

## MULTIPLE GOLD-COPPER TARGETS IDENTIFIED ON RIO TINTO-ANTIPA CITADEL FARM-IN PROJECT

### Highlights

- Eleven priority 1 and 2 electromagnetic (EM) conductor targets identified from 600km<sup>2</sup> aerial electromagnetic (AEM) survey over the Citadel Project
- AEM surveys have resulted in several significant discoveries in the Paterson Province
- Conductors can represent sulphides associated gold and/or copper mineralisation
- Planning underway for the 2019 Citadel exploration programme including the commencement of drill-testing of high priority AEM targets
- Rio Tinto Exploration Pty Limited ("Rio Tinto") can earn up to 75% by spending up to \$60M on exploration of Antipa's Citadel Project

### OVERVIEW

Antipa Minerals Ltd (ASX: **AZY**) ('Antipa', 'the Company') is pleased to provide an update for the 2018 exploration activities completed at the Citadel Project (the 'Project') as part of the \$60M staged farm-in by Rio Tinto Exploration Pty Limited ('Rio Tinto'), a wholly owned subsidiary of Rio Tinto Limited. The Citadel Project is located in the prospective Paterson Province, 80km north of Newcrest's Telfer gold-copper-silver mine in northern Western Australia and within 5km of Rio Tinto's recent Winu copper-gold deposit discovery<sup>1</sup> (Figure 2).

Antipa's Paterson Province dual exploration strategy strives to deliver both greenfield discoveries and increase existing brownfield gold and/or copper resources during 2019. Exploration activities within the Citadel Project are complementary to this strategy.

### AERIAL ELECTROMAGNETIC SURVEY

Results were recently received for the 600km<sup>2</sup> airborne electromagnetic (AEM / SkyTEM) which was completed in late 2018 with the objective of defining EM conductors with potential to represent semi-massive to massive sulphides associated with gold and/or copper mineralisation or supergene native copper mineralisation. The 2018 survey area covered all remaining regions of the Citadel Project not previously covered by modern AEM geophysical systems (Figures 2 and 3). AEM has been an instrumental tool in several significant Paterson Province discoveries and this is the first geophysical survey of this type over this area.

The AEM survey identified a total of 11 priority 1 and 2 EM conductor targets, with the review of additional anomalies ongoing. These 11 targets are within 9 to 42 km of both Rio Tinto's

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<sup>1</sup> Refer to Rio Tinto Limited's website (<https://www.riotinto.com/>) and news releases on the Australian Stock Exchange (ASX: RIO) (<https://www.asx.com.au/>) and London Stock Exchange (LON: RIO) (<https://www.londonstockexchange.com/home/homepage.htm>)

recently announced Winu copper-gold deposit<sup>2</sup> and the Company's Calibre-Magnum copper-gold resources (Figure 1).

#### AEM survey key information and results:

- Employed the high power, MultiMoment SkyTEM-306HP time-domain, helicopter borne electromagnetic system from SKYTEM Australia Pty Ltd.
- Survey covered approximately 2,000 line-kilometres, at a line spacing of 300 metres, for a total combined strike length of 80km and an area of 600km<sup>2</sup> (Figures 2 and 3).
- Survey completed with the aim that the EM-Loop terrain clearance was less than 40m.
- Targeting conducted by Rio Tinto in conjunction with independent geophysical consultant Kelvin Blundell.
- 35 targets were identified in total (refer to Table 1 for individual EM conductor target attributes), a number of which are supported by additional targeting criteria including geological, geochemical and magnetic signatures.
- 11 priority 1 and 2 electromagnetic conductivity targets have been identified for possible drill testing, subject to ongoing review, with targets ranging in length from 330 to 2,200m.
- Cover within the survey area is generally thin ranging between 20 to 80m.
- Drilling within the 2018 AEM survey area is very limited and shallow, with no direct tests of the identified EM targets.
- Surface geochemical sampling within the AEM survey area is also very limited and is ineffective due to the cover.

### **ONGOING EXPLORATION ACTIVITIES AT THE CITADEL PROJECT**

- Ongoing aerial electromagnetic survey results analysis and targeting in conjunction with other data;
- Ongoing evaluation of exploration opportunities across the broader Citadel Project area, including the Calibre resource extensional targets; and
- Planning for the 2019 exploration programme including drill testing of priority AEM targets.

