

## GEOPHYSICAL SURVEYS HIGHLIGHT MULTIPLE NEW GOLD-COPPER TARGETS ON 100% OWNED GROUND

### Highlights

- Aerial electromagnetic and Induced Polarisation geophysical surveys define multiple new targets on 100% owned ground in the Paterson Province of WA
- Extensional targets to the existing Minyari, Judes and WACA deposits
- The AEM survey covered 600km<sup>2</sup> of the El Paso Structural Corridor which hosts Rio Tinto's recent Winu copper-gold discovery and Greatland Gold's Havieron gold-copper discovery
- Follow-up programme to be undertaken in 2020, aiming to build on these currently known deposits and target new areas of mineralisation

**Antipa Minerals Limited (ASX: AZY) (Antipa or the Company)** is pleased to provide an update in relation to its ongoing exploration programme on its 100% owned ground in the Paterson Province of Western Australia (Figure 1).

### Survey Overview

An aerial electromagnetic (**AEM**) survey covering approximately 600km<sup>2</sup> (Figure 2) and a Gradient Array Induced Polarisation (**GAIP**) survey was undertaken on Antipa's 100% owned Minyari Dome area covering approximately 6km<sup>2</sup> (Figure 7). The Minyari Dome area includes the Company's existing 723,300 oz gold, 26,400 tonne copper and 233,000 oz silver Mineral Resource. This survey represents the first geophysical survey of this type over this area which has been responsible for the discovery of multiple mineralised systems in the Paterson Province.

The surveys were successful in identifying multiple gold-copper targets that will be followed up in 2020.

### **AEM Survey - Targets**

Preliminary processing and review of AEM survey results has identified nine high priority targets as summarised below and by Table 1 and Figures 3 to 5. In addition to identifying new greenfield targets at Minyari Dome, the survey identified a primary sulphide mineralisation target at Chicken Ranch (Table 1 and Figure 3).

#### *2019 AEM Target 19AEM01 – Protos 2*

AEM target 19AEM01 is located 14km southeast of the Minyari-WACA gold-copper resource on the western limb of the Minyari Dome structure, concealed beneath shallow cover immediately adjacent to historic surface geochemical target Protos 2. In 1978, rock-chip sampling at Protos 2 identified a 2.2km long, strong copper ± gold anomaly within outcropping northwest striking interpreted Malu Formation meta-sandstones, meta-siltstones and meta-calcarenes; however, Protos 2 has not been drill tested (Table 1 and Figure 5). A recent field inspection of the Protos 2 area identified significant structures (some cross-cutting) including substantial quartz veining (Figures 6a-b), brecciation and copper oxide staining within the meta-sediments. Target 19AEM01 is interpreted to occur within the highly prospective Telfer Member "limey" meta-sediments along

the western flank of Protos 2, close to the contact with the carbonate bearing Punta Punta Formation. The target is located in close proximity to the western bounding structure of the El Paso Corridor and within a significant, northeast trending, interpreted structural corridor which plays a role in controlling the distribution of gold-copper mineralisation. The AEM target will be drill tested in 2020 with the assistance of a WA government EIS grant.

### ***Minyari Dome GAIP Survey - Targets***

Preliminary targeting of the Minyari Dome GAIP survey results has identified seven high priority targets as summarised below and by Table 2 and Figure 7. The 2019 Minyari Dome GAIP survey successfully detected both the Minyari and Judes deposits, providing extensional targets for these deposits, as well as possible WACA gold-copper deposit strike extensions and several new target areas.

#### ***GAIP Target 19IP09***

GAIP target 19IP09 is located 3km and 1km northwest of the Minyari and Judes gold-copper-silver deposits respectively and 500m northwest along strike from historic (1995) drill hole MHR69 which intersected 10.0m at 4.27 g/t gold including 1.0m at 24.8 g/t gold (Table 2 and Figure 7). Target 19IP09 is concealed beneath approximately 15m of cover and there is no drilling or surface sampling across this target which produced the highest IP chargeability response recorded in the Minyari Dome area, with a peak value of 30msec compared to a typical background response of around of 5 to 7 msec. Target 19IP09 is located in a fold nose within interpreted Malu Formation meta-sediments, including a variably demagnetised, possible hydrothermally altered, magnetic lithology. This and other priority GAIP targets will be drill tested in 2020.

### **Final RC Drill Results**

The Phase 2 programme returned encouraging drill results as reported by the Company on the 18<sup>th</sup> of October and 22<sup>nd</sup> November. Results have now been received for the final three RC drill holes of this programme. Serrano RC hole 19EPC0033 intersected weak gold and copper mineralisation to the east of the previously reported mineralisation corridor. At target AEM4 (i.e. Gonzo) two RC holes, 19MYC0190 and 19MYC00191, were unable to reach target depth due to difficult drilling conditions and returned weak copper and gold mineralisation.

The results are summarised below in Tables 3a-3b and Figures 8 and 9. Drill hole details are provided in Table 4.

As reported on the 22<sup>nd</sup> November, several targets could not be accessed due to equipment limitations in traversing multiple steep dune crossings; these included AEM and co-incident magnetic target AEM40 (located 9km north of Rio Tinto's large scale copper-gold-silver Winu deposit), planned follow-up RC drilling at targets AEM 13, AEM21, AEM 24 and AEM25, and drill testing of four magnetic targets. Drilling of these targets, including Gonzo, is expected to be carried out in the first half of 2020.

Further exploration of the Reaper-Poblano-Serrano area has significant potential to identify a major mineral deposit. Results are awaited for a soil sampling programme which was recently conducted over the area and due to the thin cover, these samples will be analysed using an ultrafine fraction analytical technique. Further drilling and ground-based geophysical surveys are envisaged for 2020.

**Ongoing exploration activities at the Company's 100% Paterson Province Projects include:**

- Ongoing review of the 2019 drill results, including the recent very encouraging gold-copper±silver±lead±zinc±tungsten mineralisation from four greenfield targets, and design of the follow-up exploration programme, including the recently completed soil sampling programme;
- Ongoing refinement of targets, in conjunction with other data, from recently completed AEM survey and design of the follow-up exploration programme;
- Ongoing refinement of targets, in conjunction with other data, from recently completed GAIP survey and design of the follow-up exploration programme to identify greenfield targets and extensions to existing gold-copper deposits;
- Ongoing brownfield target evaluation, including soil sampling programmes; and
- Paterson Province structural, mineral system and targeting project.

**WA Government Exploration Drilling Grant of \$150,000:**

The Company is pleased to advise that it has been awarded a funding grant for up to \$150,000 from the Western Australian Government's Exploration Incentive Scheme (EIS).

The grant contemplates the completion of drilling which will be 50% EIS co-funded, this means drilling expenditure of \$300,000 will be eligible for a \$150,000 refund under the EIS scheme. It is intended that this drilling will be completed as part of the upcoming 2020 exploration programme, on Antipa's 100% owned ground at Protos 2 which is an AEM, geochemical and geological target.

Antipa would like to acknowledge the ongoing support provided by the WA Government through its EIS programme for the Company's exploration programmes. The EIS co-funded drilling programme is a competitive process which preferentially funds high quality, technical and economically based projects that promote new exploration concepts and are assessed by a panel on the basis of geoscientific and exploration targeting merit.

**For further information, please visit [www.antipaminerals.com.au](http://www.antipaminerals.com.au) or contact:**

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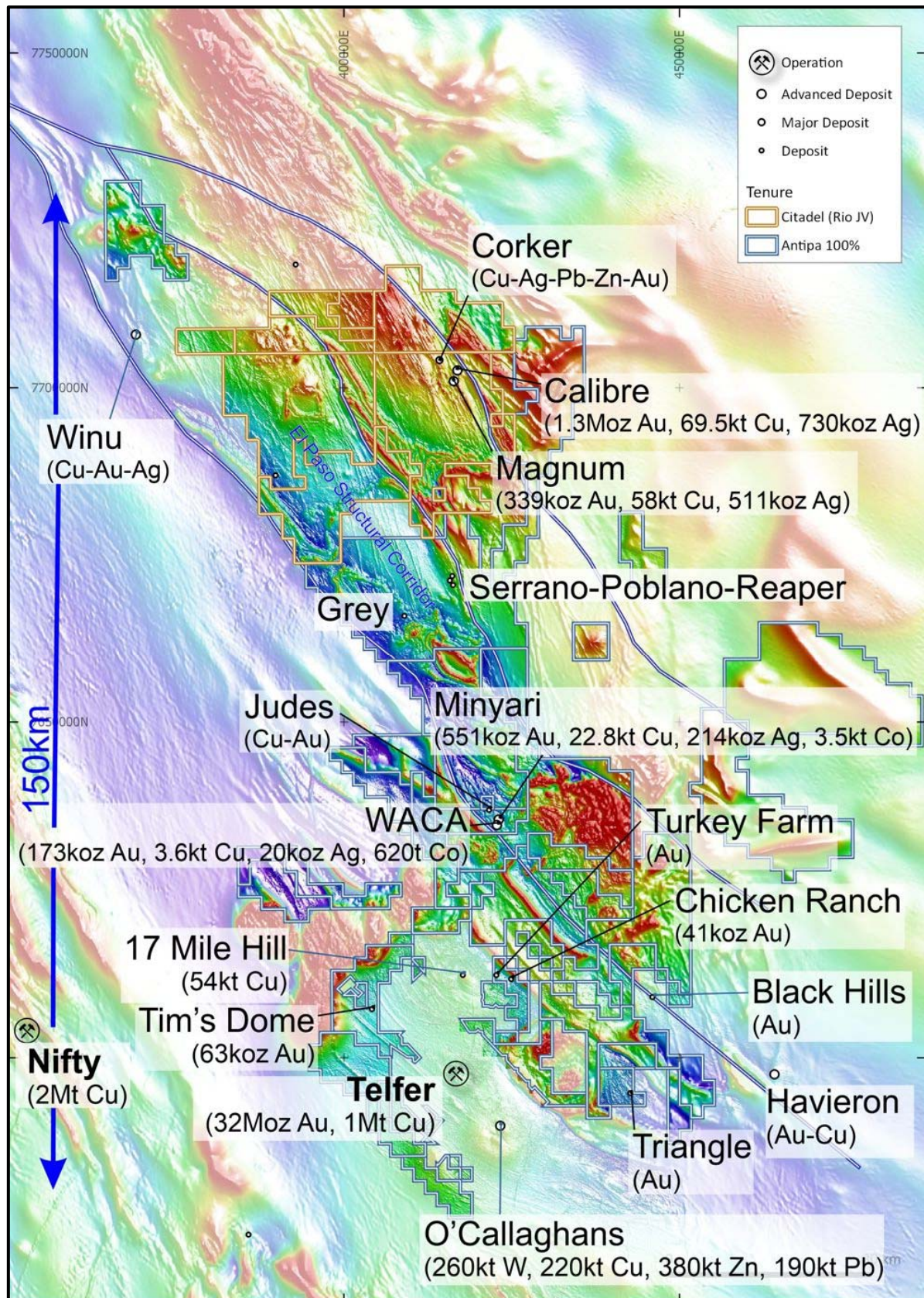
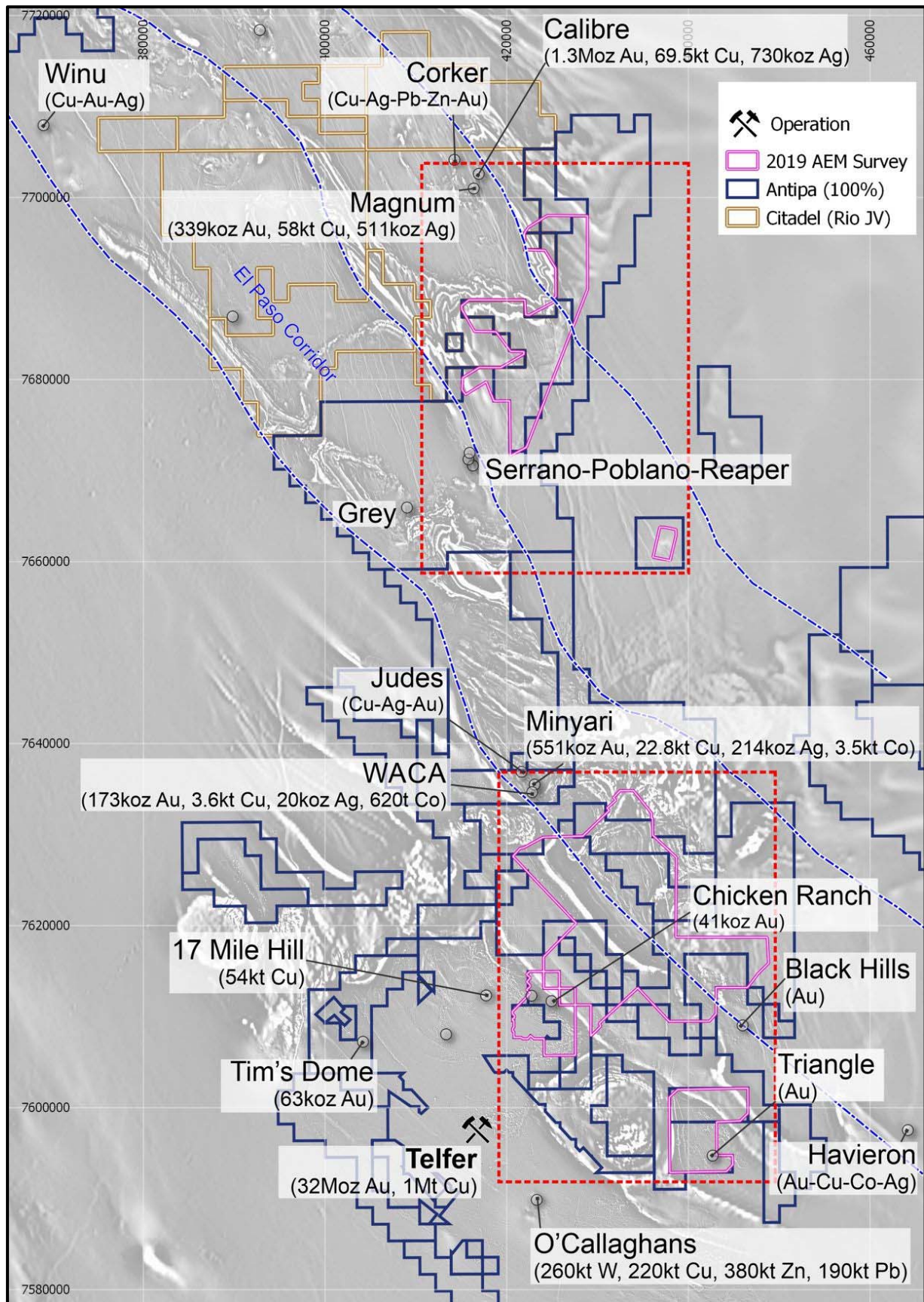


Figure 1: Plan view showing Antipa's Paterson Province projects, deposit and prospect locations including Newcrest Mining Ltd's Telfer Mine and O'Callaghans deposit, Greatland Gold plc's Havieron deposit and Rio Tinto's Winu deposit, the El Paso Corridor and new Serrano-Poblano-Reaper and Grey mineralised trends along a major structures (i.e. fault / shear zone / possible hydrothermal fluid "conduit"). NB: Over Airborne magnetic image (100m flight-line spacing at an altitude of 30m; pseudo-colour First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 50km grid.





