felsic magmatism (Hiltaba Suite), mafic magmatism (White Hills Igneous Complex), Gawler Range Volcanics and associated sediments (Prominent Hill Group) are concentrated along the southern margin of the inlier (Figure 3). Cu-Au mineralisation at Prominent Hill occurs within haematite-rich hydrothermal breccias developed within a ~1590 Ma volcano sedimentary sequence and proximal to the paleo-land surface. Late south-directed thrusts and high-angle reverse faults (Kararan Orogeny) near the southern margin of the inlier represent re-activation of earlier structures and have resulted in juxtaposition of high-grade multiply-deformed Paleoproterozoic units against undeformed Gawler Range Volcanics.

Zones of significant IOCG-style magnetite alteration include the Cairn Hill Mine, Manxman, Joes Dam and Taurus Prospects along with Prominent Hill Mine (just north of the haematite breccias) and largely reflect hydrothermal infill of brittle extensional fractures (Freeman and Tomkinson, 2010). Various alteration phases include;

1. Early Na metasomatism (albite & scapolite),
2. Widespread haematite dusting of alkali feldspar,
3. Extension with open-fill Ca metasomatism (diopside, actinolite-tremolite and minor magnetite),
4. Further extension with Fe metasomatism (massive magnetite, amphibole, phlogopite, chlorite, serpentine, talc, pyrite, apatite, pyrrhotite, chalcopyrite & titanite),
5. Late veins of pyrite, apatite, quartz, calcite, haematite and epidote.

Host lithologies and IOCG-mineralised haematite breccias at the Prominent Hill Mine display a complex sequence of intense alteration, including haematite, sericite, chlorite, carbonate (+/- quartz, barite, fluorite, REE phosphates). Copper mineralisation occurs as fine-grained disseminations of chalcocite, bornite and chalcopyrite in the breccia matrices with the

sulphides displaying a variety of intergrowth, replacement and infill textures (Hart and Freeman, 2003; Belperio and Freeman, 2004; Belperio et al., 2007; Freeman and Tomkinson, 2010).

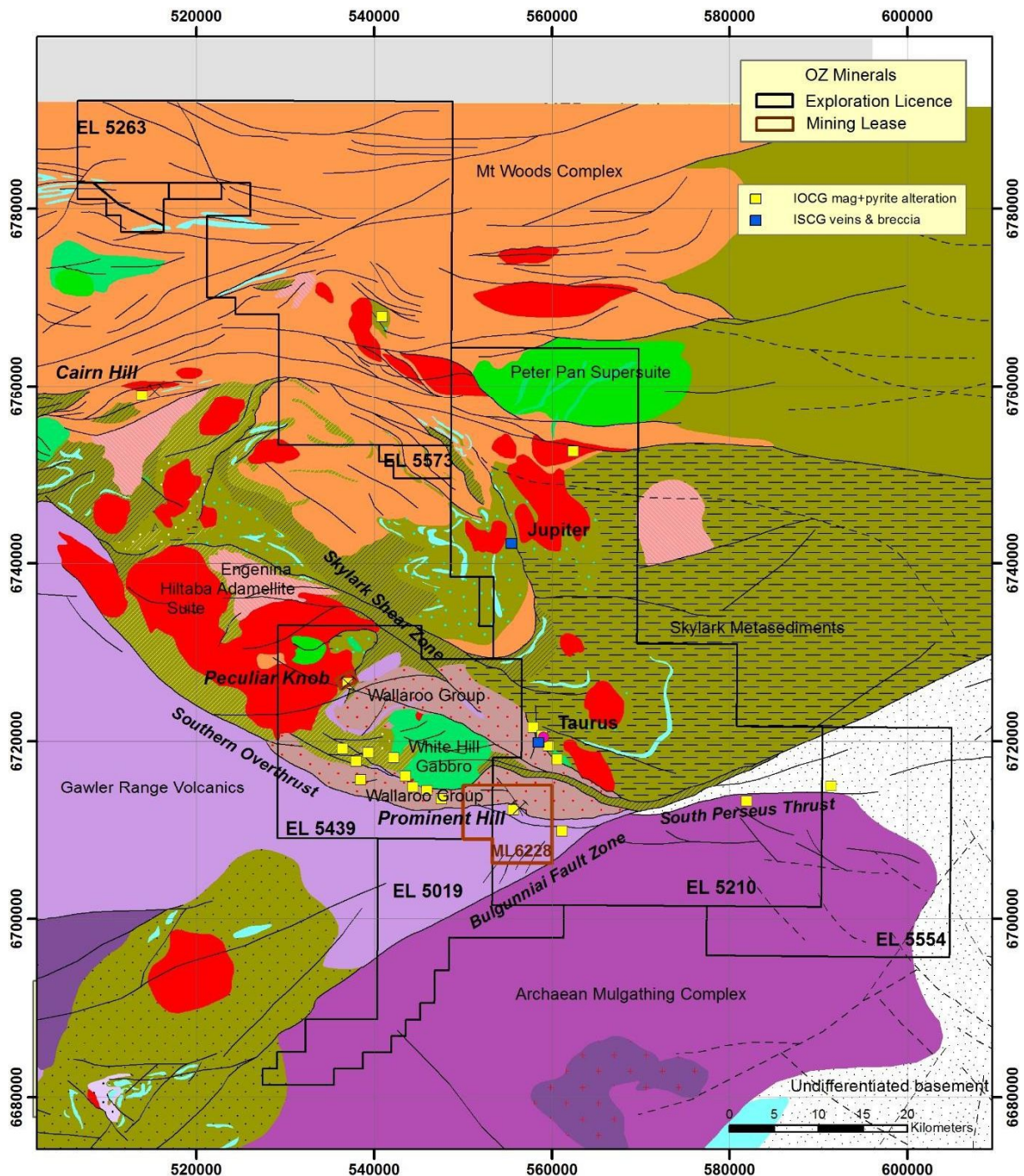


Figure 3: Interpreted basement geology of the Mt. Woods Inlier (GSSA, 2015), showing [IOCG and ISCG styles of alteration examples in some historic drill holes](#), OZ Mineral tenements and the Jupiter and Taurus Prospects.

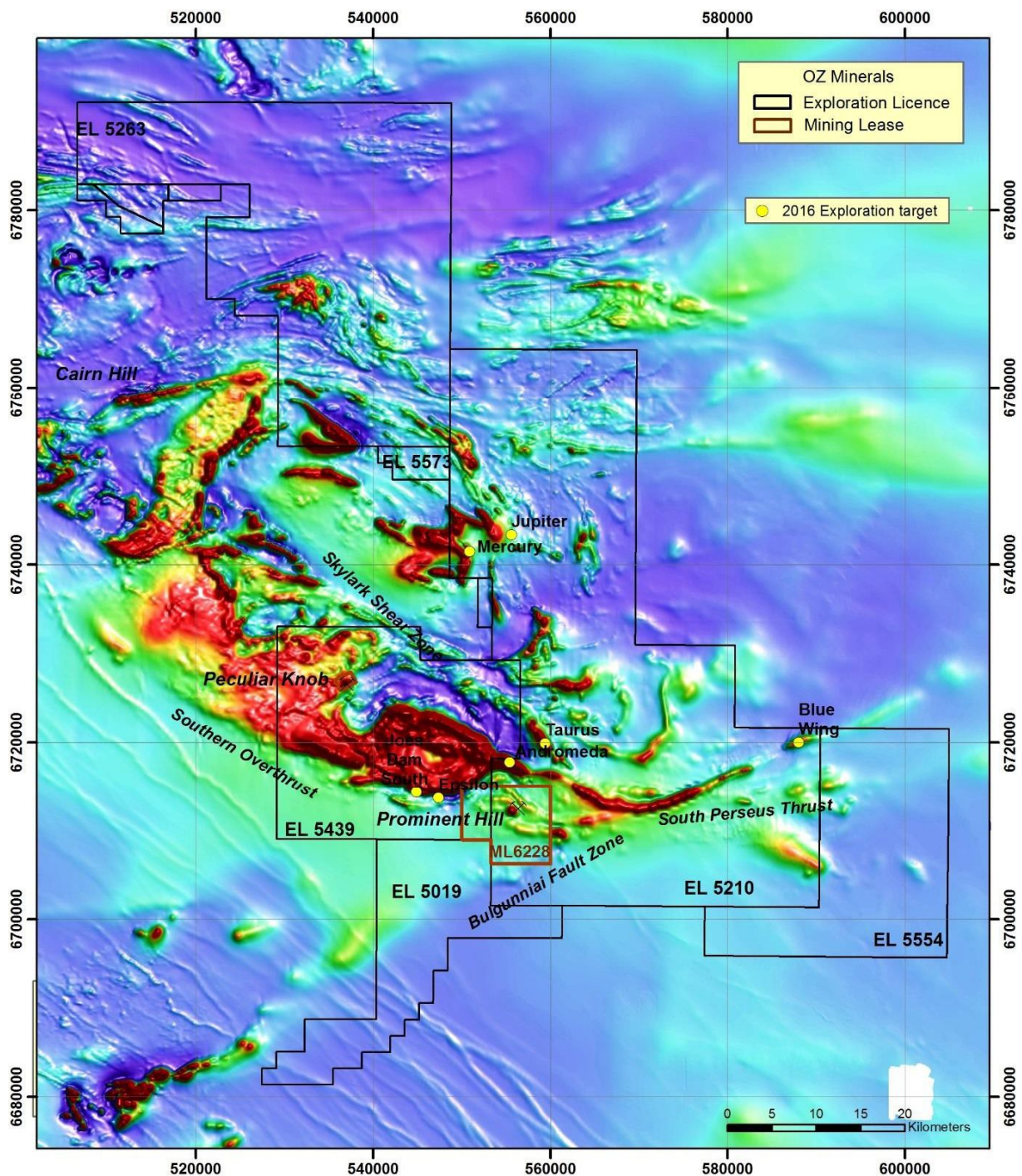


Figure 4: Regional TMIRTP magnetic image for the Mt. Woods Inlier and locations of 2016 exploration targets

4 DRILL PROGRAM

Diamond drilling was undertaken at the Taurus and Jupiter Prospects in order to ascertain if basement conductors identified from ground EM surveys represented ISCG-style massive sulphide mineralisation (Figure 4, Table 2). Five holes were drilled for a total of 1,867.4 m.

Prospect	Hole_ID	Easting	Northing	RL	Dip	Azi_UTM	EOH
Taurus	DD16TUR014	561278	6716979	194	-60	50	365.1
Taurus	DD16TUR015	560653	6717814	191	-60	58	435.9
Taurus	DD16TUR016	557740	6721477	189	-60	27	390.6
Jupiter	DD16JUP004	555312	6743403	154	-60	90	315.0
Jupiter	DD16JUP005	555287	6743046	154	-60	90	360.8

Table 2: Drill hole collars and particulars. All holes are on tenement EL 5210. Datum = GDA94

Titeline Drilling undertook the drill program during September–October 2016 using a single rig on double shift, drilling through cover sediments utilising the rotary mud technique and then changing to diamond drilling (HQ & NQ) for crystalline basement.

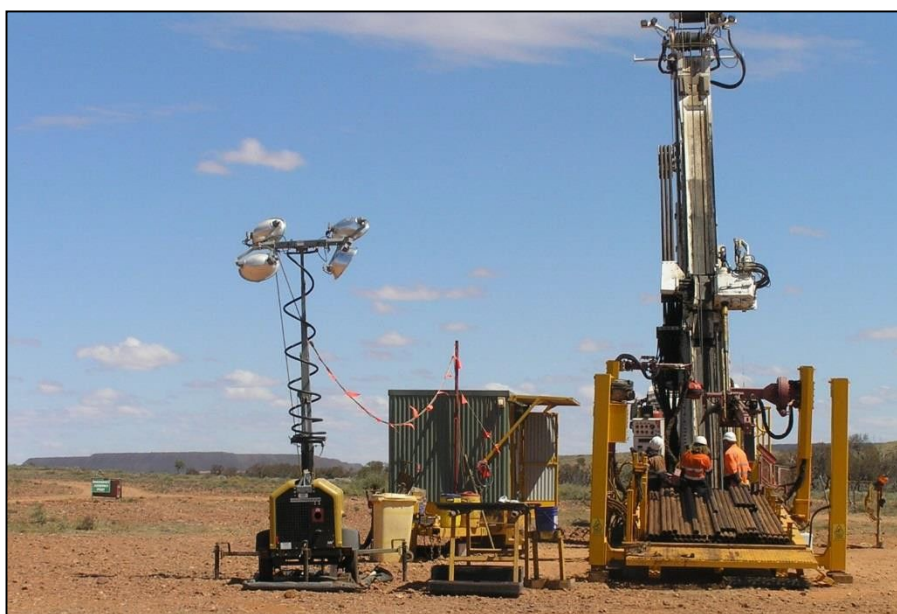


Figure 5: Drill rig at hole DD16TUR014, Taurus Prospect

Down hole surveying was carried out using a digital ‘single-shot’ *Reflex*TM EZ-Trac instrument. Core orientations were undertaken by the drilling contractor at the start of every drill run using the Coretell core orientation tool. The drill core was then processed by OZ Minerals personnel at Prominent Hill who undertook core orientation, SG determination (Archimedes method), measurement of magnetic susceptibility and core photography. Structural and geological logging was carried out by Mitch Neumann and Paul Hehuwat of OZ Minerals. Nominal 1 m to 2 m length samples of ½ HQ and ½ NQ2 diamond drill core were analysed by Bureau Veritas Laboratories in Adelaide for geochemical analysis of Au (analysis code FA1 or FA3), Ag, Al, As, Bi, Co, Cd,

Co, Cu, S, Ni, Pb, Sc, Sb Se, Te and Zn, (analysis code MET1-PH), and Al, Ba, Ca, Ce, Cr, Cs, Dy, Er, Eu, Fe, Ga, Gd, Hf, Ho, In, K, La, Lu, Mg, Mn, Mo, Na, Nb, Nd, P, Pr, Rb, Si, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tm, U, V, W Y, Yb, Zr (analysis code IC4-PHR). Appropriate coarse blanks and copper and gold standards were inserted into each sample run. Complete analytical data along with measurements on SG, magnetic susceptibility, lithological logging and downhole survey data are provided within Appendices A–F.

5 ISCG EXPLORATION AT THE TAURUS PROSPECT

Located on the SE-trending Skylark Shear Zone is a cluster of discrete positive magnetic and gravity anomalies, extending for ~5 km along the shear zone, which represent localised magnetite replacement, alteration zones and breccias developed within Paleoproterozoic schist, graphitic schist, dolostone, felsic gneiss, granite, amphibolite and gabbro (Figures 6–7). Associated with the magnetite alteration are broad zones of anomalous, low-grade Cu-Au and Pd-Pt mineralisation (Freeman, 2008).

Previous drilling in the Taurus area includes 14 historical holes predominantly by Normandy prior to the discovery of Prominent Hill) and subsequently 12 diamond holes by OZ Minerals (Figures 6–7). The most anomalous Cu intersection is within northern hole DD10TUR011 which returned 0.4m @ 6.4% Cu, 0.36 g/t Au (35% Fe, 40% S) from 543.4m, corresponding with a zone of massive sulphides (60% pyrite, 30% chalcopyrite). Other drill holes at Taurus contain wide intersections of low-grade Cu mineralisation (~0.1% Cu) associated with the magnetite alteration.

Anomalous Pt+Pd are also present at the Taurus Prospect. Hole DD07TUR001 intersected intervals of abundant sulphide (pyrite>pyrrhotite>chalcopyrite) associated with magnetite alteration and veining. Within these domains, intersections include 106.78 m @ 0.13% Cu, 0.15 ppm Pt+Pd from 290m, including 1 m @ 0.12% Cu, 3.6 ppm Pt+Pd from 364m. Hole DD07TUR002 intersected highly altered mafic/ultra-mafic lithologies with magnetite alteration, containing anomalous low-grade Pt+Pd values, notably 121m @ 0.5 ppm Pt+Pd from 254m. An interval which is logged as containing patchy pyrite, pyrrhotite and chalcopyrite in DD09TUR005 is observed to contain 4.2m @ 0.98 ppm Pt and 2.4 ppm Pd from 644.8m.

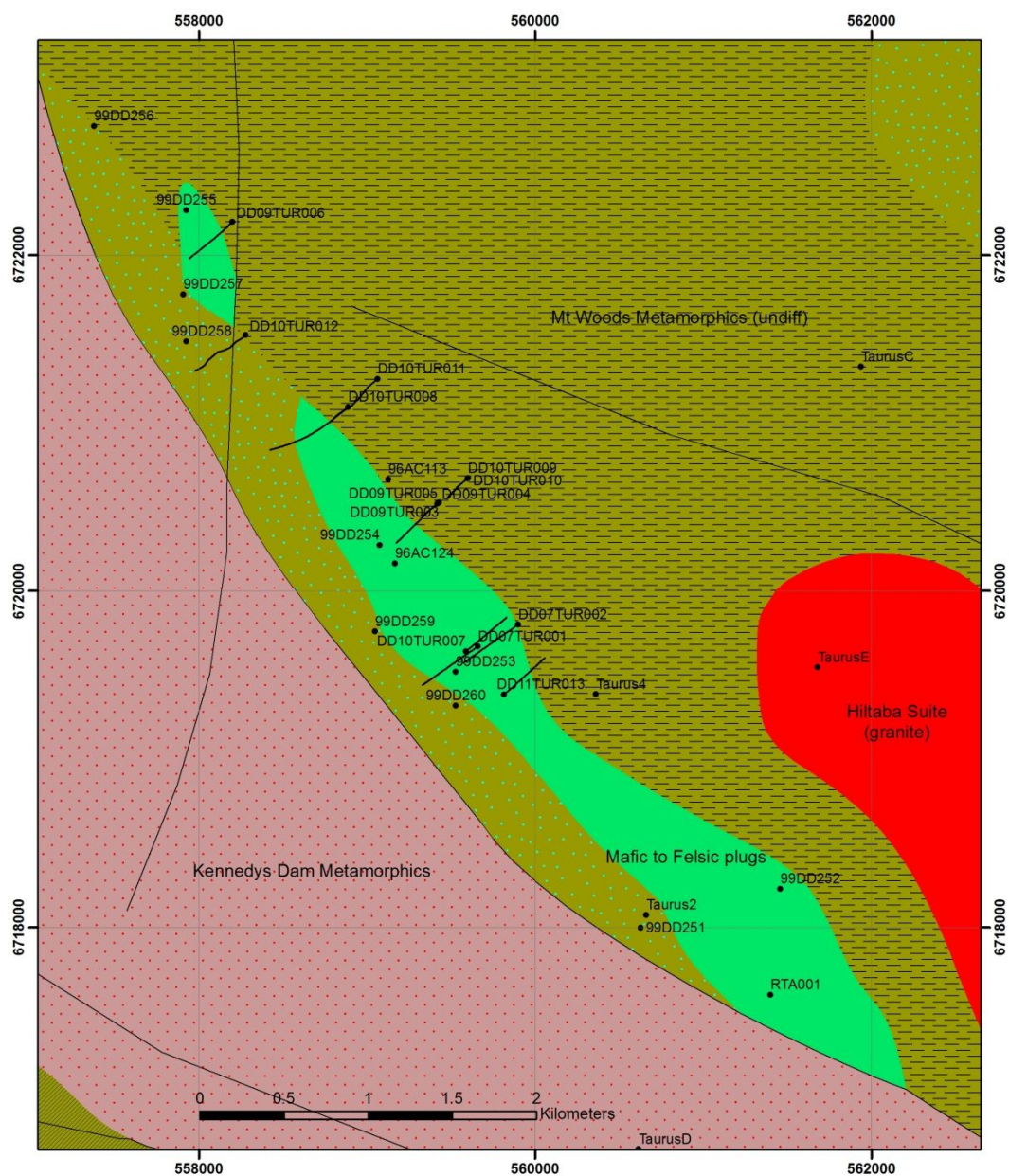


Figure 6: Basement geology interpretation for the Taurus area showing all previous drill collars and traces

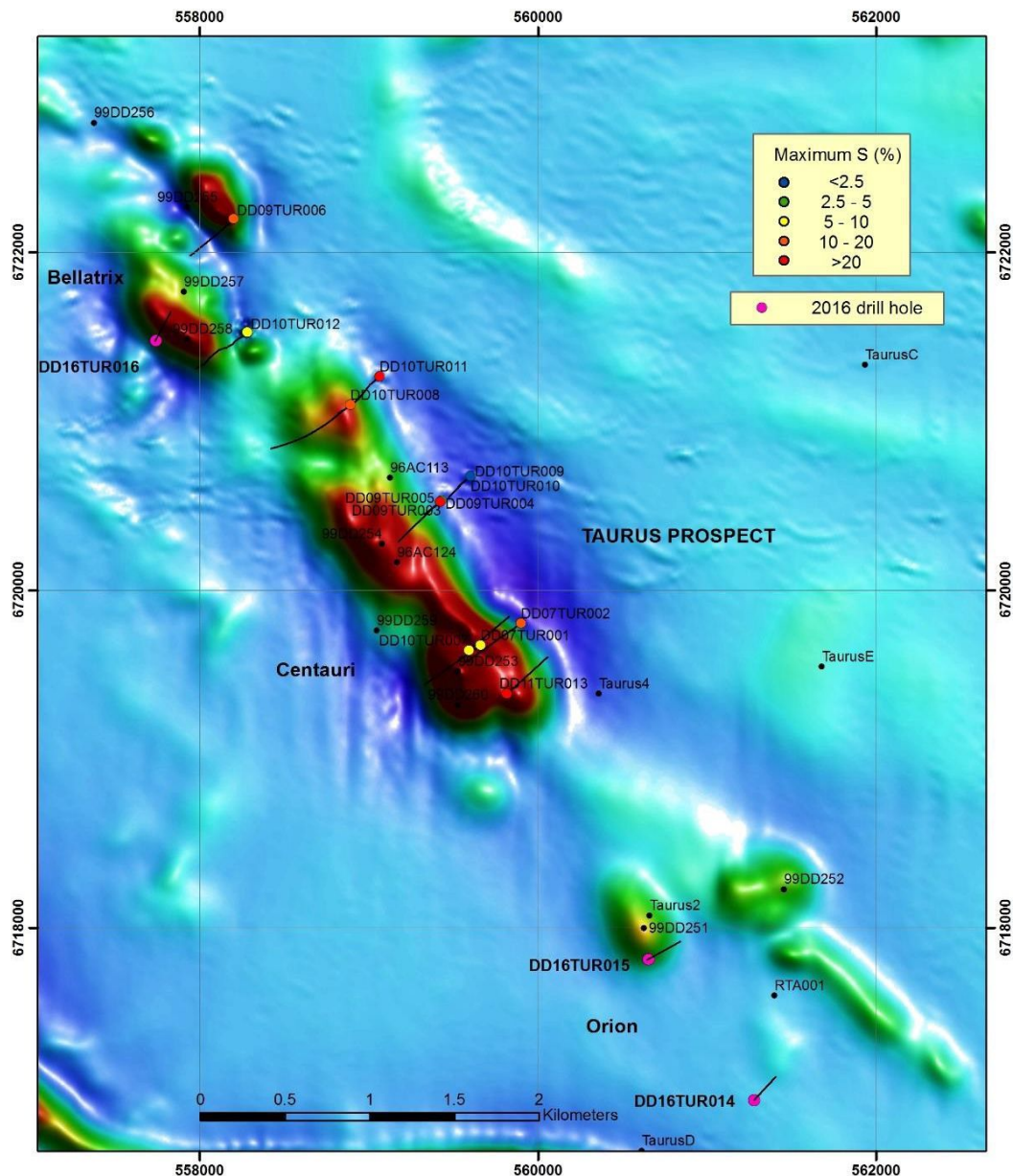


Figure 7: TMIRTP magnetic image for the Taurus Prospect showing historical drill holes, maximum S values per hole and 2016 drill holes.

Previous drilling at the Taurus Prospect clearly targeted the positive magnetic and gravity anomalies, consistent with the model of Cu-Au mineralisation within magnetite- and/or haematite-rich rocks, and the better positive gravity and magnetic anomalies have been adequately tested. Existing gravity and magnetic coverage at Taurus is good as the area is covered by 50 m spaced magnetic data and gravity data ranging from 400 m x 200 m coverage down to 200 m x 100 m resolution.

No historical electrical geophysical surveys (IP or EM) had been undertaken at Taurus so the potential for structurally-controlled ISCG-style mineralisation peripheral to any of the positive magnetic anomalies has not been previously evaluated. Depth-to-basement at Taurus ranges

from ~60 m to ~215 m, with variation resulting from localised undulations in the thickness of Carboniferous–Permian glacial sediments.

Systematic ground EM surveying across the entire Taurus Prospect involved 36.6 km of moving loop and 13.6 km of fixed loop readings along lines predominantly 400 m apart (Figures 8–9). EM survey particulars, data and detailed technical discussion are included within the annual technical report for year ending 31st December 2016 (Neumann and Thompson, 2017).

No EM anomalies were recorded coincident with graphite-bearing schist intersected in various historical drill holes, despite aggregate down-hole thicknesses of 29 m (DD10TUR012), 50 m (DD09TUR006) and 85 m (DD10TUR008) (Figures 8–9). Instead, late-time EM data revealed new strong basement conductors at southern Taurus (Orion target) and northern Taurus (Bellatrix target) and weak conductors proximal to the central main positive magnetic anomaly (Centauri target). Historical drill holes at Centauri appear adequately tested the conductors, which are probably due to abundant pyrite and lesser pyrrhotite associated with magnetite alteration. However, none of the historical drill holes at the Orion and Bellatrix targets intersect the modelled basement conductors, and so diamond drilling was undertaken to test the source of these anomalies for massive sulphide and ISCG-style mineralisation.

5.1 DRILL HOLES DD16TUR014 AND DD16TUR015 (SOUTHERN TAURUS)

Modelling of the EM anomalies at the southern Taurus Prospect (Orion) indicate a 2 km long conductor, west dipping at ~65°, possessing very high conductance values of 5,000–10,000 S, but low degrees of magnetisation. The basement conductor was drill tested by two holes (DD16TUR014, DD16TUR015) collared 1 km apart (Figures 8–10, Table 2). Vertical depth to basement in the southern Taurus area ranges between 75–200 m, both due to topographic variation and localised changes in the thickness of Permian glaciomarine sediments of the Boorthanna Formation below the Mesozoic clays and sands of the Bulldog Shale and Cadna-owie Formations.

