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Updated Barrambie Mineral Resource Estimate

HIGHLIGHTS

- **Total Indicated and Inferred Mineral Resource estimated to be 280.1 million tonnes[1] at 9.18% TiO_2 and 0.44% V_2O_5 to 80m vertical depth**
- **Contained Titanium Dioxide (TiO_2) in Total Mineral Resource estimate exceeds 25 million tonnes**
- **Contained Vanadium Pentoxide (V_2O_5) in Total Mineral Resource estimate exceeds 1.2 million tonnes**
- **High Grade Titanium subset of Total Mineral Resource estimate of 53.6 million tonnes[2] at 21.17% TiO_2 and 0.63% V_2O_5**
- **High Grade Vanadium subset of Total Mineral Resource estimate of 64.9 million tonnes[2] at 0.82% V_2O_5 and 16.90% TiO_2**

Figure 1: Location Plan

Neometals Ltd (**ASX: NMT**) (**"Neometals"**) is pleased to report an updated Mineral Resource estimate for its 100% owned Barrambie deposit reported in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia ("JORC Code").

The Mineral Resource estimate contains total Indicated and Inferred Mineral Resources of 280.1 million tonnes at 9.18% TiO_2 and 0.44% V_2O_5 to a maximum depth of 80m, reported above a cut-off grade of 10% TiO_2 or 0.2% V_2O_5 (Table 1 and Appendix B).

Since the previous Barrambie Project Mineral Resource estimate, an additional 20 diamond drill holes (DDH) and 21 reverse circulation (RC) drill holes have been drilled.

The 20 DDH campaign was focused within the Mineral Resource area for metallurgical testwork and each hole drilled down dip within the Eastern lode.

[1] Based on Cut-off grades of ≥10% TiO_2 or ≥0.2% V_2O_5

[2] The high-grade titanium and vanadium figures are a sub-set of the total Mineral Resource. These figures are not additive and are reporting the same block model volume but using different cut-off grades.

All the right elements

The 21 RC drill campaign was focused on the areas outside the Mineral Resource boundary, targeting along strike extensions and parallel structures.

Neometals Chief Executive Officer, Chris Reed said:

"As we progress the dual-track evaluation of direct shipping ore and integrated titanium/vanadium production, and with strong market conditions and pricing, it is timely to update the Resource and maiden exploration target. Barrambie is globally significant in both size and grade, and offers significant optionality in terms of timing, scale and commodity focus for optimal development"

The titanium and vanadium mineralisation at Barrambie is associated with ilmenite-magnetite mineralogy (generally spatially integrated), either within magnetite-rich layers or as disseminated mineralisation within gabbro and/or anorthosite. As such, Neometals and Snowden Mining Industry Consultants ("Snowden"), who have compiled the Mineral Resource estimate, believe that reporting the Mineral Resource based on both TiO_2 and V_2O_5 is appropriate for Barrambie. Based on previous mining studies by Snowden, which assessed the TiO_2 potential of the Barrambie Project, a cut-off grade of 10% TiO_2 is in Snowden's opinion appropriate for assessing the TiO_2 Mineral Resource. A cut-off grade of 0.2% V_2O_5 is believed to be appropriate for assessing the V_2O_5 Mineral Resource and is commensurate with similar deposits.

Based on this, the following cut-off grade criteria have been established by Snowden for Barrambie:

≥10% TiO_2 or ≥ 0.2% V_2O_5

A block in the block model will therefore be selected for inclusion in the Mineral Resource if the TiO_2 is greater than or equal to 10% or the V_2O_5 is greater than or equal to 0.2%. Only one of the criteria must be met for a block to be selected for inclusion. Snowden had previously reported the Mineral Resource estimate in December 2013 using a TiO_2 (only) cut-off.

Table 1 **Barrambie Project Mineral Resource estimate as at April 2018**

Classification	Domain	Oxidation	Tonnes Mt	TiO_2 %	V_2O_5 %
Indicated	Central	Strongly oxidised	112.6	6.71	0.44
		Weakly oxidised	28.1	7.21	0.47
		Fresh	6.8	6.47	0.40
	Central sub-total		**147.5**	**6.80**	**0.45**
	Eastern	Strongly oxidised	26.4	19.68	0.50
		Weakly oxidised	10.0	21.45	0.56
		Fresh	3.2	19.14	0.47
	Eastern sub-total		**39.6**	**20.09**	**0.51**
Indicated Total			**187.1**	**9.61**	**0.46**
Inferred	Central	Strongly oxidised	16.0	5.32	0.39
		Weakly oxidised	18.3	6.02	0.41
		Fresh	38.8	5.76	0.38
	Central sub-total		**73.1**	**5.73**	**0.39**
	Eastern	Strongly oxidised	6.5	15.19	0.36
		Weakly oxidised	5.1	18.80	0.47
		Fresh	8.3	19.18	0.45
	Eastern sub-total		**19.9**	**17.78**	**0.42**
Inferred Total			**93.0**	**8.31**	**0.40**
Grand Total			**280.1**	**9.18**	**0.44**

Reporting criteria: ≥ 10% TiO_2 or ≥ 0.2% V_2O_5; small discrepancies may occur due to rounding

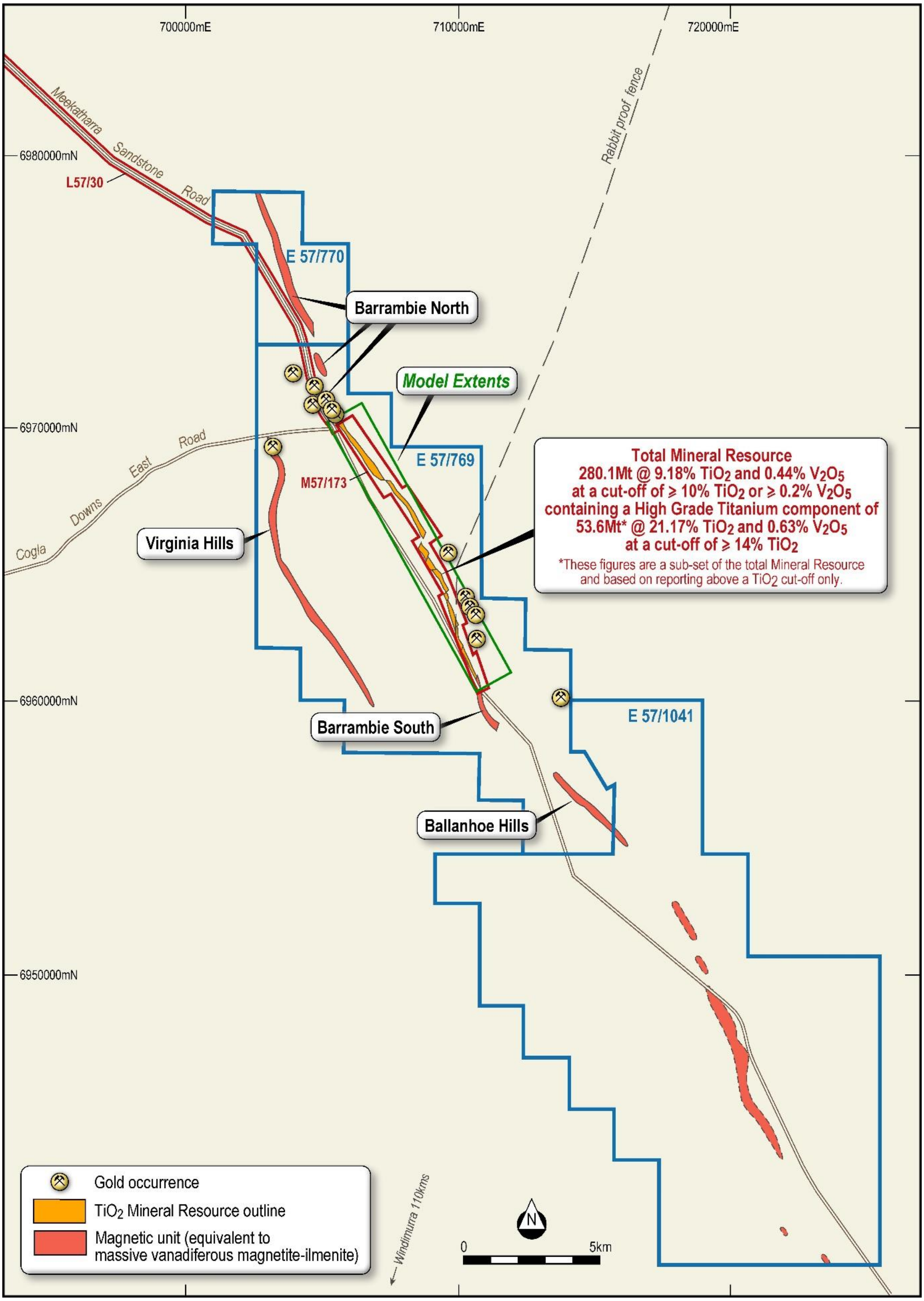

Figure 2 **Plan of the Barrambie Project showing an outline of the Mineral Resource. Distribution of titanomagnetite mineralisation along strike and to the west of Barrambie is based on interpretation of aeromagnetic survey data.**

Separately, at the request of Neometals, Snowden estimated an Exploration Target, as defined by Clause 17 of the JORC Code, for the Barrambie Project. The total Exploration Target is estimated to be approximately 470 Mt to 700 Mt, grading at 6% to 10% TiO_2 and 0.3% to 0.5% V_2O_5. The Exploration Target is summarised in Table 2 and is limited to within tenements E57/770, E57/769 and M57/173. The potential quantity and grade of the Exploration Target is conceptual in nature; there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of Mineral Resources in these areas.

The assumptions used to estimate the Exploration Target are outlined in the summary section below.

Table 2 Exploration Target for Barrambie Project, as of April 2018

Area	Tonnes (Mt)	% TiO_2	% V_2O_5
Barrambie Deeps	400 – 600	6 – 10	0.3 – 0.5
Barrambie North	5 – 10	5 – 8	0.4 – 0.7
Barrambie South	20 – 30	7 – 9	0.3 – 0.5
Ballanhoe Hills	25 – 35	5 – 7	0.3 – 0.5
Virginia Hills	20 – 30	10 – 14	0.5 – 0.7
Combined	**470 – 700**	**6 – 10**	**0.3 – 0.5**

Some discrepancies may occur due to rounding

In the coming 12 months Neometals intends to drill test the Barrambie Deeps target located below the current mineral resource (80m maximum depth) to a maximum depth of 230m. Initial drilling will likely be at 1 km to 2 km spacing to test the strike continuity. Additionally, a review of the aeromagnetic surveys is planned to assess the potential along strike extension of the Ballanhoe Hills target south into E57/1041.

ENDS

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Competent Persons Statement

Information in this report that relates to the Barrambie Project Mineral Resource estimate and Exploration Target is based on information compiled by Mr John Graindorge.

Mr Graindorge is a Chartered Professional (Geology) and a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM) and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity to which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Graindorge is a full-time employee of Snowden Mining Industry Consultants Pty Ltd and consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

Snowden notes that the potential quantity and grade of the Exploration Targets is conceptual in nature; there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of Mineral Resources in these areas.