**Figure 2: Plan view showing Antipa's Paterson Province project areas covered by the 2019 AEM survey, deposit and prospect locations and Figures 3 and 4 inset areas. NB: Over Airborne magnetic image (50m flight-line spacing at an altitude of 30m; Grey-scale First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 20km grid.**

Table 1: 2019 Aerial Electromagnetic (AEM) Survey Target Summary

ID No.	Rank	EM Anomaly Description	Anomaly Length m	Anomaly Centroid Easting	Anomaly Centroid Northing	Interpreted Geology & Structure	Drill and/or Surface Geochem Results	Geophysical Signature / Anomalism
19AEM01	1	Stronger Mid-time peak. Possible steeply SW dipping bedrock conductor beneath NW-SE oriented conductive cover.	860	430,765	7,621,385	Protos 2 target under shallow cover on western limb of southern extension of Minyari domal structure within Telfer Member close to contact with Punta Punta Fm. Situated on major NE trending Au-Cu mineralisation controlling structure.	Very strong surface geochemical Cu $\pm$ Au anomaly up to 2.2km long. No drilling.	NW trending variably magnetic lithologies.
19AEM02	2	Stronger Mid-time peak; part of a stratigraphic conductor? Target within 100m of surface.	1,200	420,507	7,683,784	Target under approx. 50m of cover within metasediment host. NNW & WNW structures.	No drilling or surface sampling.	Gravity gradient & magnetic "mottling".
19AEM03	2	Stronger Mid-time peak; part of a stratigraphic conductor?	380	420,349	7,685,236	Target under approx. 50m of cover within metasediment host. NNW & WNW structures.	No drilling or surface sampling.	Gravity gradient & magnetic "mottling".
19AEM04	2	Stronger Mid-time peak	480	433,471	7,626,205	Target under shallow cover on eastern limb of southern extension of Minyari domal structure within Malu Fm close to contact with Isdell Fm. Situated on major NE trending Au-Cu mineralisation controlling structure.	Very limited shallow drilling (c16m depth) & surface sampling with weakly anomalous Cu & arsenic (As).	Gravity gradient & magnetic "mottling".
19AEM05	2	Stronger Mid to Late-time peak, similar style of EM anomaly as Xcite target AEM28 "Reaper". Target within 100m of surface.	2,100	434,796	7,630,435	Target under shallow cover on eastern limb of southern extension of Minyari domal structure within Telfer Member close to contact with Punta Punta Fm. Situated on major NE trending Au-Cu mineralisation controlling structure.	No drilling or surface sampling.	Lies between NW trending magnetic lithologies with along a demagnetised (altered?) thin magnetic lithology, located on a weak gravity "ridge".
19AEM10	3	EM anomaly LOW in later time channels; sub-circular "resistivity" anomaly	1,000	437,196	7,661,479	Pixel target under approx. 75m of cover a possible resistive hydrothermal alteration &/or veined (silica &/or albite) cupola to felsic/granitic intrusion.	2019 RC drill hole 250m north unmineralised magnetic granite.	Bulls-eye gravity high "core" with magnetic (granite) halo. Multiple cross-cutting linear magnetic dykes.
19AEM14	3	Mid-time peak	1,000	436,903	7,627,157	Target under shallow cover on eastern limb of southern extension of Minyari domal structure within Punta Punta Fm. Situated on major NE trending Au-Cu mineralisation controlling structure.	Surface sampling with anomalous Cu, Zn $\pm$ Pb. No drilling.	Gravity gradient & discontinuous linear magnetic anomalies.
19AEM15	3	Broad Mid-time peak, more obvious in gridded EM conductivity images - oblique to Chicken Ranch mineralisation trend	1,200	423,479	7,612,300	"Egg" shaped AEM anomaly partially overlapping but oblique to the Chicken Ranch Au $\pm$ Cu deposit within Punta Punta Fm close to major NW trending structure the "Zero Fault". Situated on major NE trending Au-Cu mineralisation controlling structure.	Variable / patchy surface geochemical & drill based Au - Cu anomaly. NB: Chicken Ranch (& Turkey Farm) primary / sulphide mineralisation remains untested.	"Mottled" linear magnetic trend with variable gravity response.
19AEM16	3	Broad Mid-time peak - Chicken Ranch mineralisation "stratigraphic" trend	3,700	423,899	7,612,365	Chicken Ranch Au $\pm$ Cu deposit stratigraphic (?) host lithology trend & possible Turkey Farm linkage(?) structure within Punta Punta Fm close to major NW trending structure the "Zero Fault". Situated on major NE trending Au-Cu mineralisation controlling structure.	Very strong surface geochemical & drill based Au - Cu anomaly up to 2.7km long. Significant length (1.4km) of AEM anomaly undrilled. NB: Chicken Ranch primary / sulphide mineralisation remains untested.	"Mottled" curvi-linear magnetic trend with gravity low response.



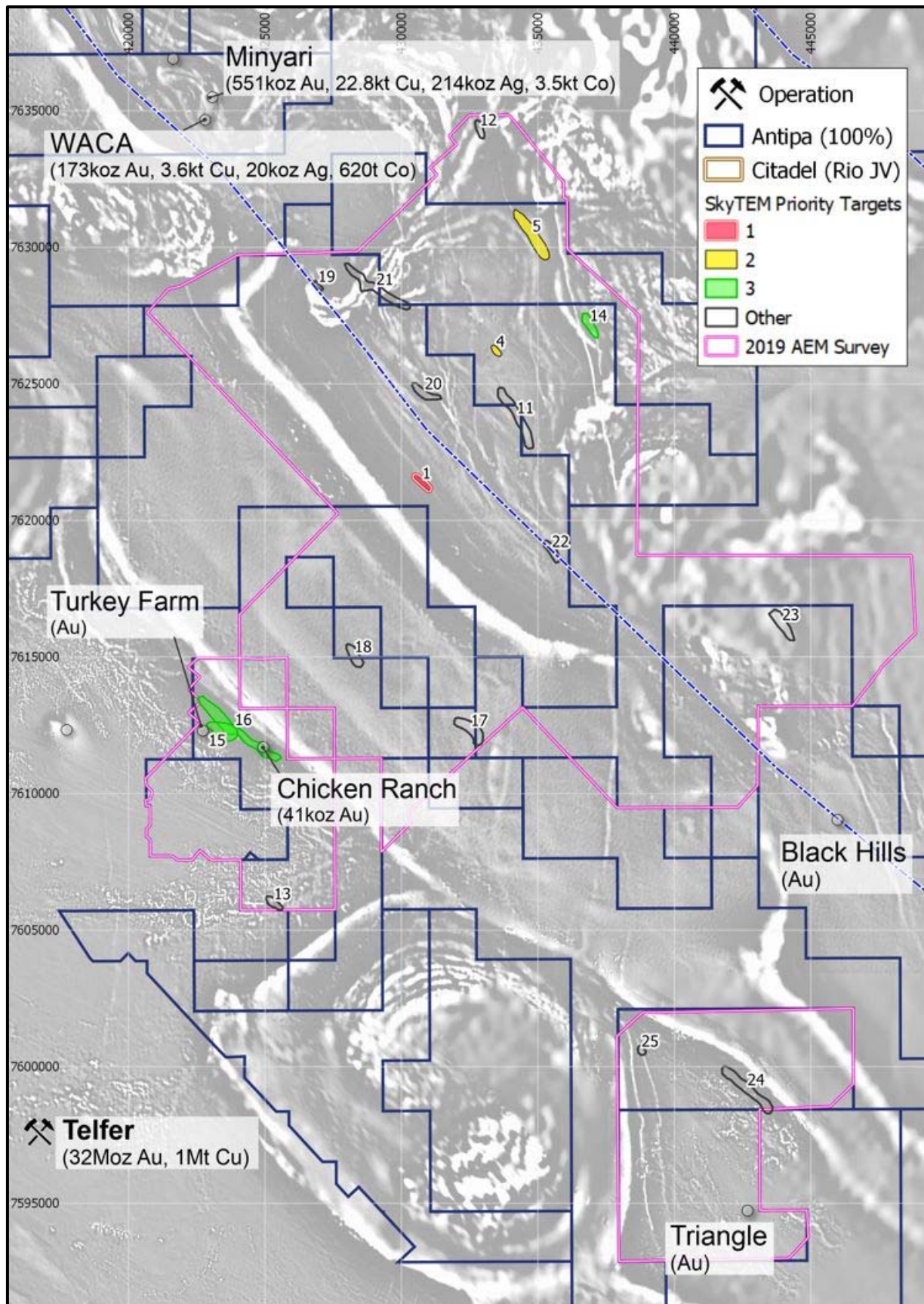
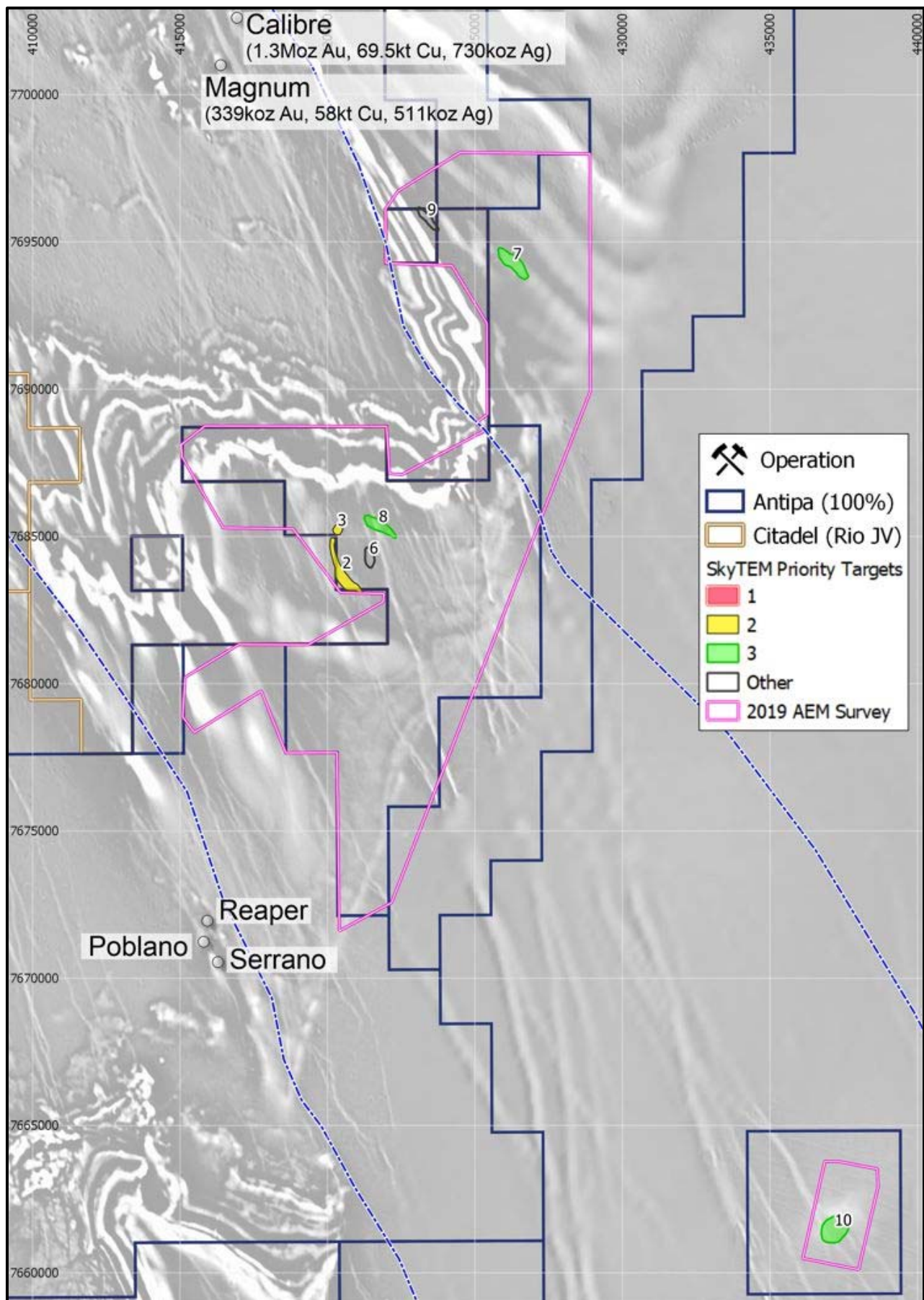


