BARRAMBIE UPDATE – TITANIUM MILESTONE ACHIEVED

HIGHLIGHTS

- **Key milestone achieved for the all-hydrometallurgical process flowsheet to recover titanium and vanadium chemicals from Barrambie**
- **Independent test-work generates high purity (+99%) titanium chemical at high recovery rate (+98%)**
- **Construction of Australian pilot plant materially complete – titanium processing imminent**
- **Commenced preparation in Australia of concentrate feedstocks for proposed demonstration plant.**

Neometals Ltd (ASX: NMT) ("**Neometals**" or "**the Company**") is pleased to provide an update on its Barrambie Titanium and Vanadium Project ("**Barrambie**") and confirm the successful recovery of high purity (+99%) titanium chemicals (hydrated titanium dioxide – TiO2.2H2O) from the hydrometallurgical processing stage of its preferred process flowsheet. Titanium hydrolysate is an intermediate in the production of titanium pigment, which has a global market of around 7 million tonnes per annum. Neometals is currently testing its use as a feedstock to make titanium metal powder and has previously produced an emerging lithium battery anode material, lithium titanate.

Neometals is firmly focused on recovering value from both the titanium and vanadium content of its resource (see Neometals ASX release dated 22nd May 2019). This is best achieved by an all hydrometallurgical flowsheet focused on the recovery of a pure titanium hydrolysate (hydrated titanium dioxide – TiO2.2H2O) as well as a vanadium pentoxide by-product.

This result confirms the technical feasibility of the Neometals hydrometallurgical flowsheet to produce a high purity titanium chemical at good recoveries, a key driver of project economics, that exceed Neometals expectations.

The Company remains on schedule to complete of the titanium stage of the pilot in December 2019 with IMUMR scheduled to be in Perth second week of December to observe the running of the staged pilot plant.

Neometals' Managing Director Chris Reed commented:

"We are very pleased with the optimisation test work results for Barrambie and are looking forward to producing evaluation samples from the pilot to provide to titanium feedstock buyers. The world is past the peak supply point with respect to high-grade titanium feedstocks used by the chloride titanium pigment and metal producers. Barrambie will be very well placed to provide a long-term, reliable supply of environmentally sustainable, high-grade titanium feedstocks for the highest quality applications."

TECHNICAL REPORT

Figure 1 below shows the flowsheet currently the focus of metallurgical work.

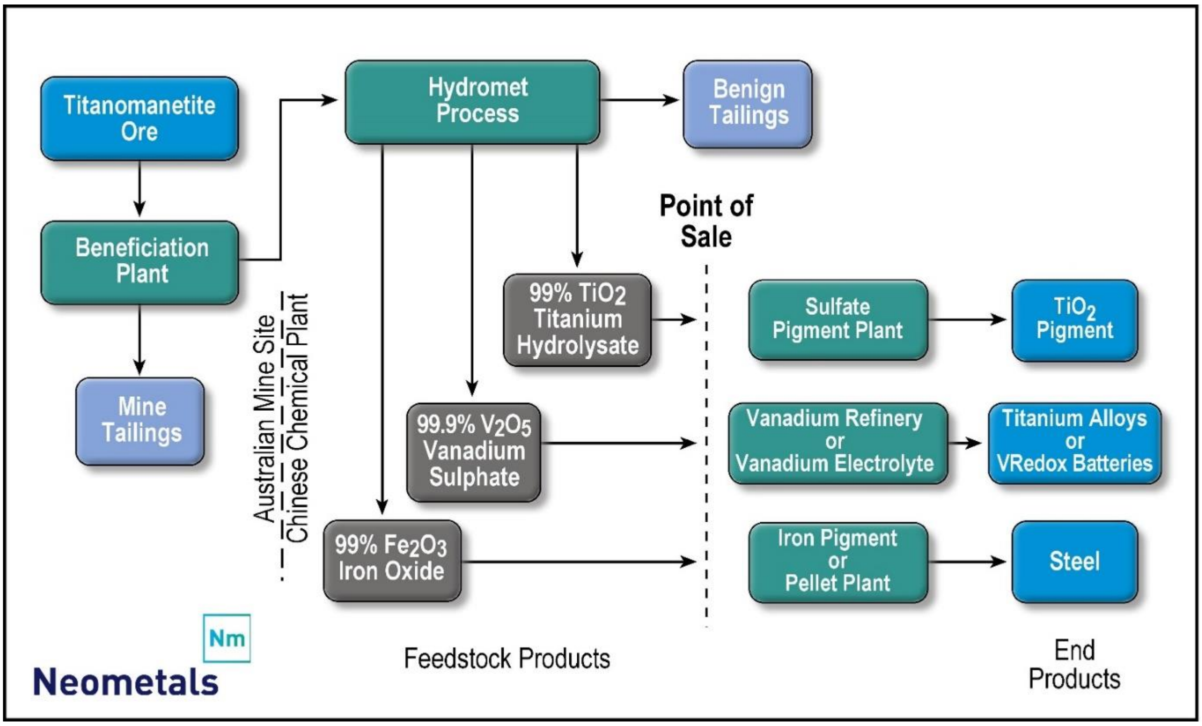

Figure 1 – *Base case hydrometallurgy flowsheet*

Staged pilot work on this flowsheet commenced at Neometals' laboratory facilities in Montreal and is continuing at Strategic Metallurgy's facilities in Perth. Approximately 800kg of Barrambie Eastern band mineral concentrates were leached in hydrochloric acid to produce:

1. **Bulk pregnant leach solution** (~ 2,200L) at a vanadium recovery of 70% for future piloting for the production of vanadium chemicals. SGS Lakefield in Canada has completed bench scale vanadium solvent extraction ("**SX**") process development work and produced vanadyl sulphate, a precursor for vanadium flow battery electrolyte. Strategic Metallurgy is currently testing at bench scale the production of pure vanadium pentoxide, which has the largest target market. The outcomes from this work will guide the design and operation of a pilot plant to produce vanadium chemicals.

