

# Venus Metals Corporation Limited: Youanmi Vanadium Oxide Project Major Breakthrough

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Perth, Australia - The Directors of [Venus Metals Corporation Ltd.](#) (ASX:VMC) ("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 V<sub>2</sub>O<sub>5</sub> 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.

## SUMMARY

- The Youanmi JORC 2012 inferred oxide mineral resource estimate is 110 million tonnes grading 0.3% V<sub>2</sub>O<sub>5</sub> for 333,000 tonnes of V<sub>2</sub>O<sub>5</sub> (735,000,000 lbs V<sub>2</sub>O<sub>5</sub>) (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% V<sub>2</sub>O<sub>5</sub> for this sample.
- The test work confirms vanadium recovery into solution of between 66.9% and 69.58% V<sub>2</sub>O<sub>5</sub> 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 V<sub>2</sub>O<sub>5</sub> 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."

## FORWARD PLANNING

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

1. 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<sub>2</sub>O<sub>5</sub> 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 (see link below).

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% V<sub>2</sub>O<sub>5</sub> cut off of 1 billion to 1.3 billion tonnes at 0.25 to 0.3% V<sub>2</sub>O<sub>5</sub>. 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.

1. 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.

4. These more magnetite rich zones however do carry higher vanadium values providing an opportunity to target high-grade zones during the early production years.

5. 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 CO<sub>2</sub> before doing its leaching work.

7. 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<sub>2</sub>O<sub>5</sub>, 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<sub>2</sub>O<sub>5</sub> (assayed via x-ray fluorescence).

##### Head Assays

Sample	V <sub>2</sub> O <sub>5</sub> %	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 (see link below)

#### CONCLUSIONS

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

1. Vanadium was able to be leached using sulphuric acid.
2. Very encouraging extraction percentages of up to 69.58% V<sub>2</sub>O<sub>5</sub> 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."

To view tables and figures, please visit:  
<http://abnnewswire.net/lnk/9RXI0UWE>

About Venus Metals Corporation Limited:

[Venus Metals Corporation Ltd.](#) (ASX:VMC) holds a significant and wide ranging portfolio of Australian base and precious metals exploration projects comprising lithium, cobalt, vanadium, copper, zinc, nickel, gold and platinum group of elements.

Key project areas in Western Australia include:

- Pincher Well Zinc-Copper Project (Youanmi): Over 5 km of under explored VMS trend with an Exploration Target of 15-20 Million Tonnes @ 2-8% Zinc, which also hosts a number of high grade lodes (>10% Zinc).
- Currans Well Cobalt-Nickel-Copper Project (Youanmi): Significant Cobalt mineralisation up to 1483 ppm Co in historical drilling. Extensive Lateritic Duricrust Co-Ni target areas identified.
- Curara Well Nickel-Copper-Gold Project (Doolgunna): 10 km northeast of Sandfire Resources DeGrussa Copper Mine. Wide intercepts of disseminated Nickel Sulphides (Millerites) in Ultramafics.
- Southern Cross Vanadium Project (Youanmi): JORC 2012 Inferred Vanadium Mineral Resource of 167.7 Millions Tonnes @ 0.41% V<sub>2</sub>O<sub>5</sub>, 7.52% TiO<sub>2</sub>.
- Strategic Lithium-Tantalum Projects in WA.

Source:

[Venus Metals Corporation Ltd.](#)

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