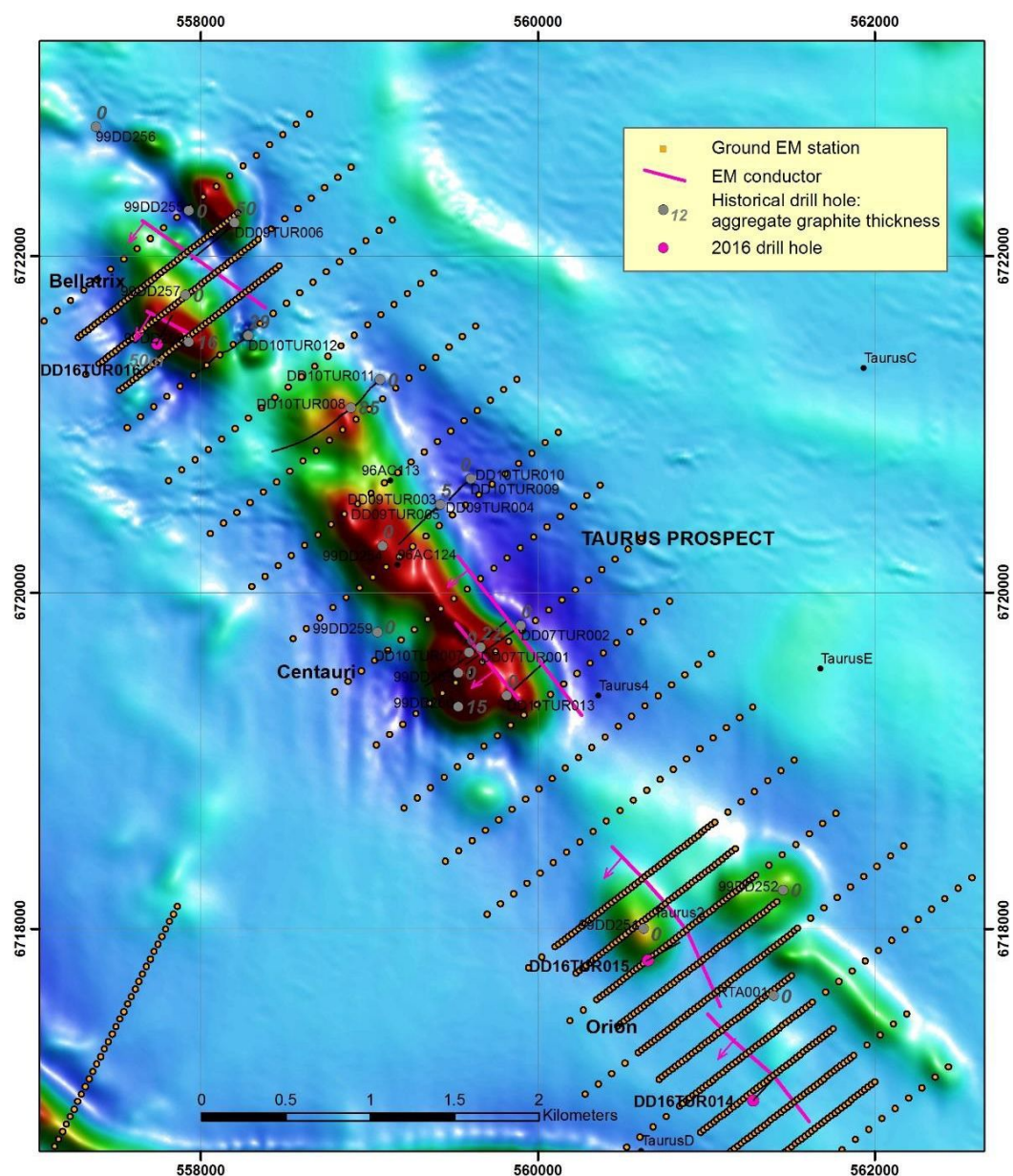


Figure 8: Location of modelled conductors, ground EM survey stations and aggregate graphite thickness within historical drill holes over regional TMIRTP magnetic image

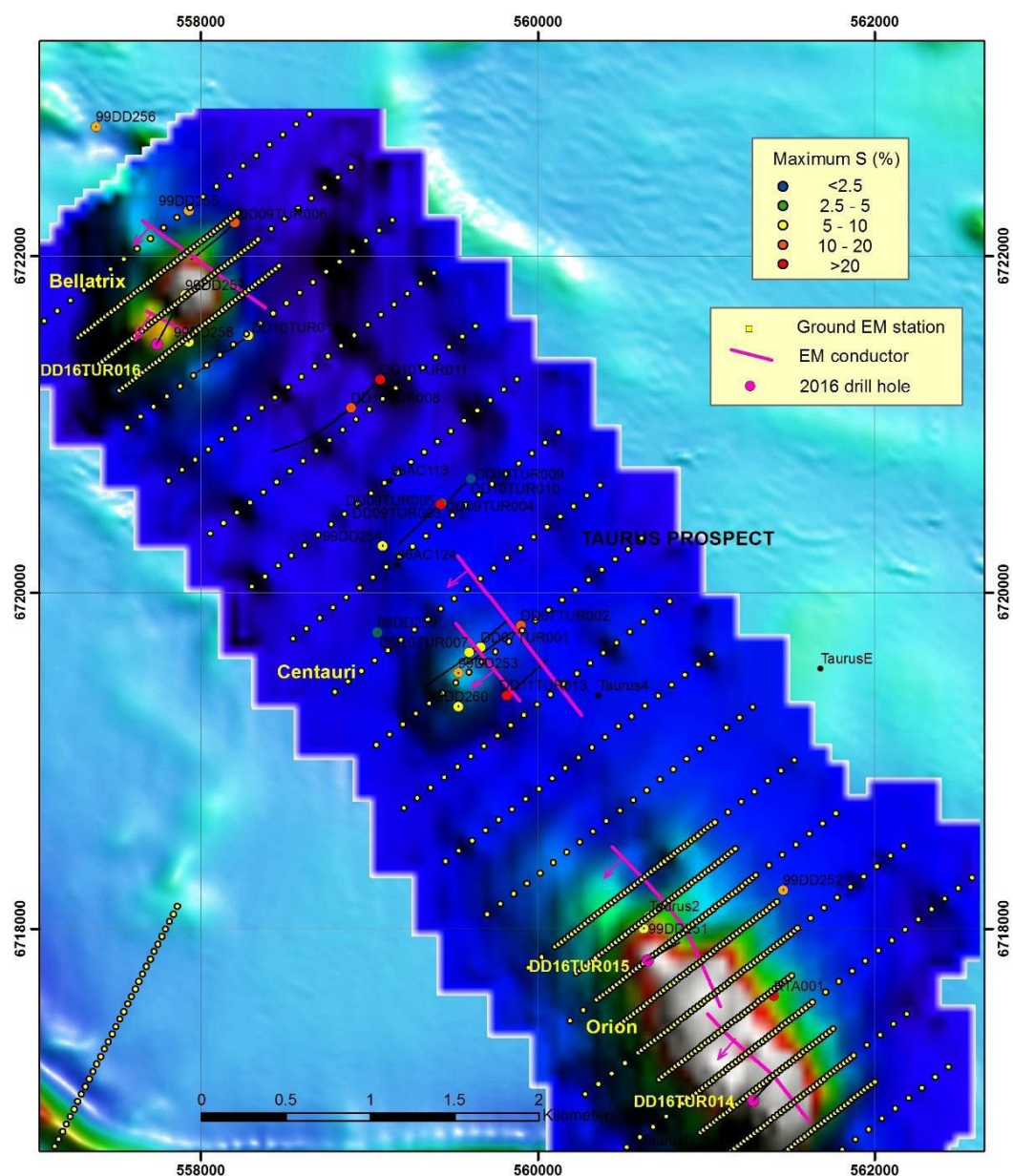


Figure 9: Late-time Z-component, Channel 35 EM image (inset) over regional TMIRTP magnetic image showing position of interpreted basement conductors

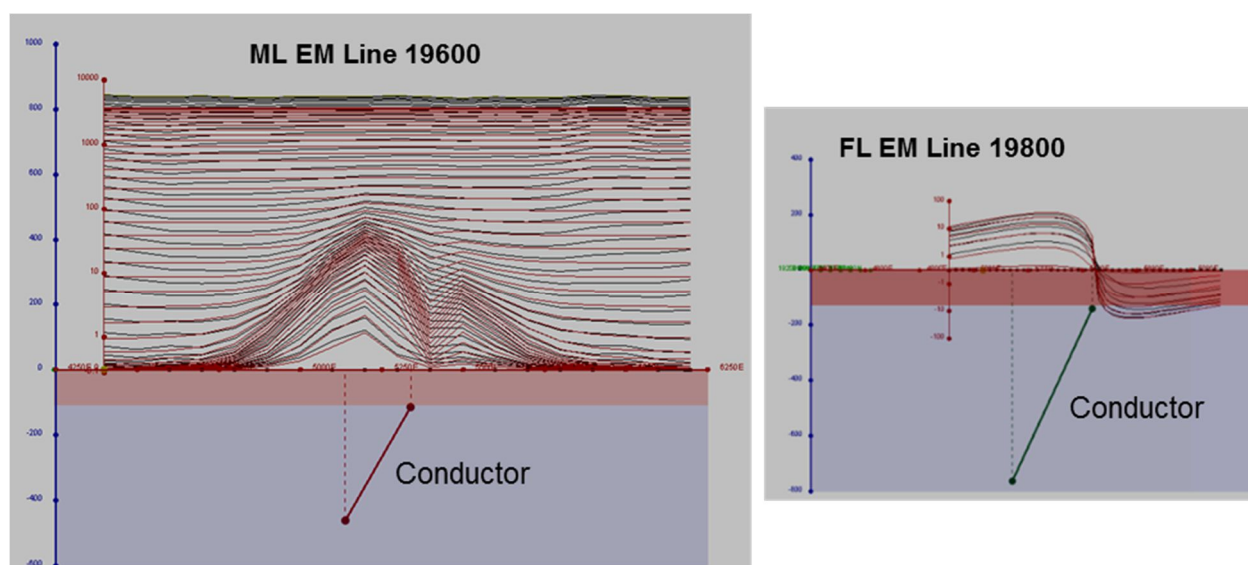


Figure 10: Examples of moving-loop (left) and fixed-loop (right) ground EM data and modelling proximal to drill hole DD16TUR014

Downhole depths to the conductors were modelled at 260 m and 350 m for holes DD16TUR014 and DD16TUR015 respectively. Both drill holes intersected graphite-rich schists at or near these modelled depths and which adequately account for the late-time EM anomalies (Figures 11–12, Tables 3–4). In hole DD16TUR014, two graphite-rich schists are present, including a 17 m interval (250–267 m) and 37 m interval (315–352 m). Similarly in hole DD16TUR015, two graphite-rich schists are present, including a ~37 m interval (~317–359 m) and narrower 9 m interval (226–235 m). Graphite occurs in two forms, both fine grained and disseminated within the schist (dark grey) and also recrystallised within irregular veins (shiny grey) (Figures 14–15 & 17–20). The graphitic schists are pyritic, locally containing 1–7% pyrite, with pyrite occurring as predominantly as disseminated crystals and wispy veinlets. Disseminated coarse scapolite crystals are common. Pyrrhotite is rare and restricted to a 2 m zone (350–352 m) in DD16TUR014 of irregular network pyrrhotite veins (Figures 19–20).

Other metasedimentary lithologies intersected include pale grey to grey-green dolomitic marble, metacarbonate, calcsilicate (amphibole, diopside, phlogopite) and psammopelite (Figures 13 & 16).

Intrusives include probable diorite (now gneissic amphibolite) along with thin granodiorite to granite dykes which cross cut the schistosity within the metasediments, but are in turn foliated. These granitic to granodioritic dykes may represent equivalents of the Engenina Adamellite. No Hiltaba Suite phases are evident.

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods

Hole_ID	D_from	D_to	Lithology	Qualifier1	Qualifier2	Colour_Int	Colour1	Colour2	Remarks
DD16TUR014	0	6	Soil			Medium	Brown	White	Soil with oxidised shale fragments
DD16TUR014	6	33	Shale			Light	White	Brown	Oxidised shale - Bulldog Shale
DD16TUR014	33	39	No sample						No sample
DD16TUR014	39	69	Shale			Dark	Grey		Reduced shale - Bulldog Shale
DD16TUR014	69	126	Sandstone	Fine grained	Medium grained	Light	Grey	White	Unconsolidated quartz sand. Between 81-102 m intervals with minor black clay (might be contamination) - Cadna-owie Formation
DD16TUR014	126	155.8	Diamictite			Medium	Grey	White	Diamictite - Boorthana Formation
DD16TUR014	155.8	167.7	Metacarbonate	Foliated		Light	White	Grey	Meta-carbonate "marble"
DD16TUR014	167.7	175.5	Metacarbonate	Foliated	Fractured	Light	Grey	White	Same as previous but fractured/faulted. Minor zones/patches with wollastonite?
DD16TUR014	175.5	194.3	Metacarbonate	Foliated		Light	White	Grey	Meta-carbonate "marble"
DD16TUR014	194.3	195.45	Skarn	Foliated		Medium	Grey	Green	Magnetite-chlorite skarn
DD16TUR014	195.45	219.25	Metacarbonate	Foliated	Layered	Medium	Grey	White	Meta-carbonate
DD16TUR014	219.25	220.3	Mafic dyke	Fine grained		Medium	Green	Grey	Dark green - buff
DD16TUR014	220.3	226.85	Metacarbonate	Foliated	Layered	Medium	Grey	Green	Meta-carbonate
DD16TUR014	226.85	229.5	Schist	Graphitic	Foliated	Dark	Grey		Dark grey fractured graphitic schist
DD16TUR014	229.5	233	Metapsammopelitic	Fractured	Brecciated	Medium	Grey	Buff	Meta psammo-pelite
DD16TUR014	233	233.4	Meta-igneous	Foliated		Medium	Grey	Buff	Meta igneous
DD16TUR014	233.4	235.7	Granite	Foliated		Medium	Brown	Grey	Foliated granite (or foliated meta-volcanic?)
DD16TUR014	235.7	236.05	Granite			Medium	Pink	Grey	Granite
DD16TUR014	236.05	237.3	Metapelite	Fractured	Brecciated	Medium	Grey	Brown	Strongly brecciated and fractured meta pelite
DD16TUR014	237.3	239.6	Schist	Graphitic	Foliated	Medium	Grey		Grey fractured
DD16TUR014	239.6	240.65	Metapelite	Foliated		Dark	Green	Grey	Strongly foliated meta pelite
DD16TUR014	240.65	247.4	Calcsilicate	Foliated		Medium	Green	Grey	Calcsilicate consisting of medium grained diopside
DD16TUR014	247.4	248.4	Metapelite	Foliated		Medium	Green	Grey	Strongly foliated meta pelite
DD16TUR014	248.4	249.25	Calcsilicate	Foliated		Medium	Green	Grey	Calcsilicate
DD16TUR014	249.25	250	Calcsilicate	Foliated	Graphitic	Medium	Grey	Green	Graphitic calc-silicate (?)
DD16TUR014	250	266.95	Schist	Graphitic	Foliated	Dark	Grey		Grey-silver graphite schist. Minor dk green - black amphibole needles (? unclear)
DD16TUR014	266.95	268.1	Metapelite	Graphitic	Foliated	Medium	Buff	Grey	Buff-grey fine grained meta-pelite. Weak foliated
DD16TUR014	268.1	287.3	Meta-igneous	Foliated		Medium	Grey	Green	Meta diorite
DD16TUR014	287.3	294.75	Granitoid			Medium	Pink	Grey	Granite with minor mafic intervals
DD16TUR014	294.75	295.9	Meta-igneous	Foliated		Medium	Brown	Grey	Strongly foliated meta-diorite
DD16TUR014	295.9	303.2	Meta-igneous	Foliated		Medium	Grey	Green	Meta diorite with thin granodiorite dykes. Quartz veined
DD16TUR014	303.2	315	Metapsammopelitic	Foliated		Medium	Brown	Green	Meta psammopelite
DD16TUR014	315	332.72	Schist	Graphitic	Fractured	Dark	Grey		Grey-silver graphite schist
DD16TUR014	332.72	333.5	Granite	Foliated		Medium	Brown	Pink	Weakly foliated medium grained gneiss
DD16TUR014	333.5	334.45	Schist	Graphitic	Foliated	Dark	Grey		Grey-silver graphite schist
DD16TUR014	334.45	335.7	Granite	Foliated	Medium grained	Medium	Brown	Pink	Very weak foliated
DD16TUR014	335.7	348.65	Schist	Graphitic	Foliated	Dark	Grey		Dark grey-silver graphite schist
DD16TUR014	348.65	350.2	Granite	Medium grain	Foliated	Medium	Brown	Pink	Very weak foliated
DD16TUR014	350.2	352.1	Schist	Graphitic	Foliated	Dark	Grey		Dark grey-silver graphitic schist
DD16TUR014	352.1	355.05	Metapsammopelitic	Foliated		Medium	Brown	Green	Greenish brown meta psammopelite
DD16TUR014	355.05	357.6	Schist	Graphitic	Foliated	Medium	Grey	Brown	Interlayers of graphitic schist with meta psammopelite. Thin granite dyke
DD16TUR014	357.6	362.23	Metapsammopelitic	Foliated		Medium	Brown	Green	Greenish brown meta psammopelite
DD16TUR014	362.23	365.1	Granite	Foliated	Augen	Medium	Pink	Grey	Interlayers of gneissic granite (weak gneissosity and augen in places) with meta psammopelite and minor thin graphitic schist. EOH

Table 3: Summary lithological log for hole DD16TUR014, Orion, southern Taurus Prospect

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods

Hole_ID	D_from	D_to	Lithology	Qualifier1	Qualifier2	Colour_Int	Colour1	Colour2	Remarks
DD16TUR015	0	15	Soil			Medium	Orange	White	Clay
DD16TUR015	15	30	Shale			Medium	Yellow	White	Oxidised bulldog shale
DD16TUR015	30	60	Shale			Dark	Grey	Black	Reduces bulldog shale
DD16TUR015	60	90	Sandstone			Medium	Grey		Cadna-Owie Formation
DD16TUR015	90	117	Shale			Medium	Grey		Stuart range formation - silty mudstone
DD16TUR015	117	139	Sandstone			Medium	Grey		Borthanna
DD16TUR015	139	188.4	Diamictite			Medium	Grey		Diamictite with drop stones
DD16TUR015	188.4	212.6	Metacarbonate	Bedded	Foliated	Light	Cream	Green	Massive meta-carbonate with weak remnant bedding. bedding altered by chlorite-phlogopite-sericite alteration.
DD16TUR015	212.6	225.7	Meta-igneous	Chloritic	Equigranular	Medium	Green	Cream	Granitic intrusive with pink to white colouration dependant on alteration. Bands of intense chlorite and lesser phlogopite alteration.
DD16TUR015	225.7	230.9	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist with remnant intervals of intrusive. Graphite has a strong foliation and includes disseminated pyrite and chlorite. Intrusive
DD16TUR015	230.9	235	Granite	Equigranular	Felsic	Light	Cream	Grey	Granite with variable grain size. altered by graphite
DD16TUR015	235	237.5	Metapsammopelitic	Micaceous	Metamorphosed	Medium	Grey	Green	Meta-pelite with pervasive chlorite-sericite alteration. Thin sills of granite(20cm). No visible bedding/laminations.
DD16TUR015	237.5	250	Granite	Equigranular	Felsic	Medium	Pink	Cream	Pink medium grained granite with variable chlorite alteration.
DD16TUR015	250	254.8	Calcsilicate	Chloritic	Fine grained	Dark	Green		Cals-silicate with strong chlorite alteration as pervasive disseminations and dots.
DD16TUR015	254.8	261.4	Granite	Equigranular	Felsic	Medium	Pink	Green	Pink medium grained granite with bands of strong chlorite alteration.
DD16TUR015	261.4	272.3	Calcsilicate	Chloritic	Fine grained	Dark	Green		Cals-silicate with strong chlorite alteration as pervasive disseminations and dots. Numerous thin (<1m) sills of granite.
DD16TUR015	272.3	273.2	Granite	Equigranular	Felsic	Light	Cream	Grey	Granite with coarse grained zones. Altered by graphite in bands.
DD16TUR015	273.2	278.6	Calcsilicate	Chloritic	Fine grained	Dark	Green		Cals-silicate with strong chlorite alteration as pervasive disseminations and dots. Numerous thin (<1m) sills of granite.
DD16TUR015	278.6	287.6	Granite	Equigranular	Felsic	Medium	Cream	Grey	Granite with pervasive graphite alteration giving a grey colouration. Multi phase?
DD16TUR015	287.6	289.9	Calcsilicate	Chloritic	Fine grained	Dark	Green	Brown	Cals-silicate with strong chlorite alteration as pervasive disseminations and dots. Moderate phlogopite alteration. Numerous thin (<1m) sills of granite.
DD16TUR015	289.9	293.8	Granite	Equigranular	Felsic	Light	Cream	Grey	Granite with graphite alteration and veined chlorite alteration. Thin zones of calc-silicate.
DD16TUR015	293.8	306.2	Calcsilicate	Chloritic	Fine grained	Dark	Green	Brown	Cals-silicate with strong chlorite alteration as pervasive disseminations and dots. Moderate phlogopite alteration. Numerous thin (<1m) sills of granite.
DD16TUR015	306.2	311	Granite	Equigranular	Felsic	Light	Cream	Orange	Granite with graphite alteration along with veins of pyrite and chlorite. Numerous quartz veins.
DD16TUR015	311	312.8	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist with remnant rounded clasts of granite. Graphite formed in two stages
DD16TUR015	312.8	315.4	Granite	Equigranular	Felsic	Light	Cream	Orange	Granite with graphite alteration along with veins of pyrite and chlorite. Numerous quartz veins.
DD16TUR015	315.4	317	Metapsammopelitic	Micaceous		Medium	Grey	Green	Meta-psamite with pervasive phlogopite - chlorite alteration.
DD16TUR015	317	335.3	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist with remnant rounded clasts of granulite. Graphite formed in two stages
DD16TUR015	335.3	346.1	Granite	Equigranular	Felsic	Light	Cream	Orange	Granite with graphite alteration and numerous thin graphite zones.
DD16TUR015	346.1	353.55	Schist	Graphitic	Foliated	Dark	Grey		Graphite schist with graphitic meta-pelite intervals. Thin granitic dykes & fragments
DD16TUR015	353.55	358.08	Granite	Medium grain	Equigranular	Medium	Grey	Pink	Medium grained granite
DD16TUR015	358.08	358.92	Schist	Graphitic	Foliated	Dark	Grey		Foliated graphite schist
DD16TUR015	358.92	367	Granite	Coarse grain	Foliated	Medium	Pink	Grey	Coarse to medium grained granite
DD16TUR015	367	384.1	Granodiorite	Medium grain	Foliated	Medium	Grey		Foliated grey-dark grey meta-granodiorite to diorite with minor meta-psammopelite intercalations
DD16TUR015	384.1	435.9	Meta-igneous	Fine grained	Foliated	Medium	Green	Grey	Meta-igneous (meta-diorite)

Table 4: Summary lithological log for hole DD16TUR015, Orion, southern Taurus Prospect

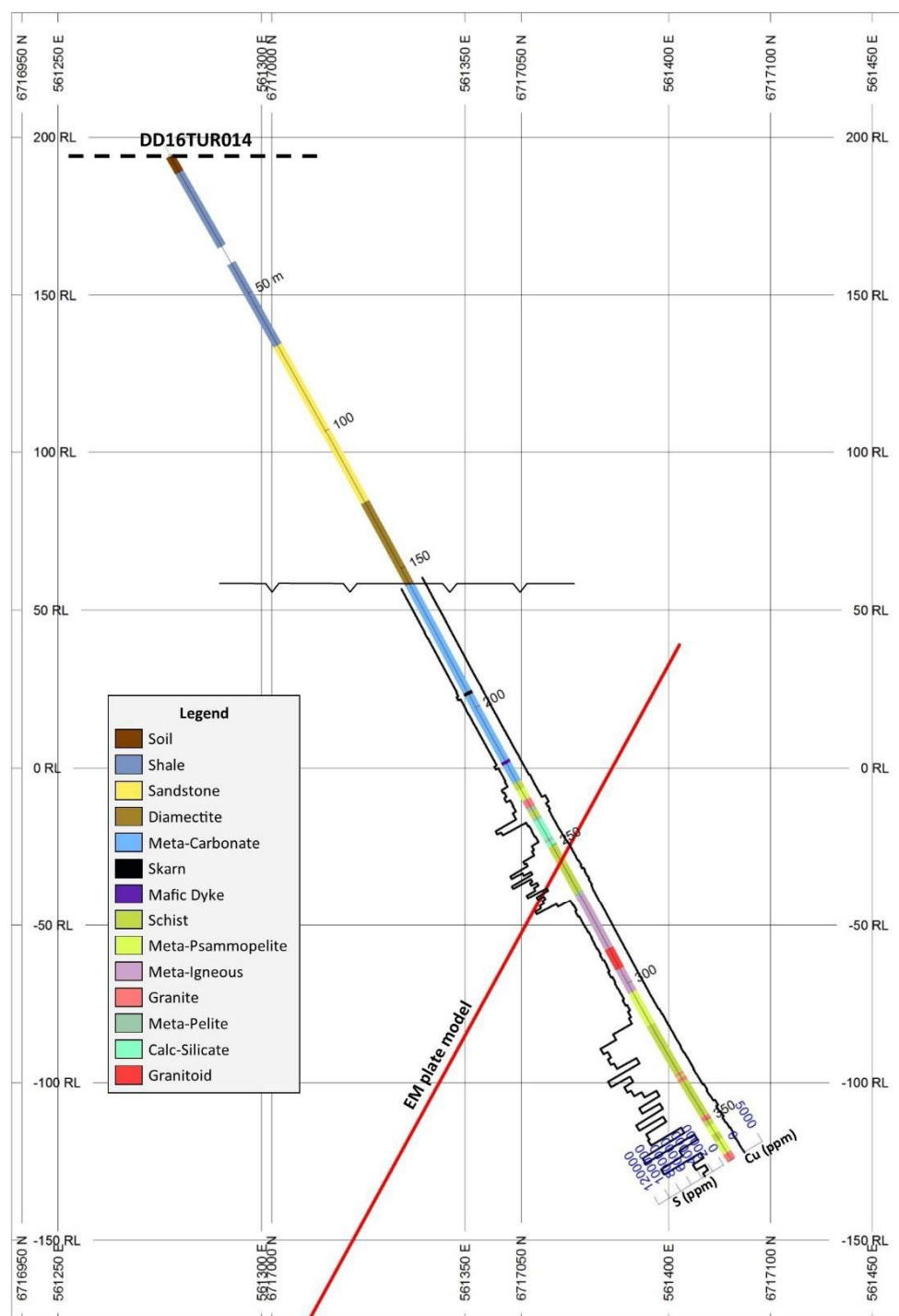


Figure 11: Cross section view for hole DD16TUR014 (Taurus Prospect)