Figure 2 – *Batch vanadium reactors in operation at the Company's Montreal facilities*

2. **Bulk leach residue** (~500kg) at a titanium recovery of 99%. The leach residue was transported from Montreal to Strategic Metallurgy in Perth. Initial bench-scale leaching and precipitation work has produced (see Figure 3 below) high purity (>98% pure TiO_2) titanium hydrolysate (low-iron ~1% Fe_2O_3), a high value feedstock for titanium pigment and metal producers. A small pilot-scale facility is currently under construction at Strategic Metallurgy (see Figure 4 below). This will be used to process the leach residue for the recovery of titanium hydrolysate for product development and evaluation purposes.

Figure 3 – *Titanium hydrolysate production from bench test work on Barrambie leach residue*

Figure 4 – *Titanium hydrolysate staged pilot plant construction nearing completion at Strategic Metallurgy's facilities in Perth*

NEXT STEPS

IMUMR will be visiting Perth in December to observe the running of the plant and to workshop outcomes from their review of potential sites for downstream processing in China.

Under the MOU with IMUMR, subject to favourable staged pilot study results and subject to a decision to proceed with a Chinese demonstration plant, Australian prepared mineral concentrate will be sent to China in the first quarter of 2020 for processing through the demonstration plant. These concentrates are being prepared via an improved beneficiation flowsheet developed as a result of extensive bench-scale optimization test-work on Eastern Band material.

Pursuant to the MOU, IMUMR will fund the demonstration plant program at its extensive research facilities in China for the parties to consider jointly funding a Class 3 Engineering Cost Study ("**ECS**") to evaluate a mining and concentrating operation at Barrambie with subsequent downstream processing in China. Following completion of the ECS, the parties will review the results to determine whether to proceed to a financial investment decision and negotiate in good faith the terms of the 50:50 production JV.

ENDS

COMPETENT PERSONS STATEMENT

Metallurgy

The information in this report that relates to metallurgical test work results is based on information compiled and / or reviewed by Mr Gavin Beer who is a Member and Chartered Professional of The Australasian Institute of Mining and Metallurgy. Mr Gavin Beer is an employee of the Company and has sufficient experience relevant to the activity which he is undertaking to be recognised as competent to compile and report such information. Mr Gavin Beer consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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About Neometals Ltd

Neometals innovatively develops opportunities in minerals and advanced materials essential for a sustainable future. 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:

- Lithium-ion Battery Recycling – a proprietary process for recovering cobalt and other valuable materials from spent and scrap lithium batteries. Pilot plant testing currently underway with plans established to conduct demonstration scale trials with potential JV partner SMS Group;
- Lithium Refinery Project – Progressing plans for a lithium refinery development to supply lithium hydroxide to the battery cathode industry with potential JV partner Manikaran Power, underpinned by a binding life-of-mine annual offtake option for 57,000 tonnes per annum of Mt Marion 6% spodumene concentrate; and
- Barrambie Titanium and Vanadium Project - one of the world's highest-grade hard-rock titanium-vanadium deposits, working towards a development decision in mid-2021 with potential JV partner IMUMR.

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JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Metallurgical drilling comprises 20 PQ core holes. Core was ¼ cut for assaying in 1-meter lengths.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Metallurgical drilling was conducted by PQ drilling technique.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• A quantitative logging code was used to record recovery for the recent RC and DD drilling. Recovery of samples is considered to be good.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	• Geological logging of core and rock chips was carried out recording lithology, major minerals, oxidation, colour, texture, mineralisation, water and recovery. The logging was carried out in sufficient detail to meet the requirements of

Criteria	JORC Code explanation	Commentary
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	resource estimation and mining studies.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• All samples were dried, crushed to approximately 2mm, split and pulverized.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• No field QAQC data was conducted by Neometals. Intertek Genalysis conducted their own internal QAQC, with no issues being reported.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Data was recorded in the field on paper logs and transferred to individual .xls files prior to merging with project database. No twin holes were drilled and no verification of significant intersections by independent laboratories has been undertaken.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill collar and azimuth were pegged in the field using GDA94 system by independent surveyors.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Metallurgical holes were spaced at 50m intervals along the strike of the Barrambie mineralisation.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Metallurgical holes were drilled within the plane of the Barrambie mineralisation.
Sample security	• *The measures taken to ensure sample security.*	• Samples were stored onsite and transported to the laboratory on a regular basis by Neometals employees.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews of sampling techniques and data have been conducted.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Barrambie mineralisation is within 100% owned granted mining lease M57/173 in the Eastern Murchison Goldfields. No known impediments exist in the area.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• No relevant exploration has been completed by other parties to acknowledge or appraise at this time.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The ferrovanadium titanium (Ti-V-Fe) deposit occurs within the Archaean Barrambie Greenstone Belt, which is a narrow, north-northwest to south-southeast trending greenstone belt in the northern Yilgarn Craton. The linear greenstone belt is about 60 km long and attains a maximum width of about

Criteria	JORC Code explanation	Commentary
		4 km. It is flanked by banded gneiss and granitoids. The mineralisation is