SUCCESSFUL COMPLETION OF VANADIUM RECOVERY PILOT PLANT TRIALS

HIGHLIGHTS

- **Successful scaled-up demonstration of Neometals' vanadium recovery process in 24-day continuous pilot trials;**
- **Confirmation of exceptional product purity (>99.5% V_2O_5) with maximum vanadium recoveries exceeding 75%;**
- **Vanadium concentrations through the process significantly higher than earlier mini-pilot results providing potential to reduce reagent volumes and equipment sizing; and**
- **Pilot campaign provides confidence and data to commence a feasibility study and has generated additional product samples for offtake evaluation**

Innovative project development company, Neometals Ltd (ASX: NMT) ("**Neometals**" or "**the Company**"), is pleased to announce successful completion of the continuous pilot trial ("**Pilot**") for the Company's Vanadium Recovery Project ("**VRP**"). The trials processed approximately 14 tonnes of vanadium-bearing steel by-product ("**Slag**") over 24 days from 3 Scandinavian steel mills. Results confirmed excellent vanadium chemical product purity (consistently higher that 99.5% V_2O_5) and strong recoveries (recoveries exceeded 75% during steady state) for Neometals' patent pending hydrometallurgical process for recovering vanadium from Slag.

As previously announced (*refer to ASX announcement titled "Neometals Signs High-Grade Vanadium Recycling Agreement" dated 6th April 2020),* Neometals executed a collaboration agreement with Critical Metals Ltd ("**Critical**"), to jointly evaluate the feasibility of constructing a facility to recover and process high-grade vanadium products from Slag generated by steel producer SSAB in Scandinavia. Neometals is funding and managing the evaluation activities, including pilot trials and evaluation studies up to consideration of a final investment decision, which, if positive, will earn Neometals a 50% interest in an incorporated joint venture ("**JV**") with Critical.

Neometals is pleased to report the Pilot was constructed, commissioned and operated continuously through three trials (one for each source of Slag) without any safety incidents or process challenges (see Figure 1). The Pilot confirmed, at a 25 times higher throughput rate, the earlier mini-pilot plant results (*for further details see Neometals announcement titled "Vanadium Recovery – Mini-Pilot Results and Award of PFS" dated 4th November 2020*). Of particular importance was the increase in vanadium concentrations achieved during the Pilot which offers potentially significant operating and capital cost savings in the product recovery stages of the process. Passing this major technical milestone is important and gives Neometals strong confidence to select engineers, commence the Feasibility Study ("**FS**") and provide larger samples for product evaluation and offtake discussions.

Neometals Managing Director Chris Reed commented:

"We are very pleased to confirm, at scale, the exceptional product purities and recoveries from our proprietary, carbon sequestering, vanadium recovery process. Data from the Pilot will now feed into our Feasibility Study to confirm potential lowest-quartile operating costs and leading capital cost estimates from the earlier PFS. The Pilot has significantly de-risked the project enabling the acceleration of commercial offtake discussions, reagent sourcing and approvals processes for the development of the project at the Port of Pori, Finland."

ACN 099 116 361
Level 1, 1292 Hay Street
West Perth WA 6005

Locked Bag 8
West Perth WA 6872

T: +61 8 9322 1182
F: +61 8 9321 0556

info@neometals.com.au
neometals.com.au

Figures 1 - 11 - *Selected images of the Pilot;*
Row 1 (Figures 1 – 3, left-right): the ball mill, the leach feed tanks, the integrated leach and regrind circuit
Row 2 (Figures 4 – 6, left-right): the leach residue filter, the leach residue filter cake and the solvent extraction circuit
Row 3 (Figures 7 – 11, left-right): the leach feed conditioning filter, the process water evaporator, the desilication filter, the AMV filter and an example batch of AMV filter cake.

Pilot Campaigns

The Neometals vanadium processing flowsheet involves comminution followed by leaching in alkaline carbonate process water, an integrated three stage leach with interstage regrind circuit and finally leach discharge filtration and solids washing. The solid residue is repulped and washed to further recover soluble vanadium (and sodium) species and lower the levels of these elements in the final leach residue, a stabilised slag material ("**SSM**"). The 'pregnant leach solution' ("**PLS**") is further filtered to remove any colloidal silica prior to the vanadium selective solvent extraction circuit which produces an alkaline vanadium strip solution appropriate for a conventional vanadium pentoxide ("**V_2O_5**") circuit involving desilication, ammonium metavanadate ("**AMV**") precipitation and subsequent calcination (de-ammoniation).