The information in this announcement that relates to the Barrambie Project Exploration Results is based on information compiled by Mr Clay Gordon, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and Australia Institute of Geoscientists. Mr Gordon is employed by Advance Geological Consulting Pty Ltd, an independent consultant to Neometals Limited. Mr Gordon has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Gordon consents to the inclusion in this announcement of the matters based on information in the form and context in which it appears.

SUMMARY OF INFORMATION FOR MINERAL RESOURCE ESTIMATE

BACKGROUND

In 2015 a Preliminary Feasibility Study for Neometals' Barrambie Project was prepared by Sedgman Limited (See ASX Release Titled Barrambie Pre-feasibility Study Results dated 25th August 2015). The Mineral Resource estimates for that study were based on exploration, geology interpretation and drilling programmes conducted mainly by Neometals, with Snowden engaged to construct a resource block model and reported in compliance with the JORC Code. The 2013 Mineral Resource block model was reported as Indicated Mineral Resources and Inferred Mineral Resources tonnages and grades for V_2O_5, TiO_2, Fe_2O_3, Al_2O_3, and SiO_2 using cut-off grades for V_2O_5 as the key constituent. This information has been updated in this report to include drilling programs completed since.

The following information is extracted from Snowden's report to Neometals.

GEOLOGY AND MINERALISATION

The ferrovanadium titanium (Ti-V-Fe) deposit occurs within the Archaean Barrambie Greenstone Belt, which is a narrow, NNW-SSE trending greenstone belt in the northern Yilgarn Craton. The linear greenstone belt is about 60 km long and attains a maximum width of about 4 km. It is flanked by banded gneiss and granitoids. The mineralisation is hosted within a large layered, mafic intrusive complex (the Barrambie Igneous Complex), which has intruded into and is conformable with the general trend of the enclosing Greenstone Belt. From aeromagnetic data and regional geological mapping, it appears that this layered sill complex extends over a distance of at least 25 km into tenements to the north and south of M57/173 (Figure 9). In the area of the Mineral Resource, the layered sill varies in width from 500 m to 1,700 m.

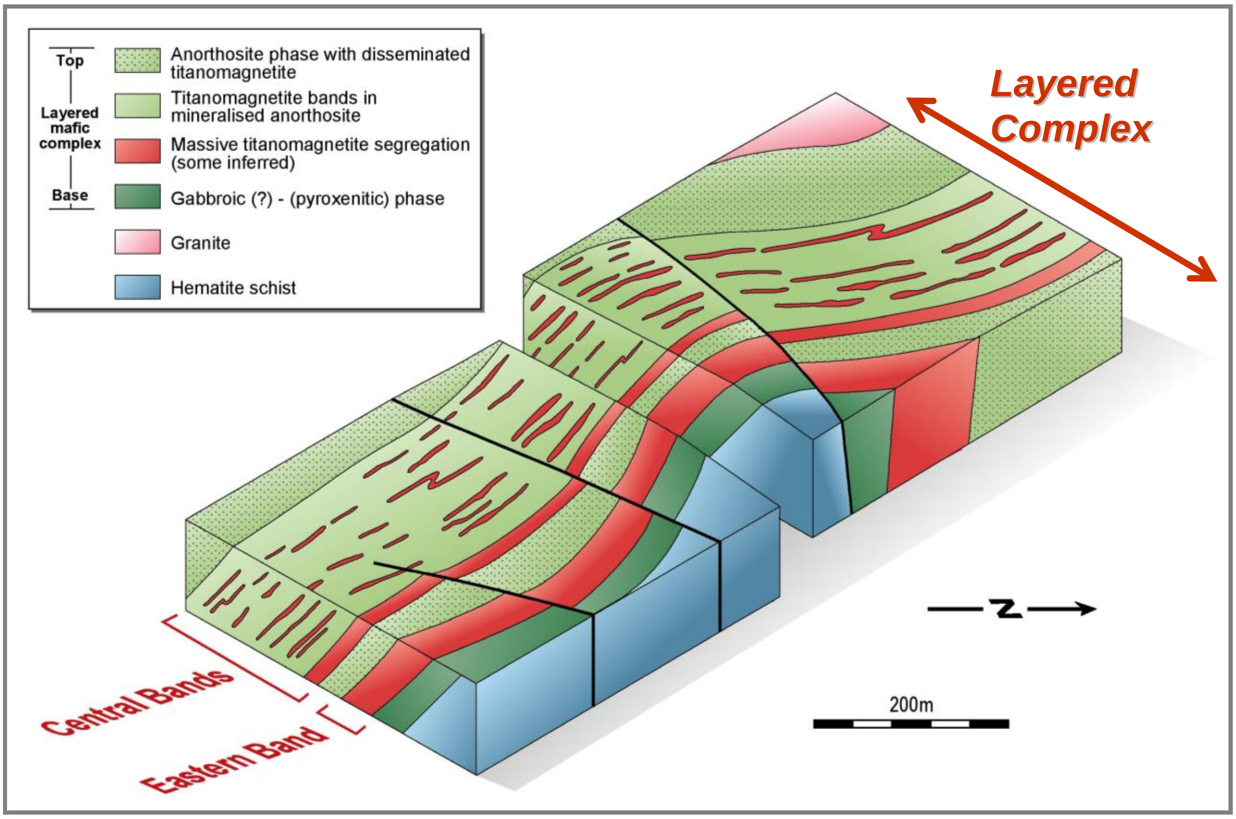
The sill is comprised of anorthositic magnetite-bearing gabbros that intrude a sequence of metasediments, banded iron formation, metabasalts and metamorphosed felsic volcanics of the Barrambie Greenstone Belt. The metasediment unit forms the hanging-wall to the layered sill complex.

Exposure is poor due to deep weathering, masking by laterite, widespread cover of transported regolith (wind-blown and water-borne sandy and silty clay), laterite scree and colluvium. Where remnant laterite profiles occur on low hills, there is ferricrete capping over a strongly weathered material that extends down to depths of 70 m.

Ti-V-Fe mineralisation occurs as bands of cumulate aggregations of vanadiferous magnetite (martite)-ilmenite (leucoxene) in massive and disseminated layers and lenses (Figure 3).

Within the tenement the layered deposit has been divided into five sections established at major fault offsets. Cross faults have displacements that range from a few metres to 400 m. The water table occurs at about 35 m below the surface (when measured where the laterite profile has been stripped).

Figure 3 **Schematic 3D diagram of Barrambie bedrock geology**



DRILLING

Drilling at Barrambie began in 1968 and continued to the most recent campaigns in 2018. The drilling campaigns are listed by date in Table 3.

Companies involved in control of the drilling campaigns are Greenstone Investments Pty Ltd (GSI), Ferrovandium Corporation NL (FVC), Great Australian Resources Ltd (GAR), Trans Global Resources (TGR), Precious Metals Australia (PMA) and Reed Resources Pty Ltd (REED). Drilling techniques include rotary air blast (RAB), open hole percussion (OHP), reverse circulation (RC) and diamond drilling (DDH). Campaigns 9 to 12 were exploration for gold and have no vanadium, titanium, iron or minor element assays.

Drill holes drilled prior to 2007 are referred to as 'historic', and holes post 2007 are referred to as 'recent'. In 2007, Reed completed three diamond drill programmes, three RC drilling campaigns and a campaign of bulk sampling using a Caldwell bucket drill rig. In 2008, a RC and a diamond drilling campaign were completed.

Assays from drill holes in campaigns 2, 4, and 13 to 25 (excluding 18 and 24) were used in the 2009 estimate. Table 4 provides information on the samples assayed for each campaign. The major source of information comes from Campaign 23 (13,851 samples for a total length of 23,775 m) and Campaigns 16, 19, and 22 each contributed over 10 km of samples.

