ASX Announcement

Gabanintha Delivers High Grade Vanadium Concentrates

Grade and yield of magnetic concentrates sets project apart

Highlights:

- Ongoing metallurgical test work is being undertaken on 24 large diameter diamond core samples focusing on geometallurgical characterisation, flowsheet development and further optimization of concentrate yield and quality.
- Bench-scale magnetic separation test work on fresh and partially weathered samples of massive titaniferous magnetite material has returned excellent results with concentrate grades averaging 1.43% V_2O_5, 1.12% SiO_2 and 2.72% Al_2O_3, at an average vanadium recovery greater than 90%.
- Gabanintha's unique high vanadium grade, coarse grained, massive titaniferous magnetite, allows magnetic upgrading at relatively coarse grind size, supporting a low-energy beneficiation process.
- A prefeasibility study (PFS) of the Gabanintha Vanadium Project is underway and will focus on delivery of high specification products suitable for battery and steel markets.
- Key aspects of the PFS are being completed in parallel with the remaining metallurgical test work. These include environmental studies, native title negotiations, mining lease grant, process flow sheet development and preliminary mine modelling.
- The Company has recently appointed a leading global vanadium processing engineer to join the Project team to rapidly advance the Gabanintha project.

Australian Vanadium Limited (ASX: AVL, "the Company" or "AVL") is pleased to provide an update on ongoing physical beneficiation testwork for the Gabanintha Vanadium Project near Meekatharra in Western Australia.

The aim of the testwork program is to determine comminution parameters for the high-grade vanadium material at Gabanintha, as well as determining the potential recovery and quality of the vanadium concentrate (see Figure 1). Together these pieces of

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Projects:

Gabanintha – Vanadium
Blesberg,South Africa – Lithium/Tantalum/Feldspar
Nowthanna Hill – Uranium/Vanadium
Coates – Vanadium

information will allow AVL to define the process flowsheet for the Pre-Feasibility Study (PFS).

The comminution and beneficiation test program is being conducted on multiple diamond core samples previously collected by the Company. The major focus is on the recovery of a vanadium concentrate from the High-Grade Zone of massive titaniferous magnetite. This zone grades 1.06% V_2O_5 in the Measured and Indicated Resource Category, averages over 20m in (true) thickness, extends over 11km of strike within the 100% Company owned licences and is open at depth.

Managing Director Vincent Algar commented, 'It is significant that Gabanintha is rapidly taking its place as a new deposit highly comparable to the few existing global vanadium mining operations. Key factors such as the high concentrate mass yield, high vanadium recovery and excellent magnetic concentrate quality with very low deliterous elements silica and alumina, allow that comparison. In addition, the coarse grind size and associated low comminution energy demand, all add to the high potential for a lower capital, and low operating cost beneficiation plant to feed downstream vanadium processing.

Our aim is to continue to develop our geometallurgical understanding of the Gabanintha mineralisation and optimise a beneficiation process to support a simple, low-cost flowsheet to take to our PFS. AVL now has a very strong technical team in place, with experience in vanadium production ,VRFBs and in the production of electrolyte" . (See Figure 2 image of AVL vanadium electrolyte pilot plant)

The optimisation of concentrate quality has significant economic implications for the more cost intensive downstream recovery processes for vanadium. Water, reagents, heat and electrical energy consumption are influenced by the vanadium grade and impurities within the concentrate.

Magnetic concentrate vanadium grades achieved in the bench-scale test work are comparable to operating conventional vanadium roast-leach processes that target recovery of high purity vanadium pentoxide (+99.8% V_2O_5) powder and flake, for both vanadium redox flow battery (VRFB) and steel markets. (see Figure 1).

Figure 1: An example of magnetic concentrate (titaniferous magnetite containing vanadium) from a fresh rock sample

Figure 2: Electrolyte Pilot Plant. 99.6% V_2O_5 (orange), feeding AVL electrolyte balancing pilot plant

Magnetic Separation – Optimisation Work Underway

Since reporting the initial results on January 18th, 2018 (*ASX Announcement - Vanadium Metallurgical Testwork Update*), bench-scale work has been ongoing and focused on building the geometallurgical understanding and optimisation of the magnetic concentrate yield and quality. Collectively, the fresh and transitional (partially weathered) material types tested have delivered results that, on a weighted average, meet AVL's current targeted concentrate specification (>1.4% V_2O_5, >50% mass yield and <2% SiO_2). This high benchmark is set to ensure best performance from downstream processing to produce V_2O_5 and related high purity vanadium products.

Gabanintha's massive titaniferous magnetite zone exhibits extremely well developed coarse crystalline igneous textures. Recent magnetic separation testwork has been performed on oxide, transitional and fresh rock samples at a nominal grind size of P_{80} 106 µm. All beneficiation testwork is reported to this grind size unless stated otherwise.

Highlights of the recent work include:

- Optimisation tests on nine transitional materials using Wet Low Intensity Magnetic Separation (WLIMS) at 1500 Gauss and Rare Earth Magnetic Separation (REMS) at 2600 Gauss produced a weighted average concentrate product capturing 87.8% of vanadium in a 1.45% V_2O_5 concentrate. The average calculated head grade of the nine samples was 1.13% V_2O_5. The combined concentrate had an average mass yield of 67.0% with 52.3% Fe grade, 15.4% TiO_2 and 1.68% SiO_2 grade. A summary of the magnetic response for each transitional sample is provided in Figure 3.
- Concentrate grades from transitional samples of up to 1.79% V_2O_5 (Sample 17) and 1.67% V_2O_5 (Sample 16) were achieved, indicating the potential to enhance the concentrate grade further for some material types.
- Previous bench-scale test work on ten fresh high-grade massive magnetite samples using WLIMS (1500 Gauss) indicated exceptional concentrate recovery, on average capturing 92.03% of vanadium in a 1.42% V_2O_5 concentrate. The average concentrate calculated from 10 fresh rock metallurgical samples had an overall mass recovery of 72.9% with 57.3% Fe and a very low silica content of 0.55% SiO_2.
- Metallurgical samples classified as oxide returned lower concentrate yield using magnetic separation up to 2600 Gauss. Further work is in progress to characterise the oxide material type and evaluate vanadium upgrading potential using gravity, hydrosizing and higher magnetic intensity processes.
- Base metals (nickel and copper) and cobalt are present at low grades within the Gabanintha fresh rock mineralistion and preferentially report to the non-magnetic stream. Microscopic observations have identified coarse sulphide minerals within silicate phases of the massive titaniferous iron mineralisation.

Work is continuing to understand the mineralogy driving the metallurgical responses and optimise concentrate grade and lower silica and alumina in oxide, transition and fresh feed material. A number of opportunities have been identified to further enhance the concentrate quality and these initiatives are being investigated in the laboratory.