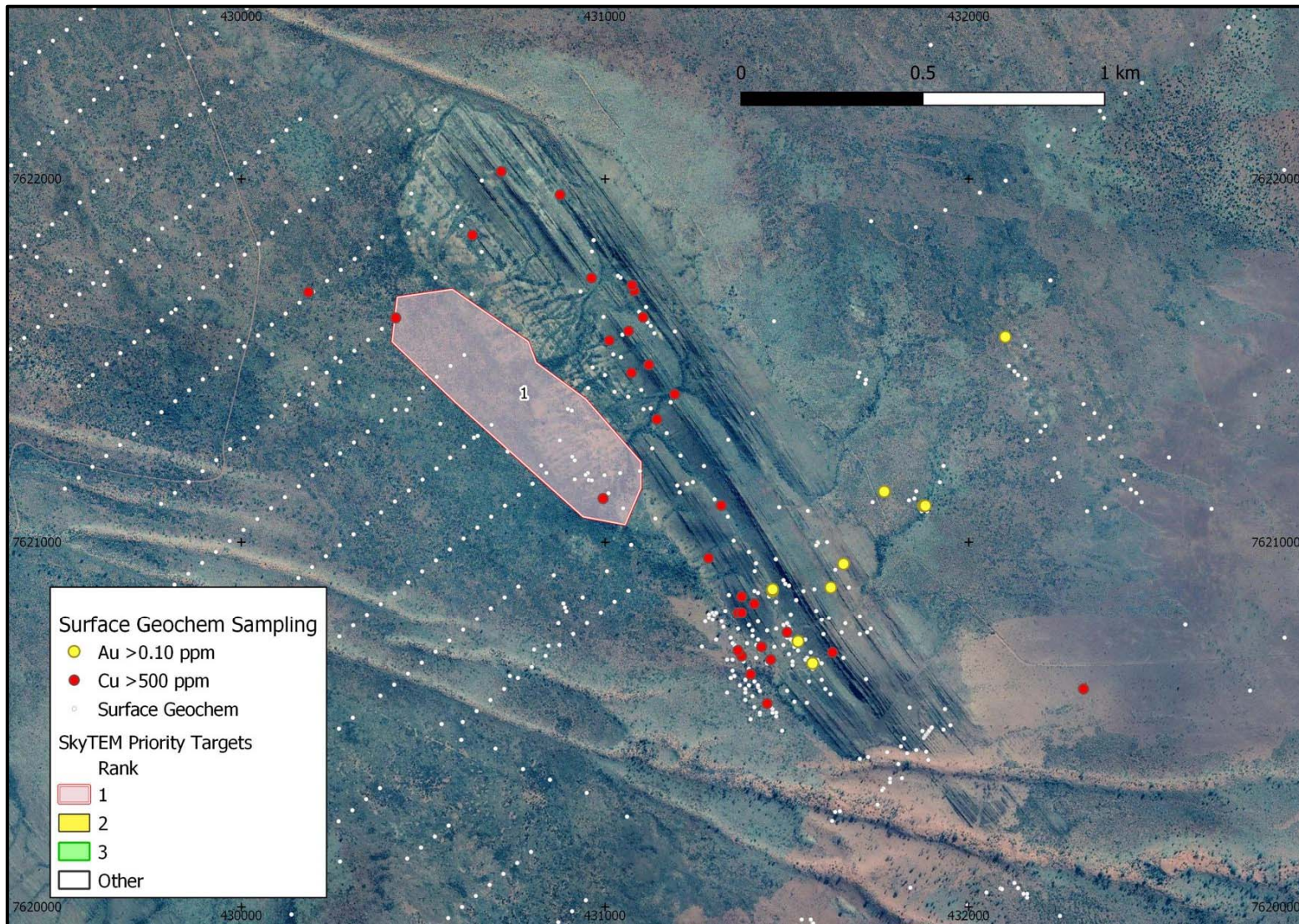
Figure 3: Plan view showing southern portion of 2019 AEM survey area with deposit and prospect locations and EM targets including target abbreviated ID number (refer also to Table 1). NB: Over Airborne magnetic image (50m flight-line spacing at an altitude of 30m; Grey-scale First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 5km grid.





**Figure 4: Plan view showing northern portion of 2019 AEM survey area with deposit and prospect locations and EM targets including target abbreviated ID number (refer also to Table 1). NB: Over Airborne magnetic image (50m flight-line spacing at an altitude of 30m; Grey-scale First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 5km grid.**





**Figure 5: Plan view of AEM Target 19AEM01 located under shallow cover adjacent to outcropping Protos 2 rock-chip (1978) copper and gold anomaly target. Note that surface geochemical sampling is ineffective in areas of cover to the west and east of the Protos 2 outcrop. Both AEM target 19AEM01 and the Protos 2 target remain undrilled. Also refer to Figures 6a-b showing outcropping quartz veining at Protos 2. NB: Over satellite image and Regional GDA94 / MGA Zone 51 co-ordinates, 1km grid.**





Figure 6a: Photograph showing outcropping major west dipping "reef" style quartz veining at Protos 2. NB: Looking approximately southwest.



Figure 6b: Photograph showing outcropping stockwork and breccia style quartz veining at Protos 2 with minor copper oxide staining (malachite).



Table 2: 2019 Minyari Dome Gradient Array Induced Polarisation (GAIP) Survey Target Summary

ID No.	Rank	IP Anomaly Description	Chargeability Range (msec)	Anomaly Length (m)	Anomaly Width (m)	Anomaly Centroid Easting	Anomaly Centroid Northing	Interpreted Geology & Structure	Drill and/or Surface Geochem Results	Geophysical Signature / Anomalism
19IP04	1	Minyari deposit chargeability anomaly = Proof of (GAIP) Exploration Concept.	9 - 13	330	210	422,956	7,635,334	Correlates with the western region of the Minyari gold-copper-silver deposit.	Primary sulphide mineralisation western region of the Minyari Mineral Resource.	Demonstrates that the Gradient Array IP techniques can detect Minyari style mineralisation.
19IP09	1	Peak chargeability response within broad complex electrical anomaly zone ID # 7.	20 - 30	430	220	420,615	7,637,460	Fold nose location within interpreted Malu Fm meta-sediments. Cover approx. 15m.	No drilling or surface geochem. Untested.	Possible demagnetised /hydrothermally altered magnetic hangingwall lithology.
19IP01	1	WACA South semi-coincident chargeability and resistivity anomaly.	8 - 10	820	140	423,180	7,633,991	Along strike to SE of WACA gold-copper-silver deposit. Very shallow cover.	Northern region Au-Cu mineralised. Majority of length only shallow 10 - 20m drillholes.	Magnetic low trend.
19IP02	1	Chargeability anomaly.	9 - 12	800	200	423,440	7,635,101	Close proximity to Minyari gold-copper-silver deposit. Offset southern extension of Minyari?	Shallow drilling / untested.	Coincident magnetic anomaly.
19IP08	2	Judes shallow chargeability response.	9 - 11	690	140	421,750	7,637,080	Extends significantly NW and SE from Judes copper-silver-gold mineralisation.	Limited drill testing other than at central Judes area.	Magnetic low trend.
19IP03	2	Chargeability anomaly.	10 - 14	520	220	423,664	7,634,104	Meta-sediment host.	Limited general shallow < 20m drilling with minor Au-Cu anomalism.	Coincident possible demagnetised zone within "cloudy" magnetic anomaly.
19IP06	2	Chargeability anomaly.	8 - 9	830	150	422,996	7,634,730	IP anomaly between WACA and Minyari deposits.	Predominantly lacking deep drilling / untested.	Coincident linear magnetic trend with variable intensity.
19IP07	2	Broad and complex zone chargeability anomalism + Self-Potential (SP) and conductivity responses.	10 - 30	820	600	420,636	7,637,660	Fold nose location within interpreted Malu Fm meta-sediments. Cover approx. 15m.	Approx. N-S fence of ineffective 14m deep 1980's open-hole percussion holes along eastern edge of IP anomaly.	Encompasses variably magnetic & magnetically depleted, folded meta-sediment lithologies.
19IP10	2	Broad chargeability anomaly. Not considered a high priority target.	10 - 12	590	400	421,524	7,636,785	Drilling indicates abundant intense kaolinitic weathered &/or altered (?) metasediment; leached/depleted zone?	Adequately (?) drill tested.	Magnetic low.
19IP05	2	Deviated/bent chargeability feature. Not considered a high priority target.	9 - 13	650	120	423,578	7,635,431	Form of IP anomaly conformable with folded meta-psammite lithology.	Limited drill testing & limited surface geochem sampling.	Magnetic low.

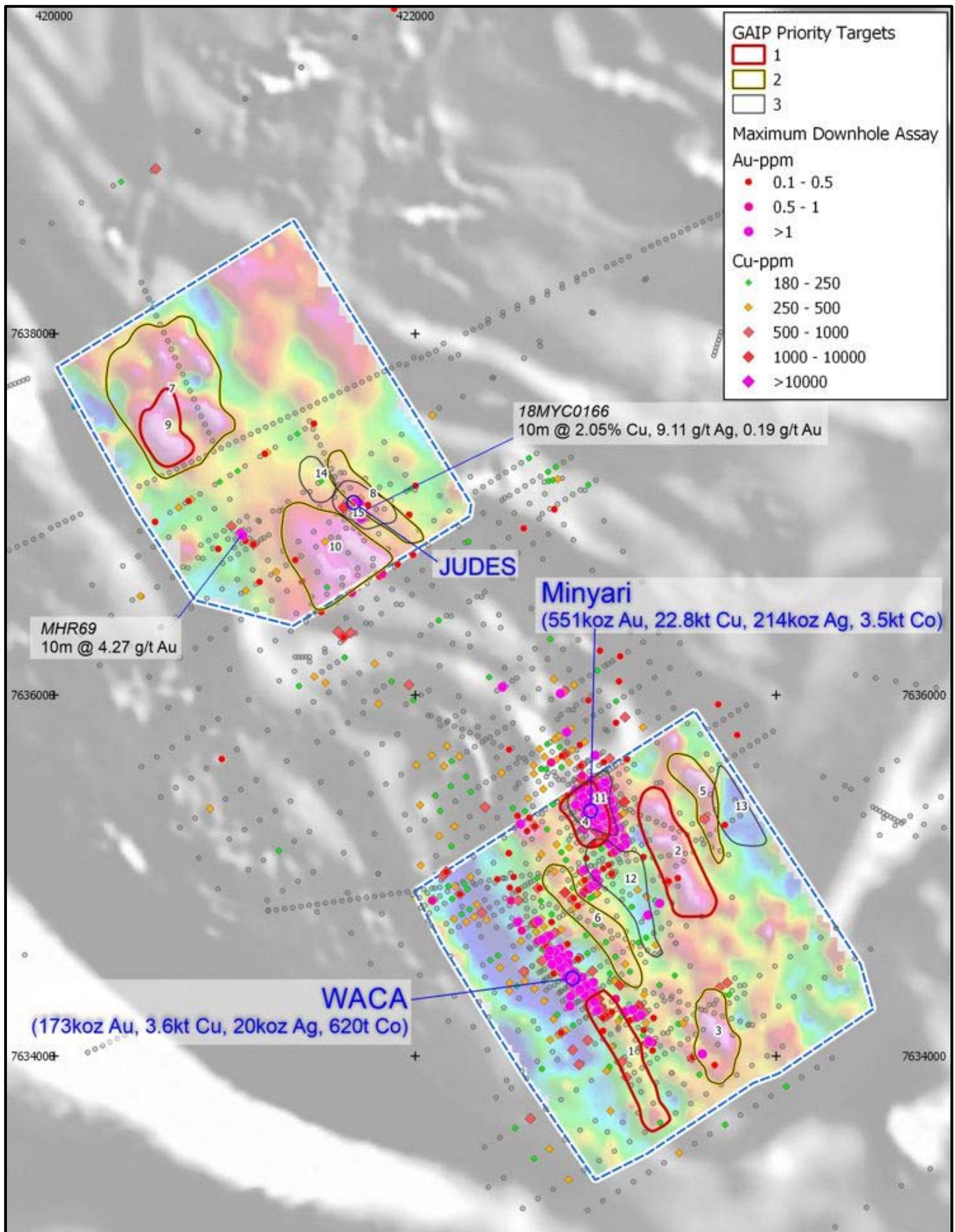


Figure 7: Plan view showing Minyari Dome Gradient Array Induced Polarisation (GAIP) survey areas, deposit locations, maximum down hole gold / copper values and IP chargeability targets including target abbreviated ID number (refer also to Table 2). NB: Over Airborne magnetic image (50m flight-line spacing at an altitude of 30m; Grey-scale First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 2km grid.