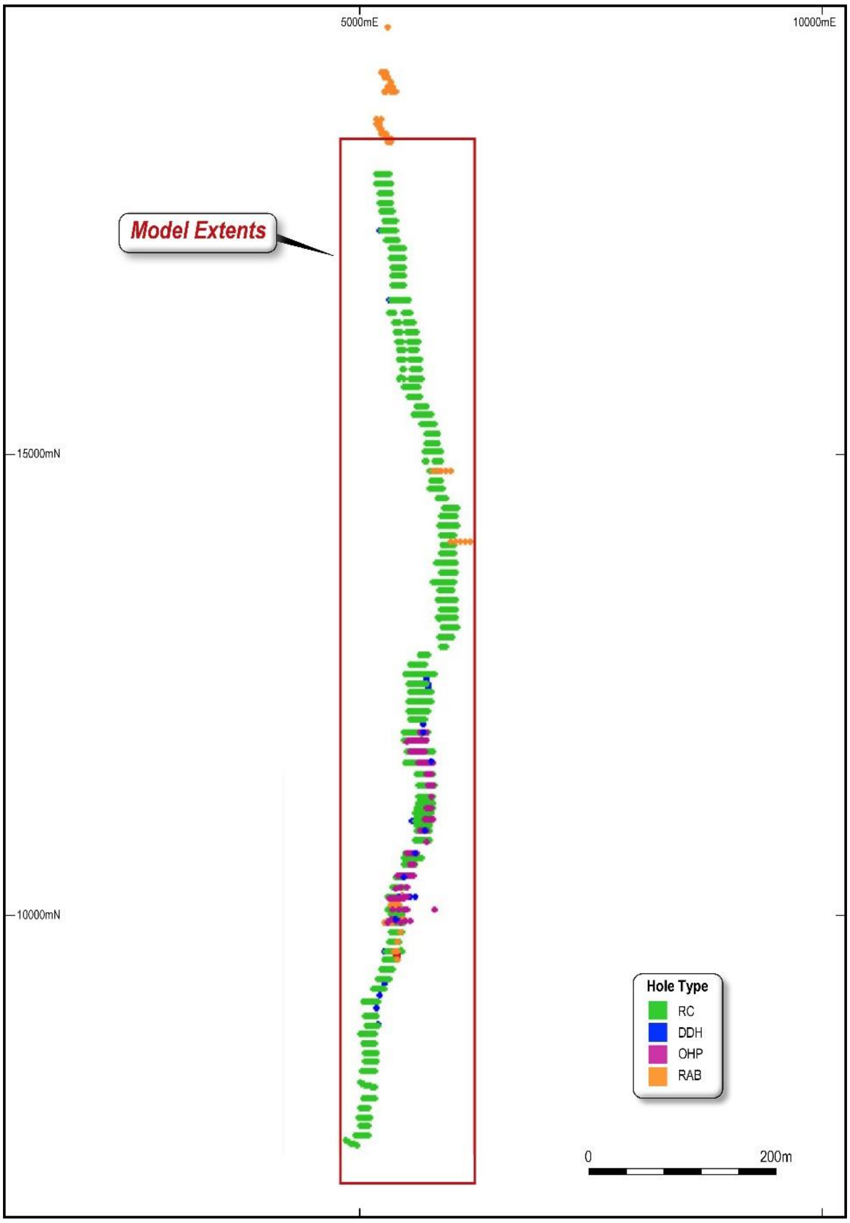
Table 3 Drilling campaigns

Number	Date	Company	Company supervising drilling	Type	Holes
1	1968	GSI	GSI	OHP	PDH 1-13
2	1968	GSI	GSI	DDH	DDH 1-2
3	1971	FVC	Geotechnics	OHP	PDH 14-72
4	1971	FVC	Geotechnics	DDH	DDH 3-4
5	1978	FVC	Unknown	UNKN	UNKN
6	1984	FVC	Holyex	OHP	PDH 73-134
7	1985	GAR	Durey	RAB	BR 1-114
8	1987	GAR	Unknown	RAB	SG 1-65
9	1987	GAR	Unknown	RAB	B 1-122
10	1987	GAR	Unknown	RC	SG 136-178
11	1987	GAR	Unknown	RC	B 194-240
12	1996	TGR	Unknown	RAB	CRB 1-11
13	1999	TGR	Snowden	RC	BRC 1-16
14	1999	TGR	BFP	RC	BARC 001-002
15	1999	PMA	BFP	DDH	PMABRDDH 007-012
16	2007	REED	Reed	RC	BRC 17-159
17	2007	REED	Reed	DDH (HQ3 and PQ)	BDDH 001-002, 007, 010, 010A, 011-013
18	2007	REED	Caldwell	BULK	BCAL 001-010
19	2007	REED	Reed	RC	BRC 160-335
20	2007	REED	Reed	DDH (PQ)	BDDH 014,017,020-023
21	2007	REED	Reed	DDH (PQ)	BDDH TW001,007,009,010,012,014,015
22	2007	REED	Reed	RC	BRC 336-489
23	2008	REED	Reed	RC	BRC 490-826
24	2008	REED	Reed	RAB	BWH 010-011
25	2008	REED	Reed	DDH	BDDH 024-041A
26	2017	NMT	NMT	DDH	BDDH050 – 069, VHRC113 – VHRC175
27	2018	NMT	NMT	RC	VHRC176 – VHRC210, BRC835 - 850

Table 4 Samples and assays

Number	Date	Company supervising drilling	Samples assayed	Total length (m)	Average sample length (m)
2	1968	GSI	95	160	1.7
4	1971	Geotechnics	1,144	489	0.43
13	1999	Snowden	1,030	1,030	1.0
14	1999	BFP	120	120	1.0
15	1999	BFP	409	406	1.0
16	2007	Reed	6,990	10,413	1.5
17	2007	Reed	590	558	1.0
19	2007	Reed	6,761	10,664	1.6
20	2007	Reed	375	386	1.0
21	2007	Reed	494	479	1.0
22	2007	Reed	6,595	10,941	1.7
23	2008	Reed	13,851	23,775	1.7
25	2008	Reed	657	772	1.2
26	2017	NMT	2,912	2,912	1.0
27	2018	NMT	2,681	2,681	1.0

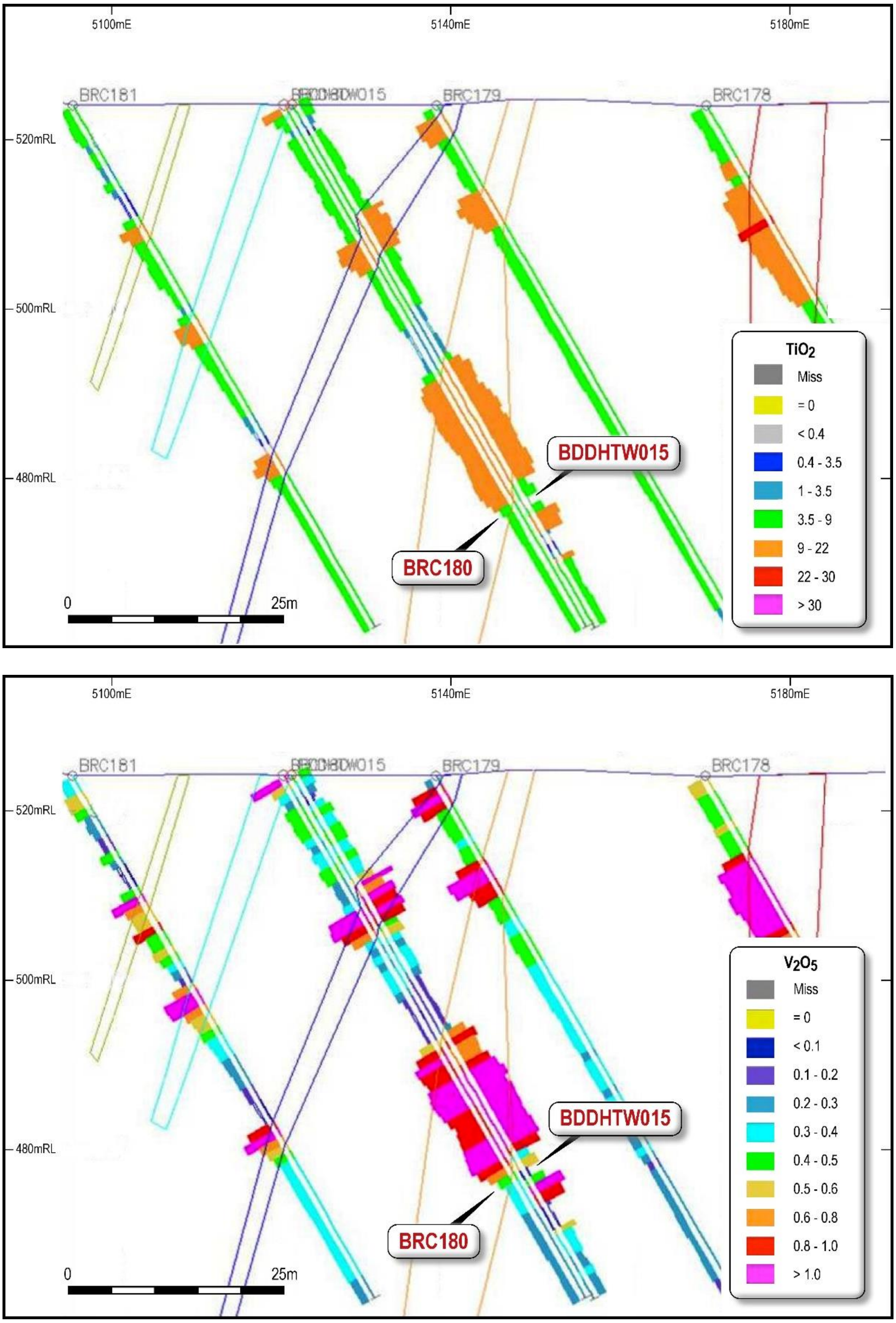
Figure 4 Drill hole locations (local grid)



GEOLOGICAL MODEL

The resource has been estimated inside mineralised envelopes based on Neometals' cross sectional interpretations which represent the steeply dipping magnetite bands of the Barrambie layered intrusive gabbro, within oxidised, partially oxidised (transition) and fresh regions. The mineralised envelopes strike local grid north-south and generally dip steeply east or west, and are interpreted over an 11 km strike extent from 7500 mN to 18500 mN. On most cross sections there are only one or two drill hole intersections per lode in the down dip direction. Mineralised envelopes have lower cut-off grades of 0.6% V_2O_5 for the Eastern zone high grade vanadium and Central zone high grade vanadium lodes, 0.3% V_2O_5 for the Eastern zone low grade vanadium, and 0.1% V_2O_5 for the Central and Eastern zone low grade vanadium mineralised envelopes surrounding the lodes. The correlations between V_2O_5, TiO_2 and Fe are well documented and the lodes defined by V_2O_5 grade cut-offs are applicable to the TiO_2 mineralisation (Figure 5).

Figure 5 Part of Section 8800mN showing distribution of TiO_2 and V_2O_5 assays (percent)



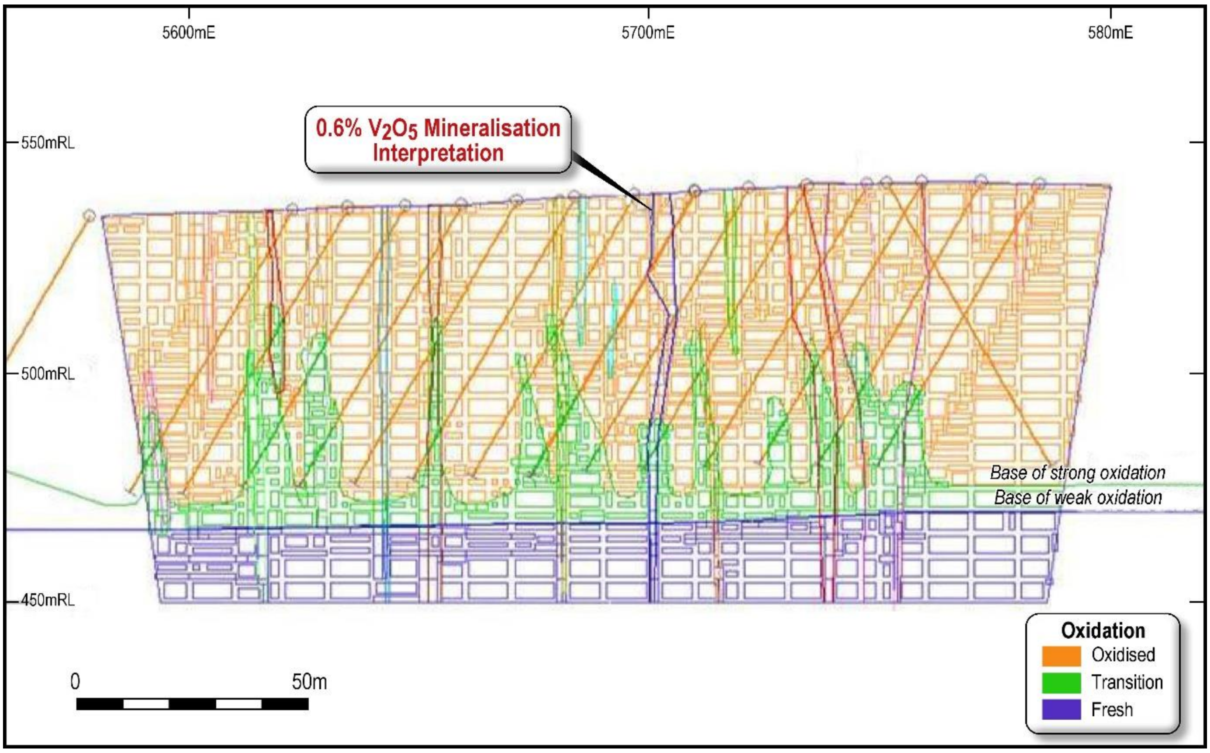
The mineralised envelopes are disrupted by 27 interpreted faults along the 11 km strike length of the resource, spaced at intervals of approximately 200 m to 300 m.