### **FARM-IN TERMS**

The farm-in agreement with Rio Tinto requires the following expenditure to be incurred (or paid) by Rio Tinto to earn up to a 75% joint venture interest in the Citadel Project:

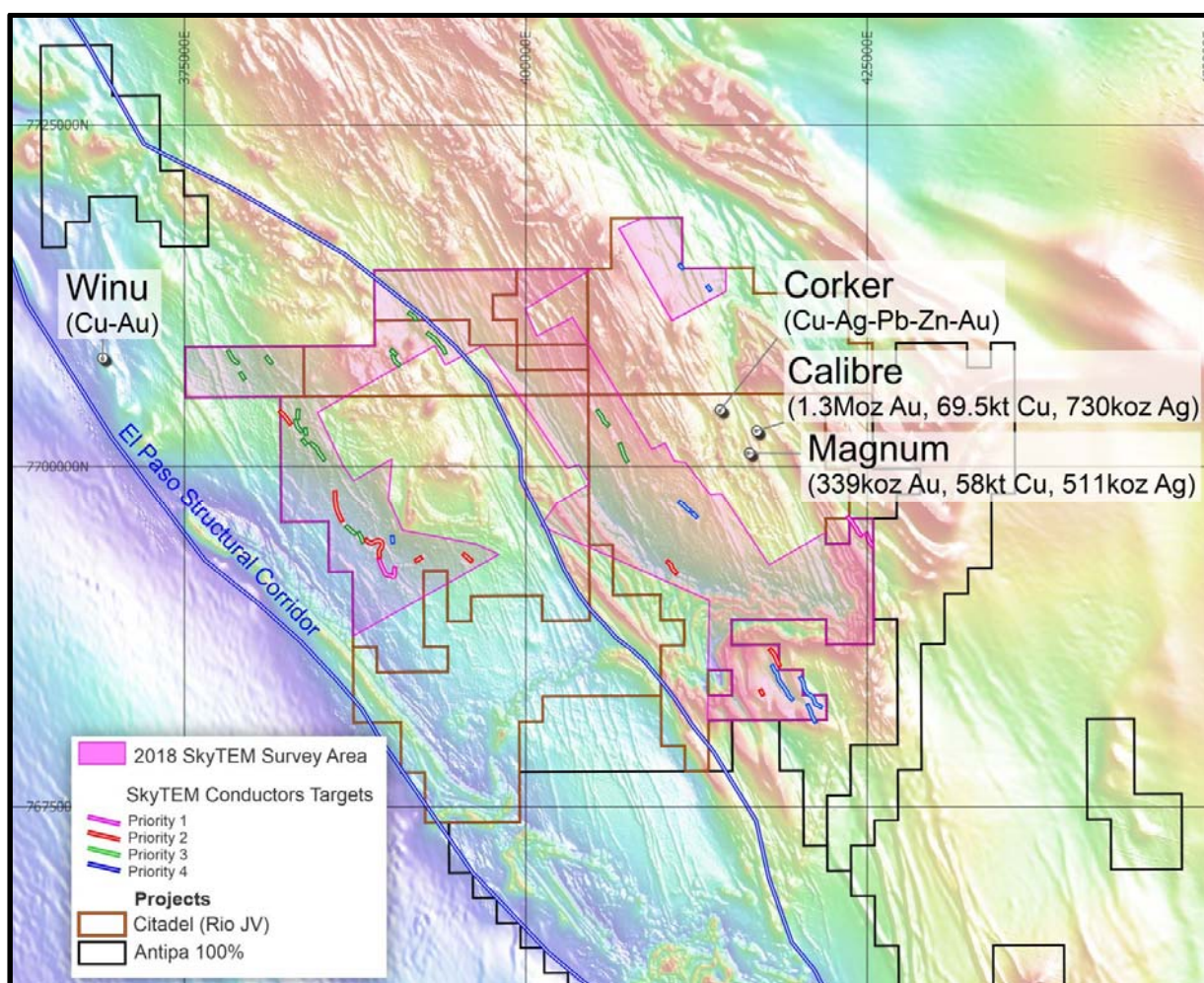
- \$3 million exploration expenditure within 18 months of execution of the farm-in agreement (execution date: 9 October 2015). This has now been satisfied. No joint venture interest was earned by the incurring of this amount.

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<sup>2</sup> Refer to Rio Tinto Limited's website (<https://www.riotinto.com/>) and news releases on the Australian Stock Exchange (ASX: RIO) (<https://www.asx.com.au/>) and London Stock Exchange (LON: RIO) (<https://www.londonstockexchange.com/home/homepage.htm>)

- \$8 million exploration expenditure within a further 3 year period commencing 11 April 2017 to earn a 51% joint venture interest. Rio Tinto is nearing the end of the second year of this stage.
- \$14 million exploration expenditure within a further 3 year period to earn a 65% joint venture interest. Antipa may elect to contribute at this point and maintain a 35% joint venture interest.
- \$35 million exploration expenditure within a further 3 year period to earn a 75% joint venture interest.

Rio Tinto has a right to withdraw from the farm-in at the completion of each annual exploration programme.