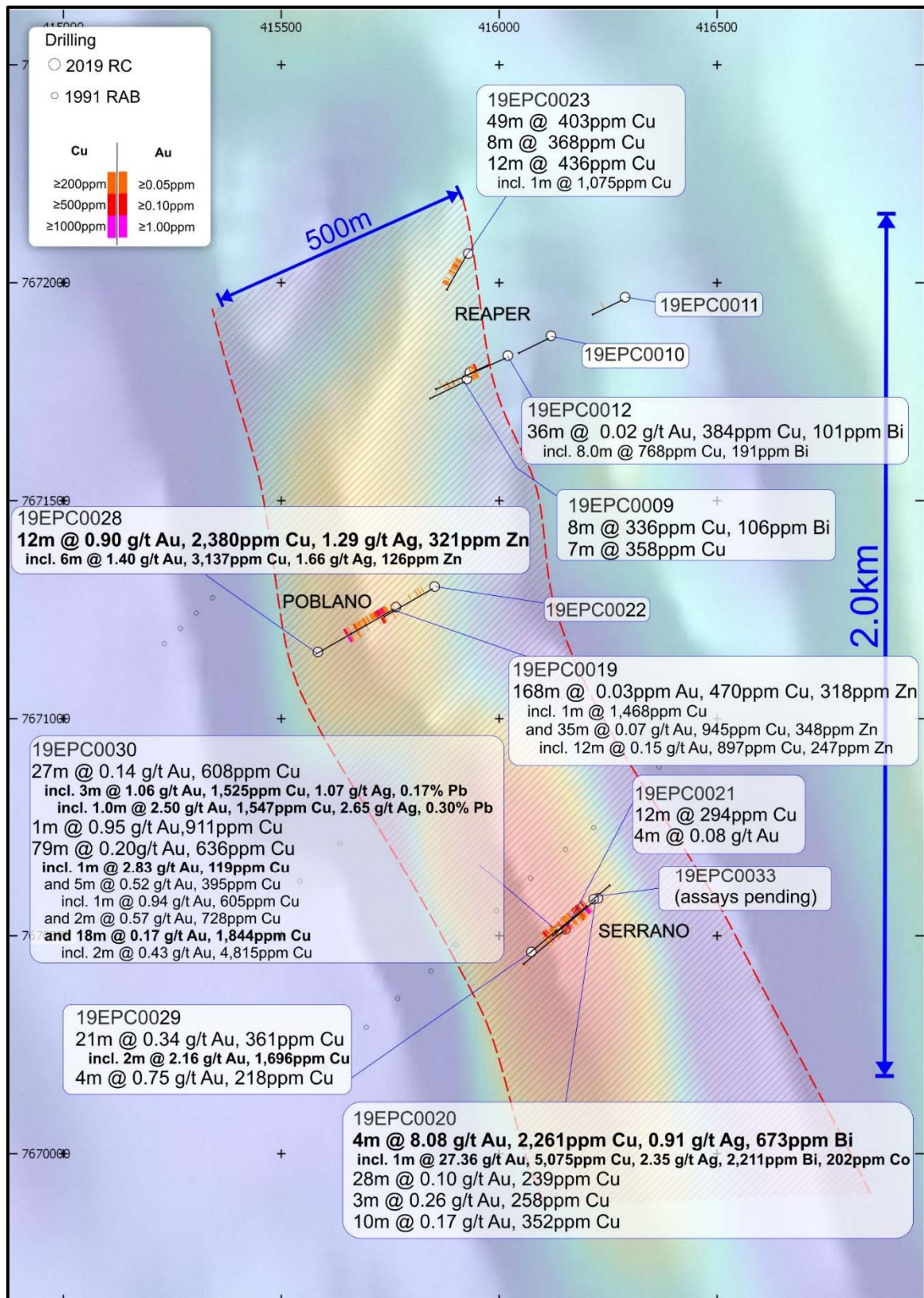


Figure 8: Plan view showing Serrano - Poblano (magnetic) and Reaper (AEM32) targets, 2019 RC drill holes, distribution of copper-gold-zinc mineralisation grades, and new El Paso Corridor mineralised trend which is 500m wide by 1.8km long and, based on limited very broad spaced drill testing, remains open in most directions, with the major “controlling” NW striking structure extending for 20km across Antipa 100% tenure and a further 40km NW across the Citadel Project (refer to Figure 1). NB: Over Airborne magnetic image (100m flight-line spacing at an altitude of 30m; pseudo-colour TMI-RTP First Vertical Derivative NE Sun illumination) and Regional GDA94 / MGA Zone 51 co-ordinates, 500m grid.

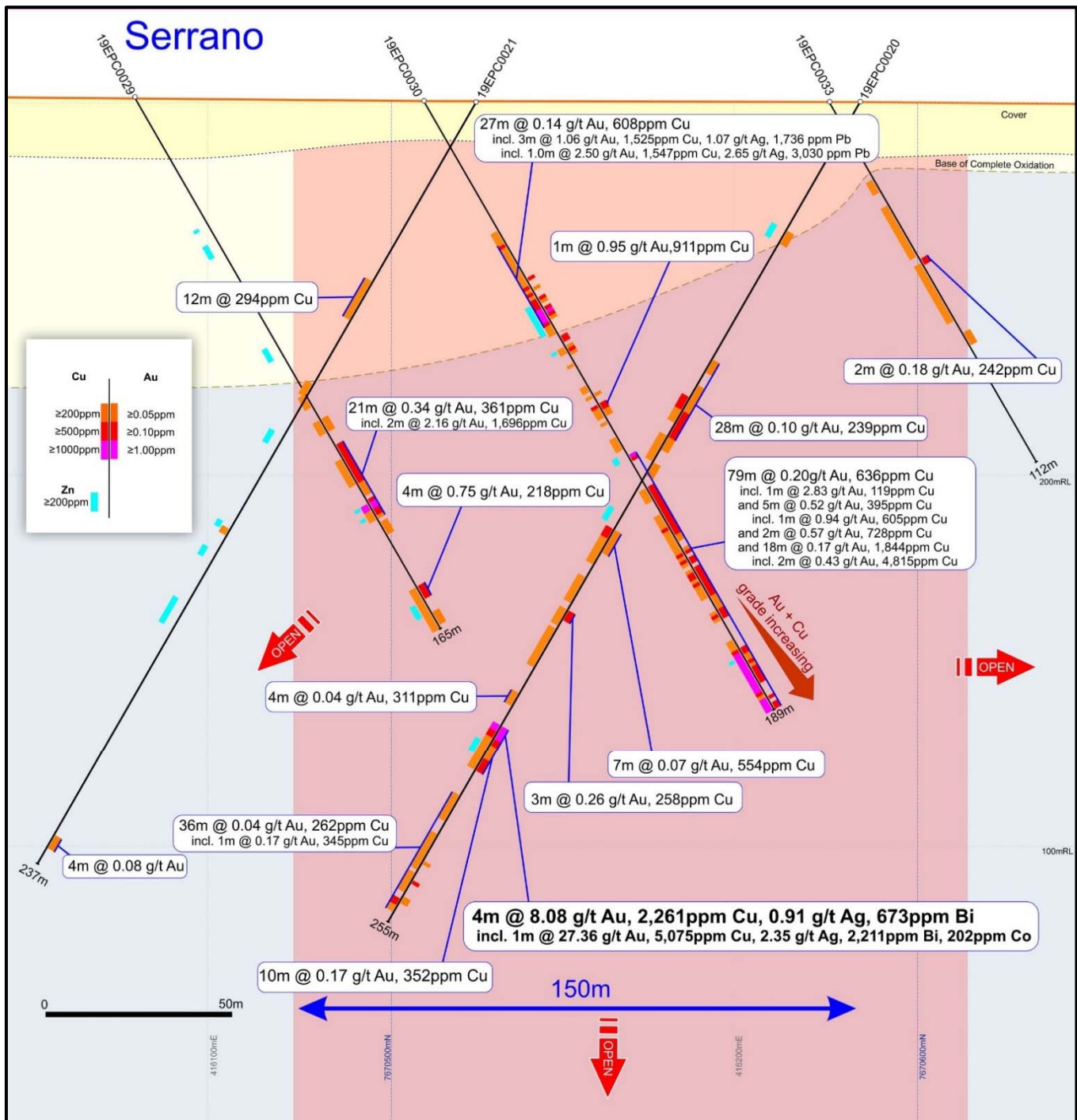
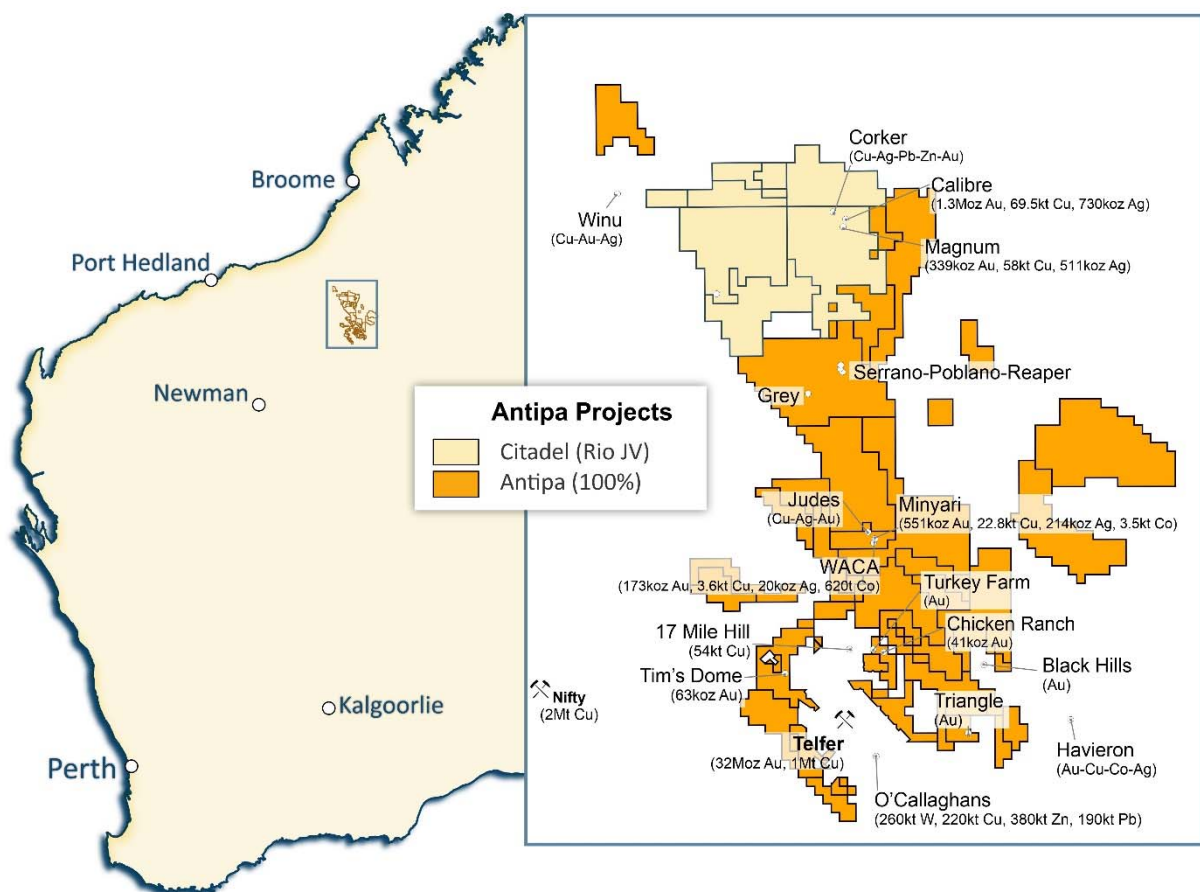


Figure 9: Serrano magnetic target cross-section showing 2019 RC drill holes and distribution of copper-gold-zinc mineralisation and grades. NB: Regional GDA94 / MGA Zone 51 co-ordinates, 100m grid, looking toward 320°.



**About Antipa Minerals:** Antipa is a mineral exploration company focused on the Paterson Province in north-west Western Australia, home to Newcrest Mining's world-class Telfer gold mine, Rio Tinto's recent Winu copper discovery and other significant mineral deposits. Having first entered the Paterson in 2011 when it was a less sought-after exploration address, the Company has used its early mover advantage to build an enviable tenement holding of approximately 5,660km<sup>2</sup>, including the 1,330km<sup>2</sup> Citadel Project that is subject to a Farm-in and Joint Venture Agreement with Rio Tinto. Under the terms of the Farm-in and Joint Venture Agreement, Rio Tinto can fund up to \$60 million of exploration expenditure to earn up to a 75% interest in Antipa's Citadel Project. Unlike certain parts of the Paterson where cover can extend to kilometres, making for difficult exploration, the Company's tenements feature relatively shallow cover: approximately 80% are under less than 80 metres. The Citadel Project lies within 5km of the Winu discovery and contains a Mineral Resource of 1.64 million ounces of gold and 128,000 tonnes of copper spread across two deposits, Calibre and Magnum. The Company has also established a Mineral Resource on its 100%-owned tenements, known as the North Telfer and Paterson Projects, with the Minyari, WACA, Tim's Dome and Chicken Ranch deposits containing 827,000 ounces of gold and 26,000 tonnes of copper. Extensive drilling is planned for 2019 across Antipa's Paterson tenements as the company pursues a dual strategy of targeting tier-one greenfields discoveries and growing its existing resources through brownfields exploration.

**References to Rio Tinto:** All references to "Rio Tinto" or "Rio" in this document are a reference to Rio Tinto Exploration Pty Limited, a wholly owned subsidiary of Rio Tinto Limited. All dollar figures are in AUD unless stated otherwise.



