

ASX Announcement 18 December 2017

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#### **Directors**

Michael Fry: **Chairman** 

Ian Prentice:

**Executive Director** 

Sonu Cheema:

**Director and Company Secretary** 

# **Issued Capital**

22,600,001 ("TMT") Fully Paid Ordinary Shares

12,500,000 Fully Paid Ordinary Shares classified as restricted securities

15,000,000 Unquoted Options exercisable at \$0.25 on or before 31 December 2019 classified as restricted securities

10,000,000 Class B Performance Shares classified as restricted securities

ASX Code: TMT FRA Code: TN6

# MAIDEN SOUTHERN TENEMENT INFERRED RESOURCE OF 21.5 MT AT 0.9% V<sub>2</sub>O<sub>5</sub>

#### HIGHLIGHTS

MASSIVE MAGNETITE BASAL ZONE DELIVERS INFERRED HIGH GRADE RESOURCE OF 10.4 MT AT 1.1% V2O5.

OVERALL MAIDEN INFERRED RESOURCE OF 21.5 MT AT 0.9% V2O5.

CONFIRMS OVERALL HIGH GRADE NATURE OF GABANINTHA VANADIUM PROJECT AND SUPPORTS SIGNIFICANT UPGRADE TO OVERALL MINERAL RESOURCE.

UPDATE OF NORTHERN BLOCK MINERAL RESOURCE UNDERWAY
- EXPECTED TO INCLUDE A PORTION IN THE INDICATED
CATEGORY.

METALLURGICAL TESTWORK PROGRESSING ON SELECTED DIAMOND DRILLING COMPOSITES FROM NORTHERN BLOCK.

#### **BACKGROUND**

Technology Metals Australia Limited (ASX: TMT) ("Technology Metals" or the "Company") is pleased to announce results for the maiden Inferred Mineral Resource ("Resource") estimate, reported in accordance with the JORC Code 2012, for the Southern Tenement ("Southern Tenement") area at its Gabanintha Vanadium Project ("Project"). Resource estimation was completed by independent geological consultants CSA Global and was based on data from the Company's 23-hole reverse circulation (RC) drilling program completed in August 2017<sup>1</sup>.

The Mineral Resource estimate for the Southern Tenement of 21.5 Mt at  $0.9\% \, V_2O_5$  and  $10.1\% \, TiO_2$  includes an outstanding **high grade component** of 10.4 Mt at 1.1%  $V_2O_5$  and 12.6%  $TiO_2$  contained within the highly continuous and consistently mineralised massive magnetite zone.

The Southern Tenement is located approximately 9 km to the south east of the Northern Block of tenements ("Northern Block"), which hosts an Inferred Mineral Resource of 62.8 Mt at  $0.8\% \, V_2O_5$  and  $9.7\% \, \text{TiO}_2$  (including a high grade component of 29.5 Mt at  $1.1\% \, V_2O_5$  and  $12.6\% \, \text{TiO}_2$ ) and covers the same mineralised layered mafic igneous unit (see Figure 1).

CSA Global has now progressed to updating the Mineral Resource estimate for the Northern Block, which importantly is expected to include a portion reported in the Indicated Mineral Resource category, aimed at delivering a global Mineral Resource for the Project.

**Executive Director Ian Prentice commented**; "The Resource from the Southern Tenement has us looking forward with anticipation at its contribution to the delivery of an expanded global Mineral Resource for the Project, inclusive of a portion in the Indicated category"

1 – Technology Metals Australia – ASX Announcement dated 14 September 2017, Outstanding Results at Gabanintha Southern Tenement. Ian Prentice.

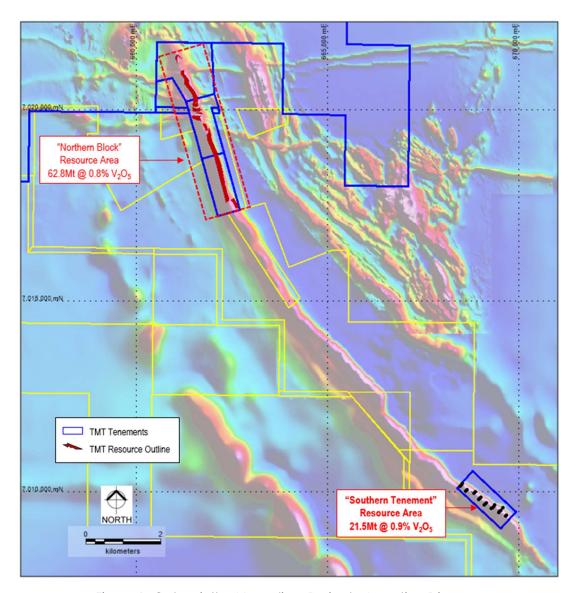


Figure 1: Gabanintha Vanadium Project – Location Diagram

# SOUTHERN TENEMENT MINERAL RESOURCE ESTIMATION

The Inferred Mineral Resource estimate for the Southern Tenement has been reported in accordance with the JORC Code 2012 by CSA Global and incorporated the 23 RC holes (for 2,232 m) completed in the Company's July / August 2017 drilling program at the Southern Tenement at the Gabanintha Vanadium Project.

RC drilling, completed on a nominal 200 m line spacing over a  $\pm 1.4$  km strike length with holes spaced nominally 40 m apart on section lines, was successful in defining high grade basal massive magnetite hosted vanadium mineralisation on each of the traverses completed. Holes were drilled at 60° to the north east, with depths ranging from 45 m to 171 m.

The modelled mineralisation has been defined based on surface mapping, magnetic modelling and the RC drilling data. Mineralisation has been divided in to the high grade massive magnetite zone and disseminated and/or banded magnetite zones in the hanging wall and foot wall of the massive magnetite. The high grade massive magnetite zone was constrained geologically and by using a nominal  $0.9\%~V_2O_5$  lower cutoff grade, while the banded and disseminated magnetite zones were constrained using a nominal  $0.4\%~V_2O_5$  lower cut-off grade. The Inferred Mineral Resource was estimated using the inverse distance squared method and was quoted for mineralisation within the defined zones above a  $0.4\%~V_2O_5$  lower cut-off grade.