**Figure 1: Paterson Province magnetic plan showing the Citadel Project and proximal Antipa tenements, priority 1 to priority 4 AEM targets, the El Paso Corridor and deposit/prospect locations including Rio Tinto's Winu copper-gold-silver deposit located 5km west of the Citadel Project. NB: Over airborne magnetic image (Pseudo-colour First Vertical Derivative and typically a 50 to 100m flight-line spacing at an altitude of 30m) and Regional GDA94 / MGA Zone 51 co-ordinates, 25km grid.**



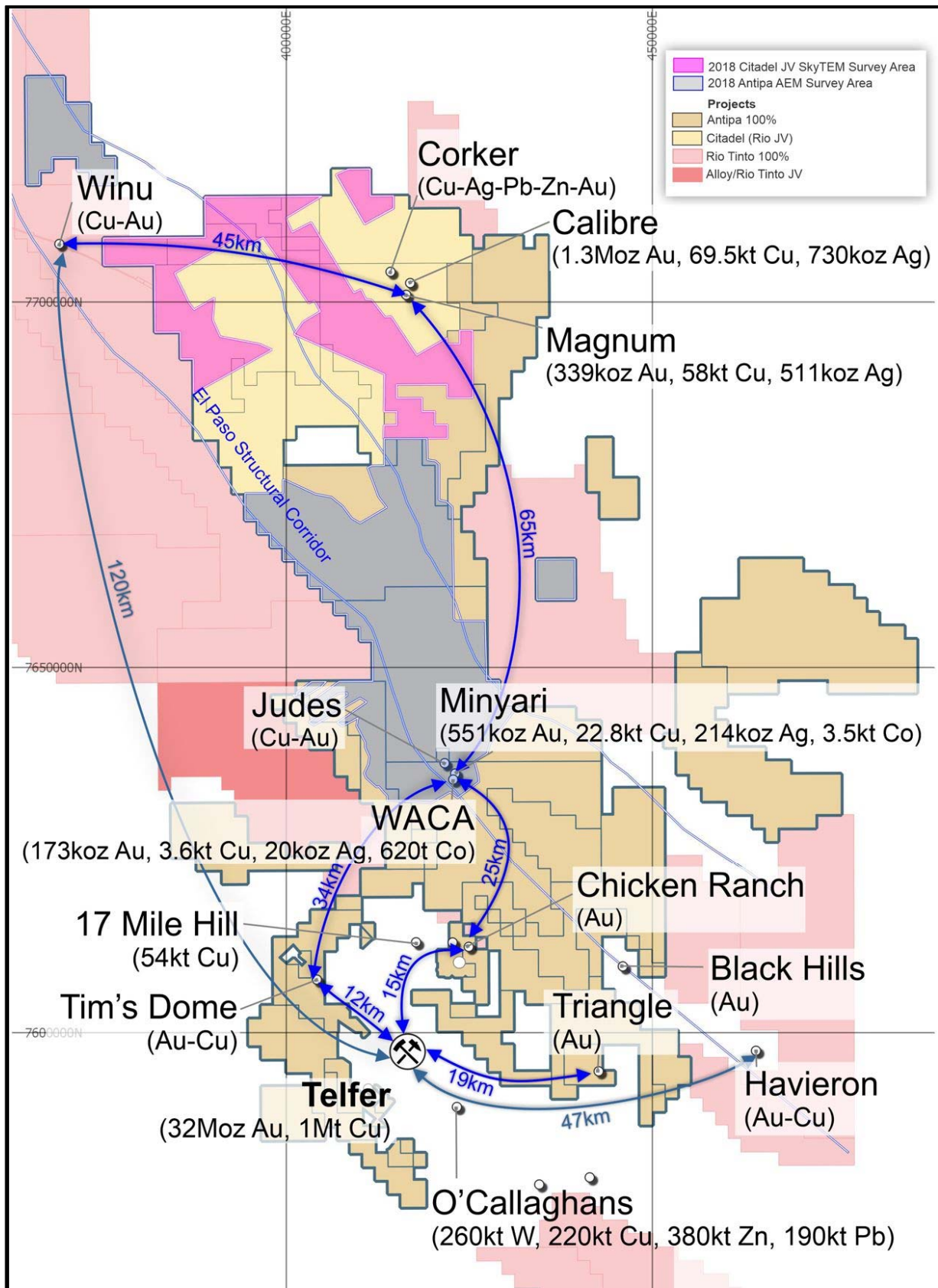
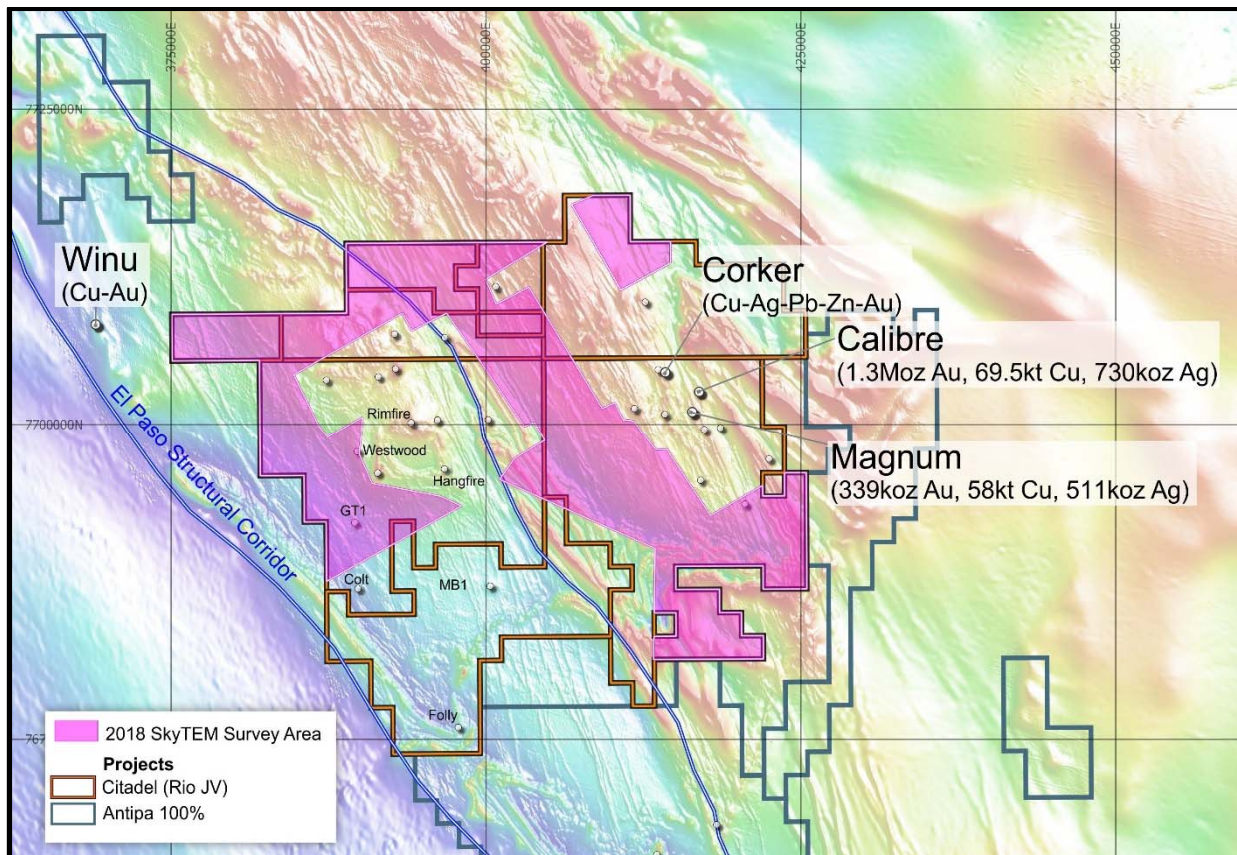