The Eastern zone (which hosts the higher grade TiO_2 mineralisation) is considered by Neometals geologists to be continuous along strike, while the Central zone is thought to be discontinuous with lodes that can be traced 100 m to 150 m along strike. Central zone high grade vanadium lodes are observed in outcrop to merge and splay; however, Neometals geologists have observed that a similar number of Central zone high grade vanadium lodes are intersected on most cross-sections. Based on this observation, both the Eastern and Central zone high grade vanadium lodes have been projected to the fault boundaries

Outcrop mapping provided by Neometals has been used in the modelling process as a guide to link the sectional interpretation of the mineralised domains. It is apparent from the outcrop mapping that folding occurs in some areas, particularly around faults. This local complexity is not well represented in the current model as it is not practical to model the structural complexity around the faults at the current drill spacing; however, this is not considered to have a material impact on the Mineral Resource estimate.

The distribution of oxidised, transition and fresh material is shown in Figure 6.

Figure 6 Drill Section 1100mN showing oxidation and mineralisation interpretation



DRILL HOLE DATA AND SAMPLING

Snowden compiled drill hole data from the 2017 and 2018 drilling with the data used for the previous resource model into one database, and completed basic data validation. Since the previous Mineral Resource estimate reported, an additional 20 diamond drill holes and 21 reverse circulation (RC) drill holes have been drilled. The diamond drill holes were drilled within the Mineral Resource area for metallurgical testwork and were drilled down dip within the Eastern lode. The RC holes were drilled outside of the Mineral Resource area, targeting along strike extensions and parallel structures. Previous reports document that much of the historical assay data is of uncertain quality or is not able to be checked against original assay certificates.

The majority of historical drill hole data is open hole percussion drill holes, with minor RC and diamond drill holes. Open hole percussion drill holes were not used in the resource model due to the unreliability of the sampling methods.

Post 2007 drilling completed by Neometals includes RC drilling to approximately 100 m to 150 m line spacing, as well as RC drilling to replace the historic open hole percussion drill holes and RC drilling within a test area to test the short-range continuity of the mineralisation. Additionally, several programmes of diamond drilling have been completed to collect geotechnical, metallurgical, density and QA/QC data. Drill holes have been sampled on 3 m intervals in areas of background mineralisation, and 1 m intervals within mineralised zones. Samples have generally been assayed for thirteen attributes which include V, Ti, Fe, Al, Si and Ca using XRF analysis. Magnetic susceptibility readings have been taken for most RC drill holes on 1 m intervals and 0.5 m intervals for diamond drill holes. Density data has been collected from a variety of drill holes using four different techniques.

QA/QC

Snowden reviewed QAQC data (standards, field and lab duplicates and umpire laboratory analysis) for the 2009 MRE and concluded the data suitable for resource estimation. Assay data QAQC was reviewed for four stages of resource model updates; August 2007, March 2008 and January 2009, March 2018.

QAQC data for drilling included in the August 2007 resource model was described in the August 2007 Mineral Resource report prepared by Snowden. One standard was submitted with samples for analysis; however, the standard had a non-certified value for V_2O_5 which was below the mineralised grade range for Barrambie. It was recommended that Neometals use a standard with certified V and Ti values that are in the approximate range of the Barrambie potential ore grade mineralisation. The original and duplicate V assays for Barrambie field duplicates showed good precision, which suggested that field sampling procedures for this program were good. However, it was recommended that approximately 5% of the total data collected should be duplicated.

QAQC data for the additional drilling included in the March 2008 Mineral Resource model consisted of standard data, field duplicates and check samples. Expected values were calculated for the standards; the expected values were compared with the standard results obtained for the second half of the drilling campaigns. The majority of the standard results for these campaigns were within three standards deviations of the expected value of the standard. Control charts indicate a minor positive bias in the assaying for V_2O_5, TiO_2 and Fe, and a minor negative bias in the assaying for SiO_2 and Al_2O_3, for some standards. Twinned diamond drill hole mineralised intercepts compare well with the RC drill hole mineralised intercepts.

Snowden completed a review of the standards, field duplicates and lab duplicates for the additional drilling included in the 2009 Mineral Resource model update. The field duplicates and lab duplicates show reasonable precision. Expected values were calculated for the standards and the expected values then compared with the standard results obtained from the drill hole assaying. Duplicate sample numbers for the standards were noted, where the same sample number for a standard occurs in different lab job numbers with slightly different assay results. The 'certification' of the new standards is based on 28 analyses per standard, where at least 30 are recommended. Insufficient analyses for the certification process could mean that the expected value and the expected standard deviation for the standards may not be accurate. The majority of the standard results for these campaigns were within three standard deviations of the expected value of the standard, though the following comments were made in relation to some results.

Control charts for the standard results from the drilling campaigns 23 and 25 show that for three of the eight standards, there are more than 10% of the standard assay results for V_2O_5 that are greater than 3 standard deviations from the expected value (for TiO_2 only one of the eight standards was of concern). This occurs in some batches reported in October and November 2008 from Spectrolab and accounts for 8% of the V_2O_5 and 2% of the TiO_2 standard assays. It is possible that the expected value and the expected standard deviation for the standards may not be accurate, due to insufficient analyses of the standards; or it could indicate a positive bias in the assaying for these batches, which could represent up to 8% difference in the V_2O_5 grade. The batches with standards that are outside three standard deviations from the expected value represent approximately 29% of the samples processed through the Spectrolab laboratory and 14% of total samples in the drilling campaigns 23 and 25. The integrity of the data was taken into account in the Mineral Resource classification.

No duplicates, blanks or standards were submitted with the sample batches for the 2017/2018 drilling. Intertek laboratory in Perth routinely insert replicates as part of their internal QAQC procedures. Snowden has reviewed the results and considers that the QC results are acceptable for Mineral Resource estimation. However, Snowden does not consider internal laboratory QAQC to be independent and should not be relied upon as a sole source of QAQC. As such, it is recommended that Neometals include independent QC samples, including standards and field duplicates, in all sample batches.

ENVIRONMENTAL APPROVALS

Previous submissions and approvals from the Environmental Protection Agency (EPA) are no longer relevant given changes in the planned processing flowsheet for Barrambie. Work has commenced on the revised mine plan and production forecast and these will be resubmitted for consideration by the applicable Environmental Agency/s. It is expected that any requirements from the government agencies could be less onerous than previous requirements given the significantly reduced mining rate and the fact that chemical processing will no longer take place at the mine site.

A new environmental study focussing on a site near Geraldton or Kwinana as the new processing site will need to be undertaken.

MINERAL RESOURCE ESTIMATION

Variography

Variography was completed for V_2O_5, TiO_2, Fe_2O_3, Al_2O_3, SiO_2, CaO and magnetic susceptibility within the grouped Eastern (Eastern zone high grade and low grade) and grouped Central (Central zone high grade and low grade mineralised envelope) domains. The maximum variogram range in the along strike direction was 200 m in the Eastern and Central zone domains, 40 m in the down dip direction, and 60 m in the across plane direction.

Density

Four different types of density determinations have been completed; density obtained from downhole geophysical gamma gamma logging, density from bulk sample drill holes, density determinations from diamond drill core by immersion in water, and density determinations from diamond drill core by calliper method. A review of the four datasets was completed by Snowden. Due to deficiencies with the geophysical logging, the density from diamond drill core by immersion in water was selected as the data set likely to be the most appropriate.

Density regression equations were developed based on the measurements from selected pieces of diamond drill core using the immersion in water method. Densities were applied to the model using the multiple regression equations based on Fe_2O_3, SiO_2 and Al_2O_3 block grade estimates. Diamond core density samples were collected from the oxide, transitional and fresh horizons. Snowden was advised that the core was air-dried and the densities can be assumed to be dry. Snowden considers that, due to the more friable nature of the clay material, the most competent pieces of diamond drill core may have been selected for density analysis, which could lead to the clay material being under-represented in the density statistics.

Grade estimation

Block V_2O_5, TiO_2, Fe_2O_3, Al_2O_3, SiO_2, CaO and magnetic susceptibility grades were estimated using ordinary block kriging, with top cuts applied where appropriate. Mineralised envelope boundaries were treated as hard grade boundaries, except for the boundary between the high and low grade V_2O_5 within the Eastern zone, which was treated as a soft boundary for the TiO_2 estimate.

Oxidation boundaries were treated as gradational grade boundaries. The variogram parameters determined for V_2O_5, TiO_2, Fe_2O_3, Al_2O_3 and SiO_2 within the grouped Eastern and grouped Central domains were used for the estimation, and the orientation of the search ellipse and variograms were modified to suit the approximate local dip and strike of the lode wireframes in the separate fault blocks. After estimation, a small number of blocks remained which were not estimated due to insufficient numbers of samples. The grades of these blocks were set to the mean of the data within the low grade mineralised envelope domains.

The block grade estimates were validated using:

- A visual comparison of the block grade estimates to the input drill hole composite data
- Generation of moving window average plots of the block grade estimates and naïve composite grades, along with the number of composite samples available
- A global comparison of the estimated block grades to the average composite (naïve) grades.

The conclusion from the model validation shows that the block grade estimates reproduce the trend in the drill hole data, with the global average block grade within 8% of the drill hole grade for all elements except Al_2O_3 which is within 13%.

Close spaced drilling area

An analysis of the drilling data within the close spaced drilling (CSD) area was completed for the March 2008 Mineral Resource model update, and the findings still apply to the March 2018 Mineral Resource model update. The visual comparison of drilling within the CSD area has shown that:

- The mineralised zones become more structurally complex with additional drilling and that the linking of the zones along strike and across strike is subjective.
- A number of the zones which were projected to surface and to depth were closed off by the across strike infill drilling.
- The dip direction of the mineralised lodes changes from east to west more frequently than was expected.

Resource classification

Snowden classified the Mineral Resource as Indicated and Inferred for the five major elements estimated (V_2O_5, TiO_2, Fe_2O_3, Al_2O_3 and SiO_2) based on a number of criteria, including the geological confidence, the integrity of the data, the spatial continuity of the mineralisation as demonstrated by variography, and the quality of the estimation.

The current drill spacing at Barrambie is approximately 100 m to 150 m along strike x 25 m across strike, with one 100 m area drilled at centres of 25 m x 25 m, and one 25 m area drilled at centres of 12.5 m x 12.5 m. For the 2009 MRE, the kriging variance was used to identify lower confidence areas of grade extrapolation around the 100 m x 25 m drilling. The solid wireframe constructed by Snowden for the previous MRE, based on a kriging variance threshold of approximately 0.50 as a guide to identifying Indicated Mineral Resources, was also used for the current MRE. Areas outside the wireframe were classified as Inferred.