Table 1: Mineral Resource estimate for Technology Metals Gabanintha Vanadium Project Southern Tenement as at 15 December 2017

Classification	Material	Million Tonnes	V <sub>2</sub> O <sub>5</sub> %	Fe%	Al <sub>2</sub> O <sub>3</sub> %	SiO₂%	TiO₂%	LOI%	P%	\$%
Inferred	Massive magnetite	10.4	1.1	49.1	4.9	5.9	12.6	-0.4	0.004	0.3
Inferred	Disseminated magnetite	11.1	0.6	30.2	11.9	23.4	7.7	2.4	0.01	0.4
Inferred	Combined	21.5	0.9	39.3	8.5	14.9	10.1	1.0	0.01	0.3

<sup>\*</sup> Note: The Mineral Resource was estimated within constraining wireframe solids using a nominal 0.9% V2O5 lower cutoff for the basal massive magnetite zone and using a nominal 0.4%  $V_2O_5$  lower cut-off for the banded and disseminated mineralisation zones. The Mineral Resource is quoted from all classified blocks within these wireframe solids above a lower cut-off grade of 0.4%  $V_2O_5$ . Differences may occur due to rounding.

The high grade massive magnetite zone dips to the south west (215°) at an average of 55°, has a true thickness ranging from 5 metres in the far south of the tenement to 17 metres in the north, and has been modelled over a strike length of about 1.6 km. The zone has been cross cut and slightly offset or displaced by five interpreted faults (see Figure 2), which appears to account for some "flexing" and possible thickening of the high grade massive magnetite zone.

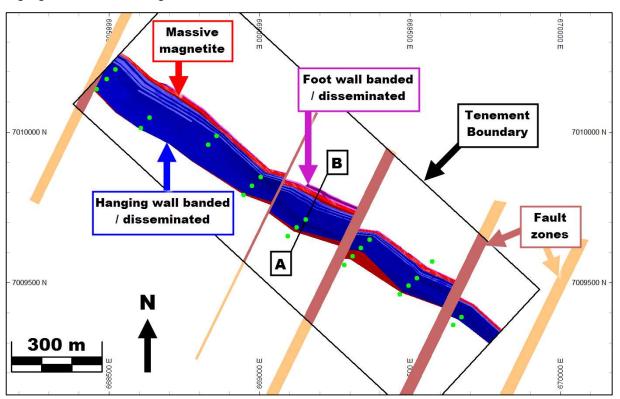


Figure 2: Plan View of the Modelled Mineralisation Showing Cross – Cutting Structures. Drill Collars in Green.

The disseminated / banded mineralisation consists of up to six (6) separate layers with a cumulative true thickness of up to 30 m in the north and centre of the deposit, consisting of up to four (4) hanging wall and two (2) foot wall layers, reducing to about 8 m across two hanging wall layers in the south.

The schematic cross section in Figure 3 shows the high grade basal massive magnetite zone (red) overlain by a series of medium grade hanging wall disseminated / banded lodes (blue) and overlying two (2) medium grade foot wall disseminated / banded lodes (purple). The geometry of the hanging wall layers may result in any open pit development of the basal massive magnetite zone incorporating the medium grade hanging wall disseminated lodes, thereby potentially resulting in an overall lower strip ratio. The lower strip ratio may be expected to have a potentially material positive impact on project economics, meaning that more of the high grade basal massive magnetite could be accessible in an open pit development.

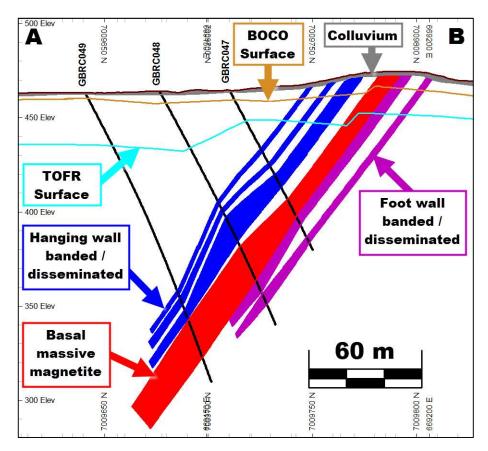


Figure 3: Schematic Cross Section Across Central Portion of the Deposit (see Figure 3 for section location)

Density measurements taken from the 13 diamond drill holes completed on the Northern Block of tenements have been applied to the Southern Tenement on the basis that the same material types as those in the Northern Block are present on the Southern Tenement. The density measurements were domained based on the modelled weathering state surfaces within the resource and applied to those domains within the model (see Table 2).

Table 2: Density values in t/m³ applied to model domains

Weathering State	Waste	Disseminated / banded magnetite	Massive magnetite
Oxide	1.8	2.1	3.2
Transition	2.6	2.9	3.7
Fresh	2.9	3.4	4.3

There is opportunity to add to the Southern Tenement Mineral Resource, with mineralisation remaining open at depth, and to update a portion of the Mineral Resource to the Indicated Resource category with areas of closer spaced drilling (100 m line spacing). The Company will incorporate recommendations from CSA Global in its planning for further resource infill and extensional drilling at the Southern Tenement, with this work expected to also incorporate a component of diamond drilling designed to provide geological data relating to the various mineralised lodes and to provide samples for detailed metallurgical testwork.

#### UPDATE OF NORTHERN BLOCK MINERAL RESOURCE ESTIMATE

CSA Global, the Company's independent geological consultant, has now progressed to updating the Mineral Resource estimate for the Northern Block utilising the data from the recently completed drilling program as well as results of density measurements from the diamond drilling. Importantly it is expected that this updated Mineral Resource will include a portion reported in the Indicated category based on the confirmed continuity of mineralisation, particularly the high grade basal massive magnetite zone, and the areas of closer spaced drilling (100 m line spacing).