Figure 2: Plan view showing Antipa's Paterson Province projects, the recently completed 600km<sup>2</sup> Citadel Project SkyTEM survey area, the Minyari-WACA deposits and Mineral Resources, Rio Tinto's Winu copper-gold-silver deposit, Newcrest Mining Ltd's Telfer Mine and O'Callaghans deposit and Greatland Gold plc's Havieron deposit. NB: "Rio Tinto 100%" tenements includes several Rio Tinto exploration licence applications which are not first in time. Regional GDA94 / MGA Zone 51 co-ordinates, 50km grid. [RTX tenements – need updating – ELA NE of Havieron has been reduced. RTX still believes showing 2<sup>nd</sup> in time ELAs is misleading]



**Figure 3: Plan view illustrating the recently completed 600km<sup>2</sup> Citadel Project SkyTEM survey area, deposit and prospect locations including Rio Tinto's Winu copper-gold-silver deposit located 5km west of the Citadel Project. NB: Over Airborne magnetic image (50m flight-line spacing at an altitude of 30m; pseudo-colour First Vertical Derivative) and Regional GDA94 / MGA Zone 51 co-ordinates, 25km grid.**

**Table 1: Summary of AEM Targets – Sorted by Target Rank**

Target ID	Target Rank	Length Metres	EM Anomaly Description	Anomalism – Historic Drilling
1	1	1,600	Discrete shielded late-time anomaly superimposed on broad mid-time background response	No Drilling - 1.5km from E1 = Co+As+Pb+Zn+Ag+Au+S
2	1	900	Broad shielded late-time anomaly. Very low amplitude	No Drilling - 3.3km from E1 = Co+As+Pb+Zn+Ag+Au+S
3	1	2,400	Discrete early-time peak migrating NE into a broad mid-time anomaly	GT1 2018 RC Drilling - Cu+W+Au+Ag+Zn+Co
4	2	620	Mid to late-time conductor. Limited strike length	No Drilling
5	2	210	Mid to late-time conductor. Limited strike length	No Drilling
6	2	1,000	Broad mid-time anomaly offset from early-time response	No Drilling
7	2	2,100	Broad mid-time anomaly offset from early-time response	No Drilling

