

# ASX ANNOUNCEMENT

## GABANINTHA CONFIRMS POSITIVE VANADIUM MINERALOGY

Yellow Rock Resources Ltd (Yellow Rock) is pleased to announce a detailed mineralogy study has confirmed its 100% owned Gabanintha Vanadium Project presents favorable mineral characteristics for vanadium extraction.

The positive results will be incorporated with the upcoming mineral resource update and metallurgical test results in the project development studies.

### Highlights:

- Results show magnetic separation techniques will be applicable for both high-grade and low-grade ores.
- Eighteen core and one surface sample representing typical mineralised and unmineralised rocks across Gabanintha were examined and analysed in detail by petrologists from the University of Western Australia's Centre for Exploration Targeting (CET).
- Analysis of the material was conducted by high resolution photography, Scanning Electron Microscope (SEM), X-ray Spectrometry and qualitative as well as semi-quantitative chemistry.
- Titanomagnetite 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.
- Magnetite particles in the low grade samples (magnetite gabbro), show high contained vanadium, supporting the magnetic separation of low grade ores to yield significant additional vanadium units.
- In sample 913-130.3, local SEM values up to 3.09% V<sub>2</sub>O<sub>5</sub> in magnetite were observed from sample compared with the sample head grade of 0.77% V<sub>2</sub>O<sub>5</sub>.
- All results and findings are being used in the ongoing metallurgical assessment and will form key components to final process design in 2016.

Yellow Rock Chief Executive Vincent Algar commented: "the high quality and very detailed mineralogy gives us a micro-level understanding of our material. This gives us new and essential information as we integrate our resource and all important metallurgical test work into a mine plan for the future. The key finding on the high contained vanadium in our low grade gabbro material provides us with even more significant opportunities for Gabanintha's development"

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Northern Territory Uranium



## GABANINTHA SAMPLES CONFIRM FAVOURABLE VANADIUM MINERALOGY

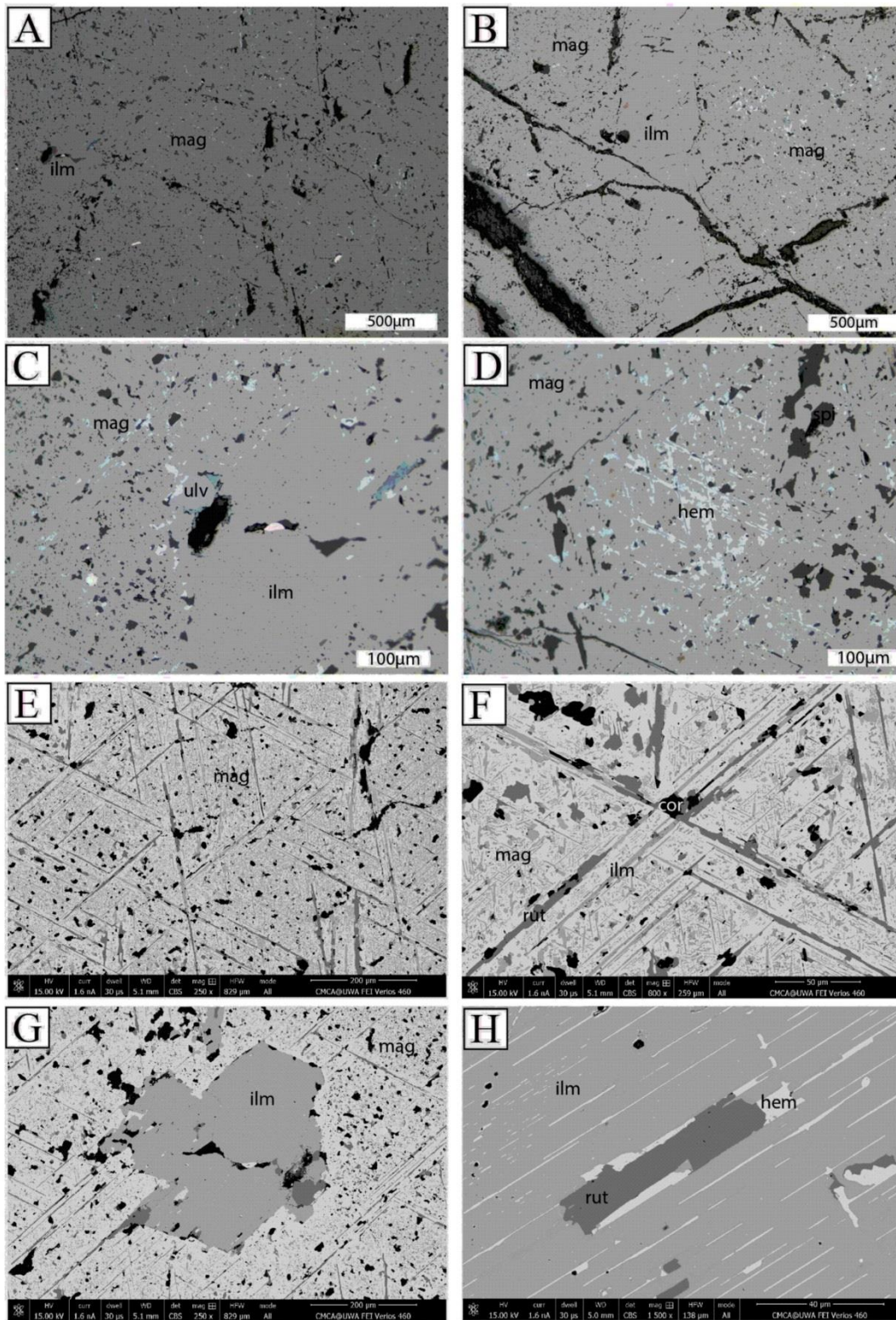
Yellow Rock Resources Ltd (Yellow Rock) is pleased to announce that recently completed petrographic and mineralogical sample analyses from the Gabanintha Vanadium Deposit confirm favorable mineral characteristics for vanadium extraction.

Nineteen samples were examined and analysed in detail by petrologists from the University of Western Australia's Centre for Exploration Targeting (CET). The samples represented oxide, transitional and fresh rock material from low grade and high grade vanadium mineralisation, as well as non-mineralised gabbro. Eighteen samples were from diamond drill core across the deposit and one sample was from a surface outcrop. The authors of the report are Professor Steffan Hageman and Mr Stephane Roudaut.

Preparation for polished thin and thick sections was completed for transmitted and reflected light petrography. The samples were then prepared for TESCAN VEGA3 Scanning Electron Microscope (SEM) and FEI Varios Extreme High Resolution SEM with energy-dispersive X-ray Spectrometry. Analysis of the material was conducted by high resolution photography and qualitative as well as semi-quantitative chemistry.

The following are the main findings:

- Titano-Magnetite oxidises to Martite (Hematite) in the weathering profile. All stages of replacement of Magnetite with Martite are seen in the samples, although there are often relict cores of Magnetite rimmed and penetrated by Martite.
- Surface and oxide material from outcrop of the massive mineralisation, although mainly Martite contains significant relict Magnetite to be partially magnetic. Therefore magnetic separation techniques are applicable and can be used even for surface materials.
- Oxide minerals also show effects of hydrothermal alteration. Magnetite is altered into chlorite. Exsolutions of titanomagnetite display progressive change in composition from ulvospinel-ilmenite-rutile to ilmenite-rutile followed by rutile only. Rutile subsequently exhibits alteration into sphene.
- It is believed that the gabbros are gabbro-norites that show metamorphic mineralogy and texture characterised by chlorite-amphibole. This would constrain the regional metamorphic grade at the Gabanintha deposit to middle-upper greenschist facies. This is supported by metamorphic rock analyses of Van Kranendonk and Ivanic (2009) for the Meekatharra 1:25.000 map sheet which includes the Gabanintha deposit.
- Mineral chemistry suggests that there is little change in vanadium grade within the massive mineralised layer from fresh to oxide in the profile. This confirms consistent value throughout the pit profile and the ubiquitous stability and presence of Vanadium within the Magnetite or Martite.
- Some Magnetites and Ilmenites in the disseminated low grade ores contain higher Vanadium grade than in the massive high grade ores. For example local SEM values up to 3.09%  $V_2O_5$  from sample 913 130.3 compared with the sample head grade of 0.77%  $V_2O_5$ . Therefore magnetic separation of low grade ores should be productive and yield a good Vanadium grade.
- Symplectic intergrowth of titanium-bearing minerals (Ilmenite, Ulvospinel and Rutile) occupies about 30% of the Magnetite in a fine trellis pattern sympathetic with the crystallographic planes. Both the iron and titanium minerals contain vanadium.



**Sample 916-154.9:** A, B and C: Titanomagnetite and ilmenite grains. D: trellis intergrowths in partially martitised titanomagnetite. E: SEM imaging of trellis work textures in titanomagnetite. F: SEM imaging of exsolutions in titanomagnetite. G: SEM imaging of ilmenite grain. H: SEM imaging of intergrowths in ilmenite grain.

Figure 1: An example of textures in the massive High Grade Vanadium mineralisation

## Metallurgical Testing

Six bulk samples were submitted for testing to metallurgical laboratories through Battery Limits Pty Ltd. The samples comprised Oxide, Transition and Fresh samples each from Low Grade (disseminated) and High Grade (massive) material. Tests include crushing and grinding parameters, analysis of recoveries from oxide, transition and fresh ore using gravity and magnetic separation techniques and confirmation of suitable process plant options.

The test work will supply vital information for more detailed test work and plant design which will take place as part of the planned 2016 feasibility study.

The tests are nearing completion and results are expected soon by the Company.

## Resource Estimate

The Company has engaged an independent external consultant to complete the task and the interaction and review is rapidly nearing completion. The company's use of an external consultant to sign off on the resource, which is the key "supply" for any future mine, is to ensure all future work based on the resource is fully modelled and understood.

The updated Mineral Resource statement can be expected by early November 2015

## Vanadium Market Developments

Yellow Rock has continued to advance its opportunities in the Vanadium Redox Battery market by forming relationships with key players. The Company has formed a battery focused subsidiary, VSUN Pty Ltd, which will sell Vanadium Batteries on behalf of two European producers in the Australian Market. Opportunities will focus on businesses and off grid opportunities, but due to the scalability of VRB's, many other applications can be envisaged. Including domestic, farm-production and Electric Vehicle charging stations.

The rapid acceleration in the development of renewable energy projects on a global scale is being accompanied by rapidly growing interest and need for grid storage technologies. The uptake of VRB technology along with other grid storage technologies could have a significant effect on the vanadium ( $V_2O_5$ ) market as the use of  $V_2O_5$  electrolyte is a large component (50% of current cost) of the battery units.

The unique characteristics of VRB's, specifically their scalability, long lifespan cycles and the use of one battery element, make them a strong candidate to earn up to 30% of the growing energy storage market, which is expected to grow from a current 0.4GW to 40GW in just the next 7 years.

Yellow Rock, as a potential vanadium producer, recognises the importance of the steel markets, but is also actively seeking to link the use of its products to the rise of this globally significant use Vanadium Battery technology.

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