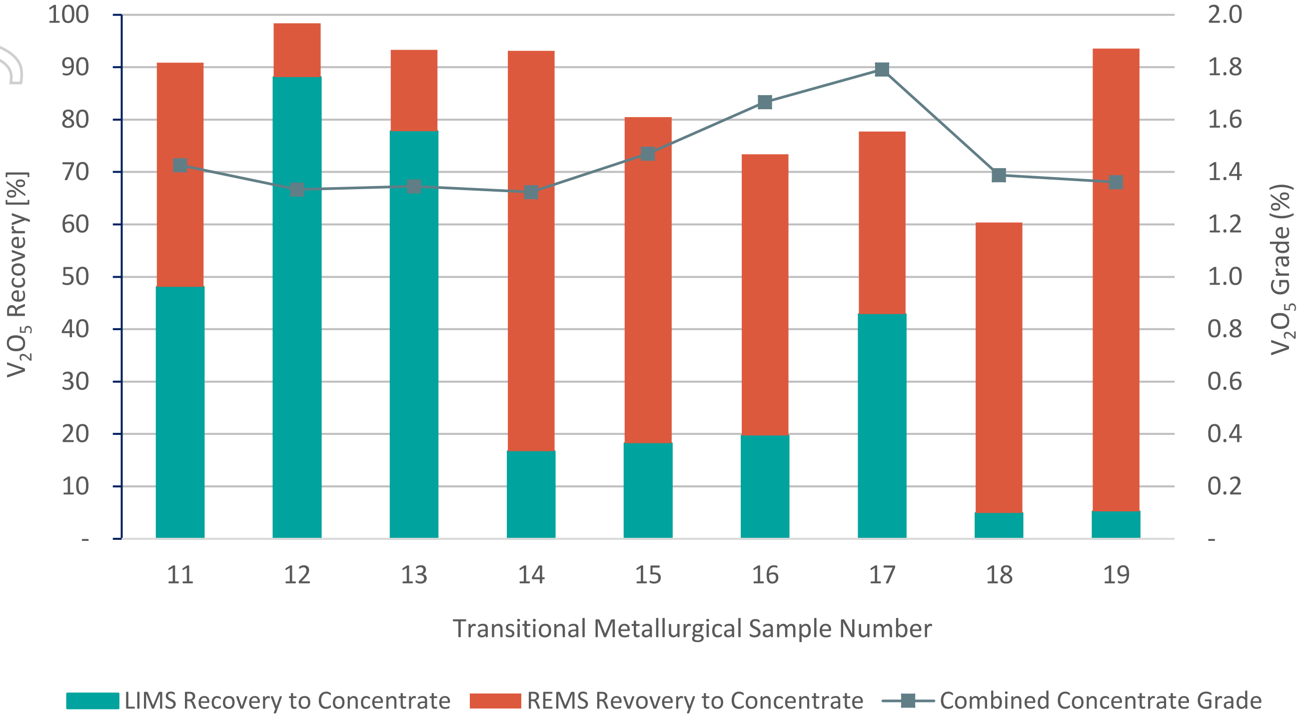

Figure 3: Magnetic V_2O_5 recovery and concentrate grade for transitional samples

The High-Grade Zone of massive magnetite, which averages over 20m in thickness across the deposit, is located at the base of the mineralised intrusion. This zone is the focus of current economic studies due to its potential for high-yield, high-grade vanadium-iron concentrate, which is suitable for traditional roast-leach processing vanadium recovery. This method of vanadium recovery is the most common and well understood process for high-grade vanadium-titanium-iron ores globally and is used by all current global producers of vanadium from magnetite sources, including Largo Resources' Maracas Menchen, Bushveld Minerals' Vametco and Glencore's Rhovan operations.

The metallurgical testwork has been based on 24 massive-titaniferous magnetite samples derived from contiguous intervals of Gabanintha diamond drill core. The metallurgical samples were selected at discrete intervals within 10 diamond drill holes with a 173m depth range (ranging from 14m from surface to 187m below surface) across 915m of Northing, thereby representing a significant portion of the current Measured and Indicated Resource area. The sampling specifically takes into account the distinction of the oxidation state within the massive magnetite titaniferous magnetite.

Next Steps: Further improvements to concentrate grade and quality

As part of the optimisation work, a follow-on set of testwork is currently underway in consultation with Wood Mining and Metals and conducted at Bureau Veritas Laboratories. The testwork includes:

- Density separation and size fraction analysis (previously shown to reduce silica content in oxide material)
- Reverse flotation (focusing on rejection of silica and alumina in oxide material types)
- Wet high intensity magnetic separation (WHIMS) tests with cleaning to preclude entrainment of silica and alumina seen in historic oxide test results
- Quantitative mineralogy to confirm mineral associations in concentrates
- Recovery of sulphide minerals potentially containing nickel, copper and cobalt, present in the non-magnetic fraction of fresh composites

Upon review of results from this additional work, the Company intends to determine a base case process flowsheet to support the PFS.

Other ongoing work includes environmental studies, native title negotiations, mining lease grant, and preliminary mine modelling.

Testwork plans for the production of high Quality V_2O_5 products

The Company is currently planning a test program to undertake concentrate roast-leach pilot testing and subsequent high-purity vanadium pentoxide recovery. The planning and proper execution of detailed testing will follow the finalisation of the vanadium concentrate beneficiation circuit (part of the PFS study) and the collection of new sample material from planned additional drilling at Gabanintha. This detailed testing will form part of the DFS level studies commencing later in 2018.

In the short term a simpler test program is being costed to conduct benchscale batch roast-leach tests on available concentrate material. The objectives of these tests will be to demonstrate the vanadium leach extraction at a range of reagent addition rates and roast conditions.

For further information, please contact:

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References

About Gabanintha

Australian Vanadium Limited holds 100% of the Gabanintha Project near Meekatharra in Western Australia. Gabanintha hosts a declared Mineral Resource at Gabanintha comprising 179.6Mt at 0.75% Vanadium Pentoxide (V_2O_5), made up of a Measured Mineral Resource of 10.2Mt at 1.06% V_2O_5, an Indicated Mineral Resource of 25.4Mt at 0.62% V_2O_5 and an Inferred Mineral Resource of 144Mt at 0.75% V_2O_5.

The Mineral Resource includes a distinct and globally significant, massive magnetite high-grade zone of 92.8 Mt at 0.96% V_2O_5 consisting of a Measured Mineral Resource of 10.2Mt at 1.06% V_2O_5, an Indicated Mineral Resource of 4.8Mt at 1.04% V_2O_5 and an Inferred Mineral Resource of 77.8Mt at 0.94% V_2O_5.