**Competent Persons Statement – Exploration Results:** The information in this document that relates to Exploration Results is based on and fairly represents information and supporting documentation compiled by Mr Roger Mason, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Mason is a full-time employee of the Company. Mr Mason is the Managing Director of Antipa Minerals Limited, is a substantial shareholder of the Company and is an option holder of the Company. Mr Mason has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Various information in this report which relates to Exploration Results have been extracted from the following announcements:

- Report entitled "*Calibre and Magnum Deposit Mineral Resource JORC 2102 Updates*" created on 23 February 2015;
- Report entitled "*Minyari/WACA Deposits Maiden Mineral Resource*" created on 16 November 2017;
- Report entitled "*Calibre Deposit Mineral Resource Update*" created on 17 November 2017;
- Report entitled "*Antipa to Commence Major Exploration Programme*" created on 1 June 2018;
- Report entitled "*Major Exploration Programme Commences*" created on 25 June 2018;
- Report entitled "*2018 Exploration Programme Update*" created on 16 July 2018;
- Report entitled "*2018-19 Exploration Programme Overview and Update - August*" created on 15 August 2018;
- Report entitled "*Multiple High Grade Gold-Copper Targets Identified*" created on 15 October 2018;
- Report entitled "*Expanded Greenfield Programme in Paterson Province Commences*" created on 10 December 2018;
- Report entitled "*Resource Growth Potential and Additional Brownfields Targets*" created on 11 December 2018;
- Report entitled "*Greenfield Programme Identifies Havieron Lookalike Anomalies*" created on 14 February 2019;
- Report entitled "*Antipa to Commence Major Greenfields Exploration Programme*" created on 18 February 2019;
- Report entitled "*Major Greenfields Drilling Programme Commences*" created on 7 May 2019;
- Report entitled "*Chicken Ranch and Tims Dome Maiden Mineral Resources*" created on 13 May 2019;
- Report entitled "*Antipa Provides Update on 2019 Exploration Programme*" created on 18 June 2019;
- Report entitled "*Antipa provides Further Update on 2019 Exploration Programme*" created on 16 July 2019;
- Report entitled "*Exploration Update - 100% Owned Paterson Province Tenure*" created on 22 August 2019; and
- Report entitled "*Zones of Copper-Gold Mineralisation Identified*" created on 18 October 2019; and
- Report entitled "*Serrano Poblano Grey Follow Up Drilling Results*" created on 22 November 2019.

All of which are available to view on [www.antipaminerals.com.au](http://www.antipaminerals.com.au) and [www.asx.com.au](http://www.asx.com.au).

The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements. Mr Roger Mason, whose details are set out above, was the Competent Person in respect of the Exploration Results in these original reports.

**Competent Persons Statement – Mineral Resource Estimations for the Minyari-WACA Deposits, Tim's Dome and Chicken Ranch Deposits, Calibre Deposit and Magnum Deposit:** The information in this document that relates to the estimation and reporting of the Minyari-WACA deposits Mineral Resources is extracted from the report entitled "*Minyari/WACA Deposits Maiden Mineral Resources*" created on 16 November 2017 with Competent Persons Kahan Cervo and Susan Havlin, the Tim's Dome and Chicken Ranch deposits Mineral Resources is extracted from the report entitled "*Chicken Ranch and Tims Dome Maiden Mineral Resources*" created on 13 May 2019 with Competent Person Shaun Searle, the Calibre deposit Mineral Resource information is extracted from the report entitled "*Calibre Deposit Mineral Resource Update*" created on 17 November 2017 with Competent Person John Graindorge and the Magnum deposit Mineral Resource information is extracted from the report entitled "*Calibre and Magnum Deposit Mineral Resource JORC 2012 Updates*" created on 23 February 2015 with Competent Person Patrick Adams, all of which are available to view on [www.antipaminerals.com.au](http://www.antipaminerals.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant original market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

**Gold Metal Equivalent Information - Calibre Mineral Resource AuEquiv cut-off grade:** Gold Equivalent (AuEquiv) details of material factors and metal equivalent formula are reported in "*Calibre Deposit Mineral Resource Update*" created on 17 November 2017 which is available to view on [www.antipaminerals.com.au](http://www.antipaminerals.com.au) and [www.asx.com.au](http://www.asx.com.au).



**Gold Metal Equivalent Information - Magnum Mineral Resource AuEquiv cut-off grade:** Gold Equivalent (AuEquiv) details of material factors and metal equivalent formula are reported in *"Citadel Project - Calibre and Magnum Deposit Mineral Resource JORC 2012 Updates"* created on 23 February 2015 which is available to view on [www.antipaminerals.com.au](http://www.antipaminerals.com.au) and [www.asx.com.au](http://www.asx.com.au).

**Forward-Looking Statements:** This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Antipa Mineral Ltd's planned exploration programme and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although Antipa Minerals Ltd believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

## Mineral Resource Estimates

### North Telfer Project and Paterson Project

Deposit and Gold Cut-off Grade*	Resource Category	Tonnes (Mt)	Gold Grade (g/t)	Copper Grade (%)	Silver Grade (g/t)	Cobalt (ppm)	Gold (oz)	Copper (t)	Silver (oz)	Cobalt (t)
Chicken Ranch Area 0.5 Au	Inferred	0.8	1.6	-	-	-	40,300	-	-	-
Tim's Dome 0.5 Au	Inferred	1.8	1.1	-	-	-	63,200	-	-	-
Chicken Ranch Area + Tim's Dome	Total	2.4	1.3	-	-	-	103,500	-	-	-
Minyari 0.5 Au	Indicated	3.2	1.9	0.3	0.7	590	192,610	9,600	75,660	1,860
Minyari 0.5 Au	Inferred	0.7	1.7	0.24	0.6	340	36,260	1,560	13,510	220
Minyari 0.5 Au	Sub-Total	3.8	1.9	0.29	0.7	550	228,870	11,160	89,170	2,080
Minyari 1.7 Au	Indicated	0.2	2.6	0.29	0.9	430	18,740	650	6,800	100
Minyari 1.7 Au	Inferred	3.7	2.6	0.3	1.0	370	303,000	10,950	117,550	1,360
Minyari 1.7 Au	Sub-Total	3.9	2.6	0.3	1.0	380	321,740	11,600	124,350	1,460
Minyari	Total	7.7	2.2	0.3	0.9	460	550,610	22,760	213,520	3,540
WACA 0.5 Au	Inferred	2.8	1.4	0.11	0.2	180	121,950	3,120	15,920	500
WACA 1.7 Au	Inferred	0.5	2.9	0.09	0.2	230	50,780	510	3,850	120
WACA	Total	3.3	1.6	0.11	0.2	190	172,730	3,630	19,770	620
Minyari + WACA Deposits	Grand Total	11.0	2.0	0.24	0.7	380	723,340	26,390	233,290	4,060
North Telfer + Paterson Projects – Gold Only	Grand Total	13.5	1.9	-	-	-	826,840	-	-	-

\*0.5 Au = Using a 0.5 g/t gold cut-off grade above the 50mRL (NB: potential "Open Cut" cut-off grade)

\*1.7 Au = Using a 1.7 g/t gold cut-off grade below the 50mRL (NB: potential "Underground" cut-off grade)

### Citadel Project (Rio Tinto JV)

Deposit and Gold Cut-off Grade**	Resource Category	Tonnes (Mt)	Gold Grade (g/t)	Copper Grade (%)	Silver Grade (g/t)	Tungsten (ppm)	Gold (oz)	Copper (t)	Silver (oz)	Tungsten (t)
Calibre 0.5 Au Equiv	Inferred	47.7	0.9	0.15	0.5	217	1,300,000	69,500	730,000	10,300
Magnum 0.5 Au Equiv	Inferred	16.1	0.7	0.37	1.0	-	339,000	57,800	511,000	-
Calibre + Magnum Deposits	Total	63.8	0.8	0.2	0.6	161	1,639,000	127,300	1,241,000	10,300

\*\*0.5 AuEquiv = Refer to details provided by the Notes section



**Table 3a: 2019 AEM and Magnetic Target Drill Hole Drill Intersections:**

(Post previous ASX release = 19EPC0033, 19MYC0190 and 19MYC0191)

**Gold-Copper-Zinc-Lead-Silver-Tungsten**(i.e.  $\geq 1.0\text{m Au} \geq 0.10\text{ ppm}$  and/or  $\text{Ag} \geq 1.0\text{ ppm}$  and/or  $\text{Cu}$  and/or  $\text{Zn}$  and/or  $\text{Pb}$  and/or  $\text{W} \geq 500\text{ ppm}$ )

Hole ID	Target	From (m)	To (m)	Interval (m)	Gold (ppm)	Copper (ppm)	Silver (ppm)	Zinc (ppm)	Lead (ppm)	Tungsten (ppm)
19EPC0033	Serrano	49.0	51.0	2.0	0.18	242	0.24	44	11	16
19MYC0190	Gonzo	118.0	120.0	2.0	0.16	2,210	0.48	98	3	13

**Notes:** Table 3a intersections are composite assay intervals reported using the following criteria:*Intersection Interval = Nominal cut-off grade scenarios:*

- $\geq 0.10\text{ppm}$  gold which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 500\text{ppm}$  copper which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 500\text{ppm}$  zinc which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 500\text{ppm}$  lead which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 1.0\text{ppm g/t}$  silver which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 500\text{ppm}$  tungsten which also satisfy a minimum down-hole interval of 1.0m.
- No top-cutting has been applied to assay results for gold, copper, zinc, lead, silver or tungsten.
- Intersections are down hole lengths, true widths not known with certainty.

**Table 3b: 2019 AEM and Magnetic Target Drill Hole Key Assay Results:**

(Post previous ASX release = 19EPC0033, 19MYC0190 and 19MYC0191)

**Gold-Copper-Zinc-Lead-Silver-Bismuth-Arsenic-Tungsten**(i.e.  $\geq 1.0\text{m}$  with  $\text{Au} \geq 0.05\text{ ppm}$  and /or  $\text{Cu}$  and/or  $\text{Zn}$  and/or  $\text{Pb} \geq 250\text{ ppm}$  and/or  $\text{Ag} \geq 0.50\text{ ppm}$  and/or  $\text{W} \geq 20\text{ ppm}$  and/or  $\text{Bi}$  and/or  $\text{As} \geq 10\text{ ppm}$ )

Hole ID	Target	From (m)	To (m)	Interval (m)	Au (ppm)	Cu (ppm)	Ag (ppm)	Zn (ppm)	Pb (ppm)	W (ppm)	Bi (ppm)	As (ppm)
19EPC0033	Serrano	24.0	28.0	4.00	0.02	249	0.06	49	10	39	8	2
19EPC0033	Serrano	32.0	36.0	4.00	0.00	200	0.16	47	16	33	2	1
19EPC0033	Serrano	36.0	40.0	4.00	0.00	217	0.20	47	13	27	14	1
19EPC0033	Serrano	40.0	44.0	4.00	0.01	266	0.26	86	15	25	39	1
19EPC0033	Serrano	44.0	48.0	4.00	0.01	235	0.32	72	10	18	14	1
19EPC0033	Serrano	49.0	50.0	1.00	0.24	169	0.24	36	10	12	172	1
19EPC0033	Serrano	50.0	51.0	1.00	0.13	315	0.23	52	12	20	122	1
19EPC0033	Serrano	51.0	52.0	1.00	0.02	205	0.18	45	11	10	11	0
19EPC0033	Serrano	52.0	56.0	4.00	0.01	228	0.20	43	7	12	21	1
19EPC0033	Serrano	56.0	60.0	4.00	0.01	247	0.20	41	10	12	23	1
19EPC0033	Serrano	64.0	68.0	4.00	0.01	254	0.15	23	11	10	5	1
19EPC0033	Serrano	72.0	76.0	4.00	0.06	45	0.14	38	12	27	2	0
19EPC0033	Serrano	76.0	80.0	4.00	0.04	37	0.18	28	8	27	2	0
19MYC0190	Gonzo	0.0	4.0	4.00	0.00	26	0.08	14	15	2	1	11
19MYC0190	Gonzo	4.0	8.0	4.00	0.00	36	0.10	17	19	4	1	13
19MYC0190	Gonzo	8.0	12.0	4.00	0.00	80	0.43	17	44	4	1	49
19MYC0190	Gonzo	12.0	16.0	4.00	0.00	64	0.33	21	32	4	1	38
19MYC0190	Gonzo	44.0	48.0	4.00	0.09	26	0.09	60	5	3	0	2
19MYC0190	Gonzo	116.0	117.0	1.00	0.02	381	0.11	68	4	3	0	2
19MYC0190	Gonzo	117.0	118.0	1.00	0.01	309	0.08	72	4	4	0	5
19MYC0190	Gonzo	118.0	119.0	1.00	0.09	1,550	0.34	89	3	11	1	2
19MYC0190	Gonzo	119.0	120.0	1.00	0.23	2,870	0.61	107	3	16	1	3
19MYC0191	Gonzo	8.0	12.0	4.00	0.01	39	0.10	15	16	4	1	10
19MYC0191	Gonzo	12.0	16.0	4.00	0.00	123	0.16	12	24	6	3	63
19MYC0191	Gonzo	24.0	28.0	4.00	0.01	22	0.74	57	6	2	0	1
19MYC0191	Gonzo	36.0	40.0	4.00	0.07	21	0.10	29	7	3	2	1
19MYC0191	Gonzo	64.0	68.0	4.00	0.01	24	0.40	34	4	6	12	0
19MYC0191	Gonzo	68.0	72.0	4.00	0.02	115	0.16	45	31	3	27	0
19MYC0191	Gonzo	120.0	124.0	4.00	0.03	103	0.07	46	6	9	1	37
19MYC0191	Gonzo	124.0	128.0	4.00	0.00	153	0.08	25	6	21	0	13
19MYC0191	Gonzo	128.0	132.0	4.00	0.00	22	0.04	20	4	8	0	34
19MYC0191	Gonzo	132.0	136.0	4.00	0.01	126	0.13	19	3	5	0	83
19MYC0191	Gonzo	136.0	140.0	4.00	0.02	363	0.13	43	2	4	0	16

**Notes:** Table 3b intersections are individual assay intervals reported using the following criteria:

*Intersection Interval = Nominal cut-off grade scenarios:*

- $\geq 0.05\text{ppm}$  gold which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 250\text{ppm}$  copper which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 250\text{ppm}$  zinc which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 250\text{ppm}$  lead which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 0.5\text{ppm g/t}$  silver which also satisfy a minimum down-hole interval of 1.0m; and/or
- $\geq 20\text{ppm}$  tungsten which also satisfy a minimum down-hole interval of 1.0m.
- $\geq 10\text{ppm}$  bismuth which also satisfy a minimum down-hole interval of 1.0m;
- $\geq 10\text{ppm}$  arsenic which also satisfy a minimum down-hole interval of 1.0m.
- No top-cutting has been applied to assay results for gold, copper, zinc, lead, silver, tungsten, bismuth or arsenic.
- Intersections are down hole lengths, true widths not known with certainty.