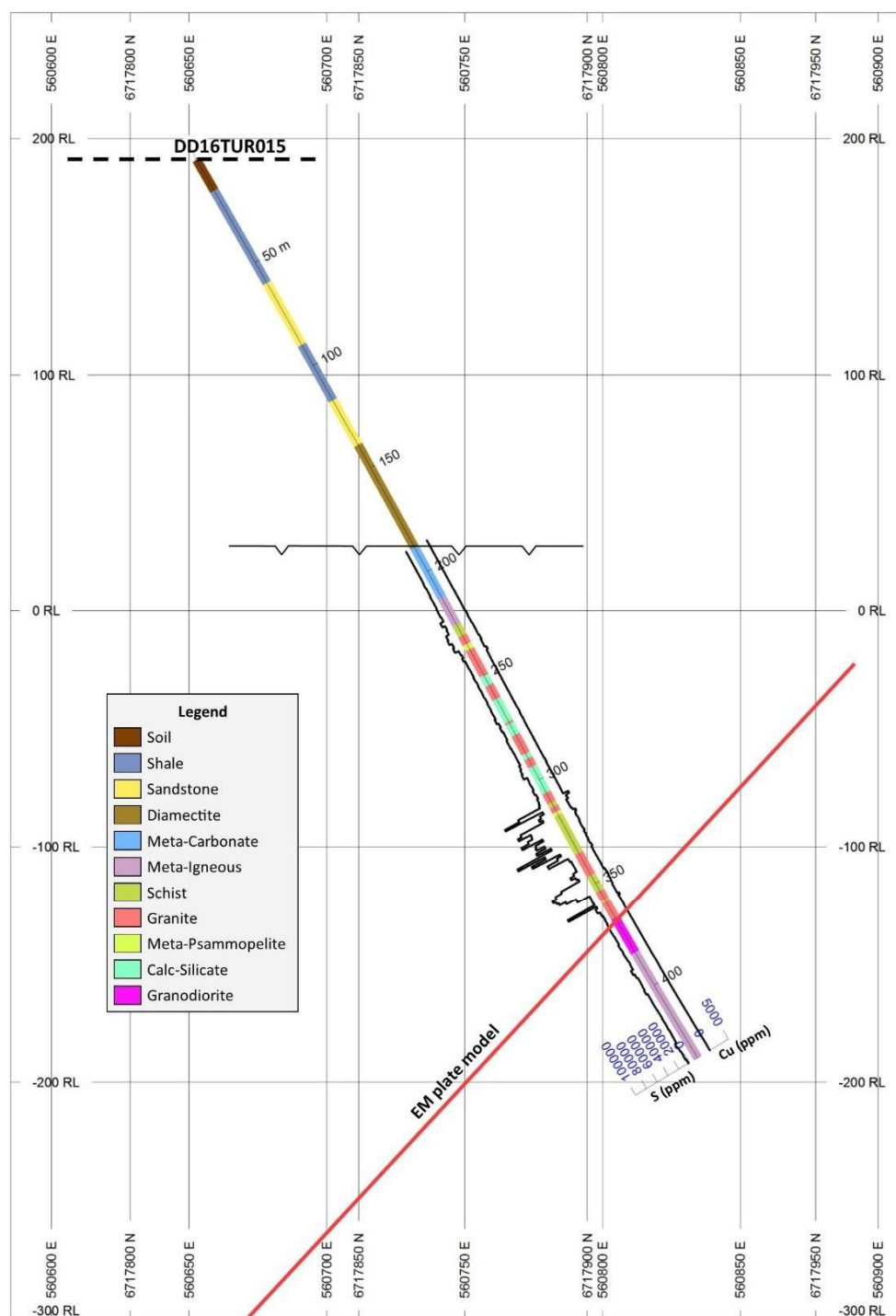


Figure 12: Cross section view for hole DD16TUR015 (Taurus Prospect)



Figure 13: Calcsilicate containing hornblende, diopside and phlogopite at 245.0m, DD16TUR014



Figure 14: Graphitic and pyritic schist at 253.0m, DD16TUR014



Figure 15: Graphitic schist containing irregular veins of coarser graphite at 260.5m, DD16TUR014

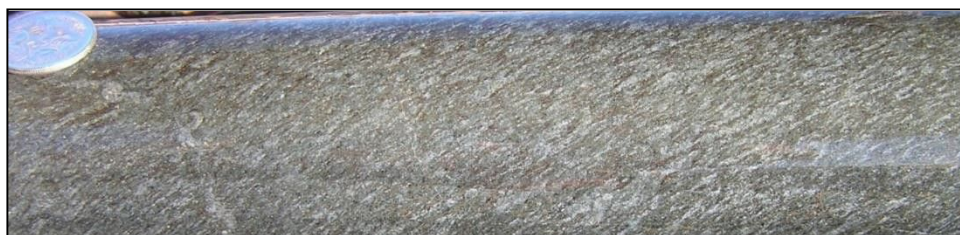


Figure 16: Gneissic diorite /amphibolite at 295.3m, DD16TUR014



Figure 17: Graphitic schist containing disseminated pyrite and irregular pyrite veinlets at 324.1m, DD16TUR014



Figure 18: Granite dyke cross cutting foliation within graphitic, pyritic and scapolite-bearing schist at 326.5m, DD16TUR014



Figure 19: Irregular, semi-continuous pyrrhotite veins and disseminated pyrite within graphitic schist at 350.4m, DD16TUR014

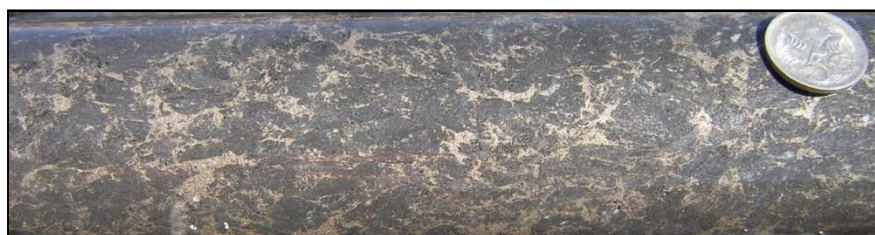


Figure 20: Irregular, semi-continuous pyrrhotite veins within graphitic schist at 351.2m, DD16TUR014

Consistent with the lack of observed chalcopyrite, Cu analyses are low and maximum values reach 980 ppm (DD16TUR014) and 1370 ppm Cu (DD16TUR015). All gold values are <0.01 ppm Au. Anomalous Zn and elevated Pb and Mo occur within the graphitic schists, notably in hole DD16TUR015 with 1m @ 0.6% Zn from 311m), 0.8m @ 2.47% Zn from 312.0m, and 1m @ 0.4% Zn from 314m and associated elevated Pb (<0.2%) and Mo (<75 ppm). See Appendix D for complete geochemical analytical data.

5.2 DRILL HOLE DD16TUR016 (NORTHERN TAURUS)

Two late-time EM anomalies occur at the northern Taurus Prospect (Bellatrix). The western geophysical feature was selected for drill testing as it is more conductive (6,000 S), though of shorter strike extent (300 m) and is closely spatially related with a positive magnetic anomaly enhancing the possibility that it might represent ISCG-style mineralisation (Figures 8–9). Computed downhole depth to the modelled conductor was 250 m (Figure 21). For comparison, the eastern anomaly has a conductivity thickness of 1800S and a strike extent of 900m.

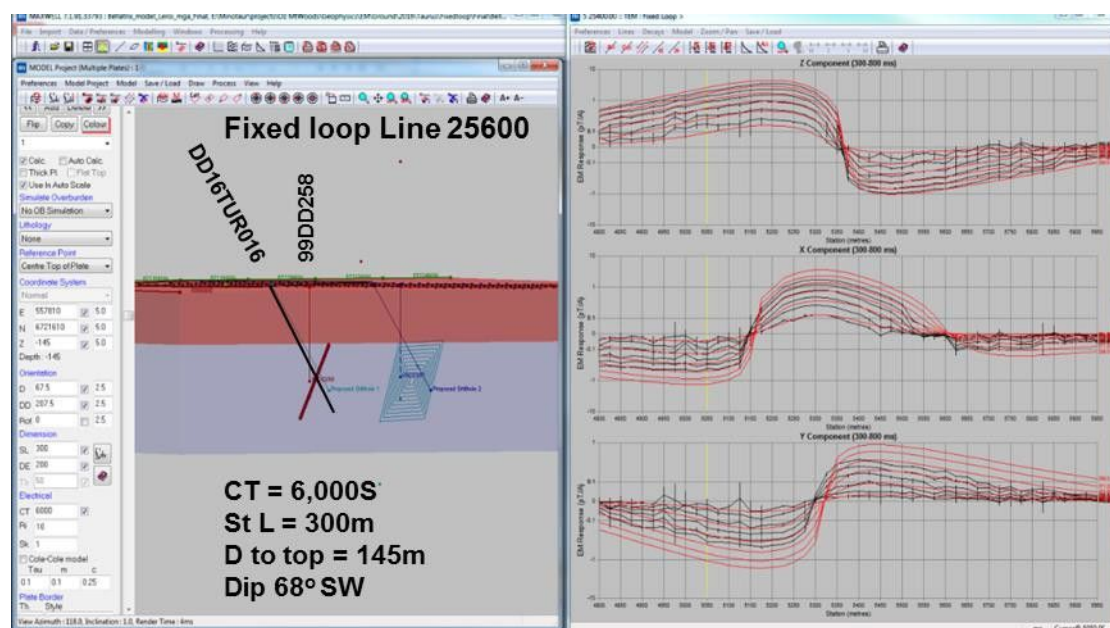


Figure 21: Fixed-loop ground EM data and modelling for Line 25600 proximal to drill hole DD16TUR016, Bellatrix, northern Taurus Prospect

Hole DD16TUR016 intersected a 22 m thick interval (226–248 m) and 4 m thick interval (366–370 m) of graphite-bearing schists with the upper unit closely corresponding with the modelled conductor (Figures 22–23 & 26–28, Table 5). Characteristics of the graphitic schists are similar to those encountered in drill holes DD16TUR014–015 at Orion (southern Taurus Prospect). Graphite is also present deeper within the hole, but zones are thin and often restricted to only a few centimetres thick. Other metasedimentary rocks present include diopside-bearing calcsilicate, paragneiss, psammopelite and quartzite (Figures 30–31 & 34).

Granite present is leucocratic, predominantly massive and intensely brecciated and jointed with widespread chlorite and biotite alteration.

Mineralisation was intersected in DD16TUR016 and occurs in two main styles as follows:

ISCG-style: are numerous thin sulphide-rich veins consisting predominantly of chalcopyrite and pyrrhotite (Figures 25, 27–28, 32–35). Associated minerals include magnetite, pyrite, amphibole and chlorite, but these are only present in very minor quantities. Quartz and carbonate are apparently absent. Veins are late-stage, undeformed, extensional, lack adjoining alteration haloes and post date the IOCG-style magnetite + pyrite + chlorite + amphibole alteration phase (Figure 33). **Significantly**, these sulphide-rich veins, containing predominantly pyrrhotite and chalcopyrite, are consistent with ISCG-style mineralisation in the Cloncurry district of the Mt. Isa Inlier and provide proof of concept that this style of mineralisation exists within the Mt. Woods Inlier.

IOCG style: several intervals of magnetite-rich alteration occur within DD16TUR016 with alteration ranging from massive to compositionally well banded and predominantly consisting of magnetite, pyrite and chloritic amphibole (Figures 24, 29 & 32).

Best drill intercepts within DD16TUR016 are:

- 9 m @ 0.41% Cu from 242m, including 1 m @ 1.67% Cu from 246m,
- 3.6 m @ 0.44% Cu from 366.4m, including 1 m @ 1.15% Cu from 367m,
- 1.7 m @ 1.89% Cu and 0.29 g/t Au from 377.5m,
- 4.2 m @ 0.3% Cu from 386m.

REE abundances are elevated, predominantly within magnetite-rich IOCG-style alteration zones with maximum recorded values of 450 ppm La and 750 ppm Ce, but REE abundances are low within the Cu-rich zones, as illustrated by;

- 1 m @ 1.67% Cu from 246m contains 10 ppm La and 20 ppm Ce.
- 1.7 m @ 1.89% Cu from 377.5mm contains 15 ppm La and 35 ppm Ce.

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods Inlier

Hole_ID	D_from	D_to	Lithology	Qualifier1	Qualifier2	Colour_Int	Colour1	Colour2	Remarks
DD16TUR016	0	6	Soil			Medium	Brown		Brown soil with shale fragments
DD16TUR016	6	9	Shale			Light	White		White oxidised shale - Bulldog Shale
DD16TUR016	9	32	Shale			Medium	Brown	Grey	Brown oxidised shale - Bulldog Shale
DD16TUR016	32	57	Shale			Dark	Grey		Dark grey shale - Bulldog Shale
DD16TUR016	57	114	Sandstone			Light	Grey		Quartz sand
DD16TUR016	114	159	Diamictite			Medium	Grey	White	Sand
DD16TUR016	159	172	Quartzite	Foliated	Banded	Medium	Grey	Orange	Quartzite
DD16TUR016	172	175.7	Gneiss	Foliated	Layered	Medium	Grey	Pink	Gneiss strongly foliated. Mostly igneous origin but in parts it looks like paragneiss (sedimentary origin). Minor thin poss calc-silicate i
DD16TUR016	175.7	187.1	Paragneiss	Foliated	Layered	Medium	Grey	Brown	Paragneiss strongly foliated. Sedimentary origin. Minor thin calc-silicate rock interlayers (layers with chlorite-diopside-amphibole alt
DD16TUR016	187.1	188.7	Metapsammopelit	Layered	Foliated	Medium	Green	White	Meta-psammopelite
DD16TUR016	188.7	190.2	Calcsilicate			Medium	Green	Grey	Green-grey calc-silicate rock
DD16TUR016	190.2	226.2	Magnetite skarn	Foliated		Dark	Grey	Green	Magnetite skarn
DD16TUR016	226.2	227.3	Quartzite	Layered	Banded	Medium	Cream	Orange	Banded quartzite with patchy and layered chlorite alteration. Weak patchy siderite alteration. Orange colouration at end on interval.
DD16TUR016	227.3	230	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist. Graphite has a foliation that is brecciated in places. Veined phrrhotite and lesser pyrite forming along foliation.
DD16TUR016	230	234.2	Metapsammopelit	Foliated	Layered	Dark	Green	Grey	Meta-pammopelite with a foliation (biotite). Chlorite alteration with weak calcic (siderite?) alteration.
DD16TUR016	234.2	235.8	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist. Graphite has a foliation that is brecciated in places. Veined phrrhotite and lesser pyrite forming along foliation.
DD16TUR016	235.8	245.8	Metapsammopelit	Foliated	Layered	Dark	Green	Grey	Meta-pammopelite with a foliation (biotite). Chlorite alteration with weak calcic (siderite?) alteration.
DD16TUR016	245.8	248.1	Schist	Graphitic	Banded	Dark	Grey	Black	Graphite schist. Graphite has a foliation that is brecciated in places. Veined phrrhotite and lesser pyrite forming along foliation.
DD16TUR016	248.1	259.8	Magnetite skarn	Coarse grained	Foliated	Dark	Grey	Green	Texturally destructive coarse grained magnetite skarn. Chlorite-diopside±amphibole.
DD16TUR016	259.8	275.5	Quartzite	Layered	Banded	Medium	Cream	Orange	Banded quartzite with rare biotite rich layers. Strong to intense alteration. Alteration includes strong mostly veined chlorite
DD16TUR016	275.5	308.5	Magnetite skarn	Coarse grained	Foliated	Dark	Grey	Green	Texturally destructive coarse grained massive magnetite and chlorite skarn.
DD16TUR016	308.5	323.7	Granite	Granitic	Chloritic	Medium	Grey	Pink	Granite with moderate-strong chlorite veining and patchy graphite/kspar alteration.
DD16TUR016	323.7	337.8	Magnetite skarn	Coarse grained	Foliated	Dark	Grey	Green	Texturally destructive coarse grained massive magnetite and chlorite skarn.
DD16TUR016	337.8	353.9	Granite	Granitic	Chloritic	Medium	Green	Grey	Granite with strong skarn overprint. moderate-strong chlorite veining and patchy graphite/kspar alteration.
DD16TUR016	353.9	363	Granite	Granitic	Chloritic	Medium	Green	Grey	Granite with zones of intense texturally destructive biotite and lesser chlorite-magnetite-calc-silicate.
DD16TUR016	363	366.4	Granite	Granitic	Chloritic	Medium	Green	Grey	Granite with strong skarn overprint. moderate-strong chlorite veining and patchy graphite/kspar alteration.
DD16TUR016	366.4	370	Granite	Granitic	Chloritic	Medium	Grey	Pink	Granite with strong graphite alteration and chlorite veining.
DD16TUR016	370	383.4	Granite	Granitic	Chloritic	Medium	Green	Pink	Granite with strong chlorite veining and patchy biotite alteration. patchy kspar alteration.
DD16TUR016	383.4	386.2	Calcsilicate	Fine grained	Mottled	Dark	Green	Grey	Strong calc-silicate with pervasive chlorite alteration.
DD16TUR016	386.2	390.6	Granite	Granitic	Chloritic	Medium	Grey	Pink	Granite with strong graphite alteration and chlorite veining.

Table 5: Summary lithological log for hole DD16TUR016, Bellatrix, northern Taurus Prospect

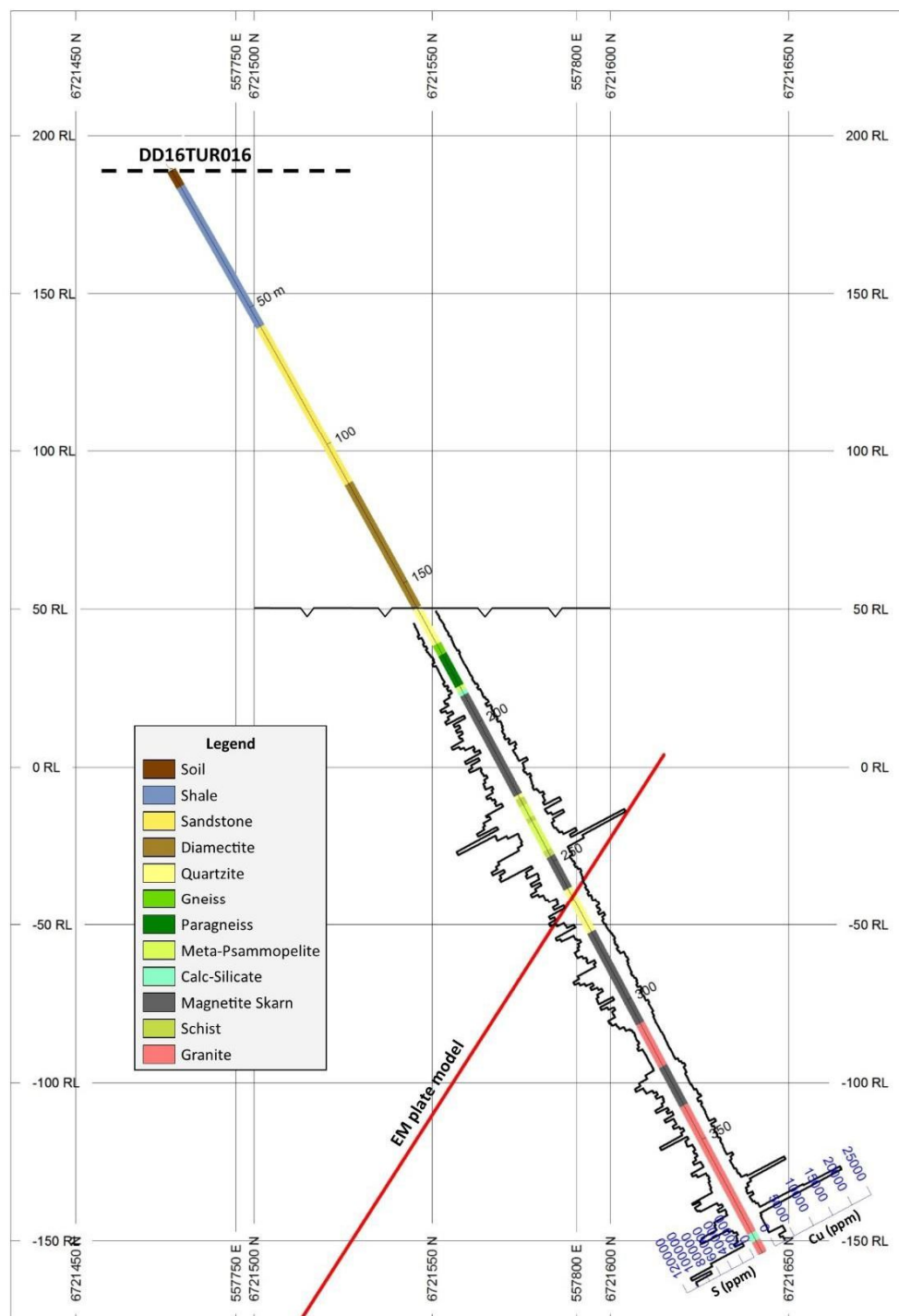


Figure 22: Cross section view for hole DD16TUR016 (Taurus Prospect) with Cu and S histograms

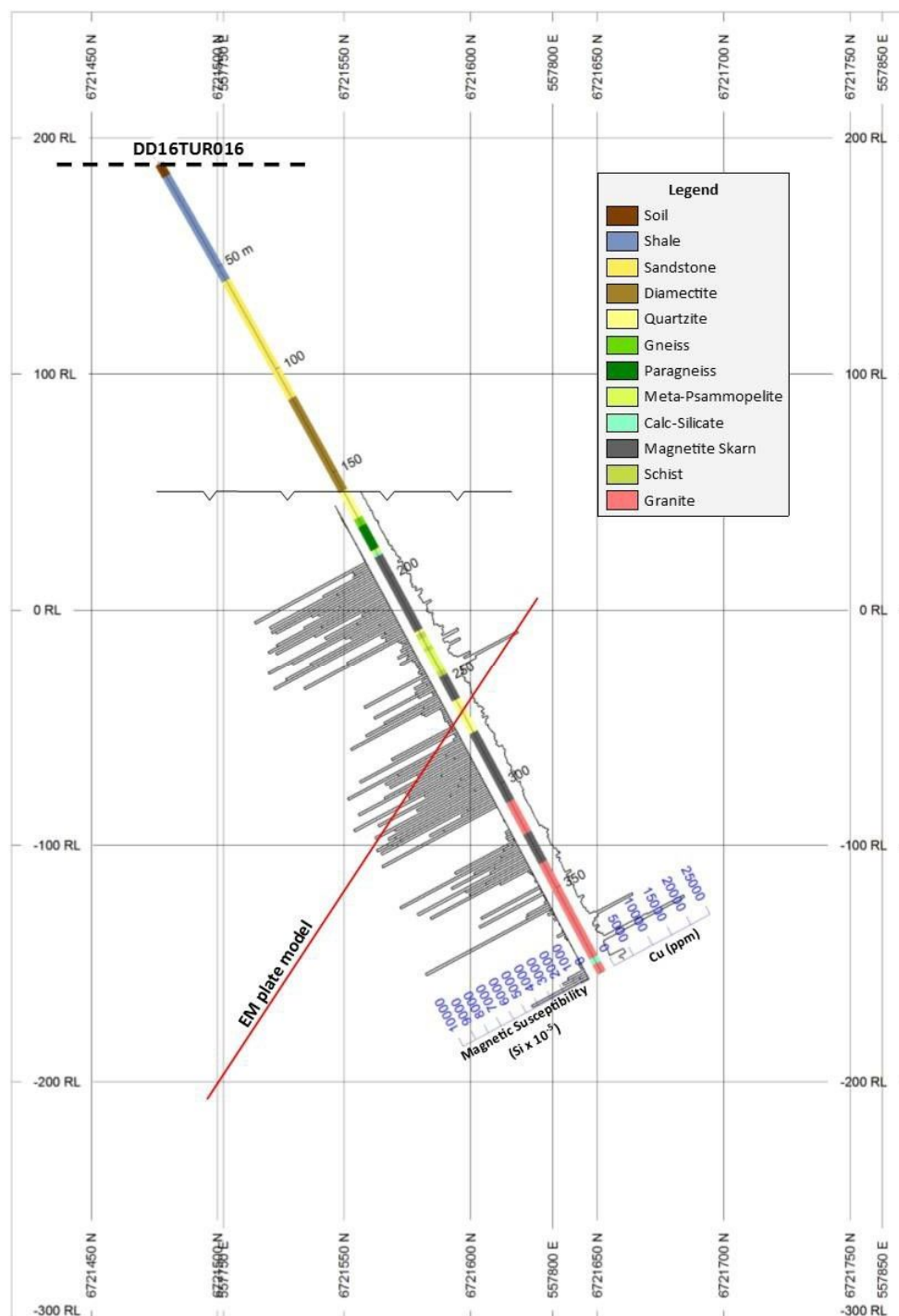


Figure 23: Cross section view for hole DD16TUR016 (Taurus Prospect) with Cu and magnetic susceptibility histograms