Target ID	Target Rank	Length Metres	EM Anomaly Description	Anomalism – Historic Drilling
8	2	2,400	Discrete early-time peak migrating SW into a broad mid-time anomaly	No Drilling
9	2	300	Discrete early to mid-time anomaly	No Drilling
10	2	1,000	Complex early-time response migrating to simple broad mid-time anomaly	No Drilling
11	2	1,200	Very low amplitude broad shielded late-time anomaly	No Drilling
12	3	1,000	Broad mid-time anomaly. Asymmetric with peak migrating to the NE	No Drilling
13	3	400	Discrete mid-time anomaly. Asymmetric with peak migrating to the SW	No Drilling
14	3	900	Discrete early-time peak migrating NE into a broad mid-time anomaly	No Drilling
15	3	300	Broad early-time peak migrating SW into a broad mid-time anomaly	No Drilling
16	3	300	Broad mid-time anomaly. Asymmetric with peak migrating to the NE	No Drilling
17	3	1,500	Broad early-time peak migrating SW into a broad mid-time anomaly	No Drilling
18	3	700	Broad early to mid-time anomaly. Asymmetric with peak migrating to the SW	No Drilling
19	3	600	Complex early-time response migrating to simple broad mid-time anomaly	No Drilling
20	3	400	Broad mid-time anomaly	No Drilling
21	3	400	Broad mid-time anomaly offset from early-time response	No Drilling
22	3	800	Broad early to mid-time anomaly	No Drilling
23	3	600	Broad mid-time anomaly offset from early-time response	No Drilling
24	3	1,900	Complex early-time response migrating to simple broad mid-time anomaly	No Drilling
25	3	500	Broad mid-time anomaly offset from early-time response	No Drilling
26	3	1,200	Twin early-time peaks migrating to single broad mid-time anomaly	Wk Cu-Zn in 1998 drill hole (AKRC004) adjacent to N-end of target
27	3	1,300	Complex mid-time anomaly. Apparent twin peak in places, asymmetric with SW peak migration	No Drilling



Target ID	Target Rank	Length Metres	EM Anomaly Description	Anomalism – Historic Drilling
28	4	200	Discrete shielded late-time anomaly. Close to EM system noise levels	No Drilling
29	4	200	Discrete shielded late-time anomaly. Close to EM system noise levels	No Drilling
30	4	900	Complex early-time response migrating to simple broad mid-time anomaly	No Drilling
31	4	300	Broad early to mid-time anomaly	No Drilling
32	4	2,800	Discrete early to large-amplitude mid-time anomaly	No Drilling
33	4	2,700	Broad early to mid-time anomaly. NE migration of early-time anomaly peak	No Drilling
34	4	1,200	Broad low-amplitude, twin-peak mid-time anomaly	No Drilling
35	4	310	Broad mid-time conductor	No Drilling

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

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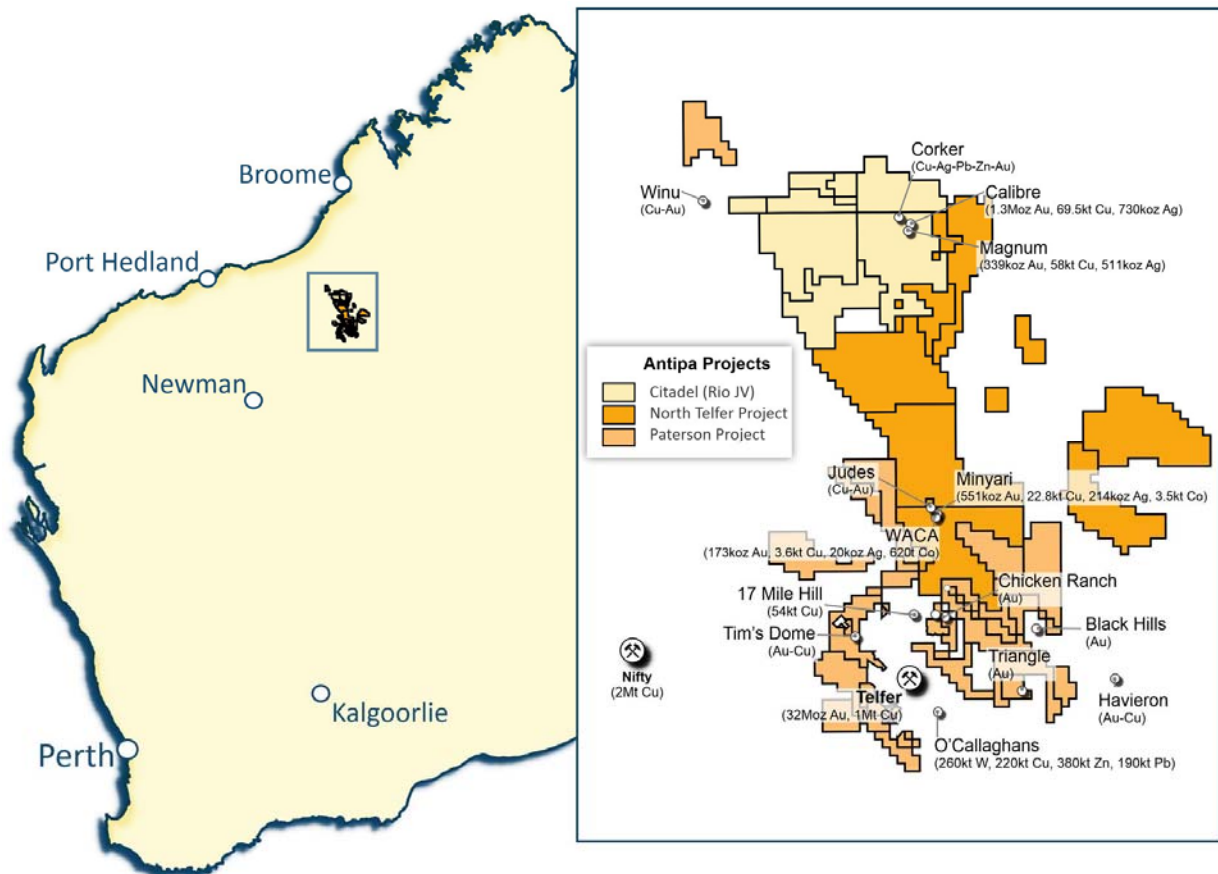
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## About Antipa Minerals:

Antipa Minerals Ltd is an Australian public company which was formed with the objective of identifying under-explored mineral projects in mineral provinces which have the potential to host world-class mineral deposits, thereby offering high leverage exploration and development potential. The Company owns 5,458km<sup>2</sup> of tenements in the Paterson Province of Western Australia, including a 1,332km<sup>2</sup> package of prospective granted tenements known as the Citadel Project. The Citadel Project is located approximately 75km north of Newcrest's Telfer Gold-Copper-Silver Mine and includes the gold-copper-silver-tungsten Mineral Resources at the Calibre and Magnum deposits and high-grade polymetallic Corker deposit. Under the terms of a Farm-in and Joint Venture Agreement with Rio Tinto Exploration Pty Limited (Rio Tinto), a wholly owned subsidiary of Rio Tinto Limited, Rio Tinto can fund up to \$60 million of exploration expenditure to earn up to a 75% interest in Antipa's Citadel Project.

The Company has an additional 2,363km<sup>2</sup> of granted exploration licences, known as the North Telfer Project which hosts the high-grade gold-copper Minyari and WACA Mineral Resources and extends its ground holding in the Paterson Province to within 20km of the Telfer Gold-Copper-Silver Mine and 30km of the O'Callaghans tungsten and base metal deposit. The Company has also acquired, from the Mark Creasy controlled company Kitchener Resources Pty Ltd, additional exploration licences in the Paterson Province which cover 829km<sup>2</sup> and the Company owns a further 934km<sup>2</sup> of exploration licences (including both granted tenements and applications), which combined are known as the Paterson Project, which comes to within 3km of the Telfer Mine and 5km of the O'Callaghans deposit.





### Competent Persons Statement – Exploration Results:

The information in this report that relates to the 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'. Mr Mason consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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

- Report entitled *"Calibre and Magnum Mineral Resources JORC 2012 Updates"* created on 23 February 2015;
- Report entitled *"Rio Tinto – Antipa Citadel Project Joint Venture"* created on 9 October 2015;
- Report entitled *"Rio Tinto Elects to Proceed to Stage 2 of Citadel Farm-In"* created on 12 April 2017;
- Report entitled *"Citadel Project 2017 Exploration Programme Update"* created on 8 November 2017;
- Report entitled *"Calibre Deposit Mineral Resource Update"* created on 17 November 2017;
- Report entitled *"Citadel Project 2018 Exploration Programme"* created on 27 March 2018;
- Report entitled *"Presentation – Diggers and Dealers Conference Revised"* created on 6 August 2018;
- Report entitled *"Rio Tinto Resumes Drilling at the Citadel Farm-in Project"* created on 4 September 2018;
- Report entitled *"Corporate Presentation – Hong Kong 121 Conference"* created on 23 October 2018;
- Report entitled *"Citadel Project Rio JV – Additional AEM Survey"* created on 20 November 2018; and
- Report entitled *"Rio Tinto Citadel Farm-in Project 2018 Exploration Update"* created on 11 December 2018.

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.