Table 1 - Mineral Resource estimate by domain and resource classification using a nominal 0.4% V_2O_5 wireframed cut-off for low grade and nominal 0.7% V_2O_5 wireframed cut-off for high grade (total numbers may not add up due to rounding)

Zone	Classification	Mt	V_2O_5 %	Fe %	TiO_2 %	SiO_2 %	Al_2O_3 %	LOI %
HG	Measured	10.2	1.06	41.6	12.0	11.6	8.6	4.2
	Indicated	4.8	1.04	41.9	11.5	12.0	8.0	3.6
	Inferred	77.8	0.94	41.2	10.7	12.7	7.9	3.3
	Sub-total	**92.8**	**0.96**	**41.3**	**10.9**	**12.6**	**8.0**	**3.4**
LG 2-5	Measured	-	-	-	-	-	-	-
	Indicated	20.5	0.52	24.3	7.1	27.9	17.6	8.4
	Inferred	61.8	0.50	26.2	7.0	26.9	16.1	7.2
	Sub-total	**82.4**	**0.51**	**25.7**	**7.0**	**27.2**	**16.5**	**7.5**
Trans 6-8	Measured	-	-	-	-	-	-	-
	Indicated	-	-	-	-	-	-	-
	Inferred	4.5	0.66	28.4	7.2	24.5	16.6	8.4
	Sub-total	**4.5**	**0.66**	**28.4**	**7.2**	**24.5**	**16.6**	**8.4**
Total	Measured	10.2	1.06	41.6	12.0	11.6	8.6	4.2
	Indicated	25.4	0.62	27.7	7.9	24.9	15.8	7.5
	Inferred	144.1	0.75	34.4	9.0	19.2	11.7	5.2
	Sub-total	**179.6**	**0.75**	**33.8**	**9.0**	**19.6**	**12.1**	**5.4**

Competent Person Statement — Mineral Resource Estimation

The information in this report that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (Consultant with Trepanier Pty Ltd) and Mr Brian Davis (Consultant with Geologica Pty Ltd). Mr Davis is a shareholder of Australian Vanadium Limited. Mr Barnes is a member of the Australasian Institute of Mining and Metallurgy and Mr Davis is a member of the Australian Institute of Geoscientists and both have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Specifically, Mr Barnes is the Competent Person for the estimation and Mr Davis is the Competent Person for the database, geological model and site visits. Mr Barnes and Mr Davis consent to the inclusion in this report of the matters based on their information in the form and context in which they appear.

Competent Person Statement – Metallurgical Results

The information in this statement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist Brian McNab (CP. B.Sc Extractive Metallurgy), Mr McNab is a Member of The Australasian Institute of Mining and Metallurgy. Brian McNab is employed by Wood Mining and Metals. Mr McNab has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Mr McNab consents to the inclusion in the report of the matters based on the information made available to him, in the form and context in which it appears.

The information is extracted from the report entitled "Significant vanadium resource upgrade at Gabanintha" released to ASX on 5 September 2017 and is available on the company website at www.australianvanadium.com.au.

The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resource or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the competent person's findings are presented has not been materially modified from the original market announcement.

Appendix 1: Australian Vanadium Limited Gabanintha Project Metallurgical Results JORC 2012 Table 1

The following is provided to ensure compliance with the JORC (2012) requirements for the reporting of exploration results:

Section 1: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialized 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.*	The Gabanintha deposit was sampled using diamond core and reverse circulation (RC) percussion drilling from surface. A total of 233 RC holes and 17 diamond holes (3 of which are diamond tails) were drilled into the deposit. 68 of the 250 holes were either too far north or east of the main mineralisation trend, or excised due to being on another tenancy. One section in the southern part of the deposit (holes GRC0156, GRC0074, GRC0037 and GRC0038) was blocked out and excluded from the resource due to what appeared to be an intrusion which affected the mineralised zones in this area. Of the remaining 182 drillholes, one had geological logging but no assays. The total metres of drilling available for use in the interpretation and grade estimation were 16,287m at the date of the resource estimate. The initial 17 RC drillholes were drilled by Intermin Resources NL (IRC) in 1998. These holes were not used in the 2015 and 2017 estimates due to very long unequal sample lengths and a different grade profile from subsequent drilling. 31 RC drillholes were drilled by Greater Pacific NL in 2000 and the remaining holes for the project were drilled by AVL Australian Vanadium Ltd (Previously YRR) between 2007 and 2015. This drilling includes 17 diamond holes (3 of which are diamond tails) and 57 RC holes, for a total of 17,144m drilled. All of the drilling sampled both high and low-grade material and were sampled for assaying of a typical Iron Ore suite, including Vanadium and Titanium.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For the most recent drilling, in 2015, the drillhole collars were originally set out using hand held GPS and on completion the collars were surveyed by survey contractors using high precision digital GPS. The earlier drilling programmes were retrospectively surveyed using DGPS using the remaining collar PVC pipe positions. Only a few of the very earliest drilled holes (1998) were not able to have their collars accurately surveyed, as they had been rehabilitated and their position was not completely clear. Downhole surveys were completed for all of the diamond holes, using gyro surveying equipment, as well as the RC holes drilled in 2015 (from GRC0159). All of the other RC holes were given a nominal -60º dip measurement. These older RC holes were almost all 120m or less in depth. Diamond core was quarter-core sampled at regular intervals (usually one metre) and constrained to geological boundaries where appropriate. Most of the RC drilling was sampled at one metre intervals, apart from the very earliest programme in 1998.

Criteria	JORC Code Explanation	Commentary
	Aspects of the determination of mineralisation that are Material to the Public Report.	RC drilling samples were collected at one metre intervals and passed through a cone splitter to obtain a nominal 2-5kg sample at an approximate 10% split ratio. These split samples were collected in pre-numbered calico sample bags. The sample was dried, crushed and pulverised to produce a sub sample (~200g) for laboratory analysis using XRF and total LOI by thermo-gravimetric analysis. Diamond core was drilled predominantly at HQ size for the earlier drilling (2009), with the 2015 drilling at PQ3 size. Field duplicates, standards and blanks have been inserted into the sampling stream at a rate of nominally 1:25 for blanks, 1:11 for standards (including internal laboratory), 1:10 for field duplicates, 1:9 for lab checks and 1:74 for umpire assays.
Drilling techniques	*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.).*	Diamond drillholes account for 12% of the drill metres and comprises HQ and PQ3 sized core. RC drilling (generally 135 mm to 140 mm face-sampling hammer) accounts for the remaining 88% of the drilled metres. Three of the diamond holes have RC pre-collars (GDH911, GDH913 & GDH916), otherwise all holes are drilled from surface. No core orientation data has been recorded in the database.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Diamond core recovery is measured when the core is recovered from the drill string. The length of core in the tray is compared with the expected drilled length and is recorded in the database. For the recent (2015) drilling, RC chip sample recovery was gauged by how much of the sample was returned from the cone splitter. This was recorded as good, fair, poor or no sample. The older drilling programmes used a different splitter, but still compared and recorded how much sample was returned for the drilled intervals. All of the RC sample bags (non-split portion) from the 2015 programme were weighed as an additional check on recovery. An experienced AVL geologist was present during drilling and any issues noticed were immediately rectified. No significant sample recovery issues were encountered in the RC drilling.
	Measures taken to maximize sample recovery and ensure representative nature of the samples.	Core depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. Recovered core was measured and compared against driller's blocks. RC chip samples were actively monitored by the geologist whilst drilling. All drillholes were collared with PVC pipe for the first metre or two, to ensure the hole stayed open and clean from debris.