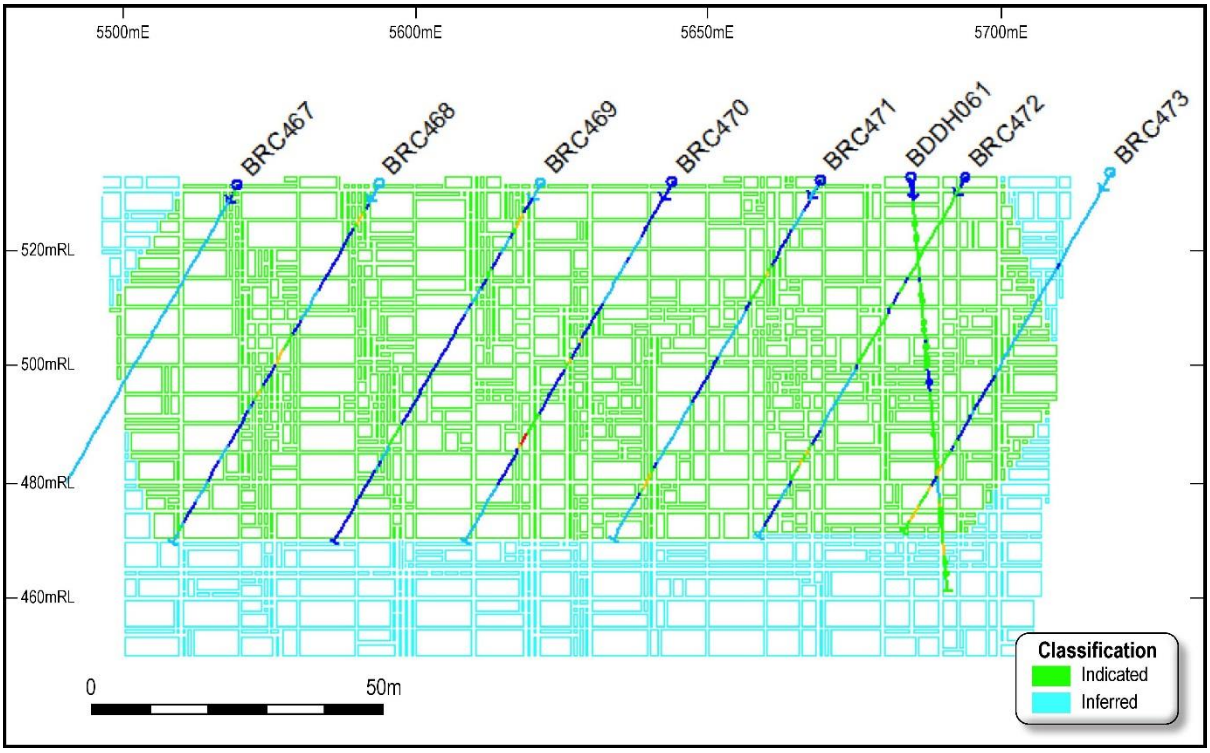
Mineralised zones have been extrapolated approximately 20 m beyond the base of drilling. These areas have been classified as Inferred Mineral Resources. North of 8150 mN most drill holes end in completely oxidised material. In this area, the base of strong oxidation and the base of weak oxidation surfaces have been interpreted to be just below the base of drilling. Snowden has classified material below the base of drilling as Inferred Mineral Resources.

Indicated and Inferred Mineral Resource regions account for approximately 70% and 30% respectively of the block model.

There is no Measured Mineral Resource estimated in the Barrambie Project. Within the close spaced drilling area, a strike extent of 25 m has been drilled to a spacing of 12.5 m by 12.5 m, which is a drill spacing that kriging neighbourhood results suggest may be appropriate for a Measured Mineral Resource classification. However, since this represents a small portion of the total Mineral Resource resource Snowden has chosen not to upgrade this area to Measured Mineral Resources at this time.

Figure 7 shows an example cross-section view of the model blocks coloured by Mineral Resource classification.

Figure 7 Section 12100 mN model blocks coloured by Mineral Resource classification



Mineral Resource Tables

Table 1 provides a breakdown of the Mineral Resource by material type.

Exploration Target

The Exploration Target estimated by Snowden includes the following prospects:

- Barrambie Deeps – extrapolation below current Mineral Resource estimate ("MRE")
- Barrambie North – along strike extension to the north of current MRE
- Barrambie South – along strike extension to the south of current MRE
- Ballanhoe Hills – strike extension in southeast corner of E57/769
- Virginia Hills – sub-parallel mineralisation to the west of the main Barrambie prospect

The total Exploration Target, as defined by Clause 17 of the JORC Code, for the Barrambie Project is estimated to be approximately 470 Mt to 700 Mt, grading at 6% to 10% TiO_2 and 0.3% to 0.5% V_2O_5. The Exploration Target is summarised in Table 5 and is limited to within tenements E57/770, E57/769 and M57/173. The potential quantity and grade is conceptual in nature; there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of Mineral Resources in these areas.

Table 5 Exploration Target for Barrambie Project, as at April 2018

Area	Tonnes (Mt)	% TiO_2	% V_2O_5
Barrambie Deeps	400 – 600	6 – 10	0.3 – 0.5
Barrambie North	5 – 10	5 – 8	0.4 – 0.7
Barrambie South	20 – 30	7 – 9	0.3 – 0.5
Ballanhoe Hills	25 – 35	5 – 7	0.3 – 0.5
Virginia Hills	20 – 30	10 – 14	0.5 – 0.7
Combined	**470 – 700**	**6 – 10**	**0.3 – 0.5**

Some discrepancies may occur due to rounding

The Exploration Target is based on a combination of Exploration Results from drill hole assay data and geophysical (magnetic) surveys, along with the Barrambie Mineral Resource block model. The assumptions used to estimate the Exploration Target for each area are detailed below.

Barrambie Deeps

Barrambie Deeps represents the depth extrapolation of the mineralisation below the current defined MRE, along the full strike length of the MRE area (approximately 11 km). Snowden believes that this extrapolation is justified given the good geological continuity of the magnetite layering, the resource is open at depth along the full strike length of the MRE and the results of deep drilling on section 10180 mN (local grid), as shown in Figure 8. The assumptions and parameters used to estimate the Barrambie Deeps Exploration Target are summarised in Table 6. Snowden applied a relatively high range to the TiO_2 grade values to account for the uncertainty of extrapolating over the entire strike length of the MRE.

Figure 8 **Section 10180 mN showing deep drilling with interpreted continuation of mineralised zone (dashed red line)**

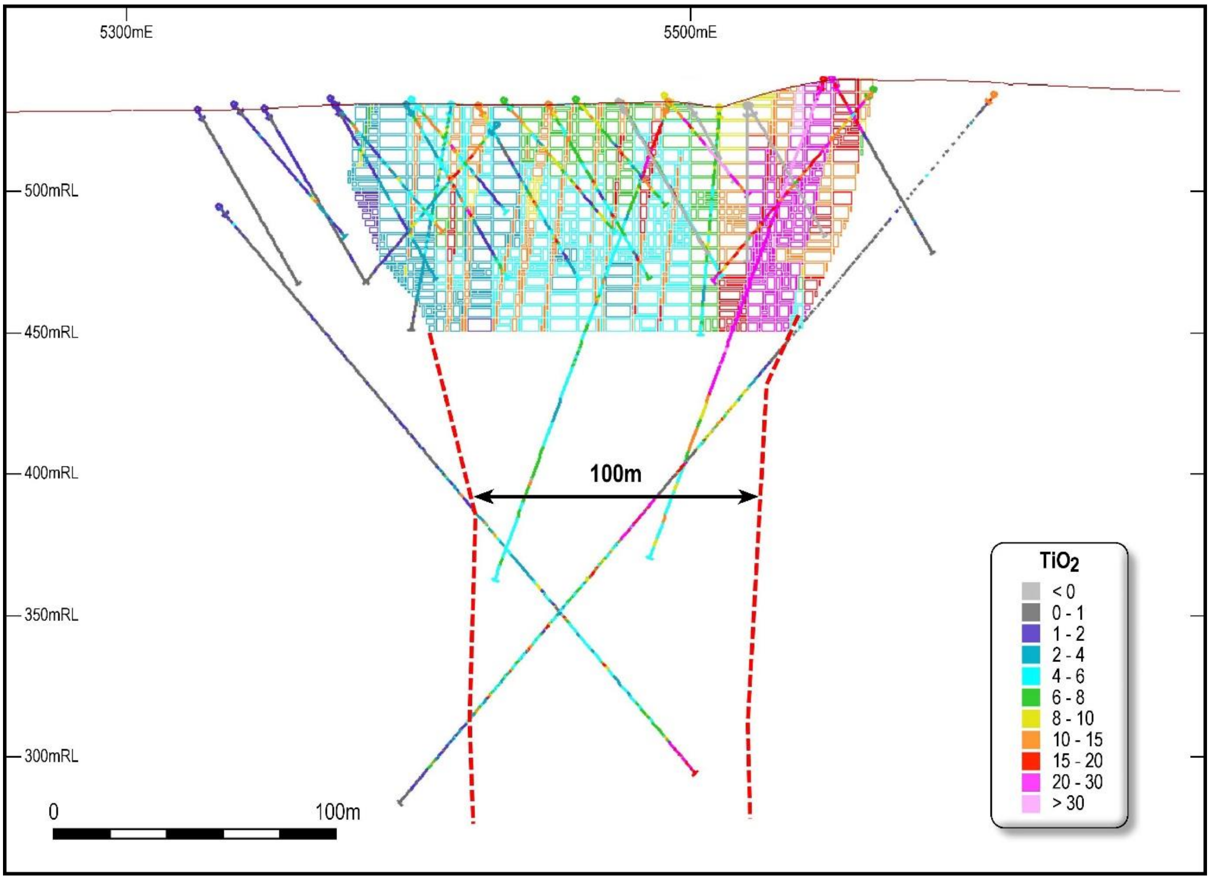


Table 6 **Barrambie Deeps Exploration Target assumptions**

Parameter		Value
Extrapolation distance below MRE		150 m
Tonnes per vertical metre of lower 20m of MRE		4.4 Mt/vm
Discount factor of tonnes to account for impact of cut-off grade		10%
Discounted tonnes per vertical metre		4.0 Mt/vm
Total discounted tonnes for 100 m extrapolation		400 Mt
Total discounted tonnes for 150 m extrapolation		600 Mt
Average grade of lower 20 m of MRE:	TiO_2	8%
	V_2O_5	0.4%

Barrambie North, Barrambie South, Virginia Hills, Ballanhoe Hills

The Exploration Targets for the Barrambie North, Virginia Hills and Ballanhoe hills are based on Exploration Results from preliminary RC drilling at each prospect. A single line of RC holes has been drilled at Barrambie North and Ballanhoe Hills, with holes spaced approximately 25 m apart on the section.

At Virginia Hills, six lines of RC drilling, spaced approximately 1 km to 2 km apart, were completed towards the end of 2017. Based on these drilling results, along with the magnetic surveys, Snowden estimated the strike length and thickness of the mineralisation at each area.

