

ASX Announcement

Gabanintha Vanadium Concept Study Update

Highlights:

- » Latest Concept Study activity has been completed on the Gabanintha Vanadium Project.
- » Pit optimisation modelling undertaken for management purposes using internally generated inputs.
- » Modelling recorded very positive results including:
 - a preliminary open pit shell extending for approximately 4.3 kilometres long within the northern part of the resource area;
 - an estimated 45.3 Mt of Mineral Resources falling within the open pit shell, and
 - 100% of Measured and 99% of Indicated Mineral Resources captured within the open pit shell.
- » Results of Concept Study have satisfied the Board to advance the Project with further key studies.
- » Key studies to include roast-leach metallurgical work, resource update, detailed mining study, hydrology study, environmental studies and permitting work.
- » A detailed review of the commercial production of vanadium electrolyte will be undertaken.

The Concept Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Ore-Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Concept Study will be realised.

Australian Vanadium Limited (ASX: AVL) ("AVL" or "the Company") is pleased to provide an update on the Gabanintha Project Concept Study. In the past year the Company has reported encouraging results from various studies undertaken including:

- a significant increase in the quality of the V_2O_5 inventory following completion of a revised Mineral Resources estimate (refer to YRR ASX Announcement dated 10 November 2015), and
- outstanding results from metallurgical testwork (refer to AVL ASX announcement dated 7 December 2015).

From the results of work completed to date, the Company is satisfied it has established that additional work on the project is justified. The major objective of the Company with respect to the project will now be to understand the risk framework for project development and establish key project timelines and funding pathways.

10 October 2016

ASX ANNOUNCEMENT

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A number of studies have been successfully conducted on the Gabanintha Project since its acquisition in 2007 by AVL (formerly YRR), including:

- 2009 - Concept Study (Battery Limits Pty Ltd (BL))
- 2011 - Resource Estimate (CSA Global Pty Ltd)
- 2014 - Concept Study, Update-1 (BL)
- 2015 - Mineral Resource Estimate (AMC)
- 2015 - Metallurgical Test work (Bureau Veritas and BL)
- 2016 - Petrographic and mineralogical study (CET-UWA)
- 2016 - Concept Study, Update-2 (BL) - this study

The most recent activity has been a pit optimisation exercise based on the revised Mineral Resource estimate for internal management purposes using parameters derived from the extensive available information. The modifying factors listed in Appendix 1 were considered and taken into account. The results of the pit optimisation study are very positive and support further work.

Following the positive outcome from the pit optimisation work and the updated Concept Study, and when all previous studies are also taken into account, the Company is satisfied it can justify advancing the project towards development by the completion of a range of more in-depth studies. These studies will include:

- resource update using the latest material density information and weathering surface interpretations;
- detailed mining design and schedule;
- further analysis and sampling of existing diamond core drilling for metallurgical testing designed to confirm metal recovery and concentrate grade and finalise process design inputs. This work will focus on roast and leach test work of magnetic ore concentrates;
- assessment of water supply requirements and geohydrology of the project development area;
- environmental risk evaluations including additional baseline studies, and
- assessment of permitting and government approval requirements and timelines.

An indicative timeline for the completion of these activities is set out in Table 1 below.

Finalisation of the new work will allow the Company to determine a project feasibility study and construction timeline that will be dependent on prevailing vanadium market conditions. Much of the recent Concept Study work undertaken to date has been completed to a quality that it can be incorporated into the feasibility study.

Managing Director Vincent Algar commented “The body of work that support’s AVL’s positive view on the Gabanintha vanadium/iron/titanium deposit continues to grow. The Company will now concentrate on key studies that reduce the risks for the project ahead of detailed feasibility studies. Water and environment are such areas. Along with the positive metallurgical test outcomes, the mining studies will assist us in marketing and offtake discussions which are essential for project development.”

DESCRIPTION	MONTH									
	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17	Apr 17	May 17	Jun 17	Jul 17
Resource Update										
Mine Design										
Metallurgical Test Program										
Water Supply & Hydrology Studies										
Environmental Studies										
Environmental & Permitting Review										
Marketing and Offtake negotiations										

Table 1. Indicative Timeline of Activities

Concept Study Outcomes

The updated Concept Study (nominal +/- 50% accuracy) examined the feasibility of producing vanadium in the form of vanadium pentoxide (V_2O_5) from the Gabanintha vanadium project. The results build on the original Concept Study which was updated in August 2014 and after new drilling and metallurgical testwork programs were completed by the Company in 2015.

For this updated study the proposed beneficiation process involves feed preparation and beneficiation, roasting, leaching, solids/liquid separation, desilication, ammonium vanadate (AMV) precipitation, and deammoniation to produce high grade vanadium pentoxide, (see Figure 1). The study drew from previous studies conducted by the company in 2014. Additional options considered capital costs of a concentrate only option as well as the inclusion in the plant design of a vanadium electrolyte plant.

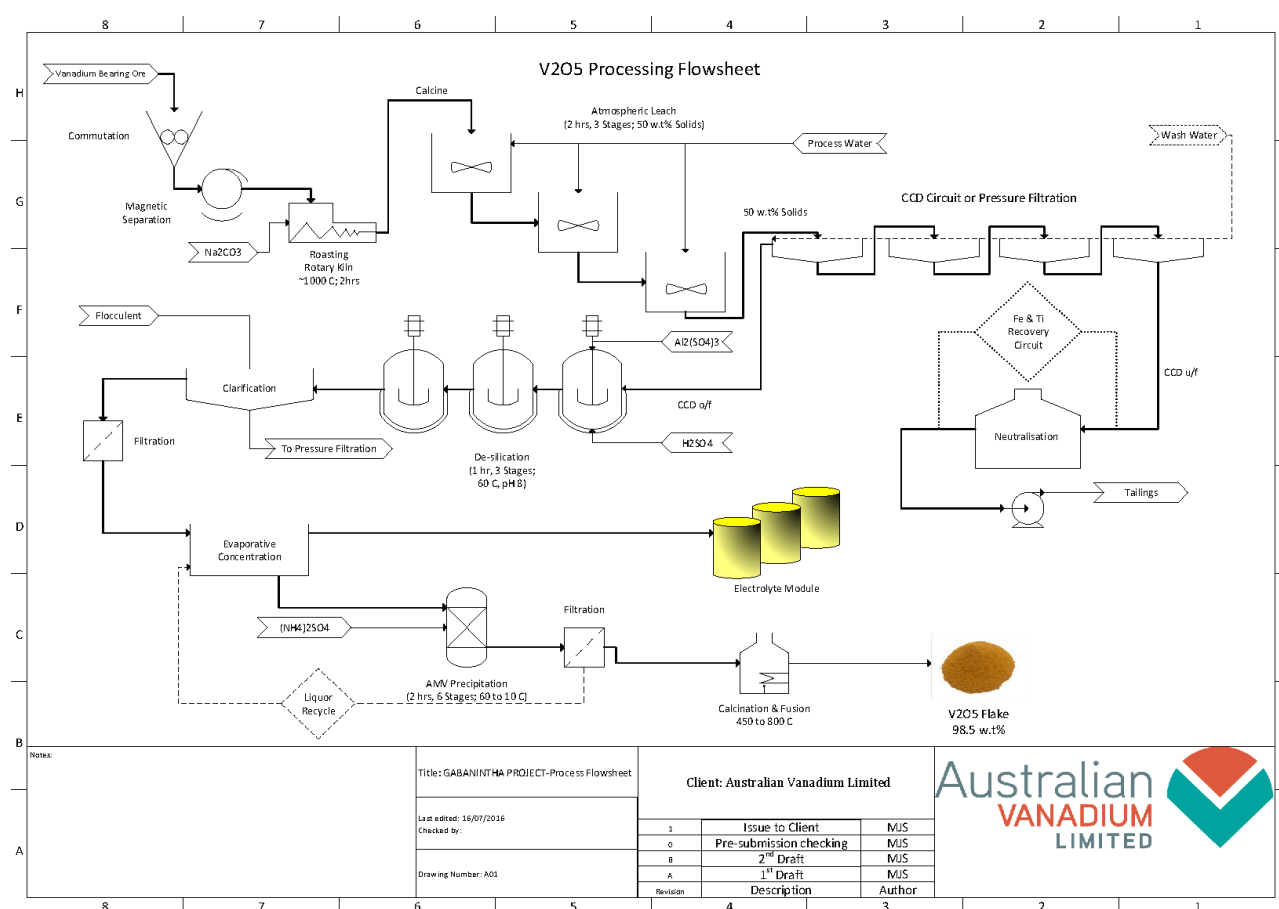


Figure 1 Proposed Initial Process Flowsheet for Gabanintha Vanadium Project

The Concept Study found that the production cases considered were potentially economically viable while treating feed material containing up to 50% oxide and low grades (0.5% V_2O_5) with beneficiation pre-treatment. The study considered the effects of lower (0.92 % V_2O_5) and higher feed grades (1.1% V_2O_5).

The addition of an electrolyte plant facility was considered to have strong economics based on the assumptions and warranted future inclusion in design work for Gabanintha and as a stand-alone study.

The following conclusions were made from the Study:

- based on a significant proportion of oxide feed and using preliminary testwork beneficiation data, a project to produce V_2O_5 at Gabanintha is potentially economically feasible at a range of production rates similar to those rates considered in previous studies. However, the lower throughput rates are marginal and more sensitive to head grade;
- beneficiation prior to vanadium recovery provides a significant grade boost in processing oxide and transitional ore and is more attractive than processing un-beneficiated low grade ore through the plant;

- the key operational assumptions including roasting time, leaching, reagent consumption and recovery will require validation through additional testwork;
- there is potential to significantly increase recovery in the roast leach step and reduce reagent consumption however, this will need to be substantiated through testwork;
- the tailings residue contains high Ti and Fe values and has the potential to be reprocessed to produce saleable titanium oxide and iron oxide products;
- the use of second-hand equipment, particularly from the nearby ferro-vanadium Windimurra Project has the potential to reduce capital cost, and
- the impact of electrolyte production shows strong economics based on the assumptions used with potentially robust operating cost margins.

Recommendations from the Study for further work include:

1. Future test work samples should be selected that define the domains and identify the ore most likely to be mined initially at high grade.
2. A mining schedule and mining cost estimates should be developed.
3. Metallurgical testwork programs should be developed that assess the amenability of different domains and mineralogy to be beneficiated.
4. Metallurgical testwork should be undertaken to prove up the proposed process routes using drill core, both in terms of beneficiation and vanadium pentoxide recovery and possible electrolyte production.
5. A detailed financial model should be developed to assess the impact of feed grade and ore types, mining costs, metallurgical recoveries and capital costs, and product types and prices to assist in optimising project size and configuration.
6. Metallurgical sighter testwork could be developed to consider recovery of Ti and Fe values from leach residue.
7. Further marketing information should be gathered that provides confidence in the tonnage of V_2O_5 that can be supplied to the market. The production and marketability of electrolyte vanadium products that attract premium prices requires further investigation.
8. Planning for a Prefeasibility Study should commence to consider production of:
 - a. Vanadium oxide
 - b. Vanadium Electrolyte, and
 - c. Recovery of saleable Ti and Fe products from tailings residue.
9. Review opportunities to procure equipment from or collaborate with the nearby Windimurra Project.

The completed Concept Study was able to consider key findings from other studies as set out below.

The Concept Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Ore-Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Concept Study will be realised.

Mineralogy and Petrology Study

A mineralogy and petrology study of samples of diamond drill core from Gabanintha was conducted by the Centre for Exploration Targeting (CET) at the University of WA in 2015. 19 core samples were examined and analysed in detail by petrologists from the CET. Key findings were:

- results show magnetic separation techniques will be applicable for both high-grade and low-grade ores.
- titano-magnetite is dominant as the ore mineral and oxidises to martite (hematite) in the weathering profile, maintaining the same crystal structure and all its associated vanadium.
- the oxidised materials, contain significant relict magnetite remaining partially magnetic, making magnetic separation techniques applicable in the high grade oxide material; and

- magnetite particles in the low grade samples (magnetite gabbro) show high vanadium content, supporting the view that magnetic separation of low grade ores may yield significant additional vanadium units.

The high quality and very detailed mineralogy information gives the Company an important micro-level understanding of the mineralised material at Gabanintha. The findings provided confirmation that the project demonstrates favourable mineral characteristics for vanadium extraction.

Metallurgical Test Work

Following the completion in 2015 of diamond and reverse circulation (RC) drilling programs, the Company completed a series of detailed tests on composite RC samples comprised of oxide, transition and fresh material from low grade (disseminated) and high grade (massive) mineralisation at Gabanintha.

The tests reported outstanding results, returning high recovery rates from the fresh, transitional and oxide material, further demonstrating the project's strong potential for both low capital and operating costs. The test results also show that the silica content of the material was easily removed and there were strong recovery rates for titanium, a potentially valuable by-product.

The metallurgical tests involved crushing and grinding samples to various parameters and analysis of recoveries from all material types using gravity and magnetic separation methods, in order to establish suitable processing plant options. The tests performed included Grind Size Distribution, Davis Tube Recovery (DTR), Low Intensity Magnetic Separation (LIMS), Wet High Intensity Magnetic Separation (WHIMS), Heavy Liquid Separation (HLS) and Wilfley Table techniques.

Key technical findings of the test work include:

- magnetic separation tests indicate that both Low Grade (LG) and High Grade (HG) partly oxidised and fresh samples can be effectively upgraded to concentrates of up to 1.5% V_2O_5 .
- totally oxidised samples yield a high quality iron-vanadium-titanium concentrate when using high intensity magnetic separation (mass recovery ranges between 30% and 85% and V_2O_5 recovery ranges between 30% to 90%).
- magnetic recovery of LG samples is impressive with 32% to 62% of mass recovered and 70% to 85% of the V_2O_5 reporting to concentrate at a coarse grind size, and
- magnetic recovery from HG samples is excellent at 75% to 82% of mass recovered and 82% to 95% of the V_2O_5 reporting to concentrate at a coarse grind size using low intensity magnetic separation.

Pit Optimisation Study

A mining consultant was engaged by AVL to undertake a Pit Optimisation Study using the 2015 Mineral Resource block model for the Gabanintha deposit. The Mineral Resource estimation was carried out by Australian Mining Consultants in 2015 and there has been no material change to the Mineral Resource since that time.

The total Measured, Indicated and Inferred Mineral Resource in both the high and low grade domains is **91.4 Mt @ 0.82% V_2O_5** . The Mineral Resource was reported above a 0.3% V_2O_5 cut-off as shown in Table 2.

Table 2 Gabanintha Project 2015 Mineral Resource Estimation						
	High Grade		Low Grade		Total	
Category	Material (Mt)	V_2O_5 %	Material (Mt)	V_2O_5 %	Material (Mt)	V_2O_5 %
Measured	7.0	1.09	-	-	7.0	1.09
Indicated	4.3	1.07	13.4	0.55	17.8	0.68
Inferred	45.5	0.97	21.1	0.53	66.7	0.83
TOTAL	56.8	1.00	34.6	0.53	91.4	0.82

The purpose of the study was to identify the mining potential and development opportunities using internally generated economic parameters. The study investigated the economic potential for mining the deposit within the northern resource area using open-cut methods and applying the most current economic inputs, selling prices, recoveries, operating costs and associated parameters derived from the Concept Study report.

The modelling generated a number of open pit shells over the northern resource area with the optimal pit shell (Pit 9) encompassing 45.3Mt @ 0.80% V₂O₅. This amount of material represents approximately 49.6% of the total 2015 Mineral Resource Estimate including 100% of the Measured and 99% of the Indicated Mineral Resource. Measured and Indicated Mineral Resources represent 54% of the total Mineral Resource material within the pit shell (see Figure 2).

The pit optimisation model results are summarised in Table 3 below.

Table 3 Gabanimtha Project Pit Optimisation Modelling – Pit Shell 9								
	High Grade		Low Grade		Total		Distrib %	Portion of 2015 Min. Res.%
Category	Material (Mt)	V₂O₅ %	Material (Mt)	V₂O₅ %	Material (Mt)	V₂O₅ %		
Measured	7.0	1.09	-	-	7.0	1.09	15%	100%
Indicated	4.2	1.07	13.4	0.55	17.6	0.67	39%	99%
Inferred	12.2	1.00	8.5	0.53	20.7	0.81	46%	31%
TOTAL	23.4	1.04	21.9	0.54	45.3	0.80	100%	49.6%

The modelled pit shell is approximately 4,300 metres long, up to 350m wide and up to 160m deep and in addition to the 45.3 Mt of mineralised material for processing contains approximately 86.8 Mt of waste material.

The results of the pit optimisation modelling combined with the earlier components of the Concept Study have demonstrated that the Gabanimtha Project has robust project fundamentals with acceptable levels of technical risk.

Accordingly, the Company has decided to advance the Gabanimtha Project by the commencement of a number of key studies as mentioned above.

The Company will report the findings of the studies in accordance with the current reporting requirements for production targets and forward looking statements.

For further information, please contact:

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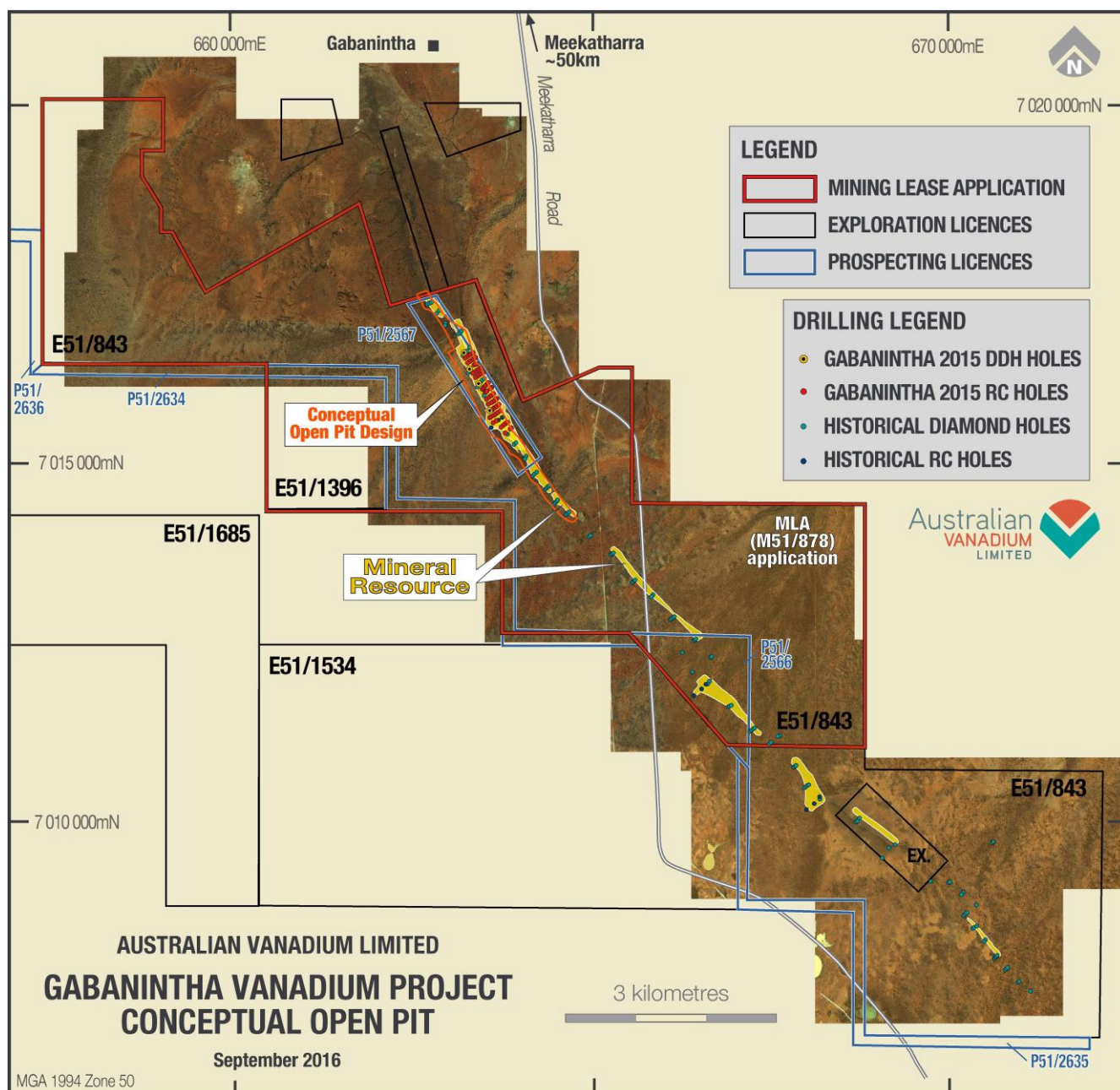


Figure 2 - Resource location and Pit Optimisation Model Pit Shell Outline

CONCEPT STUDY PARAMETERS – CAUTIONARY STATEMENT

The Concept Study in this report (nominal +/- 50% accuracy) is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the current conclusions of the Concept Study will be realised. There is a moderate level of geological confidence associated with Measured Indicated and Inferred Mineral Resources and there is no certainty that further exploration and development work will result in the estimation of Ore Reserves or that the production target itself will be realised. The Company advises the Concept Study results and production targets reflected in this announcement are highly preliminary in nature as conclusions are drawn from the average grade of Measured, Indicated and Inferred Resources. A generic mining cost per tonne of material moved and an average resource grade has been used to determine overall mining and processing costs as opposed to a detailed mining block model evaluation to produce a detailed mining schedule.

COMPETENT PERSON REFERENCES

Competent Person Statement – Metallurgical Results

The information in this statement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist David Pass B.Sc (Hons), Mr Pass is a Member of The Australian Institute of Mining and Metallurgy. David Pass is employed by Battery Limits Pty Ltd Mr Pass 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. Pass 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".

Competent Person Statement – Mineral Resource Estimation

The information relating to the Gabanintha Project 2015 Mineral Resource estimate reported in this announcement is based on information compiled by Mr John Tyrrell. Mr Tyrrell is a Member of The Australian Institute of Mining and Metallurgy (AusIMM) and a full time employee of AMC (AMC Consultants Pty Ltd). Mr Tyrrell has more than 25 years' experience in the field of Mineral Resource Estimation. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and in resource model development 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. Tyrrell 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 "Substantial high-grade vanadium resource highlights Gabanintha's world-class potential" released to ASX on 10 November 2015 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.

Forward Looking Statements

This announcement may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to Resource risk, metal price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the countries and states in which we sell our product to, and government regulation and judicial outcomes. For more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Companies other filings. Readers should not place undue reliance on forward looking information. The Company does not undertake any obligation to release publicly any revisions to any "forward looking statement" to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.

**Appendix 1: Modifying Factors Applied to the Gabanintha Resources
and in relation to the Updated Concept Study**

Criteria	Explanation
<i>Mineral Resource Estimation for conversion to Ore Reserves</i>	<ul style="list-style-type: none"> The Mineral Resource estimation was carried out by Australian Mining Consultants in 2015 and there has been no material change to the Mineral Resource since that time. The total Measured, Indicated and Inferred Mineral Resource in both the high and low grade domains is 91.4 Mt @ 0.82% V₂O₅. The Mineral Resource was reported above a 0.3% V₂O₅ cut-off as shown in Table 2. Study work to date has not been completed to the required standard of a PFS to allow the determination of Ore Reserves
<i>Site visits</i>	Site Visits have been undertaken by the Competent persons
<i>Study status</i>	<ul style="list-style-type: none"> The Gabanintha Project has been the subject of a number of concept studies. These were previously conducted on different bases focusing on magnetite concentrate production and then more recently, finished vanadium products. The current Concept Study in this report (nominal +/- 50% accuracy) is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the current conclusions of the Concept Study will be realised. There is a moderate level of geological confidence associated with Measured Indicated and Inferred Mineral Resources and there is no certainty that further exploration and development work will result in the estimation of Ore Reserves or that the production target itself will be realised. The Company advises the Concept Study results and production targets reflected in this announcement are highly preliminary in nature as conclusions are drawn from the average grade of Measured, Indicated and Inferred Resources. A generic mining cost per tonne of material moved and an average resource grade has been used to determine overall mining and processing costs as opposed to a detailed mining block model evaluation to produce a detailed mining schedule.
<i>Cut-off parameters</i>	The Mineral Resource is reported above a 0.3% V ₂ O ₅ cut-off. In the concept pit used in this report a cut-off grade of 0.5% V ₂ O ₅ was used.
<i>Mining factors and assumptions</i>	<ul style="list-style-type: none"> Assumed excavator load operation by open pit and haulage to stockpiles within 1 kilometre of pit. Open pit mining method, appropriate to 45-50° westerly dipping magnetite and magnetite gabbro horizons. Deposits exposed from surface elevation. A 45° concept pit slope is used in the pit optimization shell. A mining dilution of 5% and a mining recovery of 95% were used in the pit optimization shell. 54% of the pit optimization shell contains Measured and Inferred Mineral Resources. The balance of the resources in the shell are inferred and are mostly in the Low Grade orebody domains. They partially contribute to the economic pit shell. The Open cut mining method will require the establishment of suitable mine infrastructure and availability of mining equipment.

Criteria	Explanation
<i>Metallurgical factors and assumptions</i>	<ul style="list-style-type: none"> For this updated study the proposed beneficiation process involves feed preparation and beneficiation, roasting, leaching, solids/liquid separation, desilication, ammonium vanadate (AMV) precipitation, and deammoniation to produce high grade vanadium pentoxide (see Figure 1). The process being considered for the processing of Gabanintha is well understood and widely implemented in the processing of vanadium-iron-titanium deposits of a similar nature. Metallurgical work to date has been conducted on RC and diamond core. Work has been restricted to physical beneficiation studies and has not included studies of roast and leach test recovery. Deleterious elements were routinely determined during the assay process for all samples within the resource estimation. Sulphur, phosphorus, lead, copper and zinc are not sufficiently abundant to cause economic or environmental issues. Amounts of silica, iron and aluminium are high enough in the gangue material to allow a classification into Low Grade and High Grade ore. No bulk sample testing or pilot scale plant test work has been conducted for the Gabanintha Project.
<i>Environmental</i>	First pass flora and fauna field studies have been conducted at Gabanintha. Additional work is planned to address detailed baseline flora and fauna studies. Hydrological, geotechnical studies are also to be commenced.
<i>Infrastructure</i>	Gabanintha is located 35km south of Meekatharra on the unsealed Meekatharra-Sandstone Road. The road bisects the project, passing to the south of the proposed optimisation pit shell. Power and water infrastructure is not present at or near the site.
<i>Costs</i>	<ul style="list-style-type: none"> Cost assumptions have been made by the consultants using available industry standard information. For the pit optimisation shells these include ore and waste mining costs, and processing cost in line with those generated by the Battery Limits Concept Study report to the Directors of Australian Vanadium Limited.
<i>Revenue Factors</i>	The current market price for vanadium pentoxide was used in the pit optimisation.
<i>Market assessment</i>	Vanadium is used primarily in steel markets in the production of HSLA steel products and specialised steels. Steel markets have been relatively depressed in recent years and this has been reflected in vanadium product pricing. Loss of primary production in the last 18 months has led to a steady reduction of inventories, and consequent modest price increases as steel market demand has remained steady. New demand for vanadium products are occurring with the rapid development of energy storage devices (vanadium redox flow batteries). Rapid growth in energy storage is occurring as part of the increase in deployment of global renewable energy supply. The Company assessment is for the steady increase in demand for primary vanadium for a prolonged period.
<i>Economic</i>	The Company is prevented from discussing production targets and forecasting financial information.
<i>Social</i>	The Company has commenced discussions with the Native Title claimant groups and has conducted site clearance work. Further negotiations and presentations are required.

Criteria	Explanation
<i>Other</i>	The Company has applied for a mining lease (M51/878) over the established mineral resource.
<i>Classification</i>	No ore reserves have yet been defined or classified.
<i>Audits or reviews</i>	<p>The resource was completed by independent experts and then reviewed recently by company geologists. This resulted in the identification of areas where more drilling is needed in order to upgrade to Measured Mineral Resource category.</p> <p>No ore reserve audits have been conducted.</p>
<i>Discussion of relative accuracy/confidence</i>	<ul style="list-style-type: none"> Table 2 shows the distribution of classified Mineral Resources at Gabanintha. Insufficient study work to the level of a PFS study have been undertaken to allow the definition of Mineral Reserves. The resource estimate is considered to be in accordance with the relative degree of confidence expected of mineralisation in the categories of Measured and Indicated Mineral Resources. The techniques and methods were of sufficient quality and rigour to ensure that the resulting estimate fairly represented the nature of the mineralised body. Accuracies and degrees of confidence cannot reliably be ascribed to such an estimate since all the inherent assumptions made when completing an estimate will have their own margins of error or reliability. For example an individual element assay may have an inherent variability constrained by the laboratory methods used or the element assayed (some are notoriously difficult to assay) such that the assay should be stated in terms of +/- 5% for some and +/- 20% for others. Similarly, the statistical variance of all the methods used in resource estimation should also be stated to arrive at a global variance factor for the whole resource. The Updated Concept Study applies to the identified resource portion located over 4.3 kilometres of strike in the northern part of the Gabanintha Vanadium deposit where a preliminary pit shell has been calculated over the Measured and Indicated wireframes used for resource estimation.