Criteria	JORC Code Explanation	Commentary
	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.	No relationship between sample recovery and grade has been demonstrated. Two shallow diamond drillholes were drilled to twin RC have been completed to assess sample bias due to preferential loss/gain of fine/coarse material. Geologica Pty Ltd is satisfied that the RC holes have taken a sufficiently representative sample of the mineralisation and minimal loss of fines has occurred in the RC drilling resulting in minimal sample bias.
Logging	*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.*	All diamond core and RC chips were logged. Diamond core was geologically logged using predefined lithological, mineralogical and physical characteristics (such as colour, weathering, fabric, texture) logging codes and the logged intervals were based on lithological intervals. RQD and recoveries were also recorded. Minimal structural measurements were recorded (bedding to core angle measurements) but have not yet been saved to the database. The logging was completed on site by the responsible geologist. All the drilling was logged onto paper and transferred to a SQL Server drillhole database using DataShed^{TM} database management software. The database is managed by Mitchell River Group (MRG). The data was checked for accuracy when transferred to ensure that correct information was recorded. Any discrepancies were referred back to field personnel for checking and editing. All core trays were photographed wet and dry. RC chips were logged generally on metre intervals, with the abundance/proportions of specific minerals, material types, lithologies, weathering and colour recorded. Physical hardness for RC holes is estimated by chip recovery and properties (friability, angularity) and in diamond holes by scratch testing. The recent drilling also had magnetic susceptibility recorded, with the first nine diamond holes (GDH901-GDH909) having readings taken on the core every 30 cm or so downhole. Holes GDH910 to GDH917 had readings every 50 cm and RC holes GRC0159 to GRC0221 had readings for every one metre green bag. All of the diamond core and RC samples have been logged to a level of detail to support Mineral Resource estimation and classification to Measured Mineral Resource at best.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging was both qualitative and quantitative in nature, with general lithology information recorded as qualitative and most mineralisation records and geotechnical records being quantitative. Core photos were collected for all diamond drilling.
	The total length and percentage of the relevant intersections logged.	All recovered intervals were geologically logged.

Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond core was cut in half and then the right-hand side of the core (facing downhole) was halved again using a powered core saw. Quarter core samples were sent to the laboratories for assaying. Sample intervals were marked on the core by the responsible geologist considering lithological and structural features. No core was selected for duplicate analysis.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling was sampled by use of an automatic cone splitter for the 2015 drilling programme; drilling was generally dry with a few damp samples. Older drilling programmes employed riffle splitters to produce the required sample splits for assaying. One in 40 RC samples was resampled as field duplicates for QAQC assaying.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation techniques employed for the diamond core samples follow standard industry best practice. All samples were crushed by jaw and Boyd crushers and split if required to produce a standardised ~3kg sample for pulverising. The 2015 programme RC chips were split to produce the same sized sample. All samples were pulverised to a nominal 90% passing 75 micron mesh and sub sampled for assaying and LOI determination tests. The remaining pulps are stored at an AVL facility. The sample preparation techniques are of industry standard and are appropriate for the sample types and proposed assaying methods.
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	Field duplicates, standards and blanks have been inserted into the sampling stream at a rate of nominally 1:25 for blanks, 1:11 for standards (including internal laboratory), 1:10 for field duplicates, 1:9 for lab checks and 1:74 for umpire assays. For the recent sampling at BV, 1 in 20 samples were tested to check for pulp grind size.
	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.	To ensure the samples collected are representative of the in-situ material, a 140mm RC hammer was used to collect one metre samples and either HQ or PQ3 sized core was taken from the diamond holes. Given that the mineralisation at Gabanintha is either massive or disseminated magnetite/martite hosted vanadium, which shows good consistency in interpretation between sections and occurs as percentage values in the samples, Geologica Pty Ltd considers the sample sizes to be representative. Core is not split for duplicates, but RC samples are split at the collection stage to get representative (2-3kg) duplicate samples. The entire core sample and all the RC chips are crushed and /or mixed before splitting to smaller sub-samples for assaying.

Criteria	JORC Code Explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	As the variables being tested occur as moderate to high percentage values and generally have very low variances (apart from Cr_2O_3), the chosen sample sizes are deemed appropriate.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	All samples for Gabanintha were assayed for the full iron ore suite by XRF (24 elements) and for total LOI by thermo-gravimetric technique. The method used is designed to measure the total amount of each element in the sample. Although the laboratories changed over time for different drilling programmes, the laboratory procedures all appear to be in line with industry standards and appropriate for iron ore deposits, and the commercial laboratories have been industry recognized and certified Samples are dried at $105^{O}C$ in gas fired ovens for 18-24 hours before RC samples being split 50:50. One portion is retained for future testing, while the other is then crushed and pulverised. Sub-samples are collected to produce a 66g sample that is used to produce a fused bead for XRF based analysing and reporting. Certified and non-certified Reference Material standards, field duplicates and umpire laboratory analysis are used for quality control. The standards inserted by AVL were designed to test the V_2O_5 grades around 1.94%, 0.95% and 0.47%. The internal laboratory standards used have varied grade ranges, but do cover these three grades as well. Most of the laboratory standards used show an apparent underestimation of V_2O_5, with the results plotting below the expected value lines; however, the results generally fall within ± 5-10% ranges of the expected values. The other elements show no obvious material bias. Standards used by AVL generally showed good precision, falling within 3-5% of the mean value in any batch. The standards were not certified but compared with the internal laboratory standards (certified), they appear to show good accuracy as well. Field duplicate results from the recent drilling (2015) all fall within 10% of their original values. The BV XRF machine calibrations are checked once per shift using calibration beads made using exact weights and they performed repeat analyses of sample pulps at a rate of 1:20 (5% of all samples). The lab repeats compare very closely with the original analysis for all elements.

Criteria	JORC Code Explanation	Commentary
	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.	The only geophysical readings taken for the Gabanintha core and RC samples and recorded in the database were magnetic susceptibility. This was undertaken using an RT1 hand magnetic susceptibility meter (CorMaGeo/Fugro) with a sensitivity of 1 X 10–5 (dimensionless units). The first nine diamond holes (GDH901 – GDH909) were sampled at approximately 0.3m intervals, the last eight (GDH910 – GDH917) at0.5m intervals and the RC chip bags for every green bagged sample (one metre). Four completed drillholes were tested by acoustic televiewer (GDH911, 912, 914 and 915) as a prequel to geotechnical logging.
	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.	QAQC results from both the primary and secondary assay laboratories show no material issues with the main variables of interest for the recent assaying programmes.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Diamond drill core photographs have been reviewed for the recorded sample intervals. Geologica Pty Ltd Consultant, Brian Davis, visited the Gabanintha project site and the BV core shed and assay laboratories in September 2015 and on multiple occasions over a 10 year period. Whilst on site, the drillhole collars and remaining RC chip samples were inspected. All of the core was inspected in the BV facilities in Perth and selected sections of drillholes were examined in detail in conjunction with the geological logging and assaying.
	The use of twinned holes.	Two diamond drillholes (GDH915 and GDH917) were drilled to twin the RC drillholes GRC0105 and GRC0162 respectively. The results show excellent reproducibility in both geology and assayed grade for each pair.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All primary geological data has been collected using paper logs and transferred into Excel spreadsheets and ultimately a SQL Server Database. The data were checked on import. Assay results were returned from the laboratories as electronic data which were imported directly into the SQL Server database. Survey and collar location data were received as electronic data and imported directly to the SQL database. All of the primary data have been collated and imported into a Microsoft SQL Server relational database, keyed on borehole identifiers and assay sample numbers. The database is managed using DataShed ™ database management software. The data were verified as it was entered and checked by the database administrator (MRG) and AVL personnel
	Discuss any adjustment to assay data.	No adjustments or calibrations were made to any assay data, apart from resetting below detection limit values to half positive detection values.