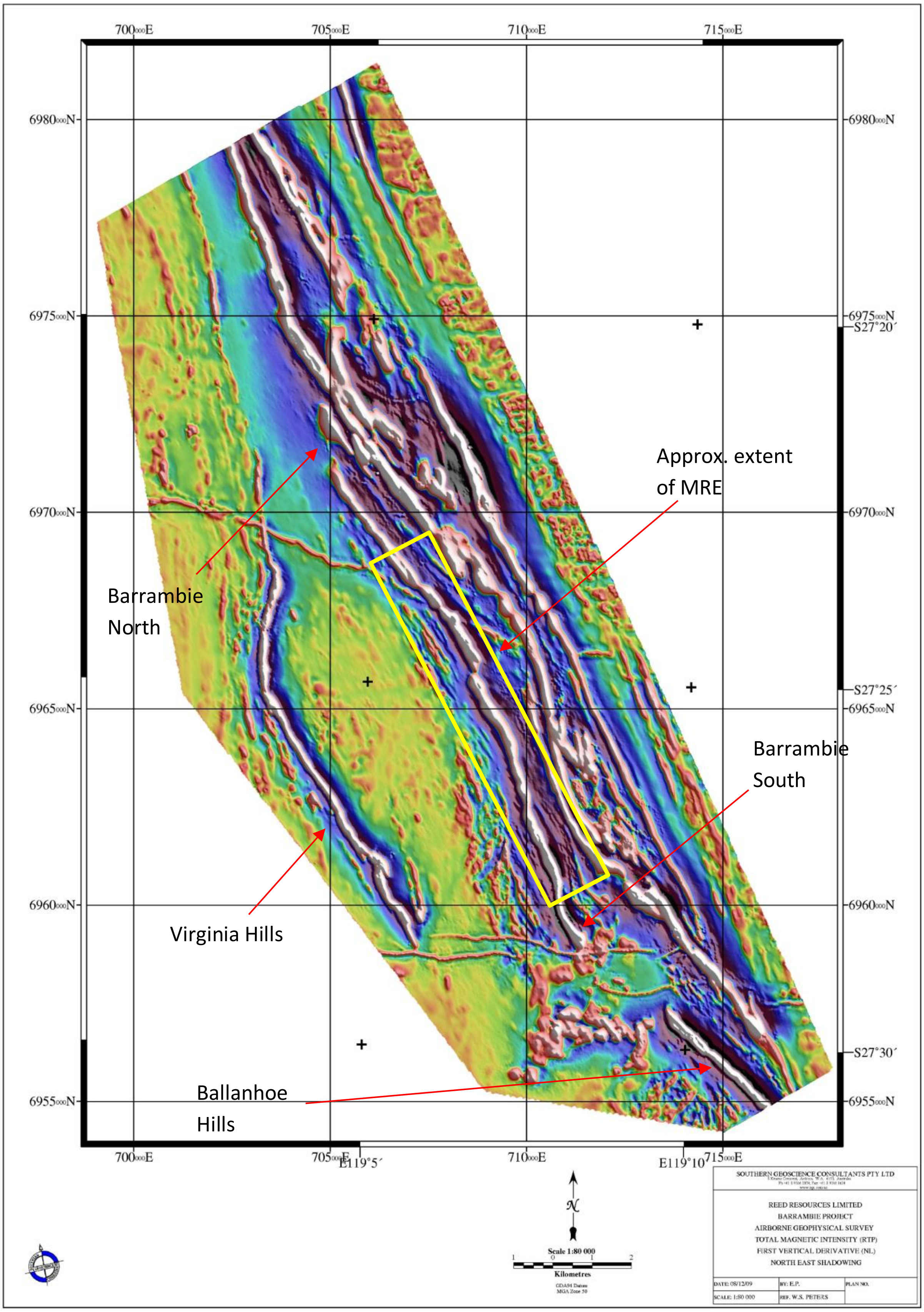
This was projected to a depth of 80 m below surface. The assumptions for each prospect are shown in Table 7 and the magnetic survey is shown in Figure 9.

No drilling has been conducted at Barrambie South and as such, the Exploration Target is based on projecting the Mineral Resource model (based on the average of the southern 500 m) 1 km to the south.

Table 7 Barrambie Deeps Exploration Target assumptions

Parameter		Barrambie North	Ballanhoe Hills	Virginia Hills	Comments
Strike Length		6,000 m	3,000 m	11,000 m	
Thickness		6 m	60 m	15 m	Average based on drill hole intersections
Depth	Oxide	20 m	20 m	20 m	
	Transitional	20 m	20 m	20 m	
	Fresh	40 m	40 m	40 m	
Bulk density	Oxide	2.2 t/m^3	2.2 t/m^3	2.2 t/m^3	Based on values from MRE
	Transitional	2.4 t/m^3	2.4 t/m^3	2.4 t/m^3	Based on values from MRE
	Fresh	3.3 t/m^3	3.3 t/m^3	3.3 t/m^3	Based on values from MRE
Internal waste depletion factor		20%	20%	20%	Based on visual assessment of drilling
Average grade from drilling	TiO_2	7%	6%	12%	Based on significant intersections
	V_2O_5	0.6%	0.4%	0.6%	

Figure 9 **Total magnetic intensity (RTP) 1st vertical derivative**



Appendix A

Grade-tonnage curves of the Barrambie resource model based on TiO_2 and V_2O_5, are presented in Figure 10 and Figure 11 respectively. The grade-tonnage reporting is also tabulated in Table 8 and Table 9.
Snowden notes that the grade-tonnage reporting in Table 8 and Table 9 is **<u>not</u>** additive and is reporting the same block model volume, but using different cut-off grades.

Figure 10 Grade-Tonnage Curve TiO_2 cutoff

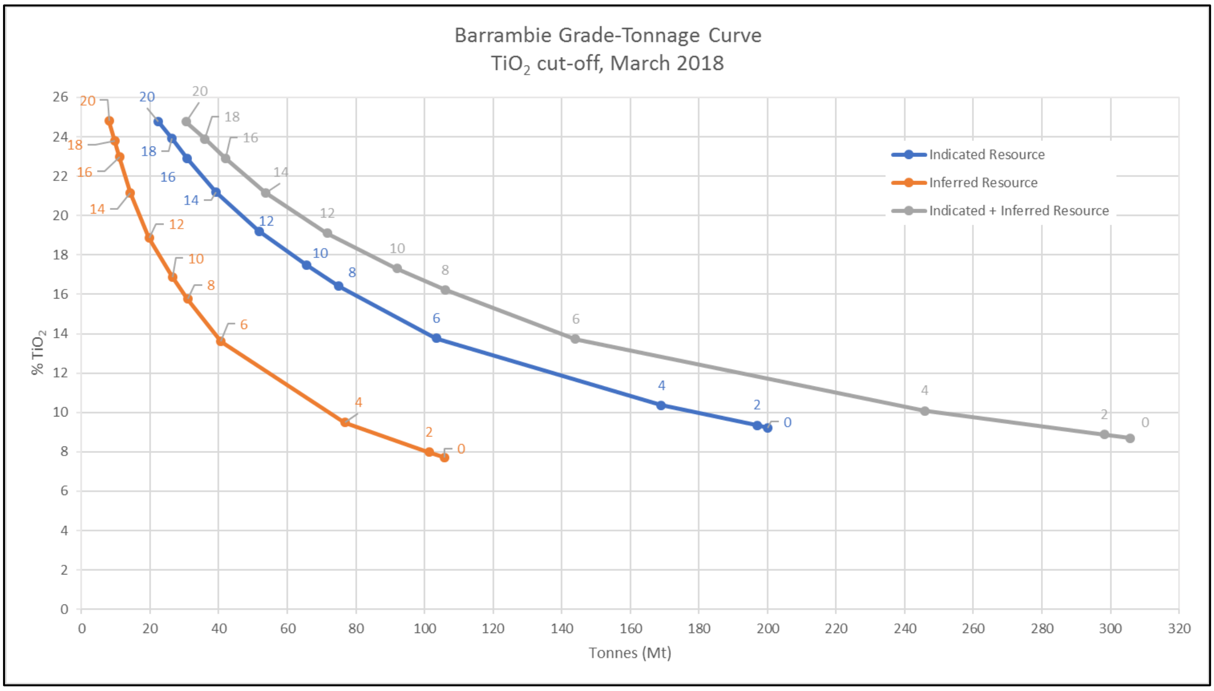
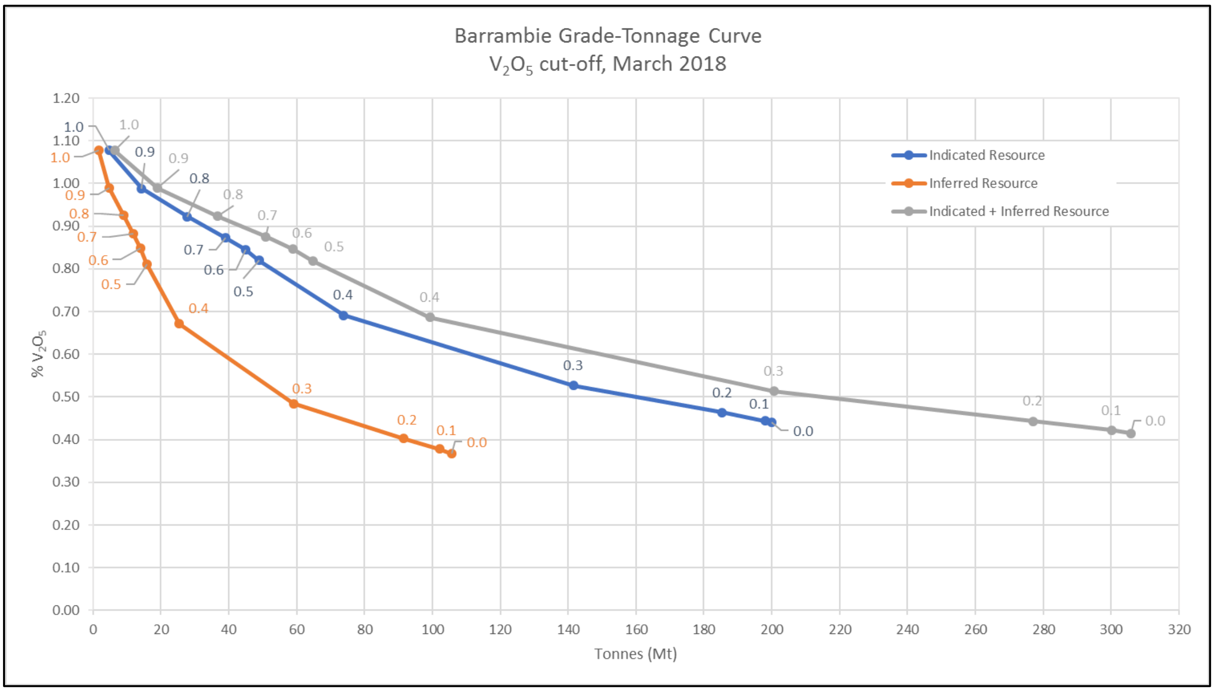