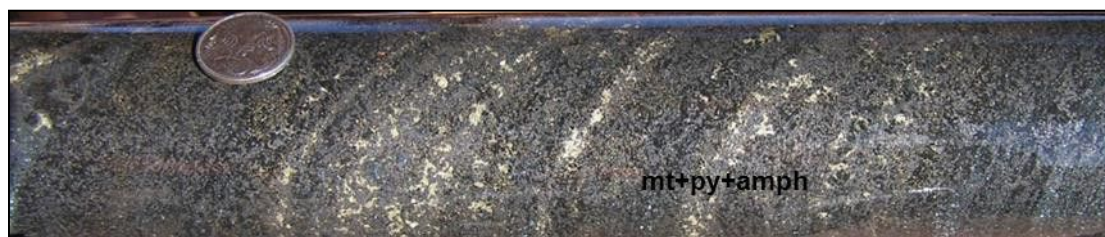


Figure 24: Banded magnetite +pyrite +amphibole IOCG alteration at 226.0m, DD16TUR016



Figure 25: Breccia at 231.5m, DD16TUR016, with matrix consisting predominantly of pyrrhotite, chalcopyrite and hornblende



Figure 26: Pyrrhotite-matrix breccia (left) and irregular pyrrhotite veinlets within graphitic schist at 234.2m, DD16TUR016



Figure 27: Vein, rich in chalcopyrite and pyrrhotite, within graphitic schist at 246.3m, DD16TUR016



Figure 28: Irregular pyrrhotite + chalcopyrite veinlets within graphitic schist at 247.2m, DD16TUR016



Figure 29: Massive magnetite +pyrite +amphibole IOCG alteration at 249.9m, DD16TUR016



Figure 30: Pyrrhotite +chalcopyrite +amphibole vein within diopside-bearing calcsilicate at 263.6m, DD16TUR016

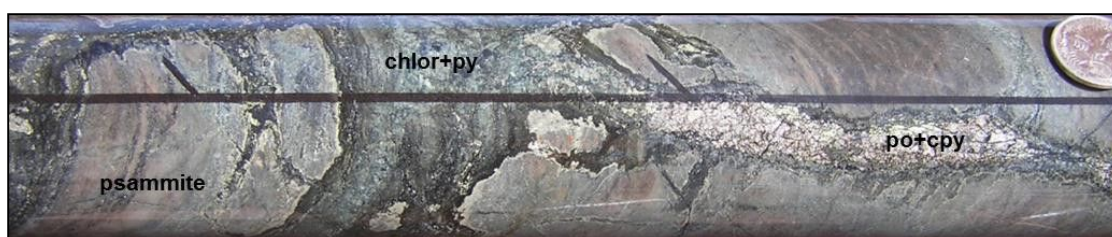


Figure 31: Pyrrhotite +chalcopyrite vein within psammite at 268.7m, DD16TUR016



Figure 32: Extensional pyrrhotite + chalcopyrite veins within skarn assemblage of magnetite, chlorite and tremolite at 335.4m, DD16TUR016



Figure 33: Vein of magnetite + chalcopyrite +pyrrhotite within chlorite-rich skarn at 336.7m, DD16TUR016

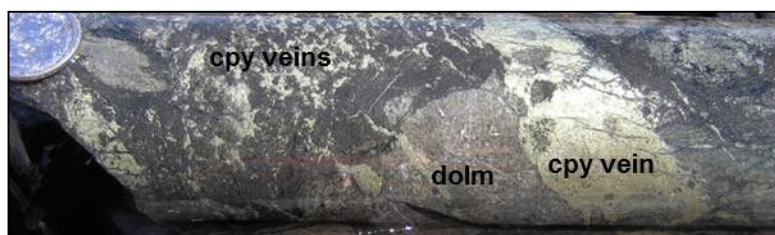


Figure 34: Chalcopryite-rich vein and veinlets within grey dolomite at 377.7m, DD16TUR016



Figure 35: Chalcopryite-rich vein and wispy veinlets within leucogranite at 378.95m, DD16TUR016

6 ISCG EXPLORATION AT THE JUPITER PROSPECT

The Jupiter Prospect, located ~30 km north of Prominent Hill, is within an area of the Mt. Woods Inlier dominated by Paleoproterozoic gneiss, granulite and iron formation (Figures 3 & 36). Some Hiltaba Suite granite plutons have been interpreted, but their magnetic character in regional TMI imagery is greatly different to confirmed Mesoproterozoic plutons in the southern Mt. Woods Inlier. Both NW- and NNW-trending faults truncate the Jupiter area, and the NNW-trending faults are apparently more brittle in character and may represent tectonism at ~1590–1580 Ma. Basement is totally concealed by 30–40 m of Mesozoic sediments.

The Jupiter Prospect is within a large area covered by an airborne EM survey primarily targeting BHT-style mineralisation which was flown in 2003 by BHP Billiton. The AEM survey identified a number of conductors, many of which are not associated with significant positive magnetic or gravity anomalies. Follow-up ground EM was then undertaken along with subsequent EM and IP surveys by OZ Minerals, however, several identified bedrock conductors remain untested by drilling.

During 2016, a fixed-loop ground EM survey was conducted at the Jupiter Prospect in order to assess a basement conductor detected in historical surveys, but which was poorly defined. The survey, comprising 8 line kilometres along E–W lines 200 m apart and utilising a fixed 900 x 600 m loop, delineated an excellent basement conductor with a strike length exceeding 800 m, depth extent >600 m and very high conductance value of >10,000 S (Figures 37–39). This is the strongest basement conductor yet identified within the Jupiter area and holes DD16JUP004 and DD16JUP005, 400 m apart, were both designed to ascertain if this conductor represented Cu-bearing massive sulphides.

Encouragement for the potential of massive sulphide mineralisation in the area comes from hole DD11JUP002, drilled by OZ Minerals ~1 km SSW of the modelled conductor, which contains a 0.4 m wide vein (57.3–57.7 m) of massive pyrrhotite and diopside assaying 0.48% Cu, 740 ppm Co, 18 ppm Ag, 1420 ppm Ni and 17% S (Figure 40). Drill hole DD11JUP003 (1.5 km to the E) specifically targeted an EM anomaly, intersecting a ~28 m wide zone of graphitic metasediments containing 4% late-stage pyrite and chalcopyrite, however, there the EM anomaly is relatively weak with an amplitude of only 300 S.

One historical drill hole (BT04R003), located just northeast of the high-conductance plate, intersected intervals of up to 20% pyrrhotite and pyrite within calcsilicate skarn, but was not sufficiently deep to intersect the currently modelled conductor.

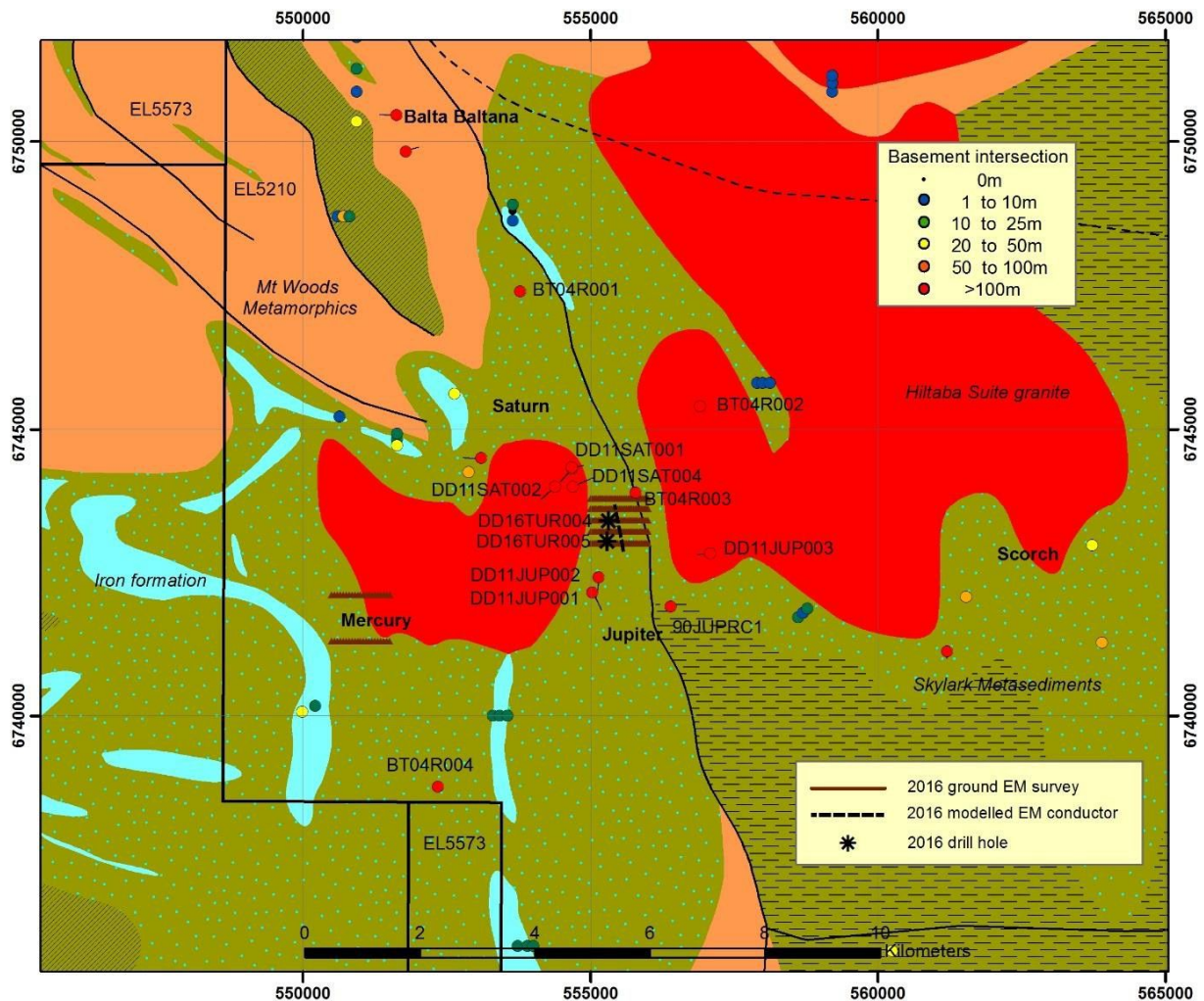


Figure 36: Interpreted basement geology of the Jupiter area (GSSA, 2015) showing location of 2016 ground EM surveys, modelled conductor and drill holes

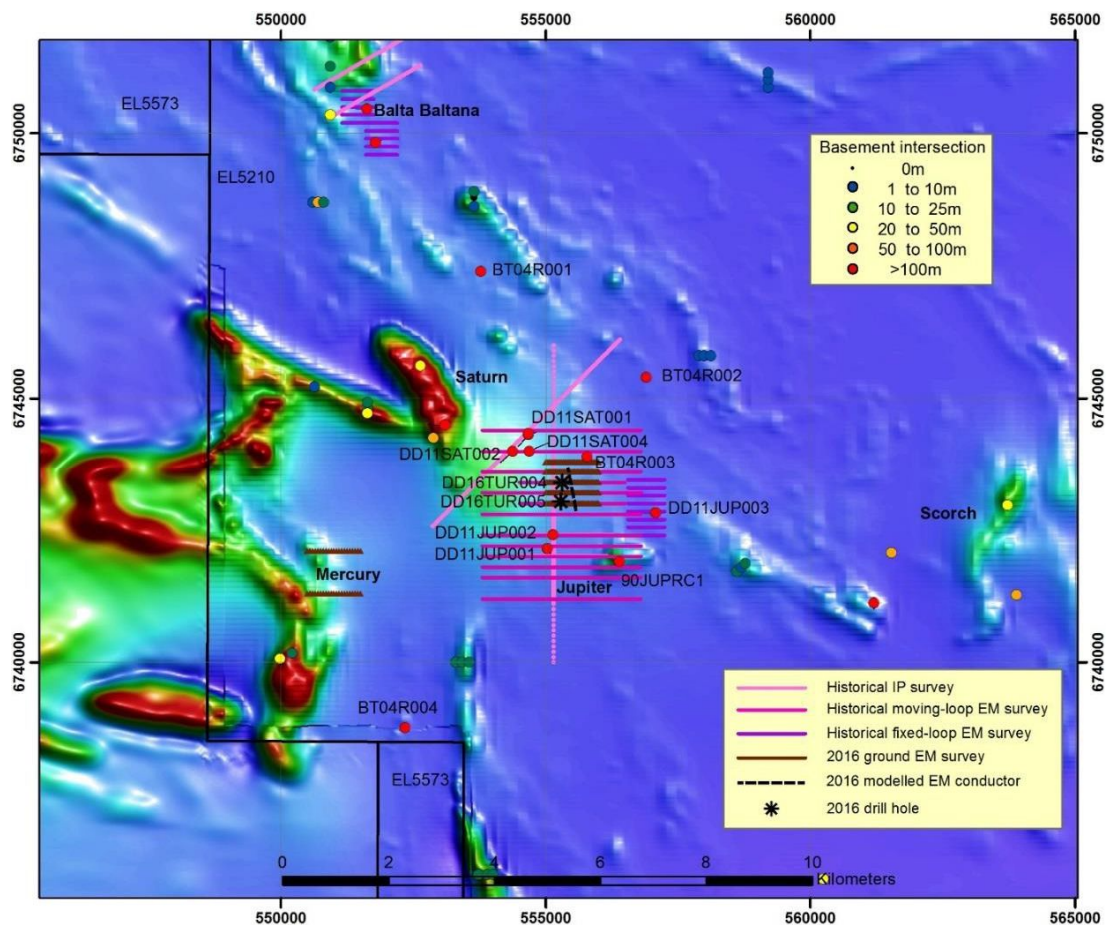


Figure 37: Location of electrical geophysical surveys, targeted EM conductor and drill holes in the Jupiter area over regional TMIRTP magnetic image.

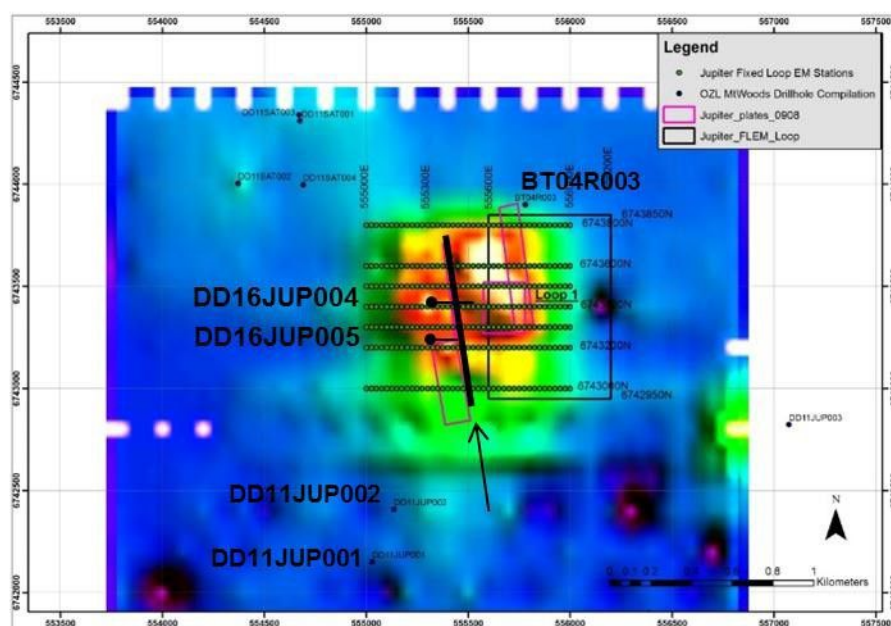


Figure 38: Late-time moving-loop EM image at the Jupiter Prospect showing interpreted basement conductor (solid black line), 2016 EM lines (green) and fixed 900 x 600m loop (black rectangle) along with historical and 2016 drill holes

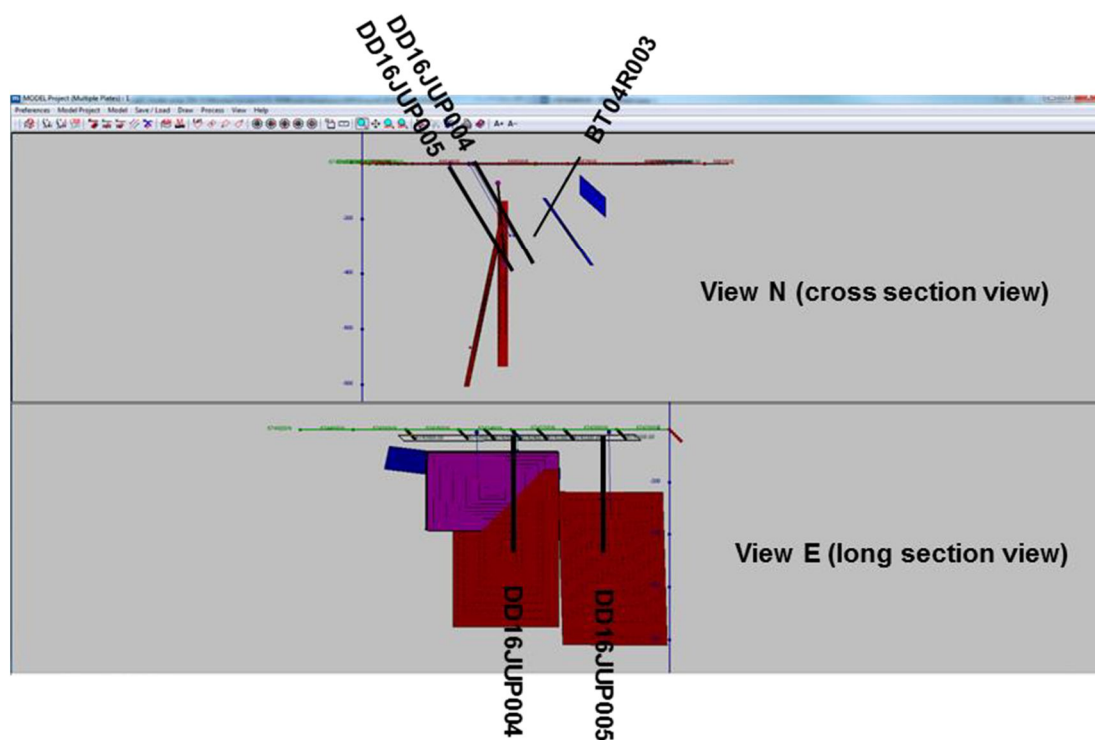


Figure 39: Drill hole traces with respect to modelled EM conductors (red, purple blue) at the Jupiter prospect



Figure 40: Vein of massive very coarse-grained pyrrhotite and diopside at ~57.5m in hole DD11JUP002 at the Jupiter Prospect.

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods Inlier

Hole_ID	D_from	D_to	Lithology	Qualifier1	Qualifier2	Colour_Int	Colour1	Colour2	Remarks
DD16JUP004	0	9	Siltstone			Medium	Green	Grey	green grey siltstone
DD16JUP004	9	36	Sandstone			Medium	Grey		Sandstone
DD16JUP004	36	56.7	Diamictite			Medium	Grey	Red	Diamictite
DD16JUP004	56.7	59.8	Metapelite	Banded	Foliated	Medium	Grey	Cream	High grade (metamorphic) garnet rich metapelite. Foliation is folded and undulating.
DD16JUP004	59.8	79.5	Pegmatite	Felsic	Granitic	Light	Cream	Yellow	Pegmatite with thin intervals (xenoliths?) of metapelite. Coarse grained with weak patchy sericite alteration.
DD16JUP004	79.5	85	Metapelite	Banded	Foliated	Medium	Grey	Cream	High grade (metamorphic) garnet rich metapelite. Foliation is folded and undulating. Weak patchy chlorite-sericite alteration.
DD16JUP004	85	88.1	Pegmatite	Felsic	Granitic	Light	Cream	Yellow	Pegmatite with thin intervals (xenoliths?) of metapelite. Coarse grained with weak patchy sericite alteration. Pegmatite has altered g
DD16JUP004	88.1	155.7	Metapelite	Banded	Foliated	Medium	Grey	Cream	High grade (metamorphic) garnet rich metapelite. Foliation is folded and undulating. Weak patchy chlorite-sericite alteration.
DD16JUP004	155.7	162.9	Pegmatite	Felsic	Granitic	Light	Cream	Yellow	Pegmatite with thin intervals (xenoliths?) of metapelite. Coarse grained with weak patchy sericite alteration. Pegmatite has altered g
DD16JUP004	162.9	173.6	Gneiss	Banded	Foliated	Medium	Grey	Cream	High grade (metamorphic) garnet gneiss with minor thin meta-sediment intervals. Weak patchy chlorite-sericite alteration.
DD16JUP004	173.6	174.7	Pegmatite	Felsic	Granitic	Light	Cream	Yellow	Pegmatite
DD16JUP004	174.7	189.62	Gneiss	Foliated	Banded	Medium	Grey	Cream	Garnet gneiss with thin intervals of biotite-diopside meta-sediment and fragments of pegmatite (felsic). In parts gneiss looks like of s
DD16JUP004	189.62	190.95	Pegmatite	Felsic	Granitic	Medium	Grey	Green	Pegmatite
DD16JUP004	190.95	195.25	Metasediment	Foliated	Layered	Dark	Green	Grey	Meta-sediment with intervals of calc-silicate rock (mica-diopside±amphibole rich)
DD16JUP004	195.25	196.93	Pegmatite	Granitic	Massive	Light	Pink	Grey	Pinkish-grey granitic pegmatite
DD16JUP004	196.93	207.2	Paragneiss	Foliated	Layered	Medium	Grey	Green	Dominantly garnet rich paragneiss with intervals of foliated meta-igneous rock
DD16JUP004	207.2	210.42	Pegmatite	Felsic	Massive	Light	White	Green	White-green felsic pegmatite
DD16JUP004	210.42	223.7	Meta-igneous	Foliated		Medium	Green	Grey	Olive green - dark green pyroxene-amphibole±magnetite altered (contact metamorphosed) rock
DD16JUP004	223.7	225.1	Pegmatite	Felspathic alt	Brecciated	Light	Grey	Green	Green & pink brecciated pegmatite (felsic) with minor thin meta-siltstone. Thin brecciated zones with po (8%) & py (3%) matrix infill
DD16JUP004	225.1	240.16	Breccia	Sheared	Foliated	Medium	Brown	Grey	Brecciated and foliated rock
DD16JUP004	240.16	243.08	Paragneiss	Porphyroblastic		Medium	Grey	White	Garnet-mica paragneiss
DD16JUP004	243.08	252.65	Skarn	Box work	Layered	Medium	Green	White	Layered and foliated skarn
DD16JUP004	252.65	277	Granite	Gneissic	Foliated	Medium	Pink	Grey	Foliated-gneissic granite with minor gneiss intervals. Pegmatitic in places. Thin interval of meta-sediment at 257.10m
DD16JUP004	277	282.7	Gneiss			Medium	Grey	White	Garnet-mica gneiss
DD16JUP004	282.7	287.2	Granite	Gneissic	Foliated	Medium	Pink	Grey	Foliated-gneissic granite with minor gneiss intervals. Pegmatitic in places
DD16JUP004	287.2	308.9	Gneiss			Medium	Grey	White	Garnet-mica gneiss with thin intervals of pegmatite and minor meta-igneous (mafic)
DD16JUP004	308.9	311.2	Pegmatite	Felsic	Granitic	Medium	Pink	White	Pegmatite
DD16JUP004	311.2	312.2	Metasediment	Foliated	Layered	Medium	Green	Grey	Foliated mica rich meta-sediments
DD16JUP004	312.2	315	Gneiss	Granitic		Medium	White	Pink	Granitic gneiss

Table 6: Summary lithological log for hole DD16JUP004, Jupiter Prospect

6.1 DRILL HOLE DD16JUP004

The modelled EM plate at Jupiter plunges to the south and drill hole DD16JUP004 was collared in order to test the shallower portion of the conductor. The down-hole depth-to-conductor was estimated to be 235 m (Figure 39). Drilling intersected a 15m wide pyrrhotite-matrix breccia at ~225.1–240.16 m which adequately accounts for the modelled conductor.

The pyrrhotite-matrix breccia occurs within foliated gneissic to mylonitic Paleoproterozoic rocks which include quartz +feldspar +biotite +garnet schist and paragneiss, pegmatite and leucogranite (Figures 41–48, Table 4). Also present is a mafic igneous rock (210.42–223.7 m), possibly pyroxenite or gabbro, which locally displays a weak compositional layering overprinted by a strong foliation, indicating a probable Paleoproterozoic age for its emplacement (Figure 44). Another mafic igneous rock intersected (~194.5–195.2 m) is only ~0.7 m wide and is likely a gabbroic dyke. It is massive, coarse-grained, contains interstitial pyrrhotite and pyrite (3–5%) and may represent a later, possible Mesoproterozoic intrusion (Figure 43).

The pyrrhotite-matrix breccia consists of a matrix rich in medium-grained, massive pyrrhotite, but also locally containing chalcopyrite and pyrite along with flake graphite. Pyrrhotite constitutes up to 25% of the breccia. A variety of clasts are present, including white quartz and gneiss. Aligned, sub-round, dark grey graphitic schist fragments are also considered to be clasts and their alignment is interpreted to result from fluid flow of the S-rich hydrothermal fluid rather than any tectonic process (Figures 45–47). Hosted entirely within a pyrrhotite matrix, chalcopyrite rich domains trail away from a large quartz clast, which is interpreted to indicate hydrothermal fluid flow (Figure 46).

The pyrrhotite-matrix breccia is anomalous in copper, with elevated Co, Mo and Ni with 15 m @ 0.21% Cu, 130 ppm Co, 25 ppm Mo, 550 ppm Ni, 22% Fe and 11.5% S from 235m. Average REE abundances of 23 ppm La and 44 ppm Ce are low for this interval. Gold content is also very low with a best result of 0.08g/t Au over 1m.