Criteria	JORC Code Explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	For the 2015 drilling, all of the collars were set out using a Trimble real-time kinematic (RTK) GPS system. After completion of drilling all of the collars were re-surveyed using the same tool. Historical drillholes were surveyed with RTK GPS and DGPS from 2008 to 2015, using the remaining visible collar location positions where necessary. Only five of the early drillholes, drilled prior to 2000, had no obvious collar position when surveyed and a best estimate of their position was used based on planned position data.
	Specification of the grid system used.	The grid projection used for Gabanintha is MGA_GDA94, Zone 50. All reported coordinates are referenced to this grid.
	Quality and adequacy of topographic control.	High resolution Digital Elevation Data was supplied by Landgate. The northern two thirds of the elevation data is derived from ADS80 imagery flown September 2014. The data has a spacing of 5M and is the most accurate available. The southern third is film camera derived 2005 10M grid, resampled to match it with the 2014 DEM. Filtering was applied and height changes are generally within 0.5M. Some height errors in the 2005 data may be +/- 1.5M when measured against AHD but within the whole area of interest any relative errors will mostly be no more than +/- 1M. In 2015 A DGPS survey of hole collars and additional points was taken at conclusion of the drill program. Trepanier compared the elevations the drillholes with the supplied DEM surface and found them to be within 1m accuracy.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The closer spaced drilled areas of the deposit now have approximately 80m to 100m spacing by northing and 25m to 30m spacing by easting. Occasionally these spacings are closer for some pairs of drillholes. Outside the main area of relatively close spaced drilling (approximately 7015400mN to 7016600mN), the drillhole spacing increases to several hundred metres in the northing direction, but maintains roughly the same easting separation as the closer spaced drilled area.
	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.	The degree of geological and grade continuity demonstrated by the data density is sufficient to support the definition of Mineral Resources and the associated classifications applied to the Mineral Resource estimate as defined under the 2012 JORC Code. Variography studies have shown very little variance in the data for most of the estimated variables and primary ranges in the order of several hundred metres.
	Whether sample compositing has been applied.	All assay results have been composited to one metre lengths before being used in the Mineral Resource estimate. This was by far the most common sample interval for the diamond drillhole and RC drillhole data.

Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The grid rotation is approximately 45o to 50o magnetic to the west, with the holes dipping approximately 60o to the east. The drill fences are arranged along the average strike of the high grade mineralised horizon, which strikes approximately 310o to 315o magnetic south of a line at 7015000mN and approximately 330o magnetic north of that line. The mineralisation is interpreted to be moderate to steeply dipping, approximately tabular, with stratiform bedding striking approximately north-south and dipping to the west. The drilling is exclusively conducted perpendicular to the strike of the main mineralisation trend and dipping approximately 60o to the east, producing approximate true thickness sample intervals through the mineralisation.
	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.	The orientation of drilling with respect to mineralisation is not expected to introduce any sampling bias. Drillholes intersect the mineralisation at an angle of approximately 90 degrees.
Sample security	*The measures taken to ensure sample security*.	Samples were collected onsite under supervision of a responsible geologist. The samples were then stored in lidded core trays and closed with straps before being transported by road to the BV core shed in Perth (or other laboratories for the historical data). RC chip samples were transported in bulk bags to the assay laboratory and the remaining green bags are either still at site or stored in Perth. RC and core samples were transported using only registered public transport companies. Sample dispatch sheets were compared against received samples and any discrepancies reported and corrected.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	A review of the sampling techniques and data was completed by Mining Assets Pty Ltd (MASS) and Schwann Consulting Pty Ltd (Schwann) in 2008 and by CSA in 2011. Neither found any material error. AMC also reviewed the data in the course of preparing a Mineral Resource estimate in 2015. The database has been audited and rebuilt by AVL and MRG in 2015. In 2017 geological data was revised after missing lithological data was sourced. Geologica Pty Ltd concludes that the data integrity and consistency of the drillhole database shows sufficient quality to support resource estimation.

Section 2: Reporting of Exploration Results

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	*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.*	Exploration Prospects are located wholly within Lease P51/2567 and E51/843. The tenements are 100% owned by Australian Vanadium Ltd. The tenements lie within the Yugunga Nya Native Title Claim (WC1999/046). A Heritage survey was undertaken prior to commencing drilling which only located isolated artefacts but no archaeological sites *per se.* Mining Lease Application M51/878 covering most of E51/1843 and the vanadium project is currently under consideration by the Department of Mines and Petroleum. AVL has no joint venture, environmental, national park or other ownership agreements on the lease area. A Mineral Rights Agreement has been signed with Bryah Resources Ltd for copper and gold exploration on the AVL Gabanintha tenements.
	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.	At the time of reporting, there are no known impediments to obtaining a licence to operate in the area and the tenement is in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Gabanintha deposit was identified in the 1960s by Mangore P/L and investigated with shallow drilling, surface sampling and mapping. In 1998, Drilling by Intermin Resources confirmed the down dip extent and strike continuation under cover between outcrops of the vanadium bearing horizons. Additional RC and initial diamond drilling was conducted by Greater Pacific NL and then AVL Australian Vanadium up until 2015. Previous Mineral Resource estimates have been completed for the deposit in 2001 (Mineral Engineering Technical Services Pty Ltd (METS) and Bryan Smith Geosciences Pty Ltd. (BSG)), 2007 (Schwann), 2008 (MASS & Schwann), 2011 (CSA) and 2015 (AMC).

Geology	*Deposit type, geological setting and style of mineralisation.*	The Gabanintha Project is located approximately 40kms south of Meekatharra in Western Australia and approximately 100kms along strike (north) of the Windimurra Vanadium Mine. The mineralisation is hosted in the same geological unit as Windimurra, which is part of the northern Murchison granite greenstone terrane in the north west Yilgarn Craton. The project lies within the Gabanintha and Porlell Archaean greenstone sequence oriented approximately NW-SE and is adjacent to the Meekatharra greenstone belt. Locally the mineralisation is massive or bands of disseminated vanadiferous titano-magnetite hosted within the gabbro. The mineralised package dips moderately to steeply to the west and is capped by Archaean acid volcanics and metasediments. The footwall is a talc carbonate altered ultramafic unit. The host sequence is disrupted by late stage dolerite and granite dykes and occasional east and east southwest trending faults with apparent minor offsets. The mineralisation ranges in thickness from several metres to up to 20 to 30m in thickness. The oxidized weathering surface extends 50 to 80m below surface and the magnetite in the oxide zone is usually altered to Martite.
Drillhole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* *easting and northing of the drillhole collar* *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* *dip and azimuth of the hole* *down hole length and interception depth hole length.*	Refer drilling intercepts table in Appendix 1 of this announcement.
Data aggregation methods	*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.*	Length weighed averages used for exploration results are reported in Appendix 1 of this announcement. Cutting of high grades was not applied in the reporting of intercepts.

Criteria	JORC Code Explanation	Commentary
	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.	There were negligible residual composite lengths, and at present these were excluded from the estimate.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used.
Relationship between mineralisation widths and intercept lengths	*If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.*	Drillholes intersect the mineralisation at an angle of approximately 90 degrees.
Diagrams	*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 drillhole collar locations and appropriate sectional views.*	See Figures 1-4.
Balanced reporting	*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.*	Comprehensive reporting of drilling details has been provided in Appendix 1 in this announcement.
Other substantive exploration data	*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.*	All meaningful & material exploration data has been reported.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	The decision as to the necessity for further exploration at Gabanintha is pending completion of mining technical studies on the currently available resource.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	The decision as to the necessity for further exploration at Gabanintha is pending completion of mining technical studies on the currently available resource.

Section 3: Estimation and Reporting of Mineral Resources

Criteria	JORC Code Explanation	Commentary
Database integrity	*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.*	All the drilling was logged onto paper and has been transferred to a digital form and loaded into a Microsoft SQL Server relational drillhole database using DataShed^{TM} management software. Logging information was reviewed by the responsible geologist and database administrator prior to final load into the database. All assay results were received as digital files, as well as the collar and survey data. These data were transferred directly from the received files into the database. All other data collected for Gabanintha were recorded as Excel spreadsheets prior to loading into SQL Server. The data have been periodically checked by AVL personnel, the database administrator as well as the personnel involved in all previous Mineral Resource estimates for the project.
	Data validation procedures used.	The data validation was initially completed by the responsible geologist logging the core and marking up the drillhole for assaying. The paper geological logs were transferred to Excel spreadsheets and compared with the originals for error. Assay dispatch sheets were compared with the record of samples received by the assay laboratories. Normal data validation checks were completed on import to the SQL database. Data has also been checked back against hard copy results and previous mines department reports to verify assays and logging intervals. Both internal (AVL) and external (Schwann, MASS, CSA and AMC) validations were/are completed when data was loaded into spatial software for geological interpretation and resource estimation. All data have been checked for overlapping intervals, missing samples, FROM values greater than TO values, missing stratigraphy or rock type codes, downhole survey deviations of ±10° in azimuth and ±5° in dip, assay values greater than or less than expected values and several other possible error types. Furthermore, each assay record was examined and mineral resource intervals were picked by the Competent Person. QAQC data and reports have been checked by the database administrator, MRG. MASS & Schwann and CSA both reported on the available QAQC data for Gabanintha.

Criteria	JORC Code Explanation	Commentary
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	The drill location was inspected by John Tyrrell of AMC in 2015 for the initial 2012 JORC resource estimation. Consulting Geologist Brian Davis of Geologica Pty Ltd visited the Gabanintha project drilling sites in 2016 and 2017 and has been familiar with the Gabanintha iron-titanium-vanadium orebody since 2006. The geology, sampling, sample preparation and transport, data collection and storage procedures were all discussed and reviewed with the responsible geologist for the 2015 drilling. Visits to the BV laboratory and core shed in Perth were used to add knowledge to aid in the preparation of this Mineral Resource Estimate.
	If no site visits have been undertaken indicate why this is the case.	N/A
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	The Gabanintha Vanadium mineralisation lies along strike from the Windimurra Vanadium Mine and the oxidised portion of the high-grade massive magnetite/martite mineralisation outcrops for almost 14km in the company held lease area. Detailed mapping and mineralogical studies have been completed by company personnel and contracted specialists between 2000 and 2015, as well as four separate drilling programmes to test the mineralisation and continuity of the structures. These data and the relatively closely-spaced drilling has led to a good understanding of the mineralisation controls. The mineralisation is hosted within altered gabbros and is easy to visually identify by the magnetite/martite content. The main high-grade unit shows consistent thickness and grade along strike and down dip and has a clearly defined sharp boundary. The lower grade disseminated bands also show good continuity, but their boundaries are occasionally less easy to identify visually as they are more diffuse over a metre or so.
	Nature of the data used and of any assumptions made.	No assumptions are made regarding the input data.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Alternative interpretations were considered in the current estimation and close comparison with the 2015 resource model was made to see the effect of the new density data and revised geology model. The continuity of the low-grade units, more closely defined from lithology logs is now better understood and the resulting interpretation is more effective as a potential mining model. The near-surface alluvial and transported material has also been more closely modelled in this estimation. The impact of the current interpretation as compared to the previous interpretation would be a greater volume of low grade mineralisation and a higher overall V_2O_5 grade for that mineralisation in the current estimate.

Criteria	JORC Code Explanation	Commentary
	The use of geology in guiding and controlling Mineral Resource estimation.	Geological observation has underpinned the resource estimation and geological model. The high-grade mineralisation domain has a clear and sharp boundary and has been tightly constrained by the interpreted wireframe shapes. The low-grade mineralisation is also constrained within wireframes, which are defined and guided by visual (from core) and grade boundaries from assay results. The low grade mineralisation has been defined as four sub-domains, which strike sub-parallel to the high-grade domain. In addition, there is a sub parallel laterite zone and two transported zones above the top of bedrock surface. The resource estimate is constrained by these wireframes. Domains were also coded for oxide and fresh, as well as above and below the alluvial and bedrock surfaces. The extents of the geological model were constrained by fault block boundaries. Geological boundaries were extrapolated to the edges of these fault blocks, as indicated by geological continuity in the logging and the magnetic geophysical data.
	The factors affecting continuity both of grade and geology.	Key factors that are likely to affect the continuity of grade are: • The thickness and presence of the high grade massive magnetite/martite unit, which to date has been very consistent in both structural continuity and grade continuity. • The thickness and presence of the low grade banded and disseminated mineralisation along strike and down dip. The low grade sub-domains are less consistent in their thickness along strike and down dip with more pinching and swelling than for the high-grade domain. • SW-NE oriented faulting occurs at a deposit scale and offsets the main orientation of the mineralisation. These regional faults divide the deposit along strike into kilometer scale blocks. Internally the mineralised blocks show very few signs of structural disturbance at the level of drilling.

Criteria	JORC Code Explanation	Commentary
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 massive magnetite/martite unit strikes approximately 14 km, is stratiform and ranges in thickness from less than 10m to over 20m true thickness. The low grade mineralised units are sub-parallel to the high-grade zone, and also vary in thickness from less than 10m to over 20m. All of the units dip moderately to steeply towards the west, with the exception of two predominantly alluvial units (domains 7and 8) and a laterite unit (domain 6) which are flat lying. All units outcrop at surface, but the low grade units are difficult to locate as they are more weathered and have a less prominent surface expression than the high grade unit. The high and low-grade units are currently interpreted to have a depth extent of approximately 200m below surface. Mineralisation is currently open along strike and at depth.
Estimation and modelling techniques	*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.*	Grade estimation was completed using ordinary kriging (OK) for the Mineral Resource estimate. Surpac™ software was used to estimate grades for V_2O_5, TiO_2, Fe_2O_3, SiO_2, Al_2O_3, Cr_2O_3, Co and loss on ignition (LOI) using parameters derived from statistical and variography studies. The majority of the variables estimated have coefficients of variation of significantly less than 1.0, with Cr_2O_3 being the exception. Drillhole spacing varies from approximately 80 m to 100 m along strike by 25 m to 30 m down dip, to 500 m along by 25 m to 30 m down dip. Drillhole sample data was flagged with numeric domain codes unique to each mineralisation domain. Sample data was composited to 1 m downhole length and composites were terminated by a change in domain or oxidation state coding. No grade top cuts were applied to any of the estimated variables as statistical studies showed that there were no extreme outliers present within any of the domain groupings. Grade was estimated into separate mineralisation domains including a high-grade bedrock domain, four low grade bedrock domains and low grade alluvial and laterite domains. Each domain was further subdivided into a fault block, and each fault block was assigned its own orientation ellipse for grade interpolation. Downhole variography and directional variography were performed for all estimated variables for the high-grade domain and the grouped low-grade domains. Grade continuity varied from hundreds of metres in the along strike directions to sub-two hundred metres in the down-dip direction although the down-dip limitation is likely related to the extent of drilling to date.

Criteria	JORC Code Explanation	Commentary
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Prior to 2017, there have been five Mineral Resource estimates for the Gabanintha deposit. The first, in 2001 was a polygonal sectional estimate completed by METS & BSG. The subsequent models by Schwann (2007), MASS & Schwann (2008) and CSA (2011) are kriged estimates. AMC (2015) reviewed the geological interpretation of the most recent previous model (CSA 2011), but used a new interpretation based on additional new drilling for the 2015 estimate. In 2017 a complete review of the geological data, weathering profiles, magnetic intensity and topographic data as well as incorporation of additional density data and more accurate modelling techniques resulted in a re-interpreted mineral resource. No mining has occurred to date at Gabanintha, so there are no production records.
	The assumptions made regarding recovery of by-products.	No assumptions were made regarding recovery of by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterization).	Estimates were undertaken for Fe_2O_3, SiO_2, TiO_2, Al_2O_3, Co and LOI, which are non-commodity variables, but are useful for determining recoveries and metallurgical performance of the treated ore. Estimated Fe_2O_3% grades were converted to Fe% grades in the final for reporting (Fe% = Fe_2O_3/1.4297). Estimates were also undertaken for Cr_2O_3 which is a potential deleterious element. The estimated Cr_2O_3% grades were converted to Cr ppm grades in the final model for reporting (Cr ppm = (Cr_2O_3*10000)/1.4615).
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. *Any assumptions behind modelling of selective mining units.*	The Gabanintha block model uses a parent cell size of 40 m in northing, 10 m in easting and 5 m in RL. This corresponds to approximately half the distance between drillholes in the northing and easting directions and matches an assumed bench height in the RL direction. Accurate volume representation of the interpretation was achieved. Grade was estimated into parent cells, with all sub-cells receiving the same grade as their relevant parent cell. Search ellipse dimensions and directions were adjusted for each fault block. Three search passes were used for each estimate in each domain. The first search was 120m and allowed a minimum of 8 composites and a maximum of 24 composites. For the second pass, the first pass search ranges were expanded by 2 times. The third pass search ellipse dimensions were extended to a large distance to allow remaining unfilled blocks to be estimated. A limit of 5 composites from a single drillhole was permitted on each pass. In domains of limited data, these parameters were adjusted appropriately. No selective mining units were considered in this estimate apart from an assumed five metre bench height for open pit mining. Model block sizes were determined primarily by drillhole spacing and statistical analysis of the effect of changing block sizes on the final estimates.

Criteria	JORC Code Explanation	Commentary
	Any assumptions about correlation between variables.	All elements within a domain used the same sample selection routine for block grade estimation. No co-kriging was performed at Gabanintha, but correlation studies on the composite data showed very good correlation (0.8 or above) between most variables, apart from Cr which has a correlation coefficient of 0.65 with V_2O_5.
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation is used to define the mineralisation, oxidation and alluvial domains. All of the domains are used as hard boundaries to select sample populations for variography and grade estimation.
	Discussion of basis for using or not using grade cutting or capping.	Analysis showed that none of the domains had statistical outlier values that required top-cut values to be applied.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	Validation of the block model consisted of: • Volumetric comparison of the mineralisation wireframes to the block model volumes. • Visual comparison of estimated grades against composite grades. • Comparison of block model grades to the input data using swathe plots. As no mining has taken place at Gabanintha to date, there is no reconciliation data available.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All mineralisation tonnages are estimated on a dry basis. The moisture content in mineralisation is considered very low.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	A nominal 0.4% V_2O_5 wireframed cut off for low grade and a nominal 0.7% V_2O_5 wireframed cut off for high grade has been used to report the Mineral Resource at Gabanintha. Consideration of previous estimates, as well as the current mining, metallurgical and pricing assumptions, while not rigorous, suggest that the currently interpreted mineralised material has a reasonable prospect for eventual economic extraction at these cut off grades.
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.*	AVL completed a mining Scoping Study in October 2016 for Gabanintha. The primary mining scenario being considered is conventional open pit mining. AVL has assumed, based on initial concept study work and the nearby presence of a similar project (Windimurra mine site), that the Gabanintha deposit is amenable to open-pit mining methods.

Criteria	JORC Code Explanation	Commentary
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.*	Metallurgical studies are at an early stage and have focused on bench-scale comminution and magnetic separation test work on 24 contiguous drill core intervals from the high-grade vanadium domain. These samples included 10 off from the "fresh" rock zone, 9 off from the zone defined as "transitional" and 5 off from the near surface oxidised horizon, "oxide".

Metallurgical Sample	Drill hole origin	From (m)	To (m)	Interval (m)	Mass (kg)
1 Fr	GDH903	191	199	8	33
2 Fr	GDH903	199	209	10	47
3 Fr	GDH903	209	215.2	6.2	25
4 Fr	GDH911	98.9	105.5	6.6	59
5 Fr	GDH911	108	113.2	5.2	54
6 Fr	GDH912	124	129	5	52
7 Fr	GDH912	129	134.2	5.2	54
8 Fr	GDH912	134.3	141	6.7	69
9 Fr	GDH914	108	114	6	58
10 Fr	GDH914	114	121	7	75
11 Tr	GDH902	98	105.8	7.8	34
12 Tr	GDH902	105.8	111.1	5.3	31
13 Tr	GDH902	111.1	117.1	6	27
14 Tr	GDH911	105.5	108	2.5	27
15 Tr	GDH913	127.9	133.2	5.3	26

16 Tr	GDH913	133.2	140	6.8	47
17 Tr	GDH913	140	145.2	5.2	45
18 Tr	GDH916	132	139	7	32
19 Tr	GDH916	139	151.3	12.3	101
20 Ox	GDH901	38	45	7	29
21 Ox	GDH901	45	54	9	44
22 Ox	GDH915	12	18	6	44
23 Ox	GDH915	18	23	5	35
24 Ox	GDH917	14.1	21.1	7	44

The comminution test work has included SMC, Bond ball mill work index and Bond abrasion index testing.

Bench-scale magnetic separation test work has included Davis tube testing (1500 gauss) and a customised two stage separation using a hand held rare earth magnetic rod (2600 gauss at surface). 21 element XRF and LOI analysis has been carried out on the magnetic and non-magnetic products and selected magnetic concentrates underwent QXRD to determine the contained minerals and or QEMScan analysis to gain an understanding of the mineral associations, grains size, locking and liberation.

The preliminary metallurgical investigation has demonstrated:

- the oxide, transitional and fresh materials are similar in comminution behavior and exhibit a moderate rock competency and ball milling energy demand. The abrasiveness is considered low to moderate.
- a positive and predictable response to magnetic separation for material from the fresh and transitional high-grade domain. The majority of vanadium exists within magnetic minerals which when separated at a grind size P_{80} of approximately 106 µm, generates a consistently high V_2O_5 grade, low silica and alumina grade concentrate. Further testing including non-magnetic separation options are being carried out to

		optimise the response of the oxide material type. At this stage of metallurgical understanding a primary mill grinding to P_{80} 106 µm and application of magnetic drum separation is considered a reasonable flowsheet concept to produce a vanadium rich concentrate (>1.4% V_2O_5) from material classified as transitional and fresh within the high-grade domain. No test work has yet been undertaken in processing of the magnetic concentrate to extract vanadium. Given the indicated quality of the concentrate it is assumed that production of a saleable V_2O_5 product would be achieved via a traditional roast, leach and ammonium meta vanadate (AMV) flowsheet path, as was applied in the treatment of similar magnetic concentrate in Xstrata's Windimurra refinery flowsheet in Western Australia and at Largo Resources Maracas vanadium project in Bahia, Brazil.
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 greenfield 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.*	Environmental studies are currently being undertaken for the scoping study and Pre-Feasibility work.
Bulk density	*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.*	Bulk density determinations (using the Archimedes' method) were made on 15 diamond drillholes. Bulk density data from 313 direct core measurements were used to determine average densities for each of the mineralisation and oxide domains. Bulk Density was estimated for HG, LG, Alluvial and waste material in Core taken to represent the main lithological units.

	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.	The water immersion method was used for direct core measurements; all 231 of the latest measurements have been done using sealed core, the previous 97 measurements were not wrapped. AMC's observation of the core indicates that observable porosity was not likely to be high for most of the core at the deposit.

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td></td><td>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>The average bulk density values for at Gabanintha are:
<table><tr><th>Domain</th><th>Oxidation State</th><th>Bulk Density</th></tr><tr><td>10 (high grade)</td><td>Oxide</td><td>3.42</td></tr><tr><td>10 (high grade)</td><td>Fresh</td><td>3.68</td></tr><tr><td>2-8 (low grade)</td><td>Oxide</td><td>2.13</td></tr><tr><td>2-8 (low grade)</td><td>Fresh</td><td>2.45</td></tr><tr><td>Alluvial</td><td>Oxide</td><td>2.62</td></tr><tr><td>(waste)</td><td>Oxide</td><td>2.02</td></tr><tr><td>(waste)</td><td>Fresh</td><td>2.45</td></tr></table>All values are in t/m^3.
Regressions used to determine bulk density based on iron content are as follows:
Oxide: BD = (0.0382 x Fe_2O_3 %) + 0.7317
Fresh: BD = (0.0369 x Fe_2O_3 %) + 1.1701

The final bulk density used for reporting of the Gabanintha Mineral Resource is based on the regression as it provides a more reliable local estimated bulk density.</td></tr>
<tr><td>Classification</td><td>The basis for the classification of the Mineral Resources into varying confidence categories.</td><td>Classification for the Gabanintha Mineral Resource estimate is based upon continuity of geology, mineralisation and grade, consideration of drillhole and density data spacing and quality, variography and estimation statistics (number of samples used and estimation pass).
The current classification is considered valid for the global resource and applicable for the nominated grade cut-offs.</td></tr>
</table>

	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).	At Gabanintha, the central portion of the deposit is well drilled for a vanadium deposit, having a drillhole spacing from a nominal 80 m to 100 m x 25 m to 30 m in northing and easting. The lower confidence areas of the deposit have drillhole spacings ranging up to 500 m x 25 m to 30 m in northing and easting directions. In general, the estimate has been classified as Measured Mineral Resource in an area restricted to the fresh portion of the high-grade domain where the drillhole spacings are less than 80 to 100m in northing. Indicated Mineral Resource material is generally restricted to the oxide high grade and oxide and fresh low grade in the same area of relatively closely spaced drilling. Inferred Mineral Resource has been restricted to any other material within the interpreted mineralisation wireframe volumes. The background waste domain estimate has not been classified, due to very low possibility of economic extraction and limited data.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	Geologica Pty Ltd and Trepanier Pty Ltd believe that the classification appropriately reflects their confidence in the grade estimates and robustness of the interpretations.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	The current Mineral Resource estimate has not been audited.

Criteria	JORC Code Explanation	Commentary
Discussion of Relative accuracy/ confidence	*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.*	The resource classification represents the relative confidence in the resource estimate as determined by the Competent Persons. Issues contributing to or detracting from that confidence are discussed above. No quantitative approach has been conducted to determine the relative accuracy of the resource estimate. The Ordinary Kriged estimate is considered to be a global estimate with no further adjustments for Selective Mining Unit (SMU) dimensions. Accurate mining scenarios are yet to be determined by mining studies. No production data is available for comparison to the estimate. The local accuracy of the resource is adequate for the expected use of the model in the mining studies. Further investigation into bulk density determination and infill drilling will be required to further raise the level of resource classification.
	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.	These levels of confidence and accuracy relate to the global estimates of grade and tonnes for the deposit.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There has been no production from the Gabanintha deposit to date.