Figure 11 Grade-Tonnage Curve V_2O_5 cutoff



Nm

Table 8 Grade-tonnage reporting using TiO_2 cut-off grade

Cut-off % TiO_2	Tonnes Mt	TiO_2 %	V_2O_5 %	Fe_2O_3 %
		Indicated Mineral Resource		
0	199.9	9.23	0.44	31.0
2	196.9	9.35	0.45	31.2
4	169.0	10.36	0.48	33.3
6	103.4	13.76	0.58	39.3
8	75.1	16.41	0.65	44.0
10	65.5	17.49	0.68	45.6
12	51.8	19.20	0.67	46.6
14	39.3	21.18	0.65	46.7
16	30.9	22.89	0.62	46.5
18	26.4	23.91	0.62	46.8
20	22.4	24.76	0.63	47.0
		Inferred Mineral Resource		
0	105.8	7.71	0.37	28.6
2	101.4	7.98	0.38	29.2
4	76.8	9.49	0.43	32.4
6	40.6	13.61	0.51	39.3
8	30.9	15.76	0.56	42.5
10	26.5	16.88	0.58	44.1
12	19.8	18.86	0.59	45.3
14	14.3	21.15	0.58	46.0
16	11.1	22.97	0.58	46.7
18	9.7	23.81	0.59	47.2
20	8.0	24.80	0.60	47.5
		Indicated + Inferred Mineral Resource		
0	305.8	8.71	0.42	30.1
2	298.3	8.88	0.42	30.6
4	245.8	10.09	0.46	33.0
6	144.0	13.72	0.56	39.3
8	106.0	16.22	0.63	43.5
10	92.0	17.32	0.65	45.2
12	71.6	19.10	0.65	46.3
14	53.6	21.17	0.63	46.5
16	41.9	22.91	0.61	46.5
18	36.0	23.88	0.61	46.9
20	30.5	24.77	0.62	47.2

Table 9 Grade-tonnage reporting using V_2O_5 cut-off grade

Cut-off % V_2O_5	Tonnes Mt	TiO_2 %	V_2O_5 %	Fe_2O_3 %
Indicated Mineral Resource				
0.0	199.9	9.23	0.44	31.0
0.1	198.0	9.31	0.44	31.1
0.2	185.4	9.59	0.46	31.8
0.3	141.6	10.87	0.53	34.6
0.4	73.8	15.14	0.69	43.1
0.5	49.0	16.93	0.82	48.8
0.6	45.0	16.61	0.85	49.3
0.7	39.1	15.84	0.87	49.5
0.8	27.8	14.37	0.92	50.2
0.9	14.3	14.13	0.99	51.4
1.0	4.8	14.02	1.08	52.6
Inferred Mineral Resource				
0.0	105.8	7.71	0.37	28.6
0.1	102.1	7.93	0.38	29.1
0.2	91.6	8.26	0.40	30.0
0.3	59.1	9.77	0.48	33.6
0.4	25.4	14.69	0.67	43.6
0.5	15.9	16.81	0.81	50.2
0.6	14.0	16.33	0.85	51.0
0.7	11.9	15.30	0.88	50.9
0.8	9.0	13.99	0.93	51.5
0.9	4.8	13.92	0.99	52.9
1.0	1.6	13.68	1.08	54.7
Indicated + Inferred Mineral Resource				
0.0	305.8	8.71	0.42	30.1
0.1	300.1	8.84	0.42	30.4
0.2	277.0	9.15	0.44	31.2
0.3	200.7	10.55	0.51	34.3
0.4	99.2	15.02	0.69	43.2
0.5	64.9	16.90	0.82	49.1
0.6	59.0	16.54	0.85	49.7
0.7	51.0	15.71	0.87	49.9
0.8	36.8	14.28	0.92	50.5
0.9	19.1	14.08	0.99	51.8
1.0	6.4	13.93	1.08	53.1

Appendix B

JORC Code Table 1, Section 1, Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	The Barrambie Mineral Resource estimation is based on the logging and sampling of 796 reverse circulation (RC) and 61 diamond (DD) drill holes (PQ and HQ3 size). Metallurgical drilling comprises 20 of the PQ core holes. Limited information is available on the sampling methods used for the historic data (pre-2007). Snowden reviewed documents provided by Bryan Smith (Geosciences Pty Ltd) detailing drilling and sampling methods used for the most recent drilling (2007 to present) which are in line with industry standard. Drill holes have been sampled on 3 m intervals in areas of background mineralisation and 1 m intervals within mineralised zones. For RC holes the drill cuttings were collected in a cyclone, discharged at 1 m intervals into a bucket and then passed through a three-tiered Jones riffle splitter to produce a split sample of about 3.5 kg. Diamond core was sampled on 1 m intervals with core being sawn in half and sampled as quarter core samples. Samples have generally been assayed for 13 attributes using x-ray fluorescence (XRF) analysis except for four historical DD holes which were assayed using AAS. Magnetic susceptibility readings have been taken for most of the RC holes on 1 m intervals and 0.5 m intervals for DD holes.
Drilling techniques	The Barrambie deposit has a 50-year drilling history. Drilling techniques include rotary air blast (RAB), open hole percussion (OHP), RC and DD. Only RC and DD holes have been used for the resource estimation. Core orientation marks were attempted using a spear and crayon at the end of each core run; however, these were only successful on partly oxidised or fresh material.
Drill sample recovery	A qualitative logging code was used to record recovery for the recent RC and DD drilling. Recovery of samples is considered good with only minor losses within fault zones which are dominated by clay.
Logging	Geological logging of core and rock chips was carried out recording oxidation, colour, texture, mineralisation, water and recovery. Magnetic susceptibility readings were taken every 1 m for RC holes and 0.5 m for DD holes. Snowden considers the logging was carried out in sufficient detail to meet the requirements of resource estimation and mining studies.
Subsampling techniques and sample preparation	Core was wrapped in film and transferred to core trays where the downhole depth was marked on core blocks. Core was cut in half using a core saw. RC samples were collected in a cyclone at the rig at 3 m intervals in areas of background mineralisation and 1 m intervals within mineralised zones. All samples within the mineralised zones were mostly dry. Initially core sample intervals were adjusted so samples did not cross geological boundaries. This was modified to routine 1 m samples, due to the difficulty in identifying the contacts during the second drilling campaign in 2007 (hole BDDH012). Limited information is available on the quality control (QC) methods applied to the historic drill holes. QC procedures to ensure sampling is representative of the in-situ material for the most recent drilling include the use of field duplicates and twinned holes. Comparison of the original and duplicate assays show an acceptable level of precision indicating field sampling procedures are reasonable. A total of 13 DD holes were twinned with selected RC holes. The results indicate minimal downhole smearing in RC drill holes. The samples sizes are considered appropriate to correctly represent the mineralisation.
Quality of assay data and laboratory tests	Samples have been assayed for TiO_2, V_2O_5, Fe, SiO_2, Al_2O_3, CaO, Cr_2O_3, K_2O, MGO, MNO, Na_2O, P, S and LOI using XRF analysis except for 4 historical DD holes which were assayed using AAS. Limited information is available on the QC methods applied to the historic drill holes. Field QC procedures for the most recent drilling include the use of assay standards, field duplicates and umpire laboratory analysis. Results of the QC analysis indicated that acceptable levels of accuracy and precision have been achieved. No independent QAQC was conducted for the 20 metallurgical DD holes drilled in 2017. Intertek Genalysis conducted their own internal QAQC, with no issues being reported.
Verification of sampling and assaying	A total of 13 DD holes were twinned with selected RC holes. The results indicate minimal downhole smearing in RC drill holes. Primary data from the historic drilling have been compiled into a single Microsoft Excel spreadsheet. The

Criteria	Commentary
	most recent drilling has been compiled into a separate Microsoft Excel spreadsheet. Intersections in metallurgical diamond drill holes drilled in 2017 are commensurate with surrounding drill holes.
Location of data points	The drilling coordinates are in a local metric grid established by surveyors Hille Tompson and Delfos located in Geraldton, which has a grid north-south baseline at 5500 mE. The historic drill holes were surveyed on the local metric grid. Where the historic hole collars could not be identified the collar locations were converted from the old imperial grid locations. Drill collar and azimuth of the metallurgical holes were pegged in the field using GDA94 system by independent surveyors. The topographic surface was provided by Southern Geoscience Consultants (SGC) compiled as part of an aeromagnetic survey flown on 25 m spaced lines in 2005. The Digital Elevation Model (DEM) was supplied in GDA, MGA Zone 50 coordinates and transformed to the local metric grid using four drill holes as common points.
Data spacing and distribution	Drill spacing is predominantly 100 m x 25 m. There is one 100 m area drilled at centres of 25 m x 25 m, and one 25 m area drilled at centres of 12.5 m x 12.5 m. Drill spacing is sufficient to establish the degree of geological and grade continuity necessary to support the resource classification. All samples were composited using a nominal 1 m interval prior to compiling the estimate. Where necessary, the composite interval has been adjusted to ensure that there are no residual sample lengths.
Orientation of data in relation to geological structure	Drill holes are drilled towards local grid east or west at varying angles to intersect the mineralised zones perpendicularly. The location and orientation of the Barrambie drill holes is appropriate given the strike and morphology of the mineralisation. Metallurgical drill holes are drilled within the plane of the mineralisation within the Eastern zone at 50 m intervals along strike.
Sample security	Samples are stored onsite and transported to the laboratory on a regular basis. The laboratory was instructed by Neometals to dispose of the residual samples, the pulps have been retained. Bulk samples required for future metallurgical testwork have been retained and are currently stored at Koorda.
Audits or reviews	To date there have been no audits or reviews of sampling techniques and data.

JORC Code Table 1, Section 2, Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	The Barrambie mineralisation is within granted mining lease M57/173 in the Eastern Murchison Goldfields. In April 2003, Reed Resources Ltd (Reed) through its subsidiary AVCH acquired 100% ownership of M57/173. The tenure was secure at the time of resource estimation and reporting. No known impediments exist to operate in the area.
Exploration done by other parties	There is no exploration done by other parties to acknowledge or appraise at this time.
Geology	The ferrovanadium titanium (Ti-V-Fe) deposit occurs within the Archaean Barrambie Greenstone Belt, which is a narrow, north-northwest to south-southeast trending greenstone belt in the northern Yilgarn Craton. The linear greenstone belt is about 60 km long and attains a maximum width of about 4 km. It is flanked by banded gneiss and granitoids. The mineralisation is hosted within a large layered, mafic intrusive complex (the Barrambie Igneous Complex), which has intruded into and is conformable with the general trend of the enclosing Greenstone Belt. From aeromagnetic data and regional geological mapping, it appears that this layered sill complex extends over a distance of at least 25 km into tenements to the north and south of M57/173 that have been acquired by Reed. The layered sill varies in width from 500 m to 1,700 m. The sill is comprised of anorthositic magnetite-bearing gabbros that intrude a sequence of metasediments, banded iron formation, metabasalts and metamorphosed felsic volcanics of the Barrambie Greenstone Belt. The metasediment unit forms the hanging-wall to the layered sill complex. Exposure is poor due to deep weathering, masking by laterite, widespread cover of transported regolith (wind-blown and water-borne sandy and silty clay), laterite scree and colluvium. Where remnant laterite profiles occur on low hills, there is ferricrete capping over a strongly weathered material that extends down to depths of 70 m. Ti-V-Fe mineralisation occurs as bands of cumulate aggregations of vanadiferous magnetite (martite)-ilmenite (leucoxene) in massive and disseminated layers and lenses.