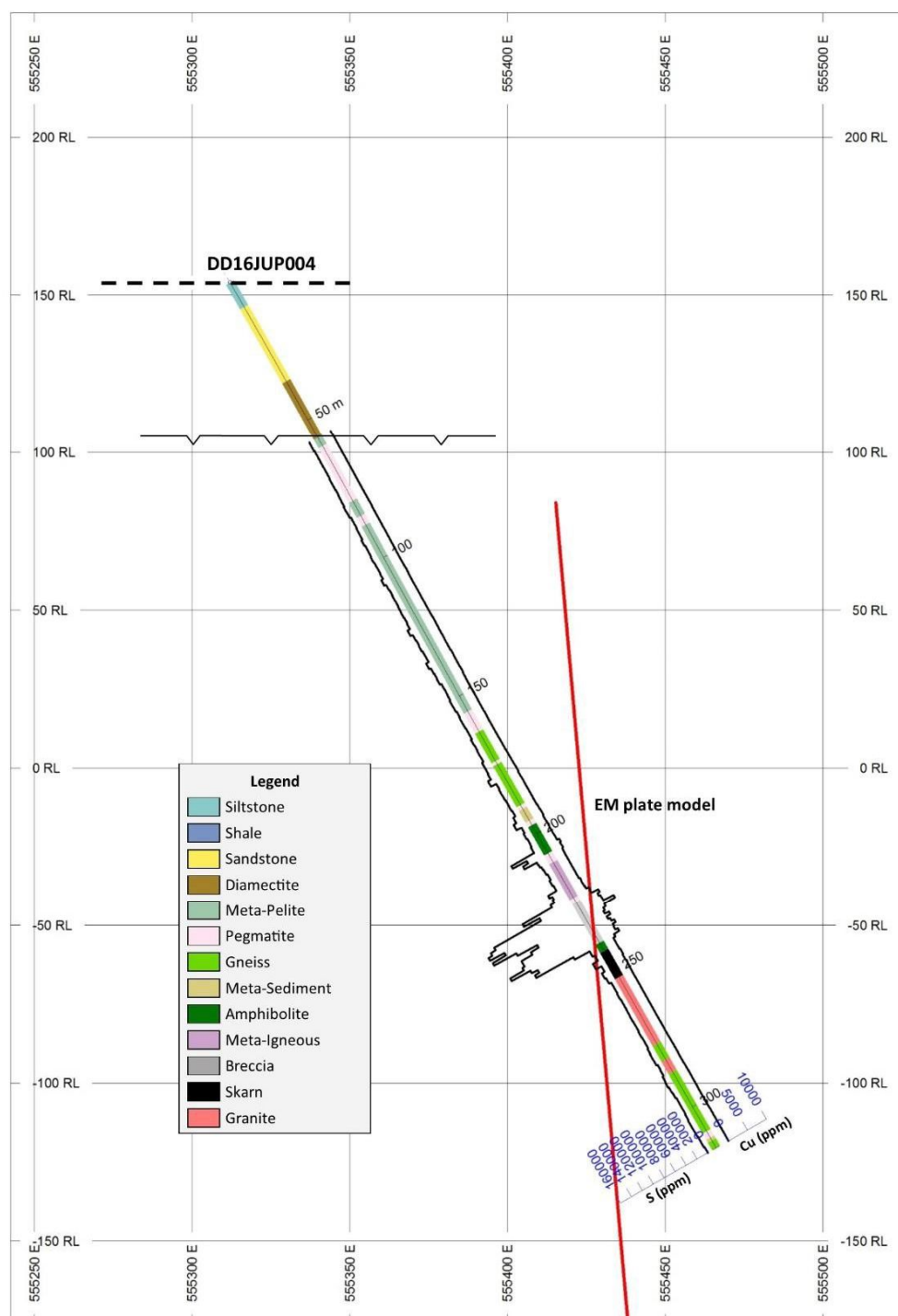


Figure 41: Cross section view for hole DD16JUP004 (Jupiter Prospect)



Figure 42: Strongly-foliated garnetiferous, quartz +feldspar +biotite gneiss at 122.4m, DD16JUP004



Figure 43: Massive gabbro containing interstitial pyrrhotite and pyrite at 194.8m, DD16JUP004



Figure 44: Weakly compositionally banded and strongly foliated (?) pyroxenite at 211.9m, DD16JUP004



Figure 45: Pyrrhotite-matrix breccia at 225.6m, DD16JUP004



Figure 46: Pyrrhotite-matrix breccia with chalcopyrite-rich trails on right (downhole) of prominent quartz clast, at 227.7m in DD16JUP004. Downhole to the right



Figure 47: Pyrrhotite-matrix breccia with aligned clasts of graphitic schist and gneiss at 239.3m, DD16JUP004



Figure 48: Gneissic pegmatite/leucogranite at 275.8m, DD16JUP004

Breccia development and abundance of sulphides within the matrix indicate moderate-pressure, S-rich hydrothermal fluid flow and its composition is consistent with ISCG-style mineralisation and fluids within the Cloncurry district of the Mount Isa Inlier. Timing for the breccia development at Jupiter is thought to be Mesoproterozoic based upon lack of deformational features in the breccia in comparison to strong foliation and mylonitic fabrics developed within adjacent Paleoproterozoic gneiss, pegmatite and leucogranite.

6.2 DRILL HOLE DD16JUP005

Hole DD16JUP005, drilled 400 m south of DD16JUP004, targeted the south-plunging extension of the EM conductor (Figure 39). Estimated down-hole depth to the modelled conductor was 340 m and the hole was drilled to a total depth of 360.8 m, but without intersecting any significant conductive lithologies (Figures 49–54, Table 7). A pyrrhotite-matrix breccia intersected (~294.6–295.2 m) (Figure 50) contains a matrix rich in pyrrhotite and pyrite, and is very similar in character to that within DD16JUP004 (Figure 45). However, it is very thin as down-hole thickness is 0.6 m and is not sufficiently thick to account for the very strong EM anomaly.

The hole was terminated 20 m beyond the estimated depth-to-conductor and within uncertainties in the EM modelling and thus may not have reached the source of the EM target; therefore any lateral or vertical variations in the nature and composition of the pyrrhotite breccia remain unknown.

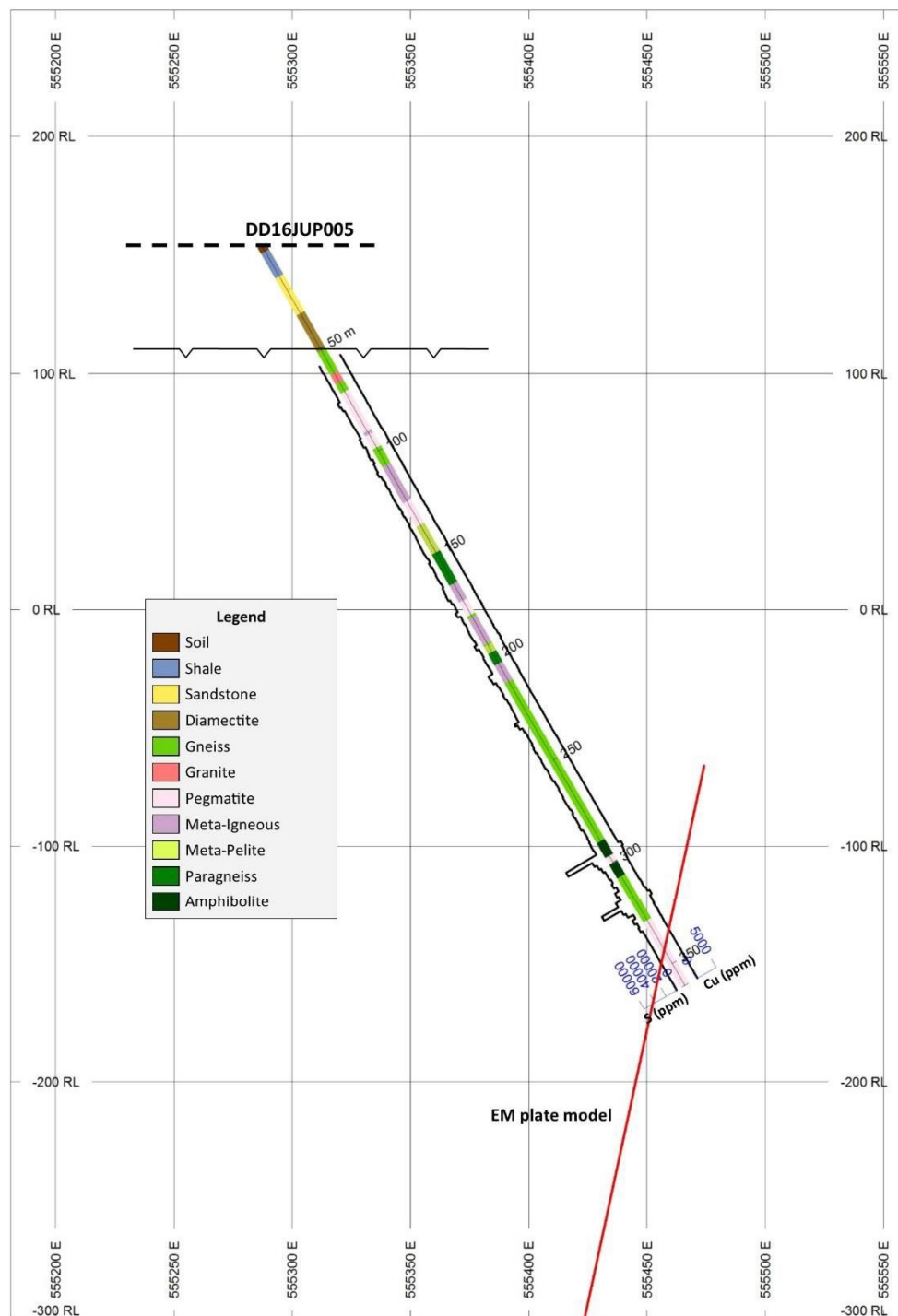


Figure 49: Cross section view for hole DD16JUP005 (Jupiter Prospect)

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods Inlier

Hole_ID	D_from	D_to	Lithology	Qualifier1	Qualifier2	Colour_Int	Colour1	Colour2	Remarks
DD16JUP005	0	3	Soil			Medium	Brown		Soil
DD16JUP005	3	12	Shale			Light	Brown	Grey	Oxidised shale
DD16JUP005	12	15	Shale	Clayey		Medium	Orange	Brown	Sandy - clayey shale. Poss transition zone from Bulldog Shale to Cadna-owie Sandstone
DD16JUP005	15	33	Sandstone			Light	Grey		Cadna-owie Sandstone
DD16JUP005	33	51	Diamictite			Medium	Grey	Red	Diamictite
DD16JUP005	51	56.6	Gneiss			Medium	Red	Grey	HWT-PCT clay-mud-rock fragments. Possibly after metamorphic rock/basement
DD16JUP005	56.6	61.9	Gneiss			Medium	Grey		Garnet mica gneiss
DD16JUP005	61.9	66.6	Granite	Pegmatitic	Foliated	Medium	Pink	Grey	Pegmatitic granite
DD16JUP005	66.6	70.9	Gneiss			Medium	Grey	Green	Garnet mica gneiss with an interval of granitic pegmatite. 10cm wide possibly meta-diorite
DD16JUP005	70.9	90.3	Pegmatite	Granitic		Medium	Pink	Grey	Granitic pegmatite
DD16JUP005	90.3	91.9	Meta-igneous	Fine grained	Equigranular	Dark	Grey	Green	Meta-diorite
DD16JUP005	91.9	98.4	Pegmatite	Feldspathic alteration		Medium	Green	Pink	Dominantly greenish and pinkish pegmatite (granodioritic - granitic) with intervals of amphibolite (meta-mafic intrusion)
DD16JUP005	98.4	106.8	Gneiss	Porphyroblastic		Medium	Grey	Green	Garnet mica gneiss with intervals of felsic pegmatite
DD16JUP005	106.8	124.5	Meta-igneous			Medium	Green	Grey	Greenish grey meta-igneous (amphibolite?) minor intervals of mica schist and felsic pegmatite
DD16JUP005	124.5	135.87	Pegmatite	Granitic		Medium	Pink	Grey	Pinkish grey granitic pegmatite with an interval of mica gneiss
DD16JUP005	135.87	149.33	Schist	Micaceous		Medium	Grey		Mica schist
DD16JUP005	149.33	164.4	Paragneiss	Layered	Porphyroblastic	Medium	Grey	Brown	Paragneiss
DD16JUP005	164.4	172.64	Meta-igneous	Layered	Foliated	Medium	Grey	Green	Foliated mafic meta-igneous (in places layered - meta-sediment?) with intervals of felsic pegmatite
DD16JUP005	172.64	179.54	Pegmatite	Foliated	Felsic	Medium	Grey	Green	Foliated pegmatite
DD16JUP005	179.54	180.8	Gneiss	Porphyroblastic		Medium	Grey	Brown	Garnet mica gneiss
DD16JUP005	180.8	193.4	Meta-igneous			Medium	Green	Grey	Intervals of dominantly meta-igneous (mafic - poss dioritic) with short intervals of mica schist
DD16JUP005	193.4	194.2	Gneiss	Augen		Medium	Pink	Grey	Augen gneiss
DD16JUP005	194.2	197.58	Schist			Medium	Brown	Grey	Mica schist with felsic pegmatite intervals
DD16JUP005	197.58	203.2	Paragneiss			Medium	Grey	Green	Intervals of paragneiss
DD16JUP005	203.2	211.86	Meta-igneous			Medium	Green	Grey	Intervals of mafic meta igneous (or meta-sediment
DD16JUP005	211.86	224.1	Gneiss			Medium	Grey	Green	Dominantly garnet mica gneiss with intervals of felsic pegmatite and mafic meta-igneous
DD16JUP005	224.1	289.7	Gneiss			Medium	Grey	Brown	Dominantly mica garnet gneiss/schist with intervals of mica schist
DD16JUP005	289.7	297	Amphibolite			Medium	Green	Grey	Amphibolite with thin intervals of metapelite.
DD16JUP005	297	300.2	Pegmatite	Felsic		Medium	Cream	Green	Strongly altered pegmatite? Felsic intrusive with patchy and veined chlorite and patchy pyrrhotite.
DD16JUP005	300.2	307	Amphibolite			Medium	Green	Grey	Amphibolite with moderate pervasive
DD16JUP005	307	328.9	Gneiss			Medium	Cream	Grey	Meta-gneiss with moderate to no foliation. Patchy chlorite alteration Some layers are mica or quartz.
DD16JUP005	328.9	360.8	Pegmatite	Foliated	Felsic	Medium	Grey	Cream	Foliated pegmatite

Table 7: Summary lithological log for hole DD16JUP005, Jupiter Prospect



Figure 50: Pyrrhotite- and pyrite-matrix breccia at 294.7m, DD16JUP005



Figure 51: Compositionally banded and foliated ?pyroxenite at 301.0m, DD16JUP005



Figure 52: Mylonitised quartz +feldspar +biotite gneiss and hornblende-bearing gneiss at 319.5m, DD16JUP005



Figure 53: Quartz +feldspar +biotite +garnet paragneiss at 329.6m, DD16JUP005



Figure 54: Garnetiferous leucogneiss at 358.5m, DD16JUP005

Other lithologies intersected within DD16JUP005 include quartz +feldspar +biotite +garnet schist and paragneiss, pegmatite, leucogranite and mafic igneous rock which display strong deformational fabrics from biotite foliation to gneissic to mylonitic, identical in character to those 400 m away in DD16JUP004 (Figures 52–54, Table 7).

Maximum copper and gold analyses for DD16JUP005 are low with best intercepts being 2m @ 780 ppm Cu from 318m and 2m @ 0.19 g/t Au from 170m, latter being within a mafic igneous rock. Highly elevated Cr and Ni occur within another mafic igneous rock (gabbro to ?pyroxenite) deeper within the drill hole comprising 8 m @ 3400 ppm Cr and 990 ppm Ni from 300m.

7 PETROPHYSICS

Basement lithologies which are conductive and likely to produce EM anomalies are restricted predominantly to either graphitic metasediments or massive sulphides (Fe, Cu, Ni), but not disseminated sulphides. Different sulphides have different degrees of conductance, and considerable variation exists depending upon mixture of sulphides present along with content of other resistive minerals (e.g. quartz, calcite, amphibole, feldspar, mica, hematite, magnetite) (Berkman, 1989; Dentith and Mudge, 2014). Pyrrhotite is several orders of magnitude more conductive than pyrite.

- Millerite > Pyrrhotite > Chalcopyrite & Chalcocite > Pyrite > Sphalerite

The degree of electrical conductance for graphitic metasediments also varies considerably, depending upon graphite content and purity, grain size and degree of connection between graphite grains/flakes. Conductivities for graphitic metasediments range over 5 orders of magnitude and overlap with the range for massive sulphides.

Extensive ground EM surveys at the Taurus Prospect prior to the 2016 drill program, delineated several strong basement conductors, but none coincided with known graphitic schists in any of the historical drill holes. Drill holes DD16TUR014, DD16TUR015 and DD16TUR016 intersected graphitic metasediments, at depths coincident with the modelled conductors, and yet seemingly of identical lithological character to those encountered in historical drill holes. A petrophysical study was undertaken to improve understanding of this issue along with assessing the relative conductance of graphitic metasediments (as at the Taurus Prospect) versus massive

pyrrhotite-matrix breccia (as at the Jupiter Prospect) in order to assist future target generation when modelling ground EM survey data.

A total of 22 drill core samples were submitted to Terra Petrophysics Pty Ltd (WA) for a comprehensive petrophysical study, including electrical properties (conductivity, resistivity, chargeability), density, magnetic susceptibility, spectral properties and sonic velocity. Samples were collected from 6 drill holes, including predominantly graphitic schist from holes DD09TUR006, DD10TUR008, DD16TUR014, and DD16TUR016 at the Taurus Prospect and predominantly pyrrhotite-matrix breccia from holes DD16JUP004 and DD16JUP005 at the Jupiter Prospect (Figures 55–59, Table 8, Appendices G–H).

Measured conductivities are within the following ranges and clearly indicate that pyrrhotite-matrix breccias are more conductive than graphitic metasediments.

- 930 – 2.700 S/m for pyrrhotite breccia (Jupiter Prospect),
- 15 – 800 S/m for graphitic phyllite and schist (Taurus Prospect).

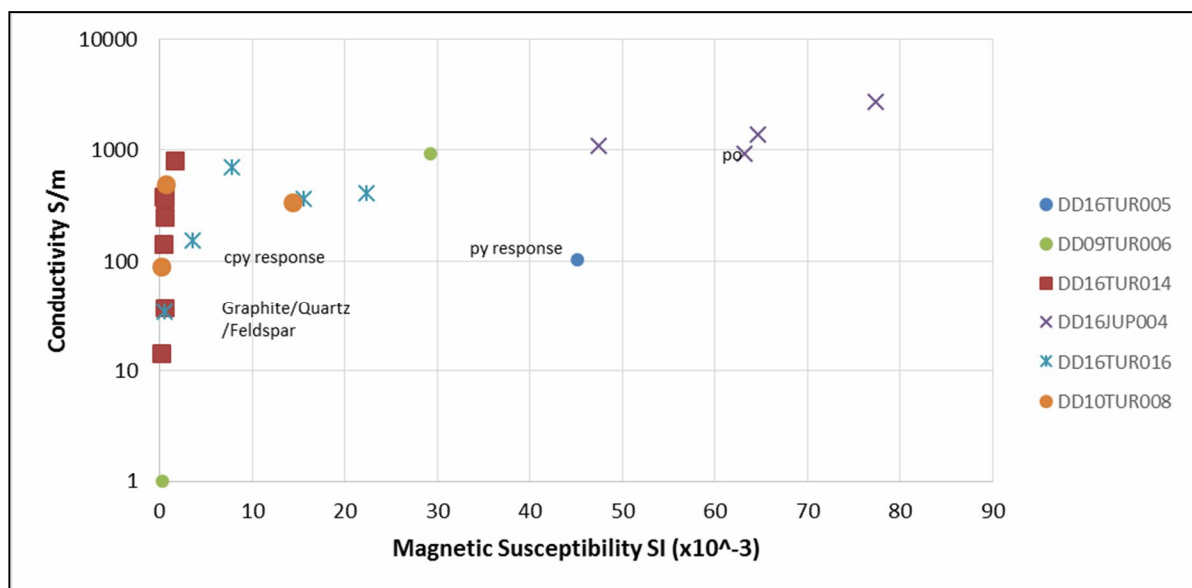


Figure 55: Conductivity versus magnetic susceptibility for select core samples from the Taurus and Jupiter Prospects

DPY 9-42: ISCG-style Cu-Au mineralisation within the Mt. Woods Inlier

SAMPLE INFORMATION					Electrical Properties						Density	Mag Suse	Spectral Properties			Velocity
Drill hole	Depth (m)		Terra Sample	Field Description	Conductivity			(Average)	Resistivity	Chargeability			K	Th	U	Sonic
ID	From	To	ID		(S/m)	(S/m)	(S/m)	(S/m)	(Ω·m)	(mV/V)	(g/cm³)	SI (x10⁻³)	(%)	(ppm)	(ppm)	(m/s)
Jupiter Prospect																
DD16JUP004	226.00	226.18	17TR0022	Pyrrhotite breccia containing clasts of gneiss and graphite schist	2098	1700	759	1394	1.9	96.4	3.25	64.60	0.8	11.3	0	4560
DD16JUP004	226.18	226.34	17TR0021	Pyrrhotite graphite breccia containing round clasts of host rock	2534	2482	3140	2703	2.0	105.5	3.37	77.40	0.4	12.1	2.7	4630
DD16JUP004	230.00	230.18	17TR0009	Pyrrhotite (30%) and graphite breccia	434	2608	708	929	2.8	102.7	3.17	63.20	0.3	6.9	2.2	4300
DD16JUP004	238.00	238.29	17TR0010	Pyrrhotite graphite breccia	445	3254	921	1101	1.2	137.3	2.91	47.40	0.6	7.9	2.3	4700
DD16JUP005	294.70	294.91	17TR0001	Pyrrhotite and graphite rich breccia with minor pyrite and chlorite	80.2	100.2	139	104	24.8	143.3	3.05	45.10	0.8	7.7	3.2	4950
Taurus Prospect																
DD09TUR006	422.60	422.84	17TR0019	Thin pegmatite/granite dyke within graphite schist	0	0	0	0	500812	116.9	2.74	0.27	0.5	4.5	6	6070
DD09TUR006	719.70	719.86	17TR0020	Massive graphite containing pyrrhotite aggregates and stringers	1296	1072	591	936	2.6	184.8	2.97	29.30	0.1	2.1	6.4	4750
DD10TUR008	213.00	213.25	17TR0017	Strong graphite alteration	98.5	93.2	79.3	90	1.4	183.4	2.62	0.18	0.6	3.3	4.7	6250
DD10TUR008	293.60	293.69	17TR0016	Two-stage graphite schist	497	497	497	497	5.3	106.0	2.56	0.61	0.4	5.2	6.9	
DD10TUR008	731.00	731.23	17TR0018	Fine-grained graphite with small round pieces of remnant wall rock	350	393	286	340	1.5	230.3	2.68	14.30	0.7	9.6	1.1	5430
DD16TUR014	224.00	224.24	17TR0008	Graphite schist with abundant pyrite aggregates	30.7	32.2	54.4	38	1.6	127.2	2.96	0.48	1.1	15.5	0	5340
DD16TUR014	253.00	253.26	17TR0002	Massive foliated graphite with pyrite stringers	15.7	28.5	6.7	14	1.8	398.9	2.72	0.23	0.7	7.3	6.7	4790
DD16TUR014	260.00	260.25	17TR0003	Two-stage massive graphite with pyrite and pyrrhotite stringers	773	913	762	813	1.6	299.1	2.70	1.65	0.4	7.6	4.9	5810
DD16TUR014	266.00	266.13	17TR0005	Graphite schist	359	427	351	378	3.2	228.3	2.59	0.53	0.7	8.8	2.8	
DD16TUR014	266.13	266.28	17TR0004	Fine-grained massive graphite	482	385	308	385	4.0	211.2	2.59	0.45	0.6	7.9	2.3	
DD16TUR014	318.00	318.13	17TR0007	Two-stage graphite schist	98.5	192	160	145	2.8	218.0	2.62	0.35	0.3	6.8	3	
DD16TUR014	318.13	318.28	17TR0006	Two-stage graphite with disseminated and pyrite veinlets	259	274	224	251	3.4	184.2	2.73	0.50	0.6	7.9	1.8	
DD16TUR016	234.00	234.21	17TR0012	Two-stage massive graphite with minor pyrite veinlets	260	538	341	363	2.0	209.4	2.67	15.60	0.8	8.8	3.3	4810
DD16TUR016	235.00	235.14	17TR0013	Two-stage massive graphite	549	661	940	699	2.6	160.6	2.63	7.81	0.5	7.7	3.4	
DD16TUR016	246.00	246.28	17TR0014	Two-stage massive graphite with 3cm wide chalcopyrite-rich vein	184	123	159	153	1.6	114.2	2.78	3.57	0.5	10.3	4.3	4180
DD16TUR016	247.20	247.38	17TR0015	Two-stage graphite schist with network pyrrhotite +chalcopyrite veins	342	596	328	406	1.9	141.3	2.80	22.40	0.8	10.9	2.6	4630
DD16TUR016	367.00	367.20	17TR0011	Pegmatite dyke within graphite schist	268	89.7	1.7	34	26.2	158.6	2.71	0.50	0.8	9.9	2.5	5210

Table 8: Summary petrophysical results



Figure 56: Pyrrhotite-matrix breccia at 226.0–226.18m in DD16JUP004 with measured conductivity of 2,700 S/m (Petrophysics ID 17TR0022)



Figure 57: Two-tone graphitic schist with pyrite and pyrrhotite aggregates and veins, 260.0–260.25m in DD16TUR014, with measured conductivity of 810 S/m (Petrophysics ID 17TR0003)

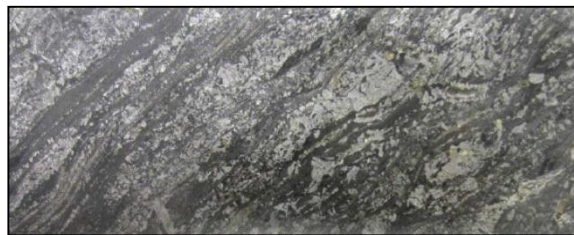


Figure 58: Graphitic schist at 266.0–266.13m in DD16TUR014, with measured conductivity of 380 S/m (Petrophysics ID 17TR0005)



Figure 59: Two-tone graphitic and pyritic schist at 293.6–293.69 in DD10TUR008 with measured conductivity of 500 S/m (Petrophysics ID 17TR0016)

Graphitic sediments (Taurus Prospect) generally have low degrees of magnetisation, though magnetic pyrrhotite (and associated chalcopyrite) is locally present within DD16TUR016 (Figures 57–59). Pyrrhotite-matrix breccia at the Jupiter Prospect have higher degrees of magnetization (Figure 56).