This work is aimed at delivering a global Mineral Resource for the Project combining the updated Northern Block Mineral resource estimate with the maiden inferred Mineral Resource estimate for the Southern Tenement.

The Company is expecting to be in a position to report the results of this resource estimation work over the course of the next few months.

#### **METALLURGICAL TESTWORK**

The Company's metallurgical consultants Mineral Engineering Technical Services Pty Ltd ("METS") have developed a testwork program for the samples generated from the diamond drilling completed on the Northern Block of tenements. The testwork program is designed to build on the data from the preliminary (sighter) round of testwork completed on composite samples from the original RC drilling program and consists of:

- comminution testwork,
- generation of in-situ bulk density data,
- geometallurgical characterisation,
- establishment of grind sensitivity on beneficiation, and
- magnetic separation testwork.

ALS Metallurgy has been engaged to conduct the testwork under the supervision of METS, with comminution testwork and density measurements on six portions of whole core, three of the medium grade disseminated hanging wall zone, from transitional to fresh material, and three of the high grade basal massive magnetite zone, from fresh material, having already been completed.

The density measurements from the portions of whole core range from 4.41 t/m³ to 4.54 t/m³ for the high grade basal massive magnetite material and 3.02 t/m³ to 3.22 t/m³ for the medium grade disseminated material. These values compare very well with data recorded in the field from the diamond drill core, by means of the calliper measurement method, when it was geologically logged.

METS, in consultation with the Company's geological team, have selected a number of representative samples across a range of material types within the Resource based on geological characteristics for the detailed metallurgical testwork, with the aim of testing a mix of medium grade disseminated hanging wall and high grade basal massive magnetite across oxide, transitional and fresh material.

A focus of this testwork program will be to assess the magnetic separation characteristics of the medium grade hanging wall disseminated mineralisation independent of the basal massive magnetite zone. METS are of the view that the medium grade hanging wall disseminated mineralisation may beneficiate to produce a higher vanadium grade concentrate, largely due to the higher proportion of gangue minerals in this material which may report to the non-magnetic concentrate. This is supported by the higher concentrate grades reported for the Transition zone composite from the original RC drilling samples.

#### **PRE-FEASIBILITY STUDY**

The results of the Resource upgrade work and the detailed metallurgical testwork program will form the basis of a pre-feasibility study on the Gabanintha Vanadium Project, which is expected to commence toward the latter part of the December quarter. This study is designed to:

- assess potential processing flowsheet options,
- provide conceptual open pit mine designs / pit optimisations,
- provide indicative capital expenditure estimates, and
- provide indicative operating cost estimates.

#### MINERAL RESOURCE ESTIMATE - MATERIAL INFORMATION SUMMARY

## Geology and Geological Interpretation

The Project is in the north Murchison granite-greenstone terrain of the Archean Yilgarn Craton within mafic, ultramafic, extrusive and volcaniclastic rocks of the Gabanintha formation. The mineralisation is hosted in a medium to coarse grained differentiated anorthositic gabbro closely associated with a series of massive to disseminated V-Ti-Fe bands ranging in size from a few metres up to 20–30 m thick. The mineralised units are offset and disrupted by later dolerites, faults and quartz porphyries. The modelled mineralisation has been defined based on surface mapping, magnetic modelling and drilling data and strike extents are limited by the tenement boundary.

Mineralisation interpretations for the massive magnetite layer have been modelled based on the drill hole lithological logging and on a nominal lower cut-off grade of  $0.9\%~V_2O_5$ . In the hanging wall and foot wall of the massive magnetite, mineralised zones containing disseminated and/or banded vanadium bearing magnetite mineralisation (disseminated mineralisation), are modelled based on the lithological logging and on a nominal  $0.4\%~V_2O_5$  lower cut-off grade.

A total of five faults have been interpreted to be younger than and hence limit, offset or displace the mineralised zones. A surface colluvium layer is interpreted to blanket the mineralisation, and while it may be mineralised in part, is currently interpreted to deplete the interpreted mineralisation lenses pending further investigation.

Due to the offsetting caused by the interpreted faults, the massive magnetite layer interpretation consists of four individual wireframes. These strike approximately 125° to 305°, dipping on average approximately 55° towards 215°, with a modelled strike extent of approximately 1.6 km. The massive magnetite unit has a true thickness varying between approximately 5 m in the south to 17 m in the north.

The disseminated mineralisation is interpreted to consist of up to six separate lenses, cumulatively having a true thickness of the order of 30 m in the north and centre of the modelled area. This then reduces to two lenses with a cumulative true thickness of approximately 8 m in the south of the Project. Due to the displacement caused by the interpreted faulting, a total of 22 separate wireframes have been developed to represent the disseminated mineralisation lenses.

The base of complete oxidation (BOCO) and top of fresh rock (TOFR) weathering zone boundary surfaces, representing the interpreted boundaries between the fully oxidised, transitional and fresh rock weathering states, have been defined based on the lithological and geochemical data.

## Sampling and Sub-sampling

1 m samples from RC drilling using a face sampling hammer are cone split from the rig cyclone into polyweave bags, with sample weights between 2 and 3 kg collected. Duplicate samples were collected for every metre sample. One duplicate was submitted for analysis for every 20 m down hole.

#### Drilling Technique

Drilling at the Project was completed during July and August 2017 by drilling contractor Easternwell Drilling using a Schramm 685 RC drill rig with a 5.5" diameter face sampling hammer. Documentation is available that describes data collection procedures for the RC drilling programme.

## Classification Criteria

The Mineral Resource has been classified following due consideration of all criteria contained in Section 1, Section 2 and Section 3 of JORC 2012 Table 1.

After considering data quality, data distribution, and the geological and grade continuity at the Project, the Mineral Resource estimate was classified as Inferred.

The Competent Person considers that sufficient data has been collected at the Project to imply but not verify geological and mineralisation continuity. Drill holes are nominally spaced 40 m apart on section lines nominally 200 m apart. The drill holes are drilled at approximately 60 degrees dip towards the northeast to intersect the mineralised zones at a high angle.