Criteria	Commentary
	Within the tenement the layered deposit has been divided into five sections established at major fault offsets. Cross faults have displacements that range from a few metres to 400 m. The water table occurs at about 35 m below the surface (when measured where the laterite profile has been stripped).
Drill hole information	No exploration results being reported. Exploration results can be found in previous public reports.
Data aggregation methods	There are no exploration results to report. Past news releases of exploration results include summaries of all length weighted intercepts of vanadiferous mineralisation for all assays with greater than 0.5% V_2O_5, continuous throughout each intercept.
Relationship between mineralisation widths and intercept lengths	There are no new exploration results to report. For past news releases of exploration results, all holes drilled at an angle of 60° from the horizontal toward grid east or west, depending on the apparent dip of mineralised bands. All depths and intercept lengths are down-hole distances and not intended to represent the true width of high-grade bands. Metallurgical holes were drilled within the plane of the mineralisation (i.e. down-dip) and therefore do not reflect the true width of the orebody.
Diagrams	All appropriate maps (with scales) and tabulations of survey parameters are reported.
Balanced reporting	Due to size of the drill hole database, it is not practicable to report all drilling results. Cut-off grade for reporting is a natural well-defined boundary for the higher grade massive magnetite bands that will be the principal target for selective mining of the deposit.
Other substantive exploration data	Only drill hole data used for resource calculation purposes.
Further work	No further exploration work is planned for the immediate future in the Barrambie area.

JORC Code Table 1, Section 3, Reporting of Mineral Resources

Criteria	Commentary
Database integrity	Handwritten logs are entered into Microsoft Excel at the end of each day and transferred to a Microsoft Access database on a regular basis. Snowden completed a basic validation check of the database for potential errors as a preliminary step to compiling the resource estimate. No issues were identified. The geological and sample database is maintained by Neometals and was validated by Snowden during the Mineral Resource update in January 2009, this included a review of the QC data. Drilling and sampling procedures were documented by Bryan Smith (Geosciences Pty Ltd) who made regular site visits during the drilling campaigns. Snowden considers sufficient information was provided to develop the geological model and Mineral Resource estimate to the level of an Indicated and Inferred Mineral Resource.
Site visits	The Competent Person has not visited site. Snowden does believe that a site visit is required as no drilling is currently being conducted. A site visit will be contemplated during future drilling campaigns.
Geological interpretation	The interpretations for structural and lithological surfaces were compiled by Snowden in 2009 using the drill hole database supplied by Neometals. Minor adjustments were made by Snowden to the interpretation based on the additional diamond drill holes in 2017. A topography wireframe surface was generated from RC and DD drill hole collars, combined with the DEM points supplied by SGC. Discrepancies in elevation between drill hole collars and the DEM in the order of 2 m to 3 m were found north of 12600 mN. The interpretations for the mineralisation envelope and domains were primarily based on V_2O_5 grade cut-offs determined from statistical analysis of the drill hole data. A mineralisation indicator of 0.6% V_2O_5 was used to define the high-grade domain within both the Central and Eastern zones. The Eastern zone low grade mineralisation was based on a threshold of 0.3% V_2O_5 and 0.1% V_2O_5 for the Central and Eastern zone low grade mineralised envelopes surrounding the lodes. Six mineralised domains have been interpreted, four within the Eastern zone and two within the Central zone. Snowden notes that there is a strong correlation between V_2O_5 and TiO_2 and as such, the use of V_2O_5 for definition of the mineralised domains is also considered to be appropriate for TiO_2. Neometals completed a program of closely spacing drilling within a test area which has provided better understanding of the short-range continuity of mineralisation.
Dimensions	The deposit covers an area of approximately 11 km north-south by approximately 250 m east-west and extends to a depth approximately 80 m below surface. The deposit remains open at depth and along strike.
Estimation and modelling techniques	Drill hole data was coded using the wireframe interpretations representing oxidation surfaces, fault blocks and mineralised domains. Samples were composited to 1 m downhole, with the composite lengths adjusted to include all intervals and avoid loss of residual samples. Top-cuts were applied where required to limit the influence of outlier grades. Traditional variograms were modelled for the combined Eastern and Central zones and the parameters applied to the six original mineralised domains, with the nuggets and sill values adjusted for those domains. There was insufficient data within the Far Eastern zone high grade domain; therefore, the Eastern zone high grade parameters were applied. The Dyke variogram was modelled as an omni-directional variogram as the low number of samples in this domain could not support directional variography. Studio 3 (Datamine) software was used to estimate grades for TiO2, V2O5, Fe2O3, Al2O3, SiO2, CaO and magnetic susceptibility using ordinary block kriging (OK) into 10 mE x 40 mN x 5 mRL parent cell size as determined by a kriging neighbourhood analysis (KNA) carried out in March 2008. Sub-celling to 0.25 m x 10 m x 1.25 m has been allowed. A block discretisation of 2 x 5 x 1 was used in the easting, northing and elevation directions respectively.

Criteria	Commentary
	Boundary conditions used in the estimate are listed below: **Domain** | **Attribute** | **Boundary conditions** Domains 1-2 | TiO_2 | Soft boundary across grouped domains; Soft boundaries over oxidation horizons Domains 3-6 | TiO_2 | Hard boundaries across grouped domains; Soft boundaries over oxidation horizons Domains 1-6 | V_2O_5, Fe_2O_3, Al_2O_3, SiO_2 | Hard boundaries across grouped domains; Soft boundaries over oxidation horizons Domains 1-6 | CaO, magnetic susceptibility | Hard boundaries across grouped domains; Hard boundaries over oxidation horizons Domain 7 | V_2O_5, TiO_2, Fe_2O_3, Al_2O_3, SiO_2, CaO, magnetic susceptibility | Hard boundaries across grouped domains; Soft boundaries over oxidation horizons The orientations of the search ellipses were defined to suit the approximate local dip and strike of the lode wireframes within each fault block. The initial search pass used ranges derived from the variograms. Blocks were estimated using a minimum of six and a maximum of 30 samples. If the initial search failed to find the minimum number of samples required, then a second search was conducted using 1.5 times the initial search radii. Blocks within the mineralised domains not estimated due to an insufficient number of samples were assigned the mean assay of the Dyke, Central and Eastern zones as appropriate. The estimates were validated as follows: • A visual comparison of the block grade estimates to the input drill hole composite data on a section by section basis shows a reasonable correlation, although there is some evidence of smoothing of low and high grades within the low grade mineralised envelopes. • A comparison of the estimated block grades to the average composite (naïve) grades for TiO2, V2O5, Fe2O3, Al2O3, SiO2 within the mineralised domains show good results, with both sets of results being within 8% for all grades except for Al2O3 which are within 13% • Trend plots show a reasonable comparison of the block grades with the samples grades in the easting and northing directions. For the elevation direction the model and sample means sometimes diverge. This is due to the sub-vertical geometry of the lodes; few drill hole intercepts in the vertical direction and the fact that grades have been estimated using a search ellipse that has a significant range in the vertical direction resulting in apparent smoothing of the model. The Barrambie Mineral Resource was previously reported in terms of TiO_2 by Snowden in 2013. A comparison between the 2013 Mineral Resource estimate and the March 2018 Mineral Resource estimate shows that at a 15% TiO_2 cut-off there is no material change.
Moisture	Not applicable to this estimate – only dry mass considered.
Cut-off parameters	The TiO_2 and V_2O_5 mineralisation is associated with ilmenite-magnetite mineralogy (generally spatially integrated), either within magnetite-rich layers or as disseminated mineralisation within gabbro and/or anorthosite. As such, Snowden believes that reporting a Mineral Resource based on both TiO_2 and V_2O_5 is appropriate for Barrambie. Based on previous mining studies by Snowden (2015 PFS), which assessed the TiO_2 potential of the project, a cut-off grade of 10% TiO_2 is in Snowden's opinion appropriate for assessing the TiO_2 Mineral Resource. A cut-off grade of 0.2% V_2O_5 is believed to be appropriate for assessing the V_2O_5 Mineral Resource and is commensurate with similar deposits (e.g. Windimurra and Mt Peak). Based on this, the following cut-off grade criteria have been established by Snowden for Barrambie: • ≥ 10% TiO_2

Criteria	Commentary
	or • ≥ 0.2% V_2O_5 A block in the block model will therefore be selected for inclusion in the Mineral Resource if the TiO_2 is greater than or equal to 10% <u>or</u> the V_2O_5 is greater than or equal to 0.2%. Only one of the criteria must be met for a block to be selected for inclusion.
Mining factors or assumptions	A Scoping Study was completed by Snowden in November 2013 on the basis that the Barrambie deposit will be mined using conventional drill and blast with truck and shovel open pit mining methods. Reasonably small mining equipment would be used to mine the high grade with limited dilution. Ore mined will be placed on a ROM stockpile and transferred to highway haul trucks and transported to a proposed 50 kt/a processing plant to be constructed near Geraldton.
Metallurgical factors or assumptions	Metallurgical samples from the oxide and transition zones were provided for laboratory testwork. The testwork demonstrated that both V2O5 and TiO2 can be recovered using a two-stage leaching process. Whilst mineralisation within the primary zone has not been tested this zone constitutes a minor proportion of the defined resource. Testwork carried out on similar primary material from Canadian deposits indicates that the Barrambie primary material would be amenable to this processing technique.
Environmental factors or assumptions	Previous submissions and approvals from the Environmental Protection Agency (EPA) are no longer relevant given changes in the planned processing flowsheet for Barrambie. Work has commenced on the revised mine plan and production forecast and these will be resubmitted for consideration by the applicable Environmental Agency/s. It is expected that any requirements from the government agencies could be less onerous than previous requirements given the significantly reduced mining rate and the fact that chemical processing will no longer take place at the mine site. A new environmental study focussing on a site near Geraldton or Kwinana as the new processing site will need to be undertaken.
Bulk density	Density values were estimated from the mineralised domains in the block model with regression equations using estimated Fe_2O_3, SiO_2 and Al_2O_3 block grades. Limited data was available from the transitional and very little data was available from the fresh. Waste blocks were assigned a default density based on fresh unmineralised gabbro.
Classification	The Barrambie Mineral Resource is classified as and Indicated and Inferred Mineral Resource for the five major elements V_2O_5, TiO_2, Fe_2O_3, Al_2O_3, SiO_2, based on a number of criteria, including the geological confidence, the integrity of the data, the spatial continuity of the mineralisation as demonstrated by variography and the quality of the estimation. The estimates of CaO and magnetic susceptibility have not been classified as they are considered to have low confidence due to poor validation. Mineralised zones where the drill spacing is 100 m x 25 m, 120 m x 25 m or 150 m x 25 m and are within the OK variance envelope (based on a threshold of 0.5) and above the base of drilling have been classified as Indicated. Mineralised zones outside the OK variance envelope and below the base of drilling have been classified as Inferred. Mineralised zones have ben extrapolated approximately 20 m beyond the base of drilling. The Mineral Resource estimate appropriately reflects the views of the Competent Person with respect to the deposit.
Audits or reviews	Snowden has completed an internal peer review or the estimate which has concluded that the procedures used to estimate and classify the Mineral Resource are appropriate. There have been no external audits or reviews carried out that Snowden is aware of.
Discussion of relative accuracy/ confidence	The relative accuracy and confidence in the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as set out in the JORC Code.