Within the breccia at the Jupiter Prospect, pyrrhotite constitutes up to 30% by volume and forms a well-connected massive mosaic within the matrix, thus the rock has high conductivities (e.g. Figure 55, Table 8). Dispersed aligned graphite flakes and graphite-bearing clasts assist electrical conductance.

In contrast, graphitic metasediments at Taurus are much more heterogeneous. Graphite commonly occurs in two forms, one is dark grey and fine grained and a later, recrystallised shiny grey phase which often forms irregular network veins. Textural variations are common, ranging from massive (bedding poorly defined) to well bedded to a weak–strong foliation development defined by graphite and muscovite. Primary graphite content apparently varies considerably with other resistive mineral constituents including quartz, muscovite and pyrite which collectively result in a wide range of measured conductivities.

Conductivity values for the drill core are in Siemens per metre (S/m), thus indicating degree of conductance per unit length. Modelling of ground EM data is not able to determine unique conductivity values, instead estimating the product of conductivity and thickness with values in Siemens (S). Thus, a thin highly-conductive unit may produce the same ground EM response as a thicker less-conductive unit.

At the Taurus Prospect, graphitic schist in holes DD10TUR006 and DD10TUR008 are of seemingly identical lithological character and measured conductivities to those within holes DD16TUR014 and DD16TUR016, however, ground EM surveying did not record any basement conductor with some known graphitic metasediments in historical drill holes (Figures 8–9). The ground EM survey technique and configuration used during 2016 is considered to be effective through conductive Mesozoic sediments despite cover sediments at the Taurus Prospect being up to 200 m thick. Instead, this apparent inconsistency in ground EM response is probably due to considerable variation in thickness, both primary and due to later folding and tectonic transposition, along with variations in lateral continuity along strike. The line spacing in the 2016 ground EM survey was generally 400 m (moving-loop component), so only the thicker conductive units with strike extent >400 m were delineated.

8 PROGRAM OBJECTIVES AND RESULTS

Exploration for Cu-Au mineralisation on the eastern Gawler Craton since the discovery of Olympic Dam in 1975 has targeted positive gravity and magnetic anomalies as Cu-Au mineralisation is hosted within hydrothermal haematite and/or magnetite rich lithologies (Iron Oxide Copper Gold mineralisation). Exploration was very successful resulting in the discovery of Prominent Hill, Cairn Hill and Carrapateena along with other sub-economic deposits, but the discovery success rate has fallen in recent years as the majority of better geophysical anomalies have been drill tested.

Cu-Au mineralisation within the Cloncurry district of the Mt. Isa Inlier (Queensland), though broadly classified as IOCG, actually comprises a suite of mineralising styles, ranging from classic magnetite-rich breccias (Ernest Henry mine) to sulphide-rich vein systems which contain minimal or no Fe oxides (e.g. Eloise Mine, Kulthor). It was hypothesised that this ISCG style mineralisation (Iron Sulphide Copper Gold) should also occur within the eastern Gawler Craton, particularly within the Mt. Woods Inlier, but has eluded discovery as completely different exploration methodologies are required. Lithologies containing massive sulphides (especially pyrrhotite) are electrically conductive and hence amenable to discovery by EM surveying in comparison to the magnetic and density characteristics of haematite and magnetite when exploring for IOCG style mineralisation.

To test this hypothesis, detailed reviews were undertaken of alteration and mineralisation styles at both the Mt. Isa and Mt. Woods Inliers followed by ground EM surveys during early-mid 2016 at selected sites within the Mt. Woods Inlier. These successfully delineated excellent new basement conductors at the Taurus and Jupiter Prospects north of Prominent Hill which were then drill tested to appraise their potential ISCG-style mineralisation (5 holes, total 1,867.4 m).

At the Jupiter Prospect, a pyrrhotite-matrix breccia of ~7 m true thickness contains a network of massive pyrrhotite and minor chalcopyrite along with graphite between clasts of gneiss, quartz and graphitic schist. The breccia is rich in iron sulphides and totally lacks any haematite or magnetite, and averages 0.21% Cu, 130 ppm Co, 25 ppm Mo, 550 ppm Ni, 22% Fe and 11.5% S. Breccia development and abundance of sulphides within the matrix indicate moderate-pressure, S-rich hydrothermal fluid flow.

At the Taurus Prospect, basement EM conductors predominantly reflect thick graphitic schist, but that pyrrhotite +chalcopyrite veins and breccia also contribute to the ground EM response (notably hole DD16TUR016 at Bellatrix). Mineralised veins are extremely rich in pyrrhotite and chalcopyrite, predominantly lack other mineral constituents including quartz, calcite and iron oxides. The veins contain Cu and Au, but are not particularly anomalous in REE, and best intersections in DD16TUR016 were:

- 9 m @ 0.41% Cu from 242m, including 1 m @ 1.67% Cu from 246m,
- 3.6 m @ 0.44% Cu from 366.4m, including 1 m @ 1.15% Cu from 367m,
- 1.7 m @ 1.89% Cu and 0.29 g/t Au from 377.5m,
- 4.2 m @ 0.3% Cu from 386m.

Pyrrhotite breccia (Jupiter) and pyrrhotite +chalcopyrite veins (Taurus) indicate low–moderate pressure, S-rich hydrothermal fluid flow entirely consistent with ISCG-style mineralisation and fluids within the Cloncurry district of the Mount Isa Inlier. They represent proof of concept for the hypothesis that ISCG-style mineralisation is present within the Mt. Woods Inlier portion of the eastern Gawler Craton and that it is broadly synchronous with widespread regional IOCG-style mineralisation and alteration.

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10 ENVIRONMENTAL MANAGEMENT

An Exploration Compliance Report for activities undertaken on various tenements within the Mt. Woods Inlier collectively held by OZ Minerals (including EL 5210) for the period 1/01/2016 to 31/12/2016 was submitted as part of statutory reporting requirements (Appendix 11 in Neumann and Thompson, 2017). Exploration activities were undertaken under DSD PEPR reference number 2016-1076. Aquifers were cemented, rehabilitation of access tracks, drill pads and sumps was undertaken in accord with the Exploration Work Approval, and environment rehabilitation activities are complete.

11 STAKE HOLDER ENGAGEMENT

An archaeological/anthropological survey was undertaken for the Antakirinja Matu-Yankuntjatjara Native Title Group in June 2016 that allowed for access to Jupiter, Taurus and Andromeda Prospects; the latter was not tested by drilling. Conditional approval was given for the exploration activities with some restrictions imposed, including around some creeks.

OZ Minerals, as holder of the exploration tenements, also managed appropriate land access to The Twins pastoral property and the Woomera Prohibited Area under the Deed Access Agreement with the Commonwealth of Australia.

12 APPENDICES

APPENDIX A:	Drill collars (digital format only) File: PACE_DPY9-42_2017_F_02_DrillCollars.txt
APPENDIX B:	Downhole orientation surveys (digital format only) File: PACE_DPY9-42_2017_F_03_DownholeSurveys.txt
APPENDIX C:	Downhole lithological logs (digital format only) File: PACE_DPY9-42_2017_F_04_DownholeLithologs.txt
APPENDIX D:	Downhole geochemistry (digital format only) File: PACE_DPY9-42_2017_F_05_Geochemistry.txt
APPENDIX E:	Downhole magnetic susceptibility (digital format only) File: PACE_DPY9-42_2017_F_06_MagneticSusceptibility.txt
APPENDIX F:	Downhole specific gravity (digital format only) File: PACE_DPY9-42_2017_F_07_SpecificGravity.txt
APPENDIX G:	Summary petrophysical report Mt. Woods Project, Gawler Craton, South Australia. Terra Petrophysics Pty Ltd Technical Report 16-003 (digital format only) File: PACE_DPY9-42_2017_F_08_PetrophysicsReport.pdf
APPENDIX H:	Petrophysical data on select core samples (digital format only) File: PACE_DPY9-42_2017_F_09_PetrophysicsData.txt
APPENDIX I:	List of digital files (digital format only) File: PACE_DPY9-42_2017_F_10_FileListing.txt

TERRA PETROPHYSICS PTY LTD

(ABN 7613484807)

**MINOTAUR EXPLORATION LIMITED
OZ MINERALS LIMITED
GAWLER CRATON
SOUTH AUSTRALIA**

MT WOODS PROJECT

TECHNICAL REPORT NO. 16_003

PROJECTION/ LOCATION
GDA94 UTM Zone 53S

DISTRIBUTION

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February 2017

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1.0 INTRODUCTION

Terra Petrophysics (Terra) were asked to perform petrophysical analysis on 19 samples from the Mt Woods Project in South Australia by Minotaur Exploration Limited. Petrophysical analysis included: induced polarization/resistivity; inductive conductivity; magnetic susceptibility; wet/dry bulk density/Porosity, sonic velocity and radiometrics (uranium ppm, % potassium, thorium ppm).

In each sample batch Terra have used a number of standards and reference samples during the measurement process to ensure precision and accuracy.

2.0 PETROPHYSICS

2.1 Sample Preparation

Samples for physical property measurements should be carefully selected for quality and representation of geology and/or alteration for meaningful results. Terra recommends samples between the sizes of 10cm to 15cm. In this study all samples were of adequate size and quality. The sample size and shape needs to be determined for most physical property measurements (eg. geometric and core size correction factors). All samples, cores and cut off remnants are returned to the client.

All samples submitted to the laboratory are photographed and marked with both client and Terra sample numbers. Samples for which magnetic remanence vector measurements are requested should be oriented in space. All samples should be accompanied by a project name, a brief description of each sample, requested physical property procedures and final disposal requirement for the samples.

Physical property determinations are nondestructive procedures. However, sample preparation requires the sample to have flat/ square ends and sometimes require them to be cut with a rock saw. In addition, samples are required to be submerged in water for 24 hours before being measured. Sometimes samples containing clays can absorb water and break.

2.2 Inductive Conductivity

The inductive conductivity measurement utilizes an inductive conductivity unit. The conductivity is measured in the frequency domain at 10 000 Hz by using the meter to apply an external magnetic field and inducing a small current in the sample. The measurement is most influenced by sample material at the receiver coil and within a 10cm radius from the center of the sample.

Inductive conductivity is calculated from the difference in amplitude between the sample and free air measurements. The limits of detectability are 0.1 S/m (maximum 100,000 S/m) and resulting data are presented in S/m. Several inductive conductivity measurements will be made and reported when the sample size permits.

2.3 Induced Polarization and Resistivity

The apparent resistivity and induced polarization (or chargeability) determinations are measured in time domain. The resistivity and chargeability is measured by

passing a constant current through the sample and then switching it on and off at 2 second intervals. While the current is flowing through the sample, the resistivity (ohm-m) is calculated. When the current is switched off, the voltage across the sample drops and a decay curve is measured. The induced polarization (mV/V) is calculated from this decay between 450-1100 milliseconds after turn off (Newmont Standard). Resistivity and induced polarization is stacked and averaged a minimum of 10 times for one reading. Terra provide the average results for three readings (minimum).

2.4 Wet/Dry Bulk Density and Porosity

The density determinations are calculated using Archimedes Principle. Dry bulk densities are determined by dry weight divided by the buoyancy determined volume of each sample. Porosities are calculated from water saturated weights, dry weights, and the buoyancy-determined volume. All sample are soaked for 24 hours after dry weights are measured.

The accuracy of the buoyancy technique of density measurement is 0.01 grams per cubic centimeter. The results of the laboratory density determinations are reported in grams per cubic centimeter. Density measurements can be made on grab samples or drill core. Very large or heavy samples (>1kg) require coring or breaking prior to the density determination.

2.5 Magnetic Susceptibility and Remanence

The magnetic susceptibility is measured by a magnetic susceptibility meter. The susceptibility is measured by using the meter to apply an external magnetic field to the sample at an operating frequency of 8 kHz. Magnetic susceptibility is calculated from the frequency difference between the sample and free air measurements. The limits of detectability are approximately 1×10^{-7} SI units and resulting data is presented in 10^{-3} SI units. The measurement is most influenced by sample material at the receiver coil and within a 10cm radius from the center of the sample. Magnetic susceptibility measurements can be made on core, hand and surface samples.

For magnetic samples ($>5 \times 10^{-3}$ SI) the magnetic remanence can be measured. The measurement of remanence (J_r) in the field and the ratio of remanence to the induced magnetization ($J_r/J_i = Q$) has in the past been problematical. The induced magnetization can be estimated using the susceptibility (k , where $J_i = kH$ and typically $H = 40 - 50 \text{ Am}^{-1}$) which can be measured using a handheld meter, but magnetic remanence is more difficult.

A recent development in field instrumentation uses a miniature fluxgate magnetometer and a pendulum arrangement in which a magnetic rock may be swung generating a transient signal at the fluxgate which is converted to a magnetic moment and magnetization.

2.6 Spectral Radiometrics

Terra Petrophysics can offer radiometric analysis on any petrophysical sample submitted. The high sensitivity spectrometer contains two large Sodium Iodide (NaI)

crystals ($\sim 100\text{cm}^3$) that auto stabilize on the naturally occurring (potassium-K, uranium-U and Thorium-Th) radioactivity. Terra Petrophysics provides results in %K and ppm of U and Th. Further work is currently being undertaken to eliminate background sources from measurements. Current measurement includes background radiation sources.

2.7 Velocity

Terra Petrophysics can offer P-wave velocity measurements on any petrophysical sample greater than 15cm submitted for analysis. Measurements are taken at 50,000 Hz. The velocity measurement range is between 1500-9999 m/s.

6.0 RESULTS

The petrophysical results have been included as Appendix 1. Photographs of the samples have been included as Appendix 2. A comparison of the dominant petrophysical responses are shown in Figures 6.1 to 6.10.

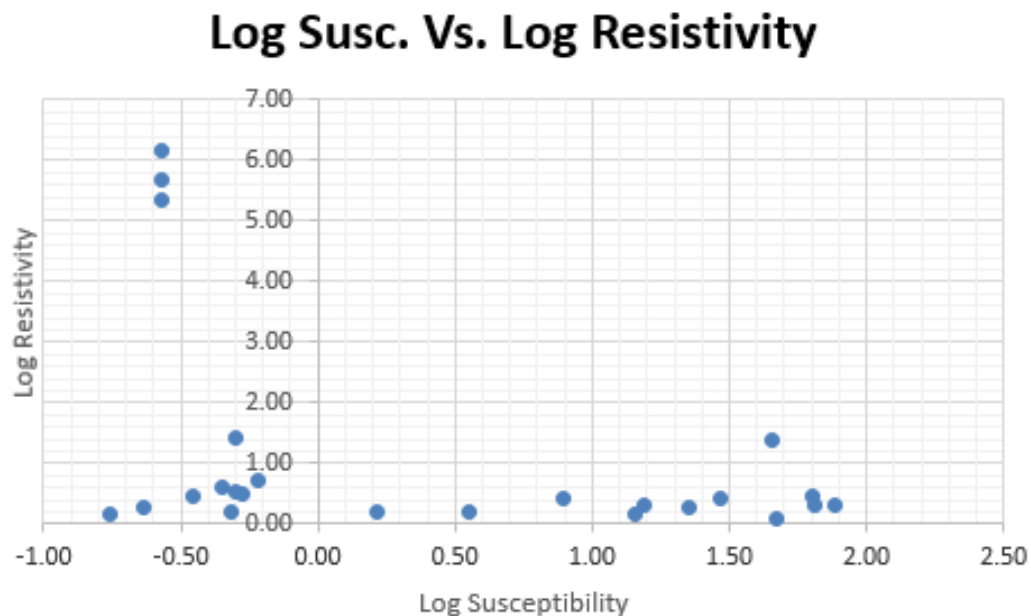


Figure 6.1 Cross plot of log resistivity against log susceptibility readings

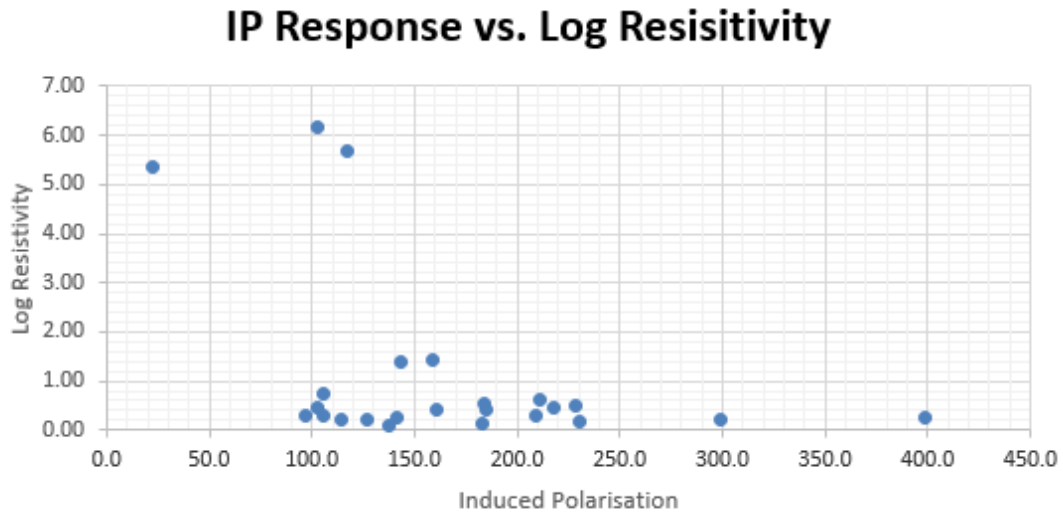


Figure 6.2. Cross plot of induced polarisation against log resistivity readings

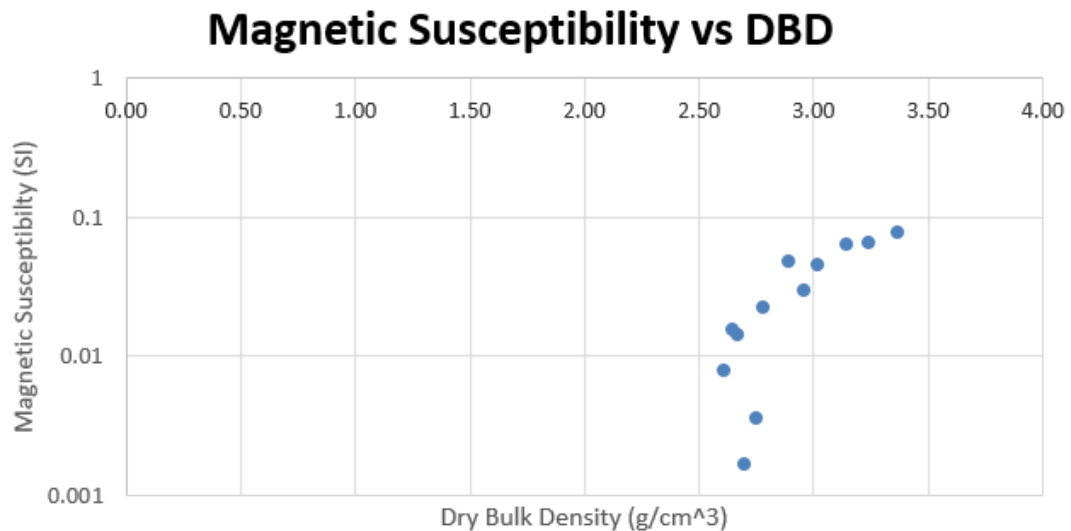


Figure 6.3 Cross plot of magnetic susceptibility vs. dry bulk density readings

There is a near linear trend between dry bulk density and magnetic susceptibility in the core samples. Higher bulk densities with higher magnetic susceptibility is associated with the presence of sulphides (dominantly pyrrhotite). The trend of increasing density with increasing susceptibility is consistent with pyrrhotite bearing rocks (Figure 6.4).

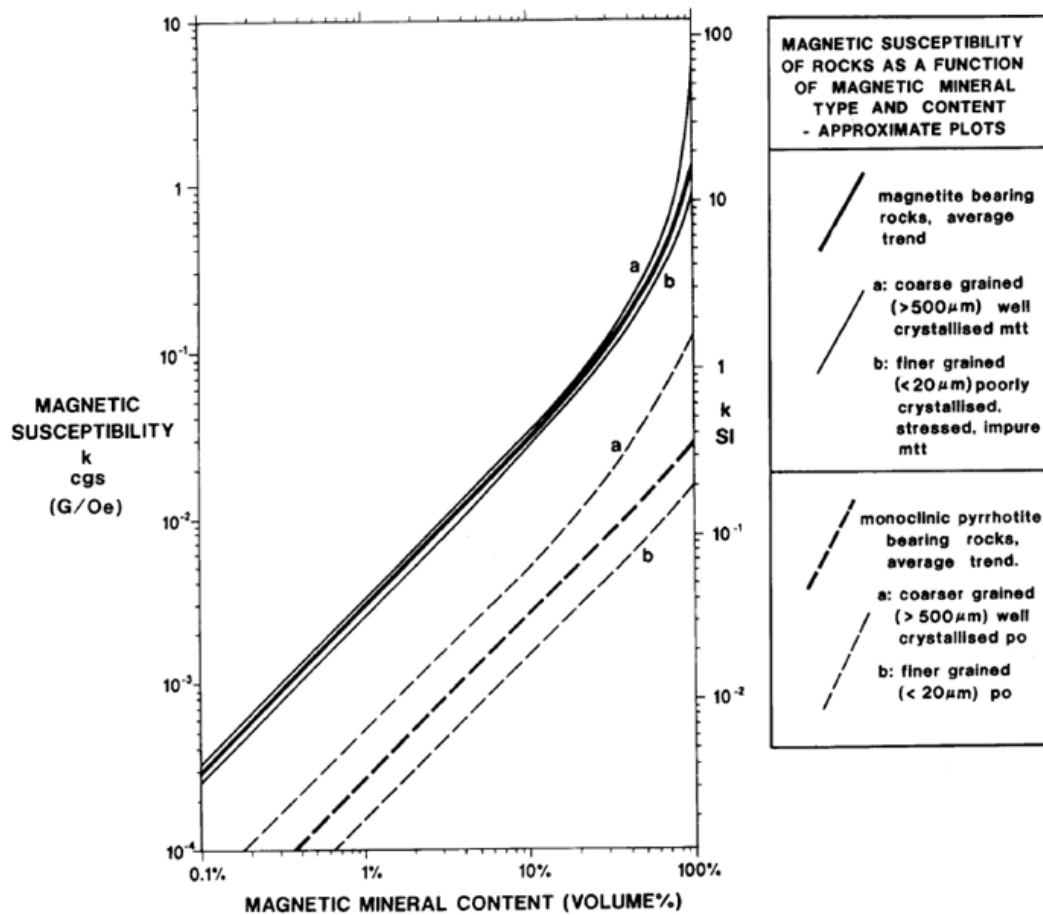


Figure 6.4 Graph displaying magnetic susceptibility of rocks with respect to overall magnetic mineral content (Emerson, 1997)

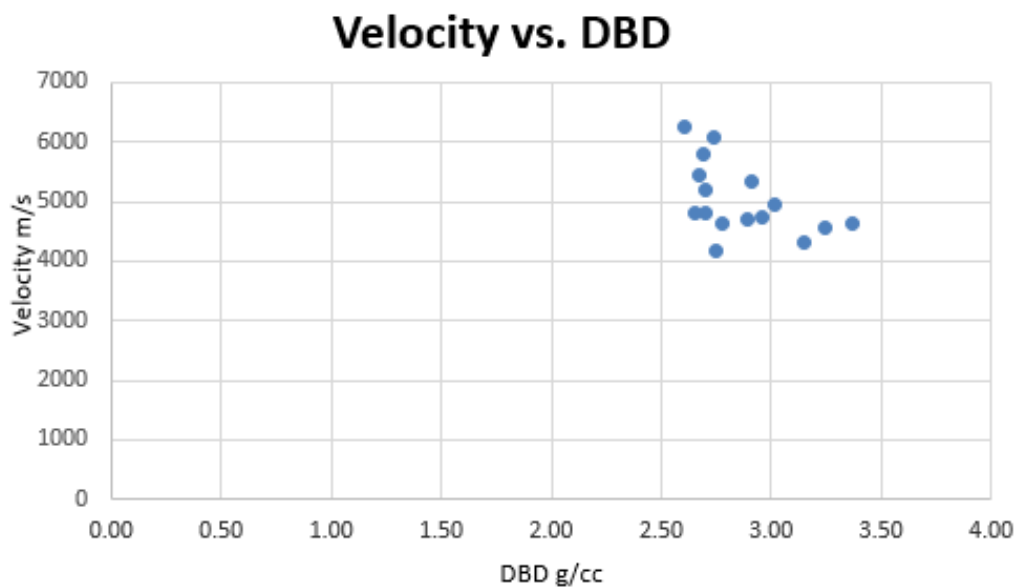


Figure 6.5 Plotted velocity against dry bulk density readings

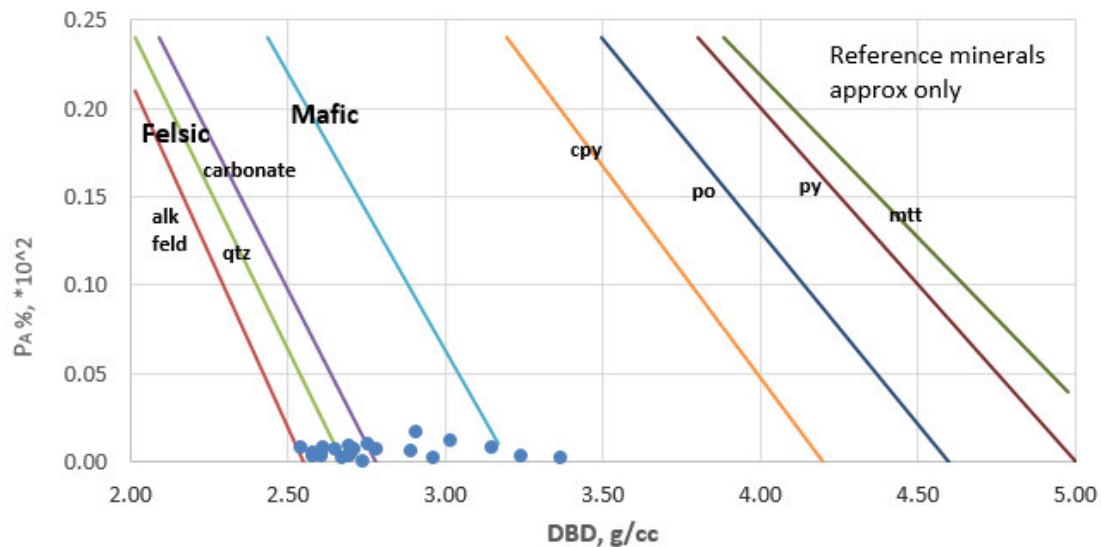


Figure 6.6 Plot of apparent porosity against dry bulk density of core samples. Graph displaying estimated linear trends of common minerals with respect to Dry Bulk Density (g/cc) vs. Apparent Porosity, PA (%) (Emerson, 1997).