**Table 4: RC Drill Hole Collar Locations (MGA Zone 51/GDA 94)**

Hole ID	Deposit / Target Area	Northing (m)	Easting (m)	RL (m)	Hole Depth (m)	Azimuth (°)	Dip (°)	Assay Status
19EPC0033	Serrano	7,670,584	416,217	250	112	50.0	-60	Received
19MYC0190	Gonzo	7,636,394	421,624	250	141	231.0	-70	Received
19MYC0191	Gonzo	7,636,205	421,526	250	155	231.0	-60	Received

**Notes (Drill Hole Collar Table above):**

- Drill Hole Prefix and drilling technique (Refer to JORC Table 1 Section 1 for full drill technique and sampling details):
  - 19EPC.... = Reverse Circulation (RC) – North Telfer Project various tenements; and
  - 19MYC.... = Reverse Circulation (RC) – North Telfer Project Minyari Dome area.



**ANTIPA PROJECTS PATERSON PROVINCE – 2019 Air Core, Slim-Line Reverse Circulation & Reverse Circulation Drill Hole Sampling**  
**JORC Code 2012 Edition: Table 1 - Section 1 Sampling Techniques and Data** (Criteria in this section shall apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<p><b>2019 Air Core (AC), Slim-Line Reverse Circulation (SLRC) and Reverse Circulation (RC) Drilling</b></p> <ul style="list-style-type: none"> <li>Prospects/targets have been sampled by 178 AC, SLRC and RC drill holes, totaling 19,590 m, with an average drill hole depth of 103 m.</li> <li>Assays have been received for all 131 of the 2019 AC and SLRC drill holes.</li> <li>Assay results have been received for all 47 of the 2019 RC drill holes.</li> <li>AC, SLRC and RC drill holes were generally drilled on a range of hole spacings along line and across line, testing geophysical (AEM ± aeromagnetic) ± geochemical targets.</li> <li>Drill hole locations and orientations for all 2019 holes are tabulated in the body of this report.</li> </ul> <p><b>AC, SLRC and RC Sampling</b></p> <ul style="list-style-type: none"> <li>AC, SLRC and RC Sampling was carried out under Antipa protocols and QAQC procedures as per industry best practice.</li> <li>One metre samples were collected from a cyclone into a plastic bucket and then laid out on the ground in rows of 10.</li> <li>Compositing AC, SLRC and RC samples in lengths between 2 to 4 m was undertaken via combining 'Spear' samples of the 1.0 m intervals to generate a 2 kg (average) sample. Areas of anomalous portable XRF Device (Niton or Olympus) ('pXRF') results or zones of encouraging geological observations were sampled as single metres via 'Spear' sample collection for AC/SLRC drill holes and via collection of drill rig cone-splitter collected 1m calico bags for RC drill holes.</li> <li>All samples are pulverised at the laboratory to produce material for assay.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<p><b>Air Core (AC) and Slim-line Reverse Circulation (SLRC) and Reverse Circulation (RC) Drilling</b></p> <ul style="list-style-type: none"> <li>AC and SLRC drilling were undertaken with a Bostech Drillboss 200 4WD truck mounted rig; drill depth capacity of approximately 150 m with an on-board compressor producing 600 cfm at 250 psi and separate axillary booster to 1400 cfm at 700 psi.</li> <li>RC drilling was undertaken with the following rigs: <ul style="list-style-type: none"> <li>Hole prefix '19PNC' (i.e. 12 RC holes) = Austex X50 6x6 truck mounted rig; drill depth capacity of approximately 350 m with an on-board compressor producing 900 cfm at 350 psi and separate 8x8 truck mounted axillary booster providing total air capacity of 2400 cfm at 1000 psi.</li> <li>Hole prefix '19EPC' (i.e. 26 RC holes) = DRA RC600 8x8 truck mounted rig; drill depth capacity of approximately +500 m with an on-board compressor producing 1150 cfm at 500 psi and separate 8x8 truck mounted axillary booster providing total air capacity of 2250 cfm at 1000 psi.</li> </ul> </li> <li>Depending on the local target area geometries inclined drill holes were directed towards various azimuths ranging from 55° to 260° (GDA94 MGA Zone 51 co-ordinates), with inclination angles</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>ranging from vertical to -60°.</p> <p><b>Air Core Drilling</b></p> <ul style="list-style-type: none"> <li>All drill holes were completed using an 85 mm AC blade.</li> </ul> <p><b>Slim-Line Reverse Circulation Drilling</b></p> <ul style="list-style-type: none"> <li>When hard drilling conditions were encountered an 85 mm “Slim-Line” RC hammer with a crossover sub (not face sampling) was utilised; this drilling technique was variously required/utilised.</li> </ul> <p><b>Reverse Circulation Drilling</b></p> <ul style="list-style-type: none"> <li>A 137.5 mm face sampling RC hammer.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<p><b>AC, SLRC and RC Drill Samples</b></p> <ul style="list-style-type: none"> <li>AC, SLRC and RC sample recovery and sample quality were recorded via visual estimation of sample volume and condition of the drill spoils.</li> <li>AC, SLRC and RC sample recovery typically ranges from 90 to 100%, with only very occasional samples with less than 70% recovery.</li> <li>AC, SLRC and RC sample recovery was maximized by endeavoring to maintain a dry drilling conditions as much as practicable; the AC samples were almost exclusively dry.</li> <li>Relationships between recovery and grade are not evident and are not expected given the generally excellent and consistently high sample recovery.</li> <li>AC, SLRC and RC results are generated for the purpose of exploration and potentially for Mineral Resource estimations.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<p><b>AC, SLRC and RC Drill Logging</b></p> <ul style="list-style-type: none"> <li>Geological logging of 100% of all AC, SLRC and RC sample intervals was carried out recording colour, weathering, lithology, mineralogy, alteration, veining and sulphides.</li> <li>Logging includes both qualitative and quantitative components.</li> <li>All logging is entered directly into a notebook computer using the Antipa Proprietary Logging System which is based on Microsoft Excel. The logging system uses standard look up tables that does not allow invalid logging codes to be entered. Further data validation is carried out during upload to Antipa’s master Access SQL database.</li> <li>AC, SLRC and RC samples were measured for magnetic susceptibility using a handheld Magnetic Susceptibility meter at 1 m intervals.</li> <li>AC, SLRC and RC samples are generally analyzed in the field using a pXRF for the purposes of geochemical and lithological interpretation and the selection of sampling intervals.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness</li> </ul>	<p><b>AC, SLRC and RC Samples</b></p> <ul style="list-style-type: none"> <li>One metre samples were collected from a cyclone into a plastic bucket and then laid out on the ground in rows of 10 or 20.</li> <li>Compositing AC, SLRC and RC samples of between 2 to 4 m was undertaken via combining ‘Spear’</li> </ul>



Criteria	JORC Code explanation	Commentary
	<p><i>of the sample preparation technique.</i></p> <ul style="list-style-type: none"> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<p>samples of the intervals to generate a 2 kg (average) sample. Areas of anomalous pXRF results or anomalous geological observations were sampled as single metres.</p> <ul style="list-style-type: none"> <li>• All samples are pulverised at the laboratory to produce material for assay.</li> </ul> <p><b>AC, SLRC and RC Sample Preparation</b></p> <ul style="list-style-type: none"> <li>• Sample preparation of AC, SLRC and RC samples was completed at MinAnalytical Laboratories in Perth following industry best practice in sample preparation involving oven drying, coarse crushing of the AC and SLRC sample down to approximately 10 mm, followed by pulverisation of the entire sample (total prep) using Essa LM5 grinding mills to a grind size of 85% passing 75 µm and split into a sub-sample/s for analysis.</li> <li>• The sample sizes are considered to be appropriate to correctly represent the sulphide style of mineralisation encountered in the region, the thickness and consistency of the intersections and the sampling methodology.</li> </ul>
<p><i>Quality of assay data and laboratory tests</i></p>	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li>• <i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The sample preparation technique for AC, SLRC and RC samples are documented by Antipa Mineral Ltd's standard procedures documents and is in line with industry standards in sample preparation.</li> <li>• The sample sizes are considered appropriate to represent mineralisation.</li> <li>• Sample preparation checks for fineness were carried out by the laboratory as part of its internal procedures.</li> </ul> <p><b>AC, SLRC and RC Analytical Techniques</b></p> <ul style="list-style-type: none"> <li>• All samples were dried, crushed, pulverised and split to produce a sub-sample for a 10-gram sample which are digested and refluxed with nitric and hydrochloric ('aqua regia digest') acid suitable for weathered AC, SLRC and RC samples. Aqua regia can digest many different mineral types including most oxides, sulphides and carbonates but will not totally digest refractory or silicate minerals. Analytical methods used were both ICP-OES and ICP-MS (Au, Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Pd, Pt, Rb, Re, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn and Zr).</li> <li>• For samples which returned Au greater than 4,000 ppb Au (upper detection limit) with the aqua regia digest, a lead collection fire assay on a 50-gram sample with Atomic Absorption Spectroscopy was undertaken to determine gold content with a detection limit of 0.005ppm.</li> <li>• Ore grade ICP-OES analysis was completed on samples returning results above upper detection limit.</li> <li>• No geophysical tools were used to determine any element concentrations in this report.</li> <li>• Handheld portable XRF analyser (Niton XL3t 950 GOLDD+ or Olympus Professional) devices are used in the field to investigate and record geochemical data for internal analysis. However, due to 'spatial' accuracy/repeatability issues this data is generally not publicly reported for drill holes, other than for specific purposes/reasons.</li> <li>• Field QC procedures involve the use of commercial certified reference material (CRM's) for assay standards and blanks. Standards are inserted every 50 samples. The grade of the inserted standard is</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>not revealed to the laboratory.</p> <ul style="list-style-type: none"> <li>Repeat QC samples was utilised during the AC, SLRC and RC drilling programme with nominally two to three duplicate AC, SLRC and RC field samples per drill hole.</li> <li>Inter laboratory cross-checks analysis programmes have not been conducted at this stage.</li> <li>In addition to Antipa supplied CRM's, MinAnalytical includes in each sample batch assayed certified reference materials, blanks and up to 10% replicates.</li> <li>Selected anomalous samples are re-digested and analysed to confirm results.</li> <li>Based on laboratory assay results Antipa undertakes 1 m re-splits of selected mineralised 4 m composite samples.</li> <li>For drill holes where visual and/or laboratory assay results indicate the presence of significant mineralisation Antipa also undertakes programmes of 50 gram fire assaying to supersede the 10 gram aqua regia gold results; as the later analytical technique is prone to underestimating gold grade due to sample digestion issues, particularly for gold mineralisation associated with silicification and quartz veins, as fine gold can remain encapsulated in the undigested silica.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>Significant intersections have been visually verified by one or more alternative company personnel and/or contract employees.</li> <li>All logging is entered directly into a notebook computer using the Antipa Proprietary Logging System which is based on Microsoft Excel. The logging system uses standard look up tables that does not allow invalid logging codes to be entered. Further data validation is carried out during upload to Antipa's master SQL database.</li> <li>No adjustments or calibrations have been made to any assay data collected.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>km = kilometre; m = metre; mm = millimetre.</li> <li>Drill hole collar locations are surveyed using a handheld Garmin 64S GPS which has an accuracy of <math>\pm 3</math> m.</li> <li>The drilling co-ordinates are all in GDA94 MGA Zone 51 co-ordinates.</li> <li>Vertical AC, SLRC and RC drill holes do not require for drill rig set-up azimuth checking.</li> <li>Inclined AC, SLRC and RC drill holes are checked for drill rig set-up azimuth using Suunto Sighting Compass from two directions.</li> <li>Drill hole inclination is set by the driller using a clinometer on the drill mast and checked by the geologist prior the drilling commencing.</li> <li>AC, SLRC and RC drill hole down hole surveys <ul style="list-style-type: none"> <li>No downhole surveys are undertaken for AC, SLRC and RC drill holes.</li> </ul> </li> <li>If defaulted, the topographic surface is set to 250m RL.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve</li> </ul>	<ul style="list-style-type: none"> <li>AC, SLRC and RC drill sample compositing is sometimes applied for the reporting of the exploration results.</li> <li>Regional Geophysical Targets (AEM <math>\pm</math> aeromagnetic):</li> </ul>