### 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.

## ANTIPA CITADEL PROJECT – 2018 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 2018 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-306HP 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-306HP 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 - +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 (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 (capable of &gt;1 kHz)</td></tr></table>	<b>Electromagnetic System</b>		Type	MultiMoment SkyTEM-306HP 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 - +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 (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 (capable of >1 kHz)
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Criteria	JORC Code explanation	Commentary
		<b>SkyTEM Geometry</b> <hr/> <b>Rx -Bird GPS</b> <hr/> Horizontal offset [m] (GPS in front of Rx) 23.66 m <hr/> Vertical offset [m] (GPS higher than Rx) -1.84 m <hr/> <b>Helicopter - Mag Bird</b> <hr/> Effective tow rope length in flight [m] N/A <hr/> Tow rope angle with horizontal [deg] N/A <hr/> Tow rope vertical [m] N/A <hr/> Tow rope horizontal [m] N/A <hr/> <b>Helicopter - Receiver</b> <hr/> Effective tow rope length in flight [m] N/A <hr/> Tow rope angle with horizontal [deg] N/A <hr/> Tow rope vertical [m] N/A <hr/> Tow rope horizontal [m] N/A <hr/> <b>Receiver (Z-component)</b> <hr/> Diameter [m] 50 cm <hr/> Area [m <sup>2</sup> ] 0.2m2 <hr/> Turns N/A <hr/> Effective Area [m <sup>2</sup> ] 25m2 <hr/> <b>Receiver (X-component)</b> <hr/> Diameter [m] 31cm <hr/> Area [m <sup>2</sup> ] N/A <hr/> Turns N/A <hr/> Effective Area [m <sup>2</sup> ] 5.5m2 <hr/> <b>Bucking Coil</b> <hr/> Diameter [m] N/A <hr/> Area [m <sup>2</sup> ] N/A <hr/> Turns N/A <hr/> Effective Area [m <sup>2</sup> ] N/A <hr/> <b>Transmitter</b> <hr/> Diameter [m] Hexagon



Criteria	JORC Code explanation	Commentary																				
		<table><tr><td>Area [m<sup>2</sup>]</td><td>342 m2</td></tr><tr><td>Turns</td><td>6 HM / LM</td></tr><tr><td></td><td>2052m2</td></tr><tr><td></td><td>HM /</td></tr><tr><td>Effective Area [m<sup>2</sup>]</td><td>342m2 LM</td></tr><tr><td colspan="2"><b>Transmitter-Receiver</b></td></tr><tr><td></td><td>Z= -13.34m</td></tr><tr><td>Horizontal offset of centre [m]</td><td>X= -14.65m</td></tr><tr><td></td><td>Z=-2m</td></tr><tr><td>Vertical offset of centre [m] (Tx below Rx)</td><td>X=0m</td></tr></table> <ul style="list-style-type: none"><li>This release has no reference to previously unreported drill results.</li></ul>	Area [m <sup>2</sup> ]	342 m2	Turns	6 HM / LM		2052m2		HM /	Effective Area [m <sup>2</sup> ]	342m2 LM	<b>Transmitter-Receiver</b>			Z= -13.34m	Horizontal offset of centre [m]	X= -14.65m		Z=-2m	Vertical offset of centre [m] (Tx below Rx)	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>This release has no reference to previously unreported drill results.</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>This release has no reference to previously unreported drill results.</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>This release has no reference to previously unreported drill results.</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 stages to maximise representivity of samples.</li><li>Measures taken to ensure that the sampling is representative</li></ul>	<ul style="list-style-type: none"><li>This release has no reference to previously unreported drill results.</li></ul>																				

Criteria	JORC Code explanation	Commentary
	<p><i>of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i></p> <ul style="list-style-type: none"> <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, 60.0 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 1,982 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>This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</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>This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</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>This release has no reference to previously unreported drill results.</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 appropriate for the Mineral Resource and Ore Reserve</i></li> </ul>	<ul style="list-style-type: none"> <li>The survey involved acquisition of airborne data at 300m line spacing, 60.0 degrees clockwise heading from north.</li> <li>This release has no reference to previously unreported drill results, sampling, assays or</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>estimation procedure(s) and classifications applied.</i> <ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	mineralisation.
<i>Orientation of data in relation to geological structure</i>	<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>This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</li> </ul>
<i>Audits or reviews</i>	<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 subjected to an audit and vetting by Rio Tinto Exploration Pty Limited geophysicist/s and independent geophysical consultants Mira Geoscience Asia Pacific Pty Ltd.</li> </ul>