The position of samples plotted relative to the expected mineral trend lines reveals the overall composition ranges between felsic and mafic composition. The presence of sulphides (py, po) and graphite within the samples (alteration) effect the overall reliability of the composition determination. Lower porosity values are expected within igneous and metamorphic rocks.

Conductivity vs Borehole Depth

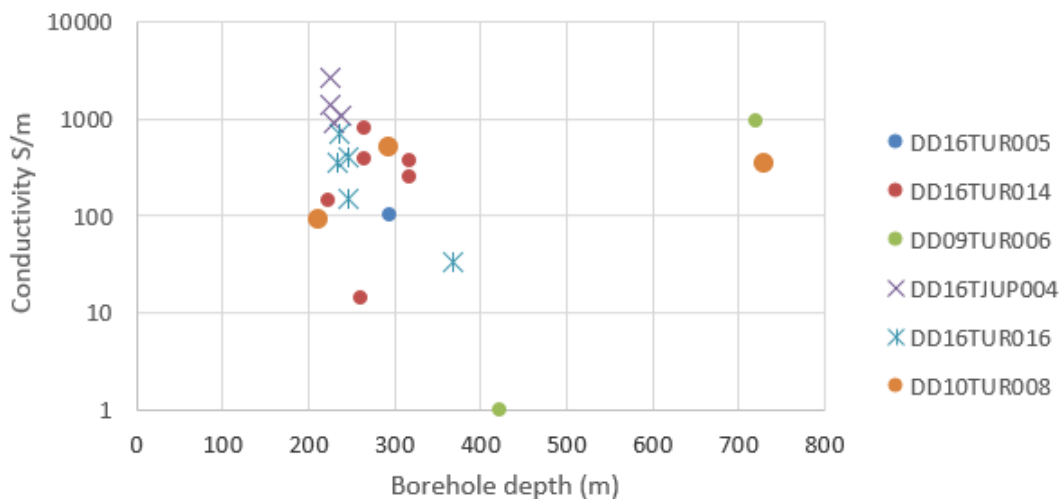


Figure 6.7 Conductivity plotted against borehole depth

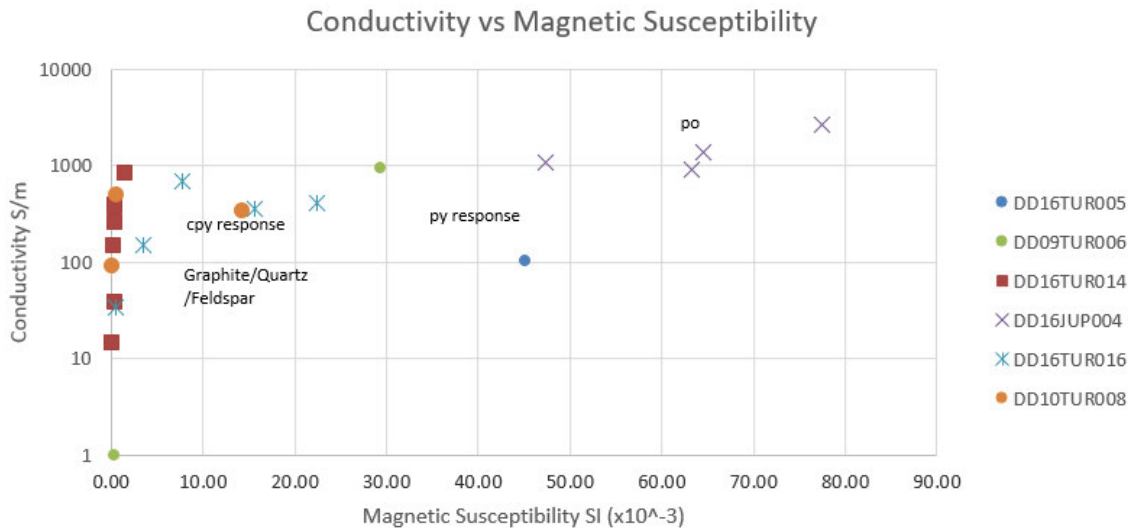


Figure 6.8 Conductivity plotted against magnetic susceptibility

In some samples it appears that conductivity is primarily associated with an increase in graphite (refer to Figure 6.9). The conductivity values lie within the range of $10 - 10^3$ indicating a minimum weight percentage of 25% graphite (if 100% of the response is attributed to graphite). Remobilised po-py and semi-massive sulfides also contribute to the high conductivity response. Figure 6.8 displays the conductivity plotted against the magnetic susceptibility of samples. The response from a higher graphite composition compared to a massive sulfide dominated sample can be identified. Responses displaying moderate to high conductivities with negligible magnetic susceptibility are associated with graphite. Quartz/feldspar compositions show minimal magnetic susceptibility and low conductivities (high resistivity). Moderate magnetic susceptibility and conductivity is aligned with pyrite/pyrrhotite minerals. High conductivity with an associated high susceptibility is due to pyrrhotite.

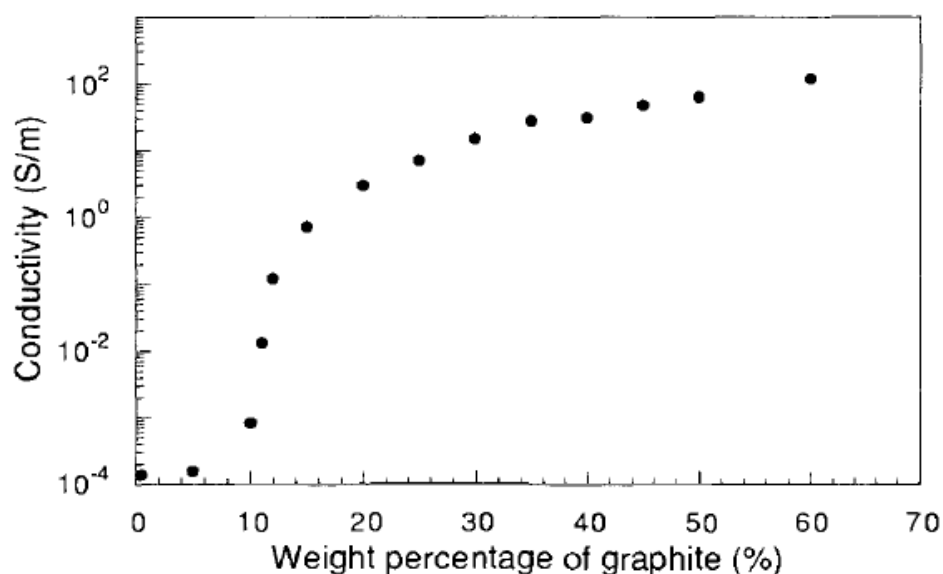


Figure 6.9 Graph displaying trend of increasing of overall conductivity of a sample with respect to overall graphite content (Emerson, 1997)

Mineral	Density¹	Susceptibility²
Barite	4.5	-
Chalcopyrite	4.2	0.4
Pyrite	5.02	5
Pyrrhotite	4.62	3,200
Sphalerite	4	0.8
Galena	7.5	-0.03
Magnetite	5.18	5,700
Hematite	5.26	40

Figure 6.10 Magnetic susceptibility and density of common sulfide minerals. Densities (g/cm³) from Klein and Hurlbut (1985) and susceptibilities (x 10⁻³) from Hunt et. al (1995).

7.0 REFERENCES

- Emerson, D.W., and Yang, Y.P., 1997, Insights from laboratory mass property cross plots. ASEG Preview, 70, 10-14.
- Hunt, C.P., Moskowitz, B.M., and Banerjee, S.K., 1995, Magnetic properties of rocks and minerals, in Ahrens, T.J., ed., Rock physics and phase relations—A handbook of physical constants: American Geophysical Union, p. 189–204.
- Klein, C., and Hurlbut, C.S., 1985, Manual of mineralogy (after J.D. Dana): New York, John Wiley and Sons, 596 p.

APPENDIX 1

Sample Information					
Drill	Meterage		Sample	Terra Sample	Field Description
Hole ID	From	To	ID	ID	
DD16TUR005	294.7	294.9	PET001	17TR0001	Pyrrhotite and graphite rich breccia with minor pyrite and chlorite. Graphite rich zones are breaking up host rock.
DD16TUR014	253	253.263	PET002	17TR0002	Massive foliated graphite with disseminated and elongated pyrrhotite.
DD16TUR014	260	260.25	PET003	17TR0003	Two stage massive graphite with pyrite and pyrrhotite. Early stage black graphite brecciated by later stage grey graphite
DD16TUR014	266.125	266.275	PET004A	17TR0004	Fine grained massive graphite
DD16TUR014	266	266.125	PET004B	17TR0005	
DD16TUR014	318.125	318.275	PET005A	17TR0006	Two stage graphite with disseminated and veined sulphides
DD16TUR014	318	318.125	PET005B	17TR0007	
DD16TUR014	224	224.244	PET006	17TR0008	Strong graphite alteration with blebby pyrite
DD16JUP004	226.175	226.34	PET007A	17TR0021	Pyrrhotite graphite breccia with rounded clasts of host rock
DD16JUP004	226	226.175	PET007B	17TR0022	
DD16JUP004	230	230.18	PET008	17TR0009	Pyrrhotite (30%), graphite breccia
DD16JUP004	238	238.288	PET009	17TR0010	Pyrrhotite graphite breccia
DD16TUR016	367	367.204	PET010	17TR0011	Two stage massive graphite with stringers of pyrrhotite and host rock.
DD16TUR016	234	234.213	PET011	17TR0012	Two stage massive graphite
DD16TUR016	235	235.142	PET012	17TR0013	Two stage massive graphite
DD16TUR016	246	246.275	PET013	17TR0014	Massive two stage graphite
DD16TUR016	247.2	247.384	PET014	17TR0015	Two stage graphite.
DD10TUR008	293.6	293.693	PET015	17TR0016	Massive two stage graphite.
DD10TUR008	213	213.247	PET016	17TR0017	Strong graphite alteration
DD10TUR008	731	731.234	PET017	17TR0018	Fine grained graphite with small rounded pieces of remnant wall rock
DD09TUR006	422.6	422.842	PET018	17TR0019	Thick veins of graphite intruding the pegmatite.
DD09TUR006	719.7	719.86	PET019	17TR0020	Massive graphite with blotchy and stinger pyrrhotite.

Sample Information					
Drill	Meterage		Sample	Terra Sample	Comments
Hole ID	From	To	ID	ID	
DD16TUR005	294.7	294.9	PET001	17TR0001	Sulphide mineral present (py)
DD16TUR014	253	253.263	PET002	17TR0002	Sulphide minerals present, Qtz/ K-Feld vein, lower cond, v.high chargeability due to high ratio of sulphides. Foliated graphite
DD16TUR014	260	260.251	PET003	17TR0003	Graphite veining/sulphides , low mag, chalcopyrite grains. Slight oxidation. Feldspar/qtz intrusion. Mafics 1mm grains, high chargeability
DD16TUR014	266.125	266.275	PET004A	17TR0004	Foliated graphite fabrics, sulphide 1-2mm bands, chalcopyrite , pyrite grains 1-2mm. Amphibole grains, low mag.
DD16TUR014	266	266.125	PET004B	17TR0005	Irregular banding of graphite and mafic grains, small accumulations of pyrites and chalcopyrite (magnetic)
DD16TUR014	318.125	318.275	PET005A	17TR0006	Veining of fine grained chalcopyrite, 2 stage v.fine grained graphite irregular banding, pyrite grains.
DD16TUR014	318	318.125	PET005B	17TR0007	Graphite veining, massive structure, v.fine grained. Disseminated/veined sulphides. Dull chalcopyrite. High chargeability
DD16TUR014	224	224.244	PET006	17TR0008	V.F graphite alteration small veins, irregular accumulations felsic, low mag, dull chalcopyrite
DD16JUP004	226.175	226.34	PET007A	17TR0021	Increased pyrrhotite and K-feldspar present, fine grained, mafic (amphibole) minerals, 1mm pyrite grains
DD16JUP004	226	226.175	PET007B	17TR0022	High magnetism, increased pyrrhotite (60%), qtz/feldspar, lacks fabric
DD16JUP004	230	230.182	PET008	17TR0009	Regular disseminated pyrrhotite, <1mm mafic grains, chloritic alteration (low hardness), feldspathic
DD16JUP004	238	238.288	PET009	17TR0010	Large feld/qtz accumulation, high variability, disseminated sulphides (10-15%), qtz/feld, pyrrhotite (brown) 2mm non metallic mafics

Sample Information					
Drill	Meterage		Sample	Terra Sample	Comments
Hole ID	From	To	ID	ID	
DD16TUR016	367	367.204	PET010	17TR0011	20cm wide pink k-felspar/ qtz band (40%) , ~2mm pyrite and chalcopyrite grains, <1mm veins of pyrrhotite
DD16TUR016	234	234.213	PET011	17TR0012	Veining of graphite, deposits of magnetic pyrrhotite, felsics present, high chargeability
DD16TUR016	235	235.142	PET012	17TR0013	Graphite irregular distribution, veining. High resistivity. Small disseminated deposits of pyrrhotite in veins
DD16TUR016	246	246.275	PET013	17TR0014	Irregular banding. Chalcopyrite higher percentage, magnetic pyrrhotite, pyrite grains (<2mm), felsic grains in veining of sulphide 'light grey'
DD16TUR016	247.2	247.384	PET014	17TR0015	Minimal veining of sulphides, fine/med grain size. 10 ⁻² ilmenite, Pyrite/ilmenite fabrics
DD10TUR008	293.6	293.693	PET015	17TR0016	Graphite irregular veining, feldspar irregular distribution. Low percentage of sulphides
DD10TUR008	213	213.247	PET016	17TR0017	Massive texture host rock, v.fine grains, no visible structures
DD10TUR008	731	731.234	PET017	17TR0018	Massive texture, disseminated sulphides , slight oxidation
DD09TUR006	422.6	422.842	PET018	17TR0019	Magnetic susceptibility low. Strong fabric alignment, banding fine grain. pyroxene accumulations present. Extremely high resistivity (2 repeats completed on splits) due to feld/qtz fabric.
DD09TUR006	719.7	719.859	PET019	17TR0020	Irregular veining (stinger) of sulphides, oxidation present. V.fine grained, massive fabrics, high magnetic susceptibility due to pyrrhotite

Sample Information					Electrical Properties					
Drill	Meterage		Sample	Terra Sample	Conductivity			Average Cond	Resistivity	Chargeability
Hole ID	From	To	ID	ID	(S/m)	(S/m)	(S/m)	(S/m)	($\Omega \cdot m$)	(mV/V)
DD16TUR005	294.7	294.9	PET001	17TR0001	80.2	100.2	139	104	24.8	143.3
DD16TUR014	253	253.263	PET002	17TR0002	15.7	28.5	6.7	14	1.8	398.9
DD16TUR014	260	260.251	PET003	17TR0003	773	913	762	813	1.6	299.1
DD16TUR014	266.125	266.275	PET004A	17TR0004	482	385	308	385	4.0	211.2
DD16TUR014	266	266.125	PET004B	17TR0005	359	427	351	378	3.2	228.3
DD16TUR014	318.125	318.275	PET005A	17TR0006	259	274	224	251	3.4	184.2
DD16TUR014	318	318.125	PET005B	17TR0007	98.5	192	160	145	2.8	218.0
DD16TUR014	224	224.244	PET006	17TR0008	30.7	32.2	54.4	38	1.6	127.2
DD16JUP004	226.175	226.34	PET007A	17TR0021	2534	2482	3140	2703	2.0	105.5
DD16JUP004	226	226.175	PET007B	17TR0022	2098	1700	759	1394	1.9	96.4
DD16JUP004	230	230.182	PET008	17TR0009	434	2608	708	929	2.8	102.7
DD16JUP004	238	238.288	PET009	17TR0010	445	3254	921	1101	1.2	137.3
DD16TUR016	367	367.204	PET010	17TR0011	268	89.7	1.7	34	26.2	158.6
DD16TUR016	234	234.213	PET011	17TR0012	260	538	341	363	2.0	209.4
DD16TUR016	235	235.142	PET012	17TR0013	549	661	940	699	2.6	160.6
DD16TUR016	246	246.275	PET013	17TR0014	184	123	159	153	1.6	114.2
DD16TUR016	247.2	247.384	PET014	17TR0015	342	596	328	406	1.9	141.3
DD10TUR008	293.6	293.693	PET015	17TR0016	497	497	497	497	5.3	106.0
DD10TUR008	213	213.247	PET016	17TR0017	98.5	93.2	79.3	90	1.4	183.4
DD10TUR008	731	731.234	PET017	17TR0018	350	393	286	340	1.5	230.3
DD09TUR006	422.6	422.842	PET018	17TR0019	0	0	0	0	500812.2	116.9
DD09TUR006	719.7	719.859	PET019	17TR0020	1296	1072	591	936	2.6	184.8

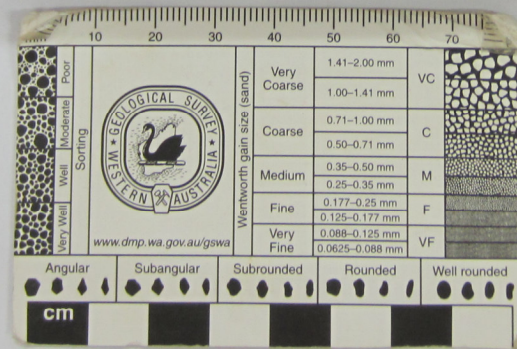
Sample Information			Density Calculations							
Drill	Sample	Terra Sample	Dry Mass	Saturated	Submerged	Bulk Volume	Dry Bulk Density	Imbibed Water	Apparent	Grain Density
Hole ID	ID	ID	(g)	Mass (g)	Mass (g)	(cm ³)	(g/cm ³)	Volume (cm ³)	Porosity (%)	(g/cm ³)
DD16TUR005	PET001	17TR0001	882.62	886.24	594.12	292.71	3.02	3.63	1.24%	3.05
DD16TUR014	PET002	17TR0002	690.27	692.6	437.11	256.00	2.70	2.33	0.91%	2.72
DD16TUR014	PET003	17TR0003	620.19	621	391.37	230.09	2.70	0.81	0.35%	2.70
DD16TUR014	PET004A	17TR0004	257.21	257.75	158.27	99.68	2.58	0.54	0.54%	2.59
DD16TUR014	PET004B	17TR0005	304.02	304.42	186.73	117.93	2.58	0.40	0.34%	2.59
DD16TUR014	PET005A	17TR0006	360.72	361.68	228.95	133.00	2.71	0.96	0.72%	2.73
DD16TUR014	PET005B	17TR0007	399.94	400.7	247.44	153.57	2.60	0.76	0.50%	2.62
DD16TUR014	PET006	17TR0008	911.72	916.93	603.95	313.61	2.91	5.22	1.66%	2.96
DD16JUP004	PET007A	17TR0021	508.72	509.12	358.2	151.22	3.36	0.40	0.27%	3.37
DD16JUP004	PET007B	17TR0022	539.64	540.23	374.15	166.41	3.24	0.59	0.36%	3.25
DD16JUP004	PET008	17TR0009	527.84	529.21	361.81	167.74	3.15	1.37	0.82%	3.17
DD16JUP004	PET009	17TR0010	805.89	807.65	529.42	278.79	2.89	1.76	0.63%	2.91
DD16TUR016	PET010	17TR0011	499.58	500.28	315.6	185.05	2.70	0.70	0.38%	2.71
DD16TUR016	PET011	17TR0012	491.6	492.98	307.82	185.53	2.65	1.38	0.75%	2.67
DD16TUR016	PET012	17TR0013	339.04	340.14	210.45	129.95	2.61	1.10	0.85%	2.63
DD16TUR016	PET013	17TR0014	683.59	686.04	438.15	248.39	2.75	2.45	0.99%	2.78
DD16TUR016	PET014	17TR0015	474.29	475.44	305.24	170.54	2.78	1.15	0.68%	2.80
DD10TUR008	PET015	17TR0016	300.25	301.22	183.38	118.08	2.54	0.97	0.82%	2.56
DD10TUR008	PET016	17TR0017	884.15	885.28	546.89	339.07	2.61	1.13	0.33%	2.62
DD10TUR008	PET017	17TR0018	723.43	723.95	453.76	270.73	2.67	0.52	0.19%	2.68
DD09TUR006	PET018	17TR0019	600.77	600.86	381.73	219.57	2.74	0.09	0.04%	2.74
DD09TUR006	PET019	17TR0020	430.58	430.86	285.78	145.37	2.96	0.28	0.19%	2.97

Sample Information					Mag Susc.	Spectral Properties			Velocity
Drill	Meterage		Sample	Terra Sample	Mag Susc.	Potassium	Thorium	Uranium	Sonic Velocity
Hole ID	From	To	ID	ID	SI Units (x10 ⁻³)	(%)	(ppm)	(ppm)	(m/s)
DD16TUR005	294.7	294.9	PET001	17TR0001	45.10	0.8	7.7	3.2	4950
DD16TUR014	253	253.263	PET002	17TR0002	0.23	0.7	7.3	6.7	4790
DD16TUR014	260	260.251	PET003	17TR0003	1.65	0.4	7.6	4.9	5810
DD16TUR014	266.125	266.275	PET004A	17TR0004	0.45	0.6	7.9	2.3	n/a
DD16TUR014	266	266.125	PET004B	17TR0005	0.53	0.7	8.8	2.8	n/a
DD16TUR014	318.125	318.275	PET005A	17TR0006	0.50	0.6	7.9	1.8	n/a
DD16TUR014	318	318.125	PET005B	17TR0007	0.35	0.3	6.8	3	n/a
DD16TUR014	224	224.244	PET006	17TR0008	0.48	1.1	15.5	0	5340
DD16JUP004	226.175	226.34	PET007A	17TR0021	77.40	0.4	12.1	2.7	4630
DD16JUP004	226	226.175	PET007B	17TR0022	64.60	0.8	11.3	0	4560
DD16JUP004	230	230.182	PET008	17TR0009	63.20	0.3	6.9	2.2	4300
DD16JUP004	238	238.288	PET009	17TR0010	47.40	0.6	7.9	2.3	4700
DD16TUR016	367	367.204	PET010	17TR0011	0.50	0.8	9.9	2.5	5210
DD16TUR016	234	234.213	PET011	17TR0012	15.60	0.8	8.8	3.3	4810
DD16TUR016	235	235.142	PET012	17TR0013	7.81	0.5	7.7	3.4	n/a
DD16TUR016	246	246.275	PET013	17TR0014	3.57	0.5	10.3	4.3	4180
DD16TUR016	247.2	247.384	PET014	17TR0015	22.40	0.8	10.9	2.6	4630
DD10TUR008	293.6	293.693	PET015	17TR0016	0.61	0.4	5.2	6.9	n/a
DD10TUR008	213	213.247	PET016	17TR0017	0.18	0.6	3.3	4.7	6250
DD10TUR008	731	731.234	PET017	17TR0018	14.30	0.7	9.6	1.1	5430
DD09TUR006	422.6	422.842	PET018	17TR0019	0.27	0.5	4.5	6	6070
DD09TUR006	719.7	719.859	PET019	17TR0020	29.30	0.1	2.1	6.4	4750

*Spectral Properties-final measurements are close to or equivalent to background readings. Further work is required to eliminate background sources from measurements