Criteria	JORC Code explanation	Commentary
	<i>estimation procedure(s) and classifications applied.</i> <ul style="list-style-type: none"> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Drill spacing was variable depending on target rank, target dimensions (along strike and/or across strike); if more than one drill line per target then drill lines were generally spaced approximately 250 to 750 m apart with an average drill hole spacing on each section between 50 to 100 m</li> <li>The typical section spacing/drill hole distribution is not considered adequate for the purpose of Mineral Resource estimation.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>No consistent and/or documented material sampling bias resulting from a structural orientation has been identified for the “regional” geophysical targets at this point in time.</li> <li>However, both folding, multiple vein directions and faulting have been variously recorded in the region via diamond drilling and surface mapping.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Chain of sample custody is managed by Antipa to ensure appropriate levels of sample security.</li> <li>Samples are stored on site and delivered by Antipa or their representatives to Port Hedland and subsequently by Toll Ipec Transport from Port Hedland to the assay laboratory in Perth.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Sampling techniques and procedures are regularly reviewed internally, as is the data.</li> <li>Consultants Snowden, during completion of the 2013 Calibre Mineral Resource estimate, undertook a desktop review of the Company’s sampling techniques and data management and found them to be consistent with industry standards.</li> </ul>

## ANTIPA PROJECTS PATERSON PROVINCE – 2019 Airborne Electromagnetic and Magnetic Survey

### JORC Code 2012 Edition: Table 1 - Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary																																																
Sampling techniques	<ul style="list-style-type: none"><li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li><li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li><li>Aspects of the determination of mineralisation that are Material to the Public Report.</li><li>In cases where ‘industry standard’ work has been done this would be relatively simple (e.g. ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li></ul>	<ul style="list-style-type: none"><li>An Airborne Electromagnetic and Magnetic Survey was undertaken in 2019 by SKYTEM Australia Pty Ltd (SKYTEM), an independent geophysical contractor/service provider.</li><li>The survey employed the following equipment and sampling techniques:<ul style="list-style-type: none"><li>Survey Type = Time Domain Airborne Electromagnetics (MultiMoment SkyTEM-312 time-domain, helicopter borne electromagnetic system) and Magnetics:</li></ul></li></ul> <table><tr><td colspan="2"><b>Electromagnetic System</b></td></tr><tr><td>Type</td><td>MultiMoment SkyTEM-312 time-domain</td></tr><tr><td>Weight</td><td>680 kg</td></tr><tr><td>Structure</td><td>Rigid</td></tr><tr><td>Aircraft Type</td><td>AS350B Series</td></tr><tr><td>Engine Type</td><td>Turbine</td></tr><tr><td>Fuel Type</td><td>JetA1</td></tr><tr><td colspan="2"><b>Acquisition System</b></td></tr><tr><td>Type</td><td>Windows OS / SkyTEM Software</td></tr><tr><td>CPU</td><td>Intel Atom</td></tr><tr><td>Operation Temperature</td><td>-30 to +50°C</td></tr><tr><td>Standard Sampling Rate</td><td>HM 25 Hz / LM 275 Hz</td></tr><tr><td colspan="2"><b>Magnetometer Counter</b></td></tr><tr><td>Type</td><td>Kroum VS – KMAG4</td></tr><tr><td>Internal System Noise</td><td>N/A</td></tr><tr><td>Adc Inputs</td><td>28VDC</td></tr><tr><td>Magnetometer Inputs</td><td>4</td></tr><tr><td>Recording Rate</td><td>25 Hz / 12.5 Hz (capable of &gt;1 kHz)</td></tr><tr><td colspan="2"><b>Magnetometer Sensor</b></td></tr><tr><td>Type</td><td>Geometrics G822A</td></tr><tr><td>Measurement Range</td><td>20,000 to 100,000 nT</td></tr><tr><td>Gradient Tolerance</td><td>N/A</td></tr><tr><td>Operating Temperature</td><td>-35°C to +50°C</td></tr><tr><td>Recording Rate</td><td>25 Hz / 12.5 Hz (capable of &gt;1 kHz)</td></tr></table>	<b>Electromagnetic System</b>		Type	MultiMoment SkyTEM-312 time-domain	Weight	680 kg	Structure	Rigid	Aircraft Type	AS350B Series	Engine Type	Turbine	Fuel Type	JetA1	<b>Acquisition System</b>		Type	Windows OS / SkyTEM Software	CPU	Intel Atom	Operation Temperature	-30 to +50°C	Standard Sampling Rate	HM 25 Hz / LM 275 Hz	<b>Magnetometer Counter</b>		Type	Kroum VS – KMAG4	Internal System Noise	N/A	Adc Inputs	28VDC	Magnetometer Inputs	4	Recording Rate	25 Hz / 12.5 Hz (capable of >1 kHz)	<b>Magnetometer Sensor</b>		Type	Geometrics G822A	Measurement Range	20,000 to 100,000 nT	Gradient Tolerance	N/A	Operating Temperature	-35°C to +50°C	Recording Rate	25 Hz / 12.5 Hz (capable of >1 kHz)
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Criteria	JORC Code explanation	Commentary
		<b>SkyTEM Geometry</b> <b>Rx -Bird GPS</b> Horizontal offset [m] (GPS in front of Rx) 23.66 m Vertical offset [m] (GPS higher than Rx) -1.84 m <b>Helicopter - Mag Bird</b> Effective tow rope length in flight [m] N/A Tow rope angle with horizontal [deg] N/A Tow rope vertical [m] N/A Tow rope horizontal [m] N/A <b>Helicopter - Receiver</b> Effective tow rope length in flight [m] N/A Tow rope angle with horizontal [deg] N/A Tow rope vertical [m] N/A Tow rope horizontal [m] N/A <b>Receiver (Z-component)</b> Diameter [m] 50 cm Area [m <sup>2</sup> ] 0.2m <sup>2</sup> Turns N/A Effective Area [m <sup>2</sup> ] 25m <sup>2</sup> <b>Receiver (X-component)</b> Diameter [m] 31cm Area [m <sup>2</sup> ] N/A Turns N/A Effective Area [m <sup>2</sup> ] 5.5m <sup>2</sup> <b>Bucking Coil</b> Diameter [m] N/A Area [m <sup>2</sup> ] N/A Turns N/A Effective Area [m <sup>2</sup> ] N/A <b>Transmitter</b> Diameter [m] Hexagon

Criteria	JORC Code explanation	Commentary																						
		<table><tr><td>Area [m<sup>2</sup>]</td><td>342 m<sup>2</sup></td></tr><tr><td>Turns</td><td>12 HM / LM</td></tr><tr><td>Effective Area [m<sup>2</sup>]</td><td>2052m<sup>2</sup> HM / 342m<sup>2</sup> LM</td></tr><tr><td>Transmitter Current</td><td>220 - 250 Amp</td></tr><tr><td>Peak Moment</td><td>Up to 1,000,000 NIA</td></tr><tr><td>On time</td><td>5 ms</td></tr><tr><td>Off time</td><td>15 ms</td></tr><tr><td colspan="2"><b>Transmitter-Receiver</b></td></tr><tr><td rowspan="2">Horizontal offset of centre [m]</td><td>Z= -13.34m</td></tr><tr><td>X= -14.65m</td></tr><tr><td rowspan="2">Vertical offset of centre [m] (Tx below Rx)</td><td>Z=-2m</td></tr><tr><td>X=0m</td></tr></table>	Area [m <sup>2</sup> ]	342 m <sup>2</sup>	Turns	12 HM / LM	Effective Area [m <sup>2</sup> ]	2052m <sup>2</sup> HM / 342m <sup>2</sup> LM	Transmitter Current	220 - 250 Amp	Peak Moment	Up to 1,000,000 NIA	On time	5 ms	Off time	15 ms	<b>Transmitter-Receiver</b>		Horizontal offset of centre [m]	Z= -13.34m	X= -14.65m	Vertical offset of centre [m] (Tx below Rx)	Z=-2m	X=0m
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Drilling techniques	<ul style="list-style-type: none"><li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li></ul>	<ul style="list-style-type: none"><li>Not applicable to geophysical survey.</li></ul>																						
Drill sample recovery	<ul style="list-style-type: none"><li>Method of recording and assessing core and chip sample recoveries and results assessed.</li><li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li><li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li></ul>	<ul style="list-style-type: none"><li>Not applicable to geophysical survey.</li></ul>																						
Logging	<ul style="list-style-type: none"><li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li><li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li><li>The total length and percentage of the relevant intersections logged.</li></ul>	<ul style="list-style-type: none"><li>Not applicable to geophysical survey.</li></ul>																						
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"><li>If core, whether cut or sawn and whether quarter, half or all core taken.</li><li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li><li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li><li>Quality control procedures adopted for all sub-sampling</li></ul>	<ul style="list-style-type: none"><li>Not applicable to geophysical survey.</li></ul>																						



Criteria	JORC Code explanation	Commentary
	<p><i>stages to maximise representivity of samples.</i></p> <ul style="list-style-type: none"> <li><i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li><i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Airborne Electromagnetic and Magnetic Survey was undertaken by SKYTEM Australia Pty Ltd (SKYTEM), an independent geophysical contractor/service provider.</li> <li>The survey involved acquisition of airborne data at 300m line spacing, 45.0 or 58.0 degrees clockwise heading from north (i.e. flight lines were orientated approximately perpendicular to the dominant stratigraphic and structural trend).</li> <li>A total of approximately 2,072 line-km was completed during the survey.</li> <li>Nominal survey altitudes of less than 40m EM (i.e. Tx-Rx array), 45m magnetic sensor and 54m (helicopter) was employed which was dependent on safety considerations and dune/tree canopy height.</li> <li>A minimum line length of 3km was utilised for the flight path.</li> <li>The survey covered an area of approximately 600km<sup>2</sup>.</li> </ul> <p>Review of the data can be summarised by:</p> <ul style="list-style-type: none"> <li>Data quality was considered to be of high quality.</li> <li>The pilot was of high caliber with impressive line and height following.</li> <li>No gaps “drop outs” were observed in any of the database fields.</li> <li>Filtering of Raw data was minimal and very close to the final product.</li> </ul> <ul style="list-style-type: none"> <li>Laboratory procedures and associated QAQC not applicable to geophysical survey.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>km = kilometre; m = metre; mm = millimetre.</li> <li>Novatel DL-V3L1L2 with real time differential correction (12 satellites), 20 Hz recording rate was used for GPS positioning.</li> <li>The AEM survey coordinates are in WGS84 UTM zone 51S coordinates.</li> <li>Drill hole location not applicable to geophysical survey.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity</i></li> </ul>	<ul style="list-style-type: none"> <li>The survey involved acquisition of airborne data at 300m line spacing, 45.0 or 58.0 degrees clockwise heading from north.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> <ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul style="list-style-type: none"> <li>The survey involved acquisition of airborne data at 60.0 degrees clockwise heading from north (i.e. flight lines were orientated approximately perpendicular to the dominant stratigraphic and structural trend).</li> <li>Drill hole orientation not applicable to geophysical survey.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>All digital Airborne Electromagnetic and Magnetic data was subjected to rigorous auditing and vetting by the independent geophysical contractor/service provider and data manager SKYTEM Australia Pty Ltd (SKYTEM).</li> <li>In addition, all digital Airborne Electromagnetic and Magnetic data was also subjected to an audit and vetting by independent geophysical consultants Resource Potentials Pty Ltd.</li> </ul>



## ANTIPA PROJECTS PATERSON PROVINCE MINYARI DOME AREA – 2019 Gradient Array Induced Polarisation (GAIP) Survey:

### JORC Code 2012 Edition: Table 1 - Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<p><u>2019 Antipa Minerals Ltd Induced Polarisation Survey – Minyari Dome Area:</u></p> <ul style="list-style-type: none"> <li>The ground based 2019 Induced Polarisation survey was undertaken by Moombarriga Geoscience Pty Ltd, an independent geophysical contractor/service provider.</li> <li>The IP survey employed the following equipment and sampling techniques: <ul style="list-style-type: none"> <li>Survey Type = Induced Polarisation;</li> <li>Array = Gradient;</li> <li>Number of Arrays = 2;</li> <li>Rx spacing = 50m, with recordings also taken at 100m, 150m and 200m spacings;</li> <li>Receiver line spacing = 100m with some 200m;</li> <li>Transmitter dipole spacing = 2400m;</li> <li>Domain = Time Domain;</li> <li>Cycle = 0.125 Hz;</li> <li>Resultant final output = Apparent Chargeability (Milliseconds) and Apparent Resistivity (Ohm.m).</li> </ul> </li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li><i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>The ground Induced Polarisation (IP) survey was undertaken by Moombarriga Geoscience Pty Ltd, an independent geophysical contractor/service provider.</li> <li>The survey was carried out using a gradient array configuration with 50m spaced receiver electrodes and 100m with some 200m spaced survey lines.</li> <li>A total of two gradient arrays were surveyed for a total of approximately 6 km<sup>2</sup>.</li> <li>The Induced Polarisation equipment consisted of Transmitter(s) and Receiver apparatus. A 50kw motor generator drove the Search Ex 50kva transmitter supplying up to 50.0 kva continuous power.</li> <li>Transmitter electrodes (aluminum plates) were used to inject a stable current.</li> <li>The secondary voltage, denoted Vs, was nominally measured every 50 metres, using a SMARTem24 16 Channel receiver or Search Ex 32 Channel receiver.</li> <li>The receiver was used to take all of the data for the survey. From the Vs Apparent Resistivity and Apparent Chargeability were derived. The decay curve was separated into pre-programmed windows. Stack size was typically 20 cycles.</li> <li>Porous Pot receiver electrodes (Pb/PbCl<sub>2</sub> solution) were used.</li> <li>This release has no reference to previously unreported drilling, sampling, assays or mineralisation.</li> </ul>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to geophysical survey.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>km = kilometre; m = metre; mm = millimetre.</li> <li>IP Stations were determined by a standard hand-held Garmin GPS.</li> <li>The IP survey coordinates are in GDA94 MGA Zone 51 coordinates.</li> <li>Local IP survey coordinates are for the purposes of line and station reference points.</li> <li>This release has no reference to previously unreported drilling.</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The IP survey line spacing was 100m with some lines at a 200m spacing.</li> <li>• IP receiver electrodes were spaced at 50m, with recordings also taken at 100m, 150m and 200m spacings.</li> <li>• Not applicable to geophysical survey.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable to geophysical survey.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable to geophysical survey.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All digital IP data was subjected to rigorous auditing and vetting by the independent geophysical contractor/service provider and data manager Moombarriga Geoscience Pty Ltd.</li> <li>• In addition, all digital IP data was also subjected to an audit and vetting by independent geophysical consultants Resource Potentials Pty Ltd.</li> </ul>