The Pilot was undertaken at a commercial laboratory in Perth, Western Australia and represents part of the pre-development activities for a proposed vanadium recovery JV targeting production of high-purity vanadium pentoxide, V_2O_5. Neometals milled and processed over 14 tonnes of Slag in three campaigns, sequentially processing Slag from SSAB's Luleå, Raahe and Oxelösund operations. Targeting 25 kg/h dry Slag equivalent feed to the leach circuit, the Pilot operated for **576** incident free hours over the three campaigns including milling, leaching, solid liquid separation, repulp washing of leach residue, PLS conditioning, solvent extraction, desilication and AMV production. During the campaigns, approximately 40m^3 of PLS was generated and processed through a conventional mixer-settler solvent extraction system incorporating extraction, scrub and strip stages. At steady state higher than anticipated strip liquor concentrations of vanadium were consistently generated and these were processed through conventional desilication, AMV precipitation. Subsequent AMV de-ammoniation produced V_2O_5 with a purity consistently

exceeding 99.5%. The improvement in strip solution concentrations reduces the processing volumes, the consumption of sodium hydroxide and sulphuric acid and the volume of sodium sulphate by-product that will be generated in the flowsheet. All of these factors have a positive implication in reducing the potential size of the purification and product handling circuit and associated operating and capital costs.

AMV and V_2O_5 product samples are already en-route to potential off-take partners in Europe and Japan for testing in high tech applications (including testing in batteries)

The residual material from the leach circuit was removed using a pressure filter and washed on the filter to reduce potential entrainment losses of vanadium or reagents to the solids. The solid residue from the process was repulped in warm water to further remove soluble vanadium and sodium containing species and return the target value metal and reagent to the leach circuit. The vanadium in wash waters is collected by ion exchange and concentrated in the eluant before being returned to the vanadium purification circuit. The well washed leach residue, SSM, is expected to be a by-product potentially suitable for use in a range of industries such as concrete and building materials. Following Neometals' initial market evaluation studies, samples of this SSM, generated from the Pilot have been dispatched to a number of potential users in Europe.

Bench scale, mini-pilot plant and now pilot plant results support the flowsheet presented in the schematic shown in Figure 12. In a commercial operation, the Neometals/Critical JV anticipates feeding 200,000 dry tonnes per annum of Slag into a circuit which will incorporate a multi-staged integrated mill/leach circuit using a weakly alkaline sodium carbonate leaching system at atmospheric pressure and only moderate temperatures. The carbonate in the leach circuit is regenerated using up to 65,000 tonnes per annum carbon dioxide (the most voluminous reagent in the flowsheet) while top-up sodium carbonate will be used to replace any sodium ions lost in the solid residue. The carbon dioxide will be sourced from an emission source and thus the operation is expected to be extremely low or at 'net zero' in terms of carbon footprint / carbon dioxide emissions (as confirmed by an independent life cycle assessment of the flow sheet).