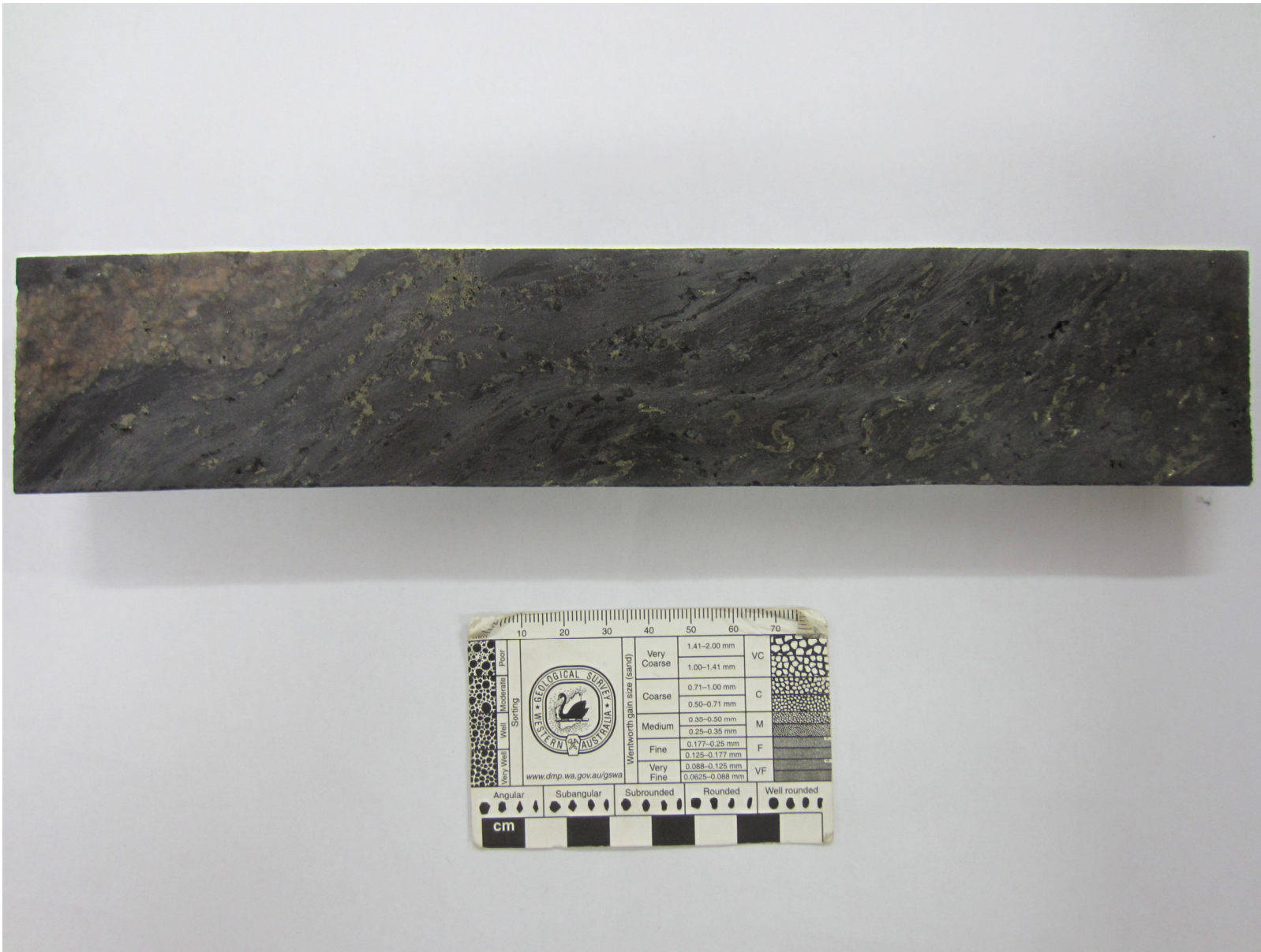
*Sonic Velocity- N/A measurements due to core samples not within the minimum 15cm range required for Ultrasonic Tester

16.
APPENDIX 2



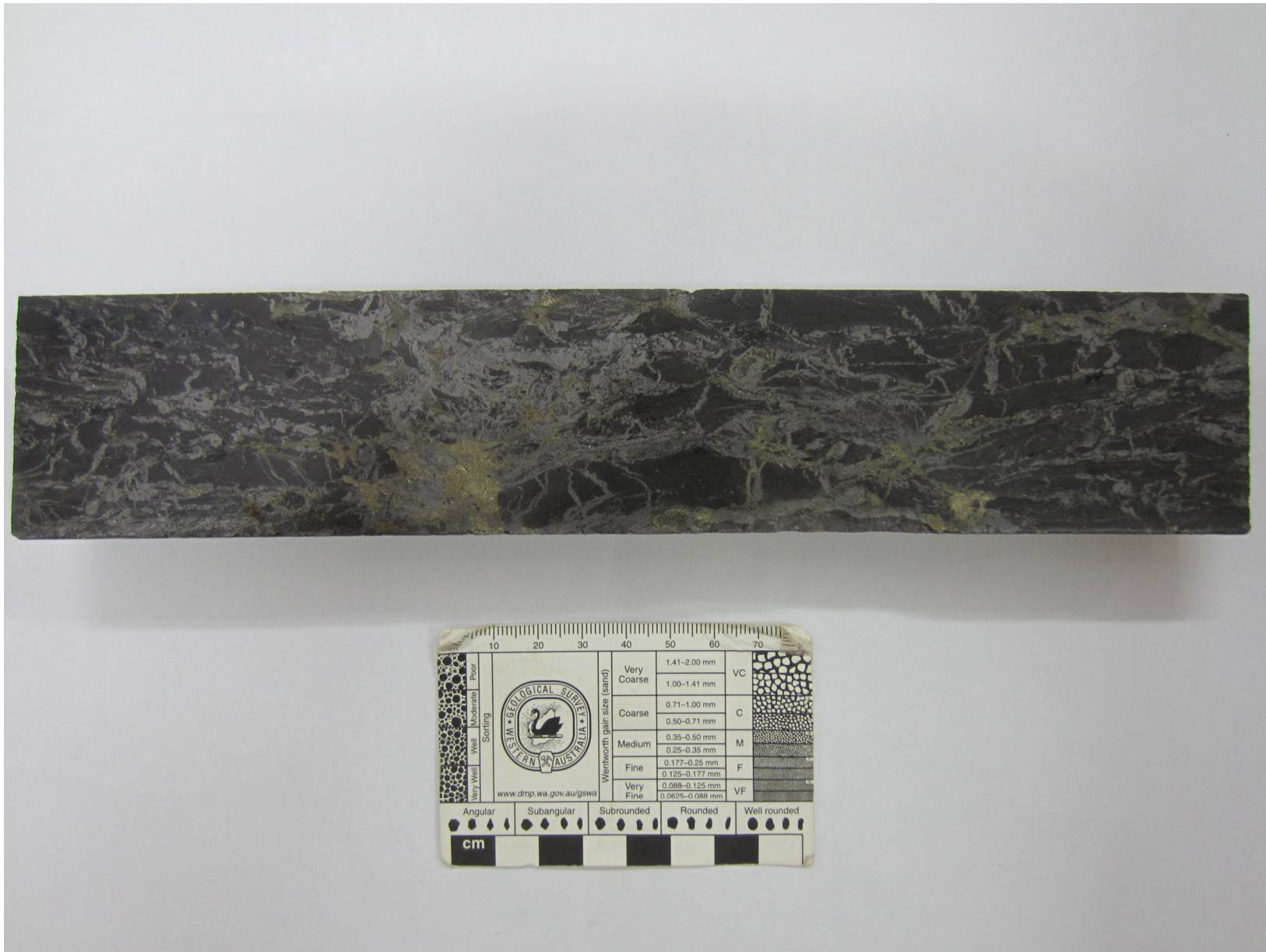
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18.



Sample ID: PET003 Terra ID: 17TR0003

19.



Sample ID: PET004A Terra ID: 17TR0004



Sample No: PET004B Terra ID: 17TR0005

21.



Sample ID: PET005A Terra ID: 17TR0006

22.



Sample ID: PET005B Terra ID: 17TR0007

23.



Sample ID: PET006 Terra ID: 17TR0008



Sample ID: PET007A Terra ID: 17TR0021

25.



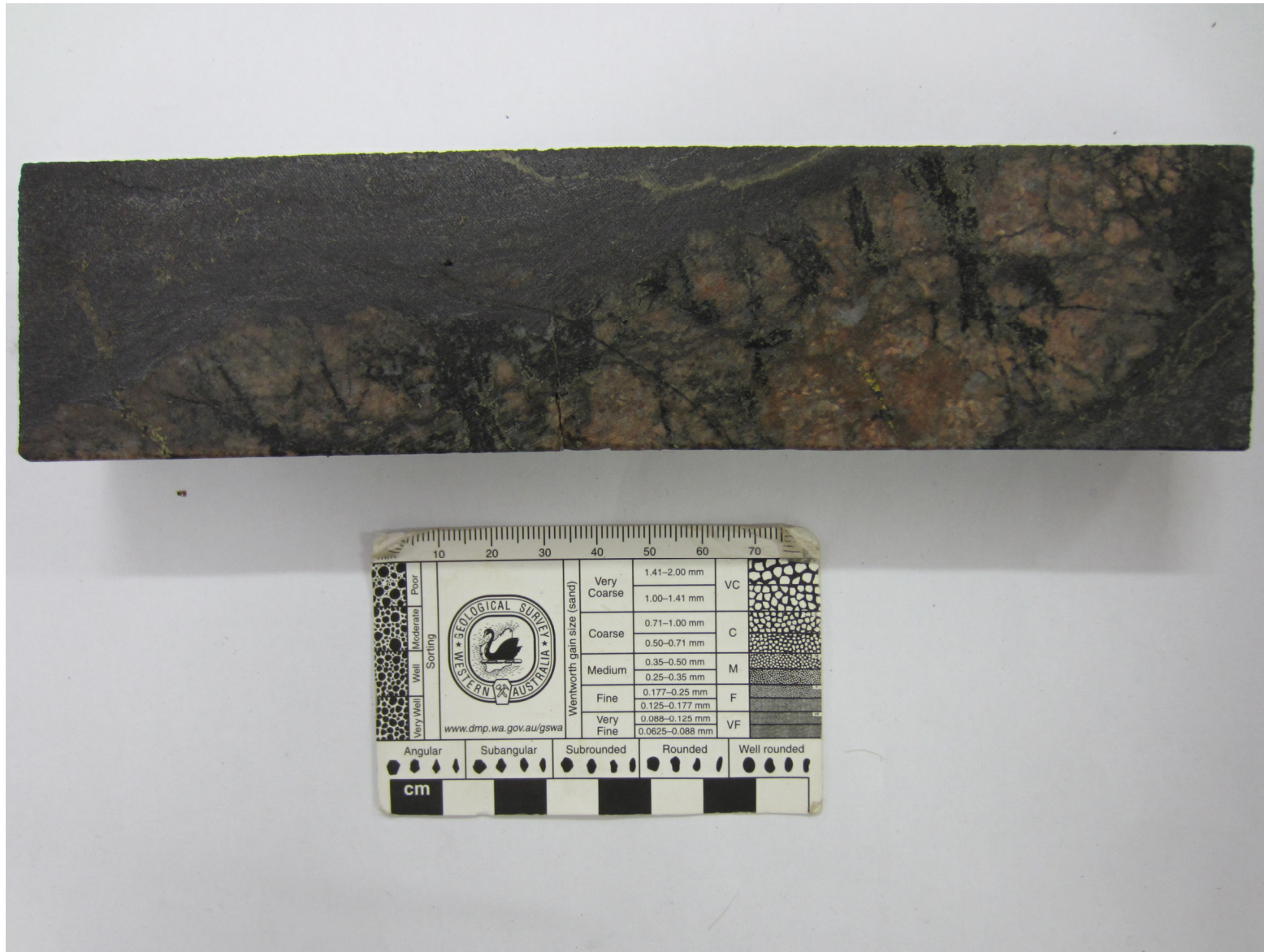
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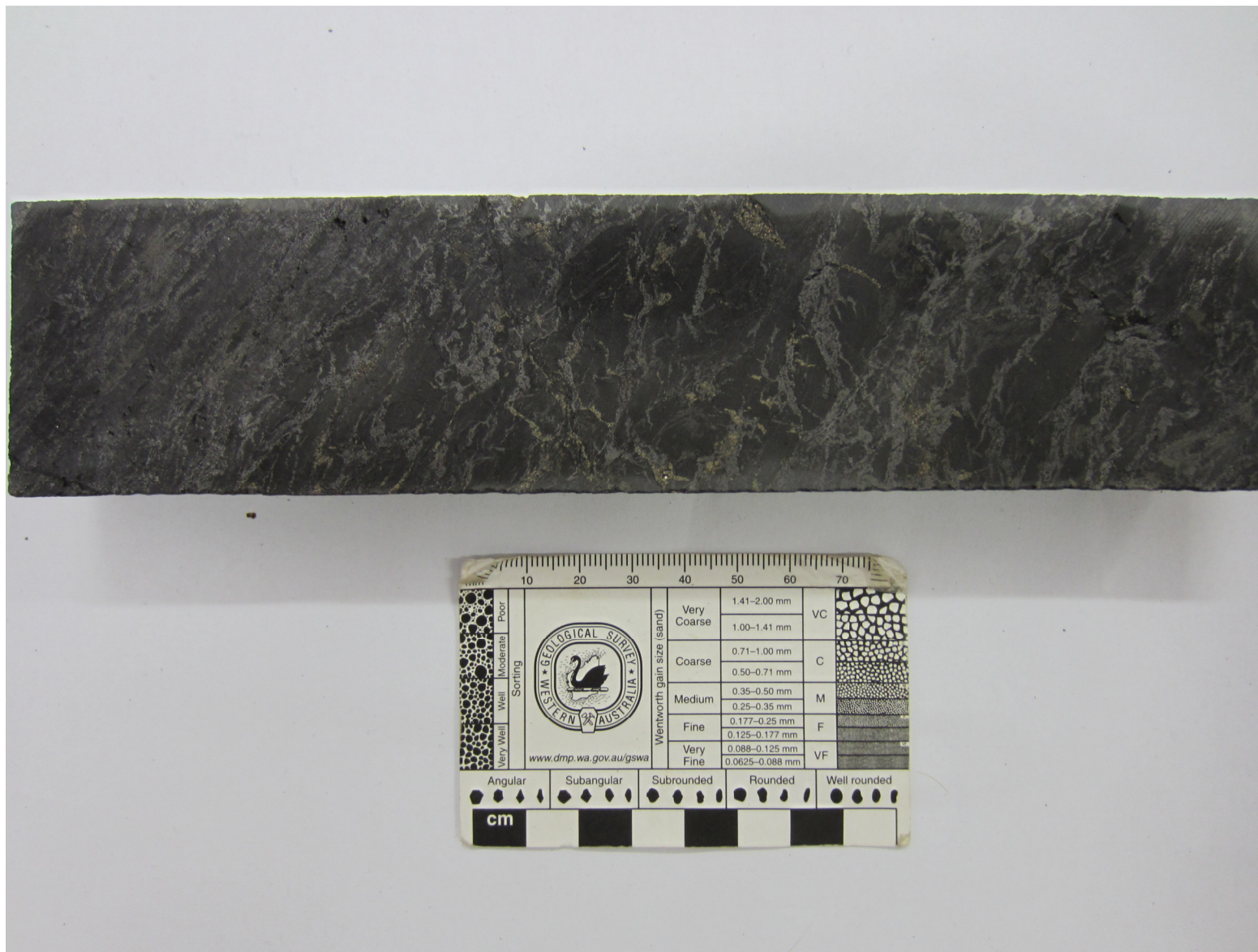
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27.





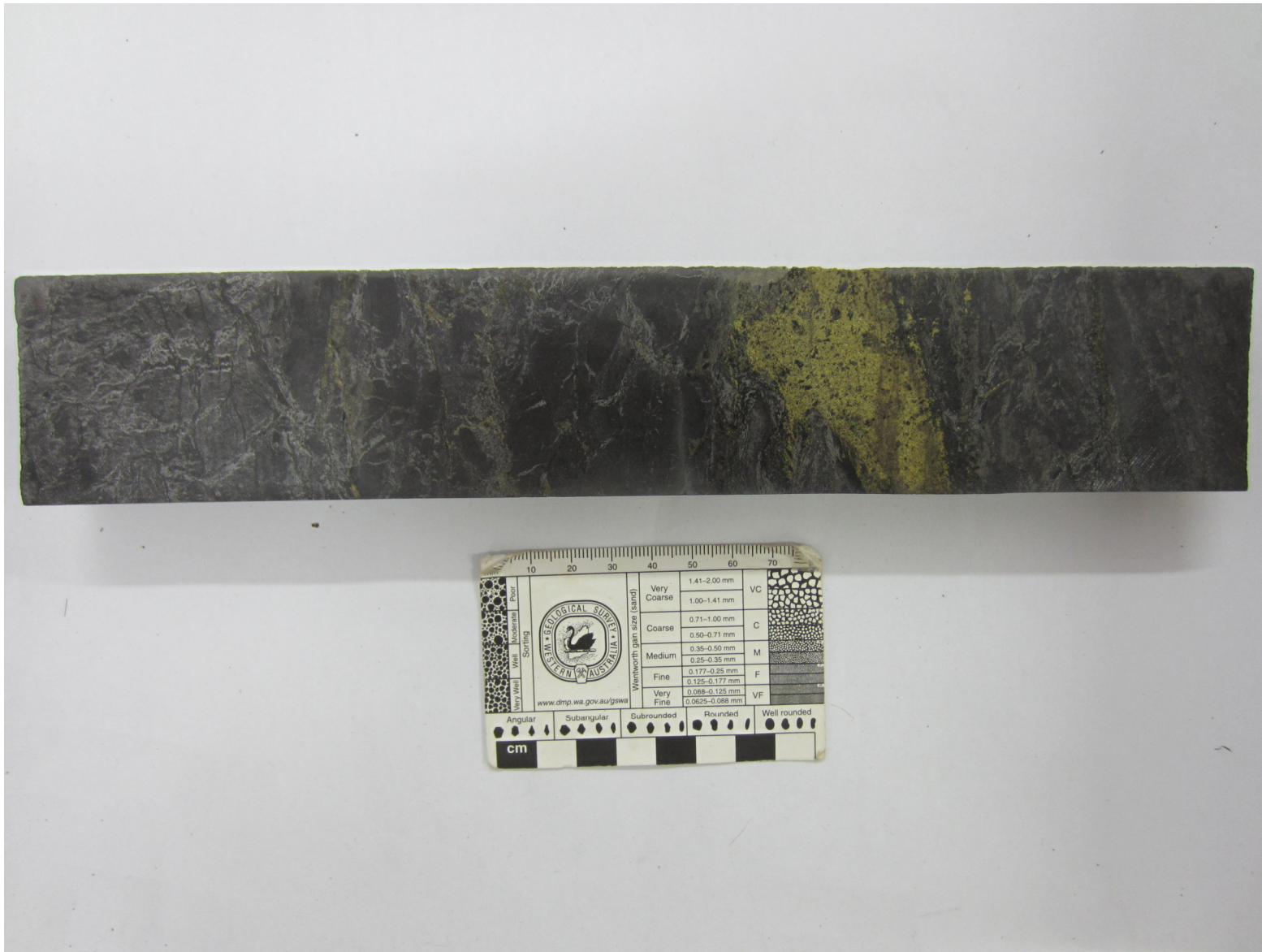
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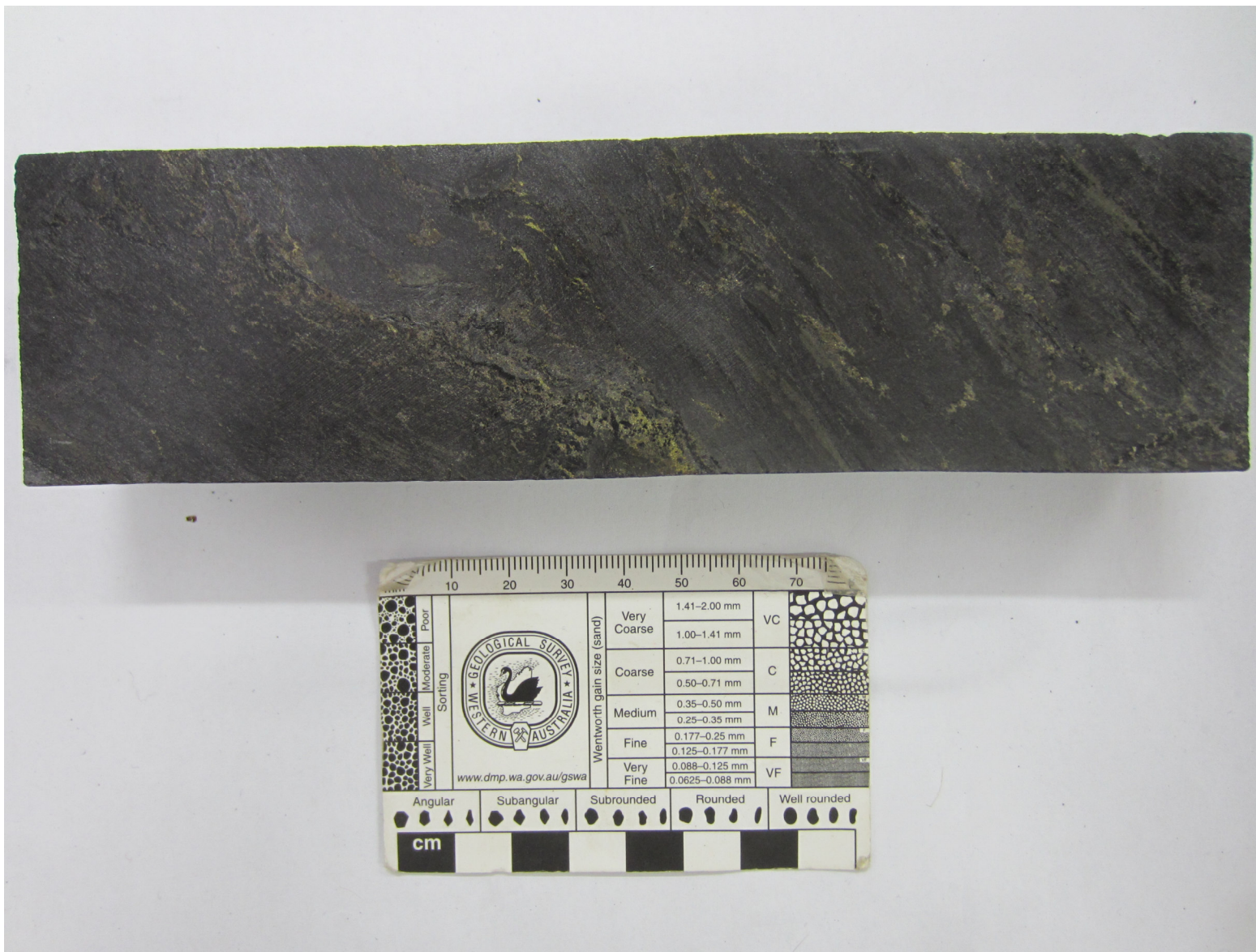
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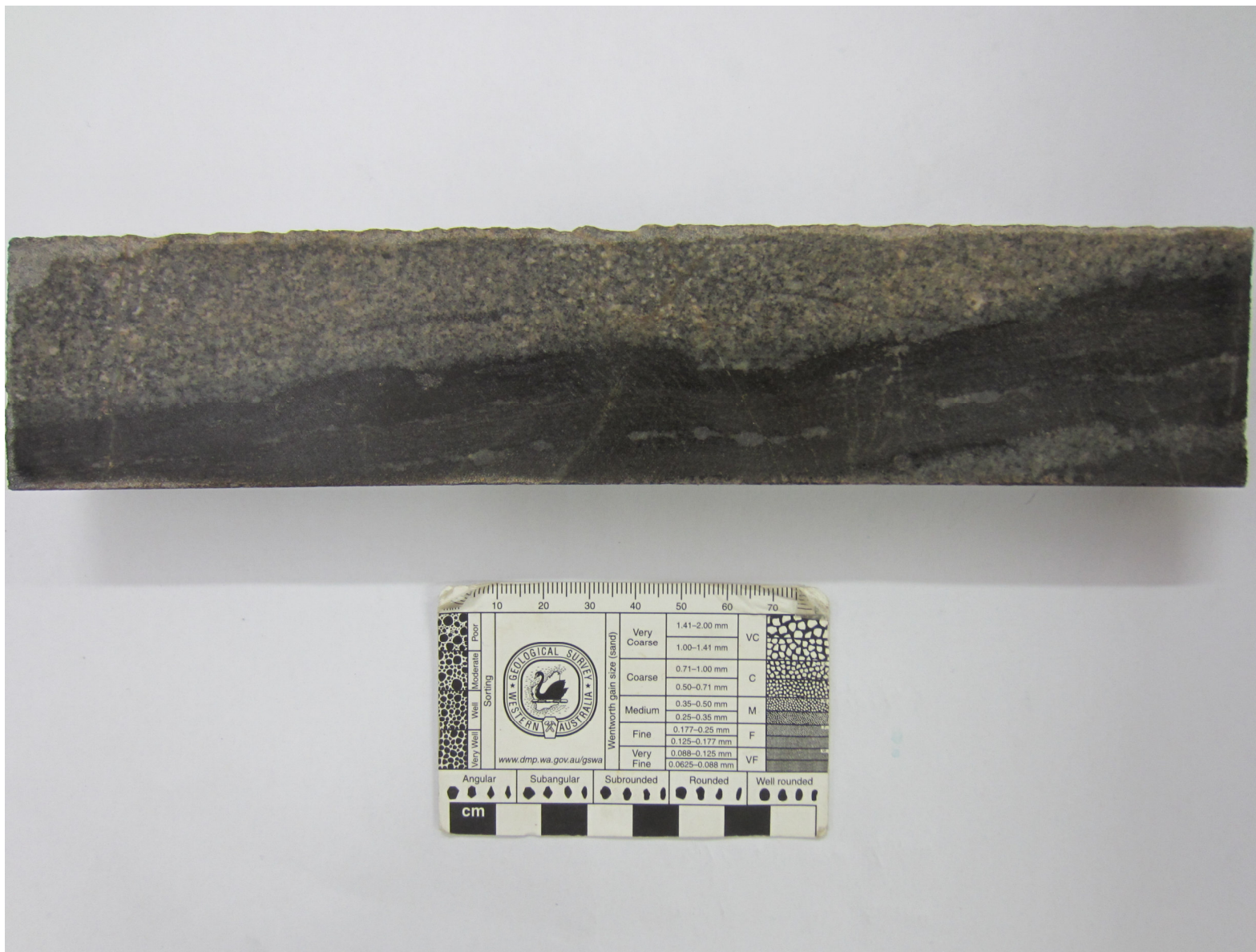
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Sample ID: PET016 Terra ID: 17TR0017



Sample ID: PET017 Terra ID: 17TR0018



Sample ID: PET018 Terra ID: 17TR0019



Sample ID: PET019 Terra ID: 17TR0020