## ANTIPA PROJECTS PATERSON PROVINCE – 2019 Air Core and Slim-Line Reverse Circulation Drill Hole Sampling, Airborne Electromagnetic and Magnetic Survey, and Ground Based Gradient Array Induced Polarisation (GAIP) Survey

### Section 2 – Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li><i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></li> <li><i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></li> </ul>	<ul style="list-style-type: none"> <li>The various 2019 drilling programmes were located within Exploration Licenses: <ul style="list-style-type: none"> <li>E45/2519; E45/3917; E45/3918; E45/3919; E45/4812; and E45/4867.</li> </ul> </li> <li>The Airborne Electromagnetic and Magnetic survey is located within Exploration Licenses: <ul style="list-style-type: none"> <li>E45/2527; E45/2529; E45/3917; E45/3919; E45/4514; E45/4518; E45/4784; E45/4812; E45/4867; E45/4886; E45/5078; E45/5152; E45/5153; E45/5154; E45/5155; E45/5156; E45/5313; E45/5361; E45/5413; E45/5414; E45/5458; and E45/5461.</li> </ul> </li> <li>The Gradient Array Induced Polarisation (GAIP) survey is located within Exploration Licenses: <ul style="list-style-type: none"> <li>E45/3918; E45/3919; and E45/4618.</li> </ul> </li> <li>Antipa Minerals Ltd has a 100% interest in all the above listed tenements.</li> <li>North Telfer Project tenement E45/3917 was applied for by Antipa Resources Pty Ltd on the 18<sup>th</sup> of May 2011 and was subsequently granted on the 18<sup>th</sup> February 2014.</li> <li>North Telfer Project tenements E45/3918 and E45/3919 were applied for by Antipa Resources Pty Ltd on the 18<sup>th</sup> of May 2011 and was subsequently granted on the 24<sup>th</sup> April 2013.</li> <li>Paterson Project tenement E45/2519, E45/2527 and E45/2529 were applied for by Kitchener Resources Pty Ltd (a wholly owned Antipa subsidiary) on the 4<sup>th</sup> of July 2003 and was subsequently granted on the 18<sup>th</sup> December 2014.</li> <li>A 1% net smelter royalty payable to Paladin Energy on the sale of product on all metals applies to tenements E45/3917, E45/3918, E45/3919 and E45/4618 as a condition of a Split Commodity Agreement with Paladin Energy in relation to the Company's North Telfer Project.</li> <li>A 1% net smelter royalty payable to Yandal Investments Pty Ltd (Yandal) on the sale of product on all metals applies to tenements E45/2519, E45/2527 and E45/2529 as a condition of an Agreement with Yandal in relation to the Company's Paterson Project.</li> <li>All of these tenements, including the Minyari, WACA and Chicken Ranch Mineral Resources, are not subject to the Citadel Project Farm-in Agreement with Rio Tinto Exploration Pty Ltd.</li> <li>All tenements excluding E45/2519 are contained completely within land where the Martu People have been determined to hold native title rights. Tenement E45/2519 is contained completely within land where the Nyangumarta People have been determined to hold native title rights. To the Company's knowledge only one historical site has been identified in the area of work and no environmentally sensitive sites have been identified in the area of work.</li> <li>Land Access and Exploration Agreements are in place with the Martu People and Nyangumarta People, except for tenement Exploration License Applications E45/5458 and E45/5461.</li> <li>Antipa maintains a positive relationship with the Martu People and Nyangumarta People, who are Native Title parties in the area.</li> <li>The tenements are in 'good standing' and no known impediments exist.</li> </ul>



Criteria	JORC Code explanation	Commentary
Exploration done by other parties	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>The exploration of North Telfer Project area was variously conducted by the following major resources companies: <ul style="list-style-type: none"> <li>Western Mining Corporation Ltd (1980 to 1983);</li> <li>Newmont Holdings Pty Ltd (1984 to 1990);</li> <li>MIM Exploration Pty Ltd (1990 to 1993) – Completed 18 vertical RAB drill holes (i.e. RE1 to RE11 and RE19 to RE25) between 1991 to 1994 for a total of 489 m at an average drill hole depth of 27 m in the broader Serrano-Poblano area. Best drill result was 4 m @ 450 ppm copper adjacent to Serrano. References WA DMIRS WAMEX publicly available reports A37683 and A42961.</li> <li>Newcrest Mining Limited (1991 to 2015); and</li> <li>Antipa Minerals Ltd (2013 onwards).</li> </ul> </li> <li>The exploration of Paterson Project area was variously conducted by the following major resources companies: <ul style="list-style-type: none"> <li>Prior to 1980 limited to no mineral exploration activities;</li> <li>BHP Australia (1991 to 1997);</li> <li>Antipa Minerals Ltd (2011 onwards).</li> </ul> </li> </ul>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<p>North Telfer Project, Paterson Project and Telfer Dome Project Tenement Areas:</p> <ul style="list-style-type: none"> <li>The geological setting is Paterson Province Proterozoic aged meta-sediment hosted hydrothermal shear, fault and strata/contact controlled precious and/or base metal mineralisation which is typically sulphide bearing. The mineralisation in the region is interpreted to be granite related. The Paterson is a low-grade metamorphic terrane but local hydrothermal alteration and/or contact metamorphic mineral assemblages and styles are indicative of a high-temperature local environment. Mineralisation styles include vein, stockwork, breccia and skarns.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>A summary of all available information material to the understanding of the exploration region exploration results can be found in previous Western Australia (WA) DMIRS publicly available reports.</li> <li>All the various technical and exploration reports are publicly accessible via the WA DMIRS' online WAMEX system.</li> <li>The specific WA DMIRS WAMEX and other reports related to the exploration information the subject of this public disclosure have been referenced in previous public reports.</li> <li>Drill hole information not applicable to geophysical surveys.</li> <li>Antipa Minerals Ltd publicly disclosed reports provide details of all exploration completed by the Company since 2011; these reports are all available to view on <a href="http://www.antipaminerals.com.au">www.antipaminerals.com.au</a> and <a href="http://www.asx.com.au">www.asx.com.au</a>.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high</li> </ul>	<ul style="list-style-type: none"> <li>Any reported aggregated intervals have been length weighted.</li> <li>No density or bulk density is available and so no density weighting has been applied when calculating aggregated intervals.</li> <li>No top-cuts to gold or copper have been applied (unless specified otherwise).</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i></p> <ul style="list-style-type: none"> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>A nominal 0.40 g/t gold or 1,000 ppm (0.10%) copper lower cut-off grade is applied.</li> <li>Higher grade intervals of mineralisation internal to broader zones of mineralisation are reported as included intervals.</li> <li>Metal equivalence is not used in this report.</li> <li>Data aggregation methods not applicable to geophysical surveys.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>Regional Geophysical Targets (AEM ± aeromagnetic): <ul style="list-style-type: none"> <li>The drill section spacing and sampling, at this stage, is insufficient to establish the geometrical relationships between the drill holes and any mineralised structures.</li> <li>Therefore, at this stage the reported intersection lengths are down hole in nature and the true width, which will be dependent on the local mineralisation geometry/setting, is not known.</li> </ul> </li> <li>Not applicable to geophysical surveys.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>All appropriate maps and sections (with scales) and tabulations of intercepts are reported or can sometimes be found in previous WA DMIRS WAMEX publicly available reports.</li> <li>Tabulations of geophysical survey parameters are reported.</li> <li>Drill hole locations etc not applicable to geophysical surveys.</li> <li>Antipa Minerals Ltd publicly disclosed reports provide maps and sections (with scales) and tabulations of intercepts generated by the Company since 2011; these reports are all available to view on <a href="http://www.antipaminerals.com.au">www.antipaminerals.com.au</a> and <a href="http://www.asx.com.au">www.asx.com.au</a>.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>The Company believes that the ASX announcement is a balanced report with all material results reported.</li> <li>All significant results are reported or can sometimes be found in previous WA DMIRS WAMEX publicly available reports.</li> <li>Antipa Minerals Ltd publicly disclosed reports provide details of all significant exploration results generated by the Company since 2011; these reports are all available to view on <a href="http://www.antipaminerals.com.au">www.antipaminerals.com.au</a> and <a href="http://www.asx.com.au">www.asx.com.au</a>.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul style="list-style-type: none"> <li>All meaningful and material information has been included in the body of the text or can sometimes be found in previous WA DMIRS WAMEX publicly available reports.</li> <li>Zones of mineralisation and associated waste material have not been measured for their bulk density.</li> <li>Multi element assaying was conducted variously for a suite of potentially deleterious elements including arsenic, sulfur, lead, zinc and magnesium.</li> <li>To date no downhole 'logging' surveys have been completed for the 2019 drill holes.</li> <li>Geotechnical logging (e.g. Recovery, RQD and Fracture Frequency) is not possible for AC, SLRC and RC drill material and none was obtained from the WA DMIRS WAMEX reports.</li> <li>Limited downhole information on structure type, dip, dip direction, alpha angle, beta angle, gamma</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>angle, texture and fill material were obtained from the Company's pre-existing SQL database and WA DMIRS WAMEX reports.</p> <ul style="list-style-type: none"> <li>Metallurgical test-work results available on these particular tenements is restricted to the Minyari-WACA gold-copper-silver-cobalt deposits. Preliminary metallurgical test-work results are available for both the Minyari and WACA deposits. Details of this 2017 metallurgical test-work programme can be found on the ASX or Antipa websites – Public release dated 13 June 2017 and titled “Minyari Dome Positive Metallurgical Test-work Results”. In summary both oxide and primary gold mineralisation (with accessory copper and cobalt) responded very satisfactorily to conventional gravity and cyanidation processes, with flotation to recovery copper and cobalt by-products the subject of ongoing evaluation. These reports are all available to view on <a href="http://www.antipaminerals.com.au">www.antipaminerals.com.au</a> and <a href="http://www.asx.com.au">www.asx.com.au</a>.</li> <li>In addition, the following information in relation to the Minyari deposit metallurgy was obtained from WA DMIRS WAMEX reports: <ul style="list-style-type: none"> <li>Newmont Holdings Pty Ltd collected two bulk (8 tonnes each) metallurgical samples of oxide mineralisation in 1987 (i.e. WAMEX 1987 report A24464) from a 220m long costean across the Minyari deposit. The bulk samples were 8 tonnes grading 1.5 g/t gold and 8 tonnes grading 3.57 g/t gold from below shallow cover in the costean. However, it would appear the Newmont metallurgical test-work for these two bulk samples was never undertaken/competed as no results were subsequently reported to the WA DMIRS;</li> <li>Newmont Holdings Pty Ltd also collected drill hole metallurgical samples for Minyari deposit oxide and primary mineralisation (i.e. WAMEX 1986 report A19770); however, subsequent reporting of any results to the WA DMIRS could not be located suggesting that the metallurgical test-work was never undertaken/competed.</li> </ul> </li> <li>Newcrest Mining Ltd describe the Minyari deposit gold-copper mineralisation as being typical of the Telfer gold-copper mineralisation. In 2004 and 2005 (WAMEX reports A71875 and A74417) Newcrest commenced metallurgical studies for the Telfer Mine and due to the similarities with the Minyari mineralisation a portion of this Telfer metallurgical test-work expenditure was apportioned to the then Newcrest Minyari tenements. Whilst Telfer metallurgical results are not publicly available, the Telfer Mining operation (including ore processing facility) was materially expanded in the mid-2000's and continues to operate with viable metallurgical recoveries (for both oxide and primary mineralisation).</li> </ul>
Further work	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Planned further work: <ul style="list-style-type: none"> <li>Ongoing review and interpretations of the 2019 and historical exploration data;</li> <li>Planning and execution of follow-up exploration activities to identify potential high-grade mineralisation;</li> <li>Geophysical data modelling (including AEM and Aeromagnetics); and</li> <li>Full geological interpretation including 3D modelling.</li> </ul> </li> <li>At this stage, it is envisaged that the airborne electromagnetic and GAIP anomalies identified by the</li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>2019 Airborne Electromagnetic and Magnetic survey and GAIP survey will be the subject of further investigation and evaluation via drilling programme/s the exact nature and scale of which is currently being determined.</p> <ul style="list-style-type: none"><li>• All appropriate maps and sections (with scales) and tabulations of intercepts are reported or can sometimes be found in previous WA DMIRS WAMEX publicly available reports.</li></ul>