## Sampling Analysis Method

Intertek Genalysis laboratory in Perth pulverised the samples and fused them with a lithium borate flux to cast into disks for analysis of a 21-element suite by x-ray fluorescence (XRF) spectrometry (method code FB1/XRF77). Loss on ignition (LOI) was determined by Thermal Gravimetric Analyser at 1000°C (Method code /TGA).

Quality control procedures demonstrate acceptable levels of accuracy and precision have been achieved. Certified reference materials (CRMs) inserted to the sample stream at the laboratory have performed acceptably, and field duplicate samples have also performed well.

## Estimation Methodology

Statistical analysis was completed using GeoAccess Pro and Supervisor software. The coefficient of variation (COV), histograms and probability plots were reviewed for all estimated elements. This was completed for the massive magnetite mineralisation data separately from the combined disseminated magnetite mineralisation data to understand the distribution of grades, and assess the requirement for top cuts for each estimation domain. Top cutting was deemed necessary where the COV was high (>1.0) and where individual high-grade samples were deemed to potentially result in biased block model results. The drill samples did not require compositing prior to top cutting as all samples were collected at 1 m intervals. Further statistical analyses using log probability plots was then completed, and visual inspection in Datamine of any potential clustering of very high-grade sample data was then carried out prior to selecting a top-cut value. This analysis showed that grade capping top cuts should be applied to prevent estimation bias due to outlier grade values for sulphur and phosphorous.

Variography was completed for each grade domain using Supervisor software. Quantitative kriging neighbourhood analysis was then undertaken to assess the effect of changing key kriging neighbourhood parameters on block grade estimates. Kriging efficiency and slope of regression were determined for a range of block sizes, minimum/maximum samples, search dimensions and discretisation grids. Search ellipse parameters were selected based on the results.

A three-pass search ellipse strategy was adopted whereby search ellipses were progressively increased if search criteria could not select sufficient data for the block estimate. Grade estimation was completed at the parent cell scale in Datamine Studio RM software using the Inverse Distance Weighting to the power of two method. This method was selected in preference to ordinary kriging as the modelled variograms were not considered reliable, due in part to relative paucity of data at the current stage of advancement of the Project.

# Cut-off Grade

The Mineral Resource is reported above a lower cut-off grade of  $0.4\% V_2O_5$ . The adopted cut-off grade is considered reasonable for Mineral Resources which are likely to be extracted by open pit methods.

A 0.4%  $V_2O_5$  cut-off grade is within the range adopted for reporting Mineral Resources at other Australian Fe-V-Ti deposits for planned open cut operations.

## Mining and Metallurgical Methods

## **Mining**

It has been assumed that these deposits will be amenable to open cut mining methods, and are economic to exploit to the depths currently modelled using the cut-off grade applied. No assumptions regarding minimum mining widths and dilution have been made.

#### Metallurgy

TMT completed an initial preliminary round of metallurgical testwork using material from RC composite samples obtained from drilling completed in the Northern Tenement Block (TMT ASX announcement, 8 September 2017). These results have been assumed to be applicable to the Southern Tenement Project which is roughly 9 km along strike on the same mineralisation trend. The test work is summarised below:

- Four composites were collected consisting of oxide, transition and fresh rock zone materials primarily from the massive magnetite unit.
- Davis Tube Recovery (DTR), Davis Tube Wash (DTW) and low intensity magnetic separation (LIMS) testwork was completed.
- The results of the DTR test work have demonstrated that grades of 1.40 to 1.53% V<sub>2</sub>O<sub>5</sub> reported to a magnetic concentrate having iron grades ranging between 55% and 58.8%.
- The fresh rock material tested showed a mass recovery of 69.5% reporting to the magnetic concentrate, while the worst performing oxide sample had a mass recovery of 5.6% reporting to the magnetic concentrate. The remaining two samples recorded mass recoveries of 39.4% and 66.9% respectively.
- Additional testing of the fresh material showed the recoveries are relatively insensitive to grind sizes between 45 and 210 μm grind size. SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> concentrate grades are relatively low at between 0.4% to 1.4% and 2.1% to 2.8% respectively.
- Further metallurgical test work on diamond drill core from the Northern Tenement Block is currently
  underway to establish optimal process pathways and factors such as rock strength and bond
  crushing work index.

Metallurgical testwork on samples in the Southern Tenement is required to support future Mineral Resource upgrades.

#### **ABOUT VANADIUM**

Vanadium is a hard, silvery grey, ductile and malleable speciality metal with a resistance to corrosion, good structural strength and stability against alkalis, acids and salt water. The elemental metal is rarely found in nature. The main use of vanadium is in the steel industry where it is primarily used in metal alloys such as rebar and structural steel, high speed tools, titanium alloys and aircraft. The addition of a small amount of vanadium can increase steel strength by up to 100% and reduces weight by up to 30%. Vanadium high-carbon steel alloys contain in the order of 0.15 to 0.25% vanadium while high-speed tool steels, used in surgical instruments and speciality tools, contain in the range of 1 to 5% vanadium content. Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand.

An emerging and likely very significant use for vanadium is the rapidly developing energy storage (battery) sector with the expanding use and increasing penetration of the vanadium redox batteries ("VRB's"). VRB's are a rechargeable flow battery that uses vanadium in different oxidation states to store energy, using the unique ability of vanadium to exist in solution in four different oxidation states. VRB's provide an efficient storage and re-supply solution for renewable energy – being able to time-shift large amounts of previously generated energy for later use – ideally suited to micro-grid to large scale energy storage solutions (grid stabilisation). Some of the unique advantages of VRB's are:

- a lifespan of 20 years with very high cycle life (up to 20,000 cycles) and no capacity loss,
- rapid recharge and discharge,
- easily scalable into large MW applications,
- excellent long term charge retention,
- improved safety (non-flammable) compared to Li-ion batteries, and
- can discharge to 100% with no damage.

Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand.

The global vanadium market has been operating in a deficit position for the past five years (source: TTP Squared Inc), with a forecast deficit of 9,700 tonnes in 2017. As a result vanadium inventories have been in steady decline since 2010 and they are forecast to be fully depleted in 2017 (source: TTP Squared Inc). Significant production declines in China and Russia have exacerbated this situation, with further short term production curtailment expected in China as a result of potential mine closures resulting from impending environmental inspections.

The tightening supplies of vanadium are resulting in a global shortage, with prices appreciating dramatically in recent months, with reports out of China indicating significant increases in the "spot" market for vanadium pentoxide.

For, and on behalf of, the Board of the Company,

lan Prentice
Executive Director
Technology Metals Australia Limited

## **About Technology Metals Australia Limited**

**Technology Metals Australia Limited (ASX: TMT)** was incorporated on 20 May 2016 for the primary purpose of identifying exploration projects in Australia and overseas with the aim of discovering commercially significant mineral deposits. The Company's primary exploration focus is on the Gabanintha Vanadium Project located 40 km south east of Meekatharra in the mid-west region of Western Australia with the aim to develop this project to potentially supply high-quality V2O5 flake product to both the steel market and the emerging vanadium redox battery (VRB) market.

The Project, which consists of five granted tenements and one exploration licence application, is on strike from, and covers the same geological sequence as, Australian Vanadium Limited's (ASX: AVL) Gabanintha Vanadium project. Vanadium mineralisation is hosted by a north west – south east trending layered mafic igneous unit with a distinct magnetic signature. Mineralisation at Gabanintha is similar to the Windimurra Vanadium Deposit, located 270 km to the south, and the Barambie Vanadium-Titanium Deposit, located 155 km to the south east. The key difference between Gabanintha and these deposits is the consistent presence of the high grade massive vanadium – titanium – magnetite basal unit, which is expected to result in an overall higher grade for the Gabanintha Vanadium Project.

Data from the Company's maiden drilling program was used by independent geological consultants CSA Global to generate a maiden Inferred Mineral Resource estimate, reported in accordance with the JORC Code 2012, for the Northern Block of tenements at the Project. The resource estimate confirmed the position of the Gabanintha Vanadium Project as one of the highest grade vanadium projects in the world.

Table 3 Mineral Resource estimate for Northern Block, Gabanintha Vanadium Project as at 12 Jun 2017

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Mineral Resource estimate for Technology Metals Gabanintha Vanadium Project as at 12 Jun 2017									
Mineralised Zone	Classification	Million Tonnes	V2O5 %	Fe %	Al2O3 %	SiO2 %	TiO2 %	LOI %	Density t/m3
Basal massive magnetite	Inferred	29.5	1.1	46.4	6.1	8.2	12.6	1	3.6
Hanging wall disseminated	Inferred	33.2	0.5	26.6	14.9	27.1	7.2	5.1	2.4
Combined Total	Inferred	62.8	0.8	35.9	10.8	18.3	9.7	3.2	2.8

<sup>\*</sup> Note: The Mineral Resource was estimated within constraining wireframe solids using a nominal 0.9% V2O5 lower cut-off for the basal massive magnetite zone and using a nominal 0.4% V2O5 lower cut-off for the hanging wall disseminated mineralisation zones. The Mineral Resource is quoted from all classified blocks within these wireframe solids above a lower cut-off grade of 0.4% V2O5. Differences may occur due to rounding.

Capital Structure	
Tradeable Fully Paid Ordinary Shares	22.6m
Escrowed Fully Paid Ordinary Shares <sup>1</sup>	12.5m
Fully Paid Ordinary Shares on Issue	35.1m
Unquoted Options, <sup>2,3</sup> (\$0.25 – 31/12/19 expiry)	15.0m
Class B Performance Share <sup>4</sup>	10.0m

<sup>1 –</sup> Subject to restriction until 21 December 2018.

<sup>2 –13.7</sup> million unquoted options are subject to restriction until 21 December 2018.

<sup>3 – 4.0</sup> million unquoted options (\$0.35 exercise, 31/12/20 expiry) were approved to be issued to PAC Partners at the Company's AGM

<sup>4</sup> – Convert in to 10 million fully paid ordinary shares on achievement of an indicated resource of 20 Million tonnes at greater than 0.8%  $V_2O_5$  on or before 31 December 2019. All Performance Shares and any fully paid ordinary shares issued on conversion of the Performance Shares are subject to restriction until 21 December 2018.

#### **Forward-Looking Statements**

This document includes forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Technology Metal Australia Limited's planned exploration programs, corporate activities and any, and all, statements that are not historical facts. When used in this document, words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should" and similar expressions are forward-looking statements. Technology Metal Australia Limited believes that its forward-looking statements are reasonable; however, forward-looking statements involve risks and uncertainties and no assurance can be given that actual future results will be consistent with these forward-looking statements. All figures presented in this document are unaudited and this document does not contain any forecasts of profitability or loss.

#### **Competent Persons Statement**

The information in this report that relates to Exploration Results are based on information compiled by Mr Ian Prentice. Mr Prentice is a Director of the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Prentice has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report and to the activity which they are 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' ("JORC Code"). Mr Prentice consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr Aaron Meakin. Mr Meakin is a Principal Consultant with CSA Global and a Member of the Australian Institute of Mining and Metallurgy. Mr Meakin has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report and to the activity which he is 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' ("JORC Code"). Mr Meakin consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the Processing and Metallurgy for the Gabanintha project is based on and fairly represents, information and supporting documentation compiled by Damian Connelly who is a Fellow of The Australasian Institute of Mining and Metallurgy and a full time employee of METS. Damian Connelly has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is 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'. Damian Connelly consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