## ANTIPA CITADEL PROJECT

### 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>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Airborne Electromagnetic and Magnetic survey is located within Exploration Licenses: <ul style="list-style-type: none"> <li>E45/2874;</li> <li>E45/2876;</li> <li>E45/2877;</li> <li>E45/2901;</li> <li>E45/4212;</li> <li>E45/4213;</li> <li>E45/4214; and</li> <li>E45/4561.</li> </ul> </li> <li>Antipa currently has a 100% interest in all Citadel Project tenements and there are no royalties on these tenements.</li> <li>On 9 October 2015 Farm-in and JV Agreements were executed between Antipa and Rio Tinto Exploration Pty Limited (Rio Tinto).</li> <li>E45/2876, E45/2877 and E45/4561 are contained completely within land where the Martu People have been determined to hold Native Title rights. No historical or environmentally sensitive sites</li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>have been identified in the area of work.</p> <ul style="list-style-type: none"> <li>• E45/2874, E45/2901, E45/4212, E45/4213 and E45/4214 are contained completely within land where the Nyangumarta People have been determined to hold Native Title rights. No historical or environmentally sensitive sites have been identified in the area of work.</li> <li>• The tenements are all in 'good standing' with the Western Australian DMIRS.</li> <li>• There are no known impediments exist, including to obtain a licence to operate in the area.</li> </ul>
<p><i>Exploration done by other parties</i></p>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Prior to 1991 limited to no mineral exploration activities.</li> <li>• 1991 to 1996 BHP Australia completed various regional airborne geophysical surveys (e.g. aeromagnetics, radiometrics, GeoTEM, ground magnetics, surface EM), geochemical Air core and selected diamond drilling programmes across a significant area which covered the Citadel Project. Whilst this era of exploration highlighted a number of areas as being variously anomalous, BHP did not locate any basement (Proterozoic) precious or base metal mineralisation. In 1995 BHP Minerals completed an MMI-A/MMI-B soil programme over an area which was ultimately found to be the region within which the Magnum deposit was located.</li> <li>• 1997 to 2002 JV partners Croesus-Gindalbie completed minor surface geophysical surveys (e.g. electromagnetics) and various drilling programmes across parts of the Citadel Project (i.e. 17 x Diamond, 10 x RC and 134 x Air core drill holes) leading to the discovery of the Magnum Au-Cu-Ag deposit, and its partial delineation, in 1998.</li> <li>• 2002 to 2003 JV partners Teck Cominco and Croesus-Gindalbie completed detailed aeromagnetic and radiometric surveys over the entire Citadel Project, Pole-Pole IP over 8 targets and limited drilling (i.e. 4 x Diamond drill holes) within the Citadel Project.</li> <li>• 2004 to 2005 JV partners NGM Resources and Croesus-Gindalbie completed limited drilling (i.e. 3 x Diamond drill holes) at selected Citadel Project prospects intersecting minor Au-Cu-Ag mineralisation at the Colt prospect.</li> <li>• 2006 to 2010 Glengarry Resources/Centaurus Metals undertook re-processing of existing data and re-logging of some drill core. No drilling or geophysical surveys were undertaken, and so no new exploration results were forthcoming.</li> <li>• 2011 to 2015 Antipa Minerals Ltd exploration of the Citadel Project including both regional and prospect/area scale geophysical surveys (i.e. VTEM, ground EM, DHEM, ground magnetics and ground gravity) and geochemical surveys (i.e. MMI-M™ and SGH™ soil programmes) and drilling programmes (i.e. diamond and RC) resulting in two greenfield discoveries in 2012, i.e. Calibre and Corker, and subsequent drilling programmes.</li> <li>• October 2015 to March 2017 Antipa Minerals Ltd operators under a Farm-in Agreement executed on the 9 October 2015 between Antipa and Rio Tinto Exploration Pty Limited ("Rio Tinto"), a wholly owned subsidiary of Rio Tinto Limited. RC drilling at Calibre late 2015, and in 2016 an extensive IP survey, a regional target RC drilling programme and single (deep) diamond drill hole were completed.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>April 2017 (ongoing) Rio Tinto operators under the Farm-in Agreement (see above).</li> <li>2017 and 2018 exploration activities included: <ul style="list-style-type: none"> <li>Further extensive IP survey (2017) in the southeastern portion of E45/2877;</li> <li>Air Core drilling Programme (2017) in the central region (Rimfire area) of E45/2876;</li> <li>RC drilling programme (2017) testing targets located on E45/2876 (Rimfire area) and 45/2877 (Calibre area);</li> <li>RC drilling programme (2018) testing several targets located on E45/2876 and 45/4561; and</li> <li>Two (i.e. 2017 and 2018) aerial electromagnetic surveys primarily over various portions of all of the Citadel Project tenements have been completed.</li> </ul> </li> <li>2019 exploration activities are ongoing.</li> </ul>
Geology	<ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<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><i>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:</i> <ul style="list-style-type: none"> <li><i>easting and northing of the drill hole collar</i></li> <li><i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li><i>dip and azimuth of the hole</i></li> <li><i>down hole length and interception depth</i></li> <li><i>hole length.</i></li> </ul> </li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>This release has no reference to previously unreported drill results.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Where aggregate intercepts incorporate short lengths of high 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></li> <li><i>The assumptions used for any reporting of metal equivalent</i></li> </ul>	<ul style="list-style-type: none"> <li>This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>values should be clearly stated.</i>	
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>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').</i></li> </ul>	<ul style="list-style-type: none"> <li>• This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All appropriate maps (with scales) and tabulations of survey parameters are reported.</li> <li>• This release has no reference to previously unreported drill results, sampling, assays or mineralisation.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></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>• Additional significant results can be found in previous public reports.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• This announcement refers to previous exploration results including geophysics, drill results and geology which can be found in previous public reports.</li> </ul>
<i>Further work</i>	<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>• At this stage, it is envisaged that the Airborne electromagnetic conductivity anomalies identified by the 2018 Airborne Electromagnetic and Magnetic survey will be the subject of further investigation and evaluation via a Reverse-circulation (RC) drilling programme the exact nature and scale of which is currently being determined.</li> <li>• Relevant diagrams can be found in the attached report or in previous public reports.</li> </ul>