

# VanadiumCorp-Electrochem Phase II Update

## High Purity Iron Produced Using Hydroelectricity

### TSX-V: "VRB"

VANCOUVER, June 29, 2017 /CNW/ - VanadiumCorp Resource Inc. (TSX-V: "VRB") (the "Company") is pleased to announce the first reactor installation is complete, in operation and successful and consistent recovery of high purity electrolytic iron directly from VTM concentrated from drill core from the Company's Lac Doré Vanadium Project using conventional milling and magnetic separation. Phase II development of VanadiumCorp-Electrochem Process Technology is located Electrochem Technologies & Materials Inc. ("Electrochem") facilities in Boucherville, Quebec.



### Scaled trial production capacity increasing on schedule:

- The first large reactor designed with a nameplate capacity of 300 kg/month of VTM was successfully installed at Electrochem's facilities using readily available industrial equipment required for production scale-up. Additional customized items will be installed to accommodate the specificity of the patent pending VanadiumCorp-Electrochem technology.
- The ferrous sulfate heptahydrate (copperas) crystals successfully produced from the copperas crystallized from the pregnant liquor solution "PLS" allowed the electrowinning of pure electrolytic iron using Electrochem's patented technology. This represents the first time pure electrolytic iron metal was processed from Lac Dore vanadiferous titanomagnetite "VTM" using hydroelectricity. This demonstrates the potential of implementing this integrated CO2 free iron making process.
- In parallel, 5 kg batches of VTM were processed using a gallon-size vessel in order to confirm results obtained during Phase I with a particular attention on the consumption of chemicals, energy and water. So far the results confirmed a specific consumption of sulfuric acid close to stoichiometry and a low water utilization allowing to produce highly concentrated liquors suitable for efficiently recovering iron, vanadium, titanium, and silica products. The energy consumption was kept at a minimum relying on the exothermic character of the chemical reactions involved that will allow an autogenous mode of operation when performed industrially.
- Once fully operational, the large reactor will allow efficient assessment of the technology robustness and to further optimize its design prior to building additional reactors and equipment as Phase II continues toward a targeted nameplate capacity of 1 tonne per month of VTM.
- Processing other vanadiferous concentrates and metallurgical by-products supplied from various industrial partners worldwide is also expected to facilitate scale-up to 1 tonne per month capacity and the beginning of Phase III.
- Consistent yields and recoveries (+95%) remain consistent in Phase II confirming the industrial potential of the new and greener technology that can now be applied to other vanadiferous feedstocks, hematite, vanadium slags from steel making, iron ores, and non-monetized calcine from primary vanadium producers that all contain elevated concentrations of iron which are not currently processed efficiently or at all by existing conventional technologies.
- Current focus on the preparation on vanadium chemicals and the vanadium electrolyte (VE) at Phase II scale for qualification by end users.

Adriaan Bakker, CEO of VanadiumCorp states, "Consistent results and increasing efficiencies in Phase II bode well to utilize our green processing technology for our exclusive 100% owned VTM resources and potential for mass adoption by various industries."

In Phase II, VanadiumCorp-Electrochem Technology is incorporating Electrochem's globally patented technology for electrowinning to produce high purity electrolytic iron. Scaling the process with larger infrastructure such as reactors to process larger batches of VTM is necessary to fully test production of vanadium pentoxide, vanadium electrolyte and electrolytic iron for final qualification by potential end users.

Based on the continued success within Phase II, VanadiumCorp and Electrochem are both confident about the disruptive integrated approach having a profound impact for processing vanadium and iron feedstocks in Canada and abroad with an exclusive, environmentally friendly technology developed in Quebec, Canada.

### Non-dilutive cost mitigation variables:

- Scalable infrastructure and available equipment
- Applicable grants and government incentives
- R&D tax credits
- Contribution from global partners and international interest

Electrochem Technologies & Materials Inc. is a research and development company that invents, develops, patents, scales-up and commercialize proprietary metallurgical and electrochemical technologies that are innovative, and sustainable. VanadiumCorp-Electrochem Technology is located

at Electrochem's facilities in Boucherville, Quebec.

Conventional pyrometallurgical processes used for vanadium, titanium and steel production utilize either direct soda ash roasting of the magnetite followed by water leaching, or the arc smelting and slagging of the magnetite followed by soda ash roasting of the vanadium-rich slag. Smelting or roasting is capital intensive with high operating costs, technical risks and significant emissions of greenhouse gases that pose serious environmental issues. Hydrometallurgical processes for the extraction of vanadium have been proposed in the last decade as a lower cost alternative in replacement of the conventional processes such as TNG Limited's (ASX:TNG) TIVAN® Process. However, they do not recover electrolytic iron co-product, which is expected to represent a significant portion of value. The Vanadiumcorp-Electrochem Technology addresses these key issues and allows the full recovery of vanadium for the production of either a vanadium electrolyte (VE) or vanadium chemicals used for preparing vanadium battery electrolyte as well as the concurrent production of a high quality and competitive iron co-product.

This release was approved by Mr. Rejean Girard, P. Geo. Mr. Girard is a qualified person as defined by National Instrument 43-101.

Adriaan Bakker,  
President and Chief Executive Officer

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