# **APPENDIX 1**

# JORC Code, 2012 Edition – Table 1

# **Section 1 Sampling Techniques and Data**

-	Criteria in	this	section	annly	to all	succeeding	sections )
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Criteria	JORC Code explanation Commentary
Sampling techniques	<ul> <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 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 are cone split off the rig cyclone, with sample weights of 2 to collected.</li> <li>Duplicate 2 to 3 kg samples were submitted for analysis for every 20 m down to ensuring duplicates were submitted for mineralised zones (based geological logging and hand-held Olympus Vanta XRF results).</li> <li>Samples were analysed by x-ray fluorescence (XRF) spectrometry following digestion and fused disk preparation.</li> <li>Samples were dollected.</li> <li>Samples were submitted for mineralised zones (based geological logging and hand-held Olympus Vanta XRF results).</li> <li>Samples were analysed by x-ray fluorescence (XRF) spectrometry following 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>
Drilling techniques	<ul> <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> <li>RC drilling with a 5.5" face-sampling hammer.</li> </ul>
Drill sample recovery	<ul> <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> <li>Duplicate samples were collected from every metre sample, but subm for analysis every 20 m.</li> <li>Sample recovery was assessed based on the estimated bulk sar collected for each metre. Each bag was not weighed. For 1 in 3 holes a specific gauge was used to ensure the cone split remained within the 2 to 3 kg rage.</li> <li>There does not appear to be any relationship between recovery and gin the "massive" mineralisation.</li> </ul>
Logging	<ul> <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> <li>Drill samples were logged in the field, with the total length of holes logged detail.</li> <li>Drill chips for every metre were collected in trays and photographed.</li> <li>No geotechnical logging was undertaken due to all drilling being RC.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <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</li> <li>Duplicate 2 to 3 kg samples were collected from every metre sample.</li> <li>Samples were cone split at the drill rig, and represent approximately 5 the total material for each metre sampled.</li> <li>Most samples were dry.</li> <li>Samples were dried and pulverised in the laboratory and fused with a lith borate flux and cast into disks for analysis.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul> <li>maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	No diamond twin drilling has been completed to date to determine any potential relationship between current RC sampling size, grain size and
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul> <li>and cast in to disks and analysed by XRF spectrometry – method FB1/XRF77.</li> <li>Field duplicates (at least 1 duplicate sample for every 20 samples analysed), laboratory check samples and standards are considered to be suitable quality control procedures.</li> <li>Quality control procedures demonstrate acceptable levels of accuracy and</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent of 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> <li>geological logging. All sampling was completed by an independent geologist.</li> <li>The estimation of significant intersections has been verified by alternate</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and downhole 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>	
Data spacing and distribution	<ul> <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 estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	Detailed airborne magnetics supports strike and down dip continuity
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling or 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>	unlikely to have introduced a sampling bias. The drill holes are drilled orthogonal to the measured strike +-10°, the apparent thickness is 0.85 times the true thickness. Drill deviations were not noticeably higher through the

Criteria		JC	ORC Code explanation	C	ommentary
Sample security		•	The measures taken to ensure sample security.	•	Samples were collected in polyweave bags, sealed securely and transported by company personnel until handover to a commercial transport company, which delivered the samples by road transport to the laboratory.
Audits reviews	or	•	The results of any audits or reviews of sampling techniques and data.	•	No audits or reviews have been completed to date.

# **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

	e preceding section also apply to this section.)	
Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <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> <li>The area drilled is located on current Prospecting Licence 51/2942.</li> <li>The tenement is granted and held by The KOP Ventures Pty Ltd, a wholly owned subsidiary of Technology Metals Australia Limited.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>RC drilling was completed in 1998 by Intermin Resources NL under an option agreement on tenements held by Oakland Nominees Pty Ltd – consisting of GRC9815 to GRC9817 (on Prospecting Licence 51/2183).</li> <li>The area drilled is located on current Prospecting Licence 51/2942 (GRC9815 to GRC9817) held by The KOP Ventures Pty Ltd, a wholly owned subsidiary of Technology Metals Australia Limited.</li> <li>Exploration prior to this drilling included geological mapping and limited rock chip sampling completed across a zone of outcropping vanadiferous titanomagnetite layered mafic igneous unit by various parties.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>Outcropping massive vanadiferous titanomagnetite unit of an intrusive medium to coarse grained anorthositic gabbroic layered sill roughly 1 km thick in the Gabanintha formation. Fractionation within the intrusive body forms cumulate layers of magnetite near the base of the intrusion.</li> </ul>
Drill hole Information	<ul> <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:</li> <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> <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> <li>Not relevant. Exploration results are not being reported. Mineral Resources are being disclosed (See Section 3).</li> <li>All relevant material has previously been reported to the ASX on the 14 September 2017.</li> </ul>

Criteria	JORC Code explanation	Commentary
Data aggregation methods	<ul> <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 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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	are being disclosed (See Section 3).
Relationship between mineralisation widths and intercept lengths	<ul> <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>	are being disclosed (See Section 3).
Diagrams	<ul> <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>	
Balanced reporting	<ul> <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>	are being disclosed (See Section 3).
Other substantive exploration data	<ul> <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>	interpretation of the main high-grade magnetite unit and highlights offsets due to faults. Historic drilling data is not used due to uncertainty in location and orientation
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	mineralisation zones and to provide greater sample support.  • Samples from diamond drilling are expected to be collected to enable

# Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Drilling data is stored in a DataShed database system which an industry best practise relational geological database. Data that has been entered to this database is cross checked by independent geological contracting staff to ensure accuracy. CSA Global has been provided with a number of pdf format assay certificates from the laboratory and completed its own checks, finding</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>that all checked assay data was correctly captured in the relevant database table.</li> <li>Data used in the Mineral Resource estimate is sourced from a database export. Relevant tables from the data base are exported to MS Excel format and converted to csv format for import into Datamine Studio RM software.</li> <li>Validation of the data import include checks for overlapping intervals, missing survey data, missing assay data, missing lithological data, and missing collars.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>A two-day site visit has been completed by a CSA Global staff member in August 2017 while drilling was in progress. The site visit confirmed that industry best practice procedures are in place and being followed, with drilling, sampling and logging practice being observed. Drill collar locations have been captured by hand held GPS confirming their stated survey locations. Mineralisation outcrop extents were followed, with measurements taken confirming the interpreted strike and dip.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Based on surface geological and structural mapping, drill hole logging and sample analysis data and geophysical total magnetic intensity (TMI) data, the geology and mineral distribution of the massive V-Ti-magnetite zone appears to be consistent through the interpreted strike length of the deposit.</li> <li>Cross cutting faults, interpreted from the magnetic data and surface mapping have been modelled. These features displace the mineralisation as shown in the diagrams in the body of this report. In the hangingwall and foot wall of the massive magnetite zone, the mineralised units are defined at a nominal 0.4% V2O5 lower cut-off grade. The geological and grade continuity of these zones is not as well understood as the massive magnetite unit, however drill sample analysis demonstrates that reasonably consistent zones of more disseminated mineralisation containing centimetre to decimetre scale magnetite bands exist along strike and on section.</li> <li>Weathering surfaces for the base of complete oxidation (BOCO) and top of fresh rock (TOFR) have been generated based on a combination of drill hole logging, magnetic susceptibility readings and sample analysis results.</li> <li>Surface mapping, drill hole intercept logging, sample analysis results and TMI data have formed the basis of the geological and mineralisation interpretations. Assumptions have been made on the depth and strike extent of the mineralisation based on the drilling and geophysical data, as a documented further on in this table. Based on the currently available information contained in the drilling data, surface mapping and the geophysical data, the assumption has been made that the disseminated mineralisation lenses that are in the same stratigraphic position relative to the massive magnetite unit are related and are grouped together as the same zones for estimation purposes.</li> <li>The extents of the modelled mineralisation zones are constrained by the available drill and geophysical data, with strike extent limited by tenement bound</li></ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>The continuity of the geology and mineralisation can be identified and traced between drill holes by visual, geophysical and geochemical characteristics. Additional data is required to more accurately model the effect of any potential structural or other influences on the modelled mineralised units, Confidence in the grade and geological continuity is reflected in the Mineral Resource classification.</li> </ul>
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.  The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<ul> <li>The modelled mineralisation strikes approximately 125° to 305°, dipping on average about 55° towards 215°, with a modelled strike extent of approximately 1.6 km.</li> <li>The stratiform massive magnetite unit has a true thickness varying between 5 m and 17 m. The interpreted disseminated mineralisation lenses appear to be better developed in the centre and northern half of the modelled area, with cumulative true thickness of the order of 30 m from up to six lenses, reducing to roughly 8 m from two lenses south of the deposit.</li> <li>The massive magnetite outcrops and has been mapped along the strike extent and has been extended to a maximum of approximately 180 m below topographic surface in the broadest zone of mineralisation in the centre of the deposit. Further north the average depth below surface is roughly 160 m, while in the thinner mineralisation in the southern roughly 170 m of the deposit maximum depth below surface is on average roughly 90 m.</li> <li>The strike extent is extended roughly 120 m past the last drilling section in the south and 30 m in the north to the intersections with the tenement boundary based on the surface mapping and geophysical data extents.</li> <li>The immediate hangingwall disseminated mineralisation zone above the massive magnetite is interpreted to similar extents as the massive magnetite. The lenses further up in the hanging wall and below in the footwall are not as clearly constrained and understood and therefore the down dip extent is reduced by a third to a half that of the massive magnetite.</li> <li>Given the continuity defined over the drilled extents (fence line spacings of 200 m), and being additionally informed by the magnetics (TMI), these extrapolation extents are considered reasonable.</li> </ul>
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the</li> </ul>	<ul> <li>The Mineral Resource estimate was completed in Datamine Studio RM software using the Inverse Distance Weighting to the power of two (ID2) estimation method. This method was selected in preference to ordinary kriging (OK) as modelled variograms were not considered reliable, due in part to relative paucity of data at the current stage of advancement of the project.</li> <li>Estimations were completed for V2O5, Fe and contaminant elements, TiO2, Al2O3, SiO2, P and S, and loss on ignition at 1000°C (LOI). Due to the mineralised zones being cut by and / or offset by faults the mineralisation interpretation consists of 4 massive magnetite and 22 disseminated magnetite lenses. These are grouped together using a numeric zone code as the massive magnetite lenses, or for the disseminated mineralisation lenses they are grouped together based on stratigraphic position in the hangingwall or footwall relative to the massive magnetite unit. This has</li> </ul>

# Criteria JORC Code explanation average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available. • Maximum extraj an average of roc are set to 300 m on the results volume was dout the third search • A maximum of 8 300 samples are are set to 300 and the tird search.

resulted in seven separate estimation domains being defined with hard boundaries being used between estimation domains. Due to insufficient sample data points, the estimation domains could not be sensibly separated by weathering state.