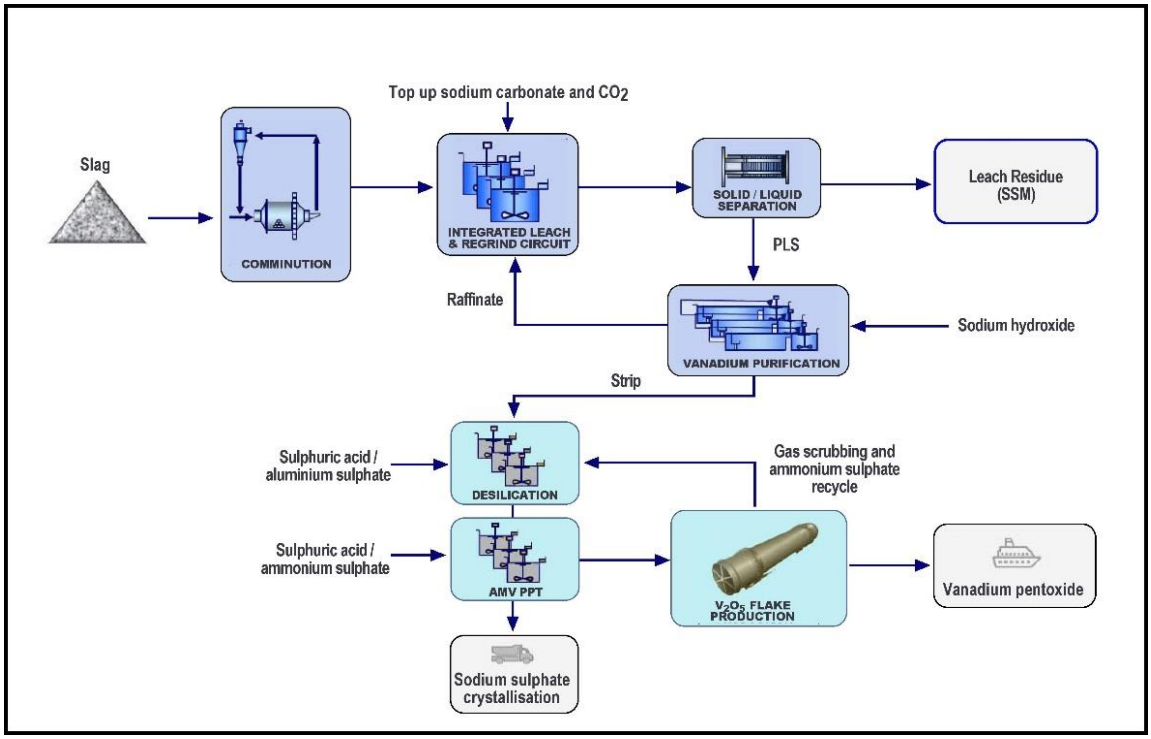

Figure 12 - *Schematic description of the Vanadium Recovery Project flowsheet*

Next steps

The Pilot has confirmed an optimal process flowsheet and reagent regime. Neometals is now finalising the process design package and engineering contractor selection to deliver an AACE Class 3 (Feasibility) Study to SSAB by 30 June 2022.

The product samples (AMV, V_2O_5 and SSM) will continue to be progressively delivered to potential offtake parties to advance commercial discussions.

Figure 13 –*Selected Bags of AMV product (weighing 3-5kg each) produced during the pilot plant operation*

Authorised on behalf of Neometals by Christopher Reed, Managing Director

ENDS

For further information, please contact:

Chris Reed
Managing Director
Neometals Ltd
T: +61 8 9322 1182
E: info@neometals.com.au

Jeremy Mcmanus
General Manager - Commercial and IR
Neometals Ltd
T: +61 8 9322 1182
E: jmcmanus@neometals.com.au

About Neometals Ltd

Neometals innovatively develops opportunities in minerals and advanced materials essential for a sustainable future. With a focus on the energy storage megatrend, the strategy focuses on de-risking and developing long life projects with strong partners and integrating down the value chain to increase margins and return value to shareholders.

Neometals has three core projects that support the global transition to clean energy and span the battery value chain:

Recycling and Resource Recovery:

- Lithium-ion Battery Recycling – a proprietary process for recovering nickel, cobalt and other valuable materials from spent and scrap lithium batteries. Completing construction of demonstration scale plant with 50:50 JV partner SMS group. Targeting a development decision in Mar Q 2022; and
- Vanadium Recovery – sole funding evaluation studies to form a 50:50 joint venture with Critical Metals Ltd to recover high-purity vanadium pentoxide from processing by-products ("Slag") from leading Scandinavian steelmaker SSAB. Underpinned by a 10-year Slag supply agreement, Neometals is targeting an investment decision to develop a 200,000tpa processing plant in DecQ 2022.

Upstream Industrial Minerals:

- Barrambie Titanium and Vanadium Project - one of the world's highest-grade hard-rock titanium-vanadium deposits, working towards a development decision in 2022 with potential operating JV partner IMUMR and potential cornerstone product off-taker, Jiuxing Titanium Materials Co.