

ASX Release: 5 September 2018

ASX Code: VMC

YOUANMI VANADIUM OXIDE PROJECT MAJOR BREAKTHROUGH

The Directors of Venus Metals Corporation Limited ("Venus" or the "Company") are pleased to announce a major breakthrough in regard to the Youanmi Vanadium Project following receipt of proof-of-concept metallurgical test work on oxide ores.

Highlights:

- Unique oxide vanadium ores identified at Youanmi.
- The test work confirms strong recovery into solution of V₂O₅ by simple atmospheric sulphuric acid leach testing of oxide vanadium ores, together with co-extraction of nickel, copper and cobalt
- The proof-of-concept of high recoveries from simple atmospheric sulphuric acid leach testing of oxide vanadium ores makes bulk mining and acid leach processing an attractive development path for initial scoping study work.
- A 6000 m RC drill program is commencing immediately to support advanced metallurgical testing and aims to provide a large measured resource.
- These factors give Venus a potential low cost entry into significant and rapid vanadium production.

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SUMMARY

- The Youanmi JORC 2012 inferred oxide mineral resource estimate is 110 million tonnes grading 0.3% V_2O_5 for 333,000 tonnes of V_2O_5 (735,000,000 lbs V_2O_5) (ASX Release 6th February 2015) (Plan 1).
- A recent geological review of the Youanmi Vanadium Oxide Project identified a widespread and remarkably even distribution of high vanadium values throughout the oxide inferred resource material from surface down to 50m depth.
- The friable, crumbly soft oxide ores are derived from deeply weathered vanadiferous gabbro, circumstances unique to Youanmi.
- The inferred mineral resource occurs as a continuous zone 3.5 km long by up to 350m wide, ideal for bulk open pit mining (Plan 2 and Plan 3).
- Importantly, the soft oxide ores start at surface and have a zero open pit strip ratio all the way to the base of oxidation.
- The metallurgical test work by METS Engineering Group was initiated to see if the widespread vanadium values (together with low levels of copper, nickel and cobalt) in the abundant soft, friable oxide ore could be successfully leached by an acid leach atmospheric process.
- The test work was conducted on a random drill sample of the abundant, deeply weathered vanadium oxide gabbroic material that overlies the fresh rock Youanmi vanadium resource. Assays showed a head grade of 0.41% V₂O₅ for this sample.
- The test work confirms vanadium recovery into solution of between 66.9% and 69.58% V₂O₅ by simple atmospheric sulphuric acid leach testing of oxide vanadium ores, together with co-extraction of nickel, copper and cobalt.
- This success in proof-of-concept testing has major implications for the Youanmi Vanadium Oxide Project and its potential economics.
- Current vanadium prices are US\$18/lb for V₂O₅ flake, (AUD\$25/lb).



* "The exploration potential quantity and grade is conceptual in nature, that there has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource."



Cross Sections Looking West





FORWARD PLANNING

Venus is now planning a rapid advancement of the Project. This includes:

- an immediate +6000m RC drill program to provide a large amount of oxide material for representative advanced metallurgical testing;
- 2. aiming to complete a scoping study treating 5mtpa oxide ore grading 0.3% V_2O_5 or better*;
- 3. commissioning of advanced metallurgical testing by METS;
- 4. scoping study work by METS following the metallurgical testing; and
- 5. relevant mining lease applications.

PROJECT FINANCING

The cost of the drill program and next phase of metallurgical test work is estimated to be around \$400,000. To fund this, the company has entered into a convertible loan agreement with Mr Barry Fehlberg, an executive director of the company, which may convert, subject to shareholder approval, at an issue price of \$0.20 per share - see the announcement dated 4 September 2018.

BACKGROUND

The Youanmi Vanadium Oxide Project is contained within E57/986. It is 90% owned by Venus and 10% by a prospector. The prospector interest is free carried to a decision to mine, after which the interest becomes contributing or reverts to a 1.25% NSR.

Venus commissioned Widenbar and Associates to review the historical drilling, sampling and assay data to produce a JORC 2012 Inferred Vanadium Resource for the Company.

The inferred resource produced by Widenbar and Associates is shown below.



Material	Cut-Off	Million	$V_2O_5\%$	V₂O₅Tonnes	TiO ₂	Fe
	% V ₂ O ₅	Tonnes			%	%
Oxide	0.10	110.6	0.30	333,000	6.15	20.18
Fresh	0.10	220.0	0.28	618,000	5.85	19.03
TOTAL	0.10	330.6	0.29	951,000	5.95	19.41

Table 1. JORC 2012 Inferred Vanadium Mineral Resources Summary

(refer ASX Release 6th February 2015)

The inferred resource is based on 47 RC drill holes completed by Australian Gold Resources during 1998-1999, together with 11 PQ diamond drill holes completed by Youanmi Metals Pty Ltd in 2010 (Mark Creasy). The inferred resource is separated into oxide and fresh rock categories (refer ASX release 6 February 2015).