- Statistical analysis was completed on the massive magnetite domain separately, and for the disseminated domains combined. This analysis showed that while co-efficient of variation was generally low (below 0.5) for most grade variables, some outlier grades existed and in the CP's opinion required balancing grade capping cuts to prevent estimation bias associated with outlier values. A top cut for P and S in both massive magnetite and disseminated magnetite mineralisation domains was applied. Drill spacing is nominally 40 m on sections spaced 200 m apart.
- Maximum extrapolation away from data points is to 120 m in the south and an average of roughly 75 m down dip on drill sections. Search ellipse extents are set to 300 m along strike, 100 m down dip and 15 m across dip, based on the results from kriging neighbourhood analysis (KNA). The search volume was doubled for the second search pass and increased 20-fold for the third search pass to ensure all block were estimated.
- A maximum of 8 samples per hole, with a minimum of 15 and a maximum of 30 samples are allowed for a block estimate in the first search pass, reducing to a minimum of 12 and a maximum of 24 samples for the second pass, and further reducing to a minimum of 9 and maximum 20 samples for the final pass.
- This is the first Mineral Resource estimate for this deposit (a Maiden Mineral Resource estimate). Despite the known deficiencies in generating reliable variograms, for the purposes of generating a check estimate, an OK estimate was run, and produced comparable results with an 0.5% difference in global V2O5 grade
- No assumptions have been made regarding by-product recovery at this early project stage.
- Potentially deleterious P and S have been estimated.
- Based on the results of the KNA a volume block model with parent block sizes of 25 m (N) by 50 m (E) by 5 (RL) was constructed using Datamine Studio Software. Minimum sub cells down to 2.5 m (N) by 2.5 m (E) by 1m (RL) were allowed for domain volume resolution. Drill spacing is nominally 40 m across strike on drill sections spaced 200 m apart northwest to southeast.
- No assumptions have been made regarding selective mining units at this early stage of the project.
- A strong positive correlation exists between Fe and V2O5 and TiO2 and a strong negative correlation between Fe and Al2O3, SiO2 and LOI.
- The separate interpreted mineralisation zones domained based on the geological, geochemical and geophysical data have been separately estimated using hard boundaries between domains. The model is depleted by fault zones and surficial colluvium zones that have been interpreted based on the geological, geochemical and geophysical data.
- Block model validation has been completed by statistical comparison of drill

Criteria	JORC Code explanation	Commentary
		sample grades with the ID2 and OK check estimate results for each estimation zone. Visual validation of grade trends along the drill sections was completed and trend plots comparing drill sample grades and model grades for northings, eastings and elevation were completed. These checks show reasonable comparison between estimated block grades and drill sample grades with a decrease in mean block model grade compared to the mean drill sample data for V2O5 of <1% in the interpreted mineralisation domains.  • With no mining having taken place there is no reconciliation data available to test the model against.
Moisture	<ul> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	Tonnages have been estimated on a dry, in situ basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>A reporting cut-off of 0.4% V2O5 is considered to be a reasonable threshold to inform reasonable chances of eventual economic extraction.</li> <li>Preliminary metallurgical testing (TMT ASX announcement, 8 September 2017) from their Northern Tenement Block, which is along strike on the same mineralisation trend to the Southern Tenement Project mineralisation, has demonstrated that V2O5 (along with TiO2 and Fe) grades are upgraded into the magnetic concentrate using similar material at similar grades to that modelled in this deposit.</li> <li>Consideration of the results of this testing, is considered to represent validity of reasonable justification for potential economic viability. The results from the Northern Tenement Block testing whilst not definitive, would indicate that the interpreted mineralisation zones have reasonable prospects for eventual economic extraction.</li> </ul>
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	<ul> <li>It has been assumed that these deposits will be amenable to open cut mining methods and are economic to exploit to the depths currently modelled using the cut-off grade applied. No assumptions regarding minimum mining widths and dilution have been made.</li> </ul>
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>Metallurgical amenability has been assumed based on results from TMT's preliminary metallurgical testing (TMT ASX announcement, 8 September 2017) from their Northern Tenement Block, which is along strike on the same mineralisation trend to this deposit and which is considered to be similar in geological and mineralogical character.</li> <li>The testwork was conducted using Davis Tube Recovery, Davis Tube Wash and low intensity magnetic separation on four samples including oxide, transitional and fresh materials. The results showed that grades of 1.40% to 1.53% V2O5 reported to a magnetic concentrate having iron grades ranging between 55% and 58.8%. Fresh rock material showed a mass recovery of 69.5% reporting to the magnetic concentrate while the worst performing oxide sample had a mass recovery 5.6% reporting to the magnetic concentrate, with the remaining samples having mass recoveries of 39.4%</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>and 66.9% respectively. Other beneficiation options will be explored for the more oxidised materials that do not perform as well with magnetic separation techniques and further metallurgical testing of diamond drill core samples from the Northern Tenement Block project is underway.</li> <li>Whilst no metallurgical test work has been completed on samples from the Southern Tenement, the availability of the testwork conclusions from the Northern Tenement Block, is considered to provide support for a reasonable assumption of metallurgical amenability. Additional metallurgical test work is required to advance this project.</li> </ul>
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	<ul> <li>No work has been completed by the company regarding waste disposal options. It is assumed that such disposal will not present a significant barrier to exploitation of the deposit and that any disposal and potential environmental impacts would be correctly managed as required under the regulatory permitting conditions.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>No bulk density testing has been completed over the Southern Tenement. Density measurements by caliper method have been completed for 66 samples across a range of material types from the drill core in the Northern Tenement Block. In addition, the density of six core samples submitted for metallurgical testing have been measured using immersion techniques and correlate well with the caliper measurements.</li> <li>The density measurement result data has been separated by weathering state into oxide, transition and fresh, and further by mineralisation type into waste, disseminated mineralisation and massive mineralisation. The length weighted means of the measured densities from these various domains have been applied to the appropriate domains in the block model.</li> <li>The Competent Person considers that the assumption of bulk density based on data from the Northern Tenement Block project, having a similar geological and grade character, is reasonable. The lack of density data for the Southern Tenement has been considered when classifying the Mineral Resource.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>Classification of the Mineral Resource was carried out taking into account the level of geological understanding of the deposit, quantity, quality and reliability of sampling data and assumptions of continuity based on drill hole spacing.</li> <li>The Mineral Resource estimate has been classified in accordance with the JORC Code, 2012 Edition using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this Table.</li> <li>Overall the continuity of mineralisation can be assumed over numerous drill sections, to the level of confidence required to support the Mineral Resource</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul> <li>classification.</li> <li>The Mineral Resource is classified as Inferred.</li> <li>The Mineral Resource estimate appropriately reflects the view of the Competent Person.</li> </ul>
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	<ul> <li>Internal audits and peer review were completed by CSA Global which verified and considered the technical inputs, methodology, parameters and results of the estimate. No external audits have been undertaken.</li> </ul>
Discussion of relative accuracy/confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code.</li> <li>The Mineral Resource statement relates to global estimates of in situ tonnes and grade.</li> </ul>