In addition to the inferred resources, Widenbar identified an exploration target* at a 0.1% V₂O₅ cut off of 1 billion to 1.3 billion tonnes at 0.25 to 0.3% V₂O₅. This exploration target did not provide a separate oxide and fresh rock target category (refer ASX release 6 February 2015).

* "The exploration target potential quantity and grade is conceptual in nature, that there has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource."

With respect to this current announcement, all work is directed solely at the oxide resources. No consideration has been directed to the fresh rock resources.

PROJECT REVIEW

The Company recently initiated a review of the Youanmi Vanadium Oxide Project geology and resources with regard to competitor vanadium projects to determine the implications for ongoing Project advancement.

With respect to other Australian wide vanadium projects, a number of features were observed to strongly influence potential Project economics.



VENUS METALS

- The numerous hard rock vanadium projects around Australia require mining and crushing of tough vanadiferous magnetite ores. In addition to hard rock mining, the geology of the deposit often involves high waste to ore strip ratios all of which adds greatly to the expense of mining and subsequent magnetite concentrate production.
- 2. After production of a vanadium rich magnetite concentrate product, the next step involves conventional roast leach to get the vanadium into solution. This is a high temperature process with high capital and high operating costs, even though it has a well-established process route.
- 3. A Kimberley based vanadium Company is investigating a new direct leaching precipitation method using hydrochloric acid to produce vanadium and other mineral products from vanadiferous titaniferous magnetite concentrate. The cost parameters for this process are not known.
- 4. The other main Australian vanadium project with a difference is the Julia Creek vanadium project in Queensland. Large resources of low grade vanadiferous ores occur within oxidized oil shale rocks of the Toolebuc formation.
- 5. The soft Julia Creek ores occur near the surface with strip ratios of around 1:1 offering cheap mining by open cut methods.
- 6. Offsetting this cheap mining cost, the Julia Creek ores require high temperature alkaline pressure leaching using autoclaves to get the vanadium into solution. This involves high capital and operating costs. Acid leaching is not viable due to a high calcium carbonate content in the ore.
- 7. Once into solution, the solvent extraction process for all vanadium projects is believed to be similar.

REVISED YOUANMI VANADIUM OXIDE PROJECT CONSIDERATIONS

The Youanmi drill database was re-examined to look for features that might represent a point of difference from other vanadium projects outlined above.



A number of factors stood out immediately:

- 1. The Youanmi vanadium ores are deeply oxidized. A deeply weathered oxide 'blanket' some 30 to 50 meters deep occurs over the whole resource outline.
- 2. Significantly, there is an extensive and widespread distribution of high vanadium values throughout the oxide profile.
- 3. Distinct magnetite lenses, while forming some important bands, are mostly narrow and would not form separate minable lenses in the deposit.
- These more magnetite rich zones however do carry higher vanadium values providing an opportunity to target high-grade zones during the early production years.
- The vanadium values start from surface meaning that the oxide material has a zero strip ratio, a remarkable situation creating conditions for ultra-low cost mining.
- 6. The host rock is a coarse grained gabbro that has no carbonate minerals in the weathered zone (or in fresh rock). This means that acid solutions have a chance to do their work leaching vanadium and other minerals without being 'stolen' by carbonates forming CO₂ before doing its leaching work.
- The extensive distribution of vanadium values means that the Project can be treated as a bulk mining operation with minimal grade control (particularly now that proof-of-concept shows the Youanmi ores can be successfully leached).

RECENT FIELD WORK

A Youanmi field visit was organized with the Company Consultant Metallurgist Mr Damian Connelly of METS Engineering in August 2018. Diamond drill core from YMDD 011 was inspected in the on-site core farm as well as completing a site visit to the drill location. The visit confirmed:

- 1. Hole YMDD 011, with assays of 58.3m grading $0.41\% V_2O_5$, was strongly oxidized from surface to 58m depth. The intense weathering caused the rock to be soft, friable and easily broken.
- 2. Vanadiferous magnetite, where observed, was oxidized to maghemite and hematite.



- 3. No carbonate minerals were observed.
- 4. During the field visit to the drill hole site, it was observed that the inferred resource strike location is along a prominent deeply weathered ridge zone.
- 5. In addition, an oxide drill spoil sample from YMDD 008 was taken for initial metallurgical testing.

It is the results of this test work that form the basis for this announcement.

METALLURGICAL TEST WORK RESULTS

METS Engineering (**METS**) was engaged by Venus Metals to conduct proof of concept leach test work of vanadium on an oxide sample from the Youanmi Vanadium Oxide Project. The key objective of the scope of work was to assess whether vanadium can be extracted into solution from an oxide sample from Youanmi, as well as assess the potential co-extraction of other valuable metals.

The test sample was crushed and homogenized by hand to obtain the subsamples for testing. No attempts were made at any beneficiation and the full raw sample was tested.

Sulphuric acid was chosen for all the acid leach tests. METS have advised the reason is that this acid is the cheapest and most readily available, and is simpler for subsequent solvent extraction of any metals.

ACID LEACH RESULTS

Three acid leach test were conducted on the sample having a head grade of $0.41\% V_2O_5$ (assayed via x-ray fluorescence).

Head Assays

Sample	V ₂ O ₅ %	Al%	Co%	Cu%	Fe%	Ni%	Si%	Ti%
Feed	0.41	7.57	0.01	0.01	23.65	0.04	14.25	4.40

The results from the three leach tests conducted show vanadium and other cobalt, copper and nickel can be extracted using sulphuric acid, the extraction levels increasing with temperature.



Leach Test Extraction Summary

Test ID	Vanadium Extraction (%, calculated head)	Cobalt Extraction (%, calculated head)	Copper Extraction (%,calculated head)	Nickel Extraction (%, calculated head)
T1 -Sulphuric acid at room temperature	25.52	34.2	54.1	58.7
T3 – Sulphuric acid at 80 deg C	66.90	52.73	62.86	74.0
T4 – Sulphuric acid bake	69.58	76.01	92.46	87.94

CONCLUSIONS

The following conclusions have been made following receipt of the Mets Engineering proofof –concept test work.

- 1. Vanadium was able to be leached using sulphuric acid.
- 2. Very encouraging extraction percentages of up to $69.58\% V_2O_5$ have been obtained from an un-beneficiated raw sample.
- 3. The vanadium extraction increases with increasing temperature, but all at atmospheric pressure.
- 4. Cobalt, copper and nickel were co-extracted.
- 5. A beneficiated sample is expected to reduce acid consuming gangue minerals feeding the leach.
- 6. Venus will perform additional test work with the aim of characterizing the ore, beneficiating the ore prior to leaching and optimizing the leach (reduce acid consumption, assess leach temperatures etc).

FORWARD PROGRAM

1. Venus has commissioned METS to undertake comprehensive test work on the Youanmi oxide vanadium deposit, leading to an Engineering Scoping Study.

2. An immediate 6000m RC drilling program aiming for measured resources.



Mr Hogan, Managing Director of Venus commented that "the Company looks forward to updating shareholders with further news with regard to development of this major Project."



VENUS METALS CORPORATION LIMITED



YOUANMI VANADIUM OXIDE PROJECT

RC hole AGRYOU 023 - Drilled 1998-1999

Venus Exploration Director Barry Fehlberg with Damian Connelly, Principal Consulting Metallurgist, METS ENGINEERING inspecting deeply weathered RC drill spoil from Vertical Hole AGRYOU 023 (August 2018) High Grade Oxide: 0-50m @ 5494 ppm V₂O₅ *Note: This hole has not been subjected to any metallurgical test work.*



Bibliography

- 1. L. Widenbar, 2015, "Youanmi Vanadium Project Resource Estimate Summary Report January 2015"- Internal Communications
- 2. METS Interim Metallurgical Testwork Report J5114 dated 31 August 2018
- 3. VMC ASX releases dated 6 February 2015 and 27 March 2018.

The information in this announcement relating to the exploration results and mineral resources for the Youanmi Vanadium Project is based on information contained in VMC's ASX announcements. VMC confirms that it is not aware of any new information or data that materially affects the information contained in the previous announcements and in the case of the mineral resources that all material assumptions and technical parameters underpinning the estimates in the previous market announcements' continue to apply and have not materially changed.

Exploration Targets

The term 'Exploration Target' should not be misunderstood or misconstrued as an estimate of Mineral Resources and Reserves as defined by the JORC Code (2012), and therefore the terms have not been used in this context.

Forward-Looking Statements

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Venus Metals Corporation Limited planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Venus Metals Corporation Ltd believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

Competent Person's Statement

The information in this report that relates to the Processing and Metallurgy Youanmi Vanadium Project is based on and fairly represents, information and supporting documentation compiled by Damian Connelly who is a Fellow, CP (Met) of The Australasian Institute of Mining and Metallurgy and a full time employee of METS. Damian Connelly has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Damian Connelly consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this release that relates to the Youanmi Vanadium Project is based on information compiled by Mr Barry Fehlberg, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Fehlberg is Exploration Director of Venus Metals Corporation Limited. Mr Fehlberg has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves'. Mr Fehlberg consents to the inclusion in the release of the matters based on his information in the form and context that the information appears.

JORC Code, 2012 Edition – Table 1

Youanmi Vanadium Project

Section 1 Sampling Techniques and Data

Criteria	•	Commentary
Sampling techniques	•	Venus Metals Corporation (VMC) has not conducted any exploration drilling or sampling on the tenement.
	•	The exploration data were obtained from Open File WAMEX Reports on historical exploration Reverse Circulation (RC) drilling conducted by Australian Gold Resources (AGR) during 1998-1999.
	•	Sampling has been by Reverse Circulation drilling, collected every 1m through a cyclone and riffle splitter. 4m composite samples were also collected via scoop and spear sampling from the residue bags.
	•	In 2010, Youanmi Metals Pty Ltd carried out a drill program of 11 diamond drill holes, aimed primarily at assessing the iron ore potential of the Vanadium and Titanium bearing magnetite horizons.
	•	To ensure accuracy in diamond drilling and sampling, downhole surveys were carried at the bottom of each hole, using a 'Camtech' digital camera. Electronic core orientation surveys were carried out after each 3m run in fresh/ competent rock, using a 'Reflex ACT' device to enable accurate orientation of the drill core. Magnetic susceptibility measurements and 'Niton' XRF readings for Fe, Ti and V were also carried out.
	•	Diamond Core samples correspond to selected geological contacts (especially magnetite layers, ranging from 0.3 to around 1.1m) were marked out during the logging process and were cut to half on site using an Almonte core saw and these half cores were sent for assaying.
	•	An oxide sample from Diamond hole YMDD 008 was taken for recent testing.
	•	A sub sample was assayed via XRF and returned a reading of 0.41% $V_2O_5.$
	•	The friable sample was hand crushed and split into 50g lots for leach tests.
	•	The 50g sub samples were subject to acid and alkali leach tests at varying temperatures, concentrations and residence times.
	•	The residue samples were sent for XRF analysis.
	•	The leach liquors were sent for ICP analysis.
Drilling techniques	•	Reverse Circulation drilling by Australian Gold Resources (AGR) during 1998-1999
	•	Most RC holes in the program were drilled vertically with a few at -60°dip.
	•	In 2010, 11 diamond holes were drilled using triple tube PQ3 and were drilled at dip varying -58 to -61 and azimuth varying between 0 and $5^{\circ}N$.
Drill sample	•	No recovery issues were reported in the historical reports.
recovery	•	There is no apparent relationship between sample recovery and grade.
	•	Core recovery in diamond holes was generally good, with excellent recoveries in fresh rock and reasonable recoveries in weathered material.
Logging	•	RC drill samples were geologically logged and the downhole magnetic susceptibility was also conducted as per the historical report. Drillhole geological logging, assay data and metallurgical testing were used to support resource estimation of V2O5.
	•	Diamond drill (DD) core was comprehensively geologically and geotechnically logged. The geotechnical logging includes core recovery, RQD, rock strength, weathering and fracture counts, magnetic susceptibility measurements and 'Niton' XRF readings for Fe, Ti and V.

Criteria	•	Commentary
Sub-sampling techniques and sample	•	Sampling has been by Reverse Circulation drilling, collected every 1m through a cyclone and riffle splitter. 4m composite samples were also collected via scoop and spear sampling from the residue bags.
preparation	•	Sampling of diamond holes was at irregular intervals determined by geological logging. In addition to the geological logging geotechnical logging like magnetic susceptibility measurements and 'Niton' XRF readings for Fe, Ti and V were also carried out, to ensure the accuracy of selected core samples. These selected cores were cut to half on site using an Almonte core saw and these half cores were sent for assaying.
Quality of assay data	•	The methods used for assay analysis of RC drill samples are lithium meta-borate fusion XRF at AMDEL (XRF4) and fusion XRF at Analabs (X408).
and	•	Blanks were inserted every 30th sample.
tests	•	A vanadium standard was inserted in each sample batch for holes YOUC19 to 40.
	•	Down hole geophysical logging was carried out in el even holes.
	•	The half cut core samples were pulverized and analyzed for elements using acid test method (AT) followed by ICPMS/ICPOES. Also fusion XRF (11) method were also used for identifying the mineral composition.
	•	The feed and residue solid samples were sent to Nagrom for XRF analysis (XRF001).
	•	The leach liquor samples were sent to Nagrom for ICP analysis (ICP007).
Verification of sampling and assaying	•	No independent verification of sampling and assaying has been reported.
Location of	•	The RC drill hole locations (collar) were located using GPS.
data points	•	Grid systems used were Geodetic datum: AGD 84, Vertical datum: AHD and Projection: AMG, zone: 50.
	•	The Diamond drillhole locations were located using a Garmin GPS 72. Geodetic datum: GDA 94, Projection zone: 50
Data spacing and distribution	•	Within the resource area, RC drilling was completed on 640m spaced sections with drill hole spacing of 80m. Additional 40m spaced drill holes were aimed at defining the tenor of mineralisation in fresh rock and the dip of the stratigraphy.
	•	The DD holes were drilled at selected locations along historical RC drill hole lines within the Youanmi layered intrusive complex, where magnetite (Fe-Ti-V) bearing gabbroic rocks can be mapped at surface.
Orientation of data in relation to geological structure	•	RC drilling is vertical; with the average dip of the magnetite rich units being approximately30° to 50° the hole orientation with respect to the mineralisation dip is appropriate.
	•	DD drilling is approximately at right angle to dip and 90° to strike.
Sample security	•	Details of sample security not given in historical reports.
Audits or reviews	•	No audits or review have been located.

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure	• The Youanmi Project tenement E57/986 is currently an Exploration License and is being jointly owned by Venus Metals Corporation Limited (90%) and Legendre, Bruce Robert (10%).

Criteria	Commentary
status	
Exploration done by other parties	• The tenement area was historically explored by many explorers since 1967. Australian Gold Resources Limited (AGR) explored extensively for vanadium resources within historical tenement E59/419.
Geology	• The project area lies on the northern part of the Youanmi layered intrusion. Most of the area of interest is east-west striking with layering dipping to the south. At the eastern edge of intrusion area the layering swings round to a north-south strike and a westerly dip. The dip appears to become gradually shallower towards the bend: from approximately 50° at a distance of 5km west of the bend to 30° adjacent to the bend. A dip of only 10° was recorded in outcrop within the bend itself. A number of northwest faults offset the strata with an apparent sinistral displacement (displacement is only apparent because the same effect would be achieved by down throw of the eastern block). Chloritisation and the development of a weak foliation has been recognised in RC drilling near one of the northwest faults with an apparent displacement of 1½km. Faulting is more complicated in the area of the bend where a number of broadly northeast striking faults and narrow shears are also recognised.
	 Gabbro (ranging from leucocratic to melanocratic), anorthosite, fine-grained gabbro, magnetite-gabbro and magnetite have been recognised in drilling and outcrop. The target zone is characterised by meter-scale layering of magnetite, magnetite-gabbro, anorthosite and leucogabbro. Leuco to melano gabbro is more common away from the target zone.
	• The magnetite bearing horizons appear to be more resistant to weathering and therefore the top of fresh rock is generally at a higher relative level than in adjacent weathered gabbro. However in the areas where the regolith has been stripped the saprolite derived from magnetite-in horizons has proved more resistant to erosion and often form the tops of the breakaways. Depth to fresh rock (Top of Fresh Rock-TOFR) in the higher ground is usually about 35m, but can be up to 55m.
Drill hole Information	• The Exploration Target is based aerial magnetics data which has been compared with the geophysics in the drilled area of the Inferred resource.
Data aggregation methods	Not applicable
Relationship between mineralisation widths and intercept lengths	 Mineralisation width assumptions for the exploration target area are based on drill intercepts in the resource model area.
Diagrams	Plans are provided in the accompanying report.
Balanced reporting	Not applicable
Other substantive exploration data	• To assess the stratigraphy, structure and correlation between magnetic units and zones of high vanadium grade, AGR carried out low-level high resolution aeromagnetic survey by Universal Tracking Systems (UTS) during September 1999. The aeromag survey covered an area of 30 square kilometers, for 650 lines totaling 3km was flown in the northern area. Radiometrics and digital elevation data were also collected. The magnetic contrast between magnetite units and surrounding rock is so high (>5,000 nT) that the low relative signal to noise ratio allows data to be filtered to the 4th vertical derivative.
Further work	 An immediate 6000m RC drilling program aiming for measured oxide resources. Future metallurgical testwork will assess beneficiation of the oxide material. A downstream vanadium leach programme will be developed using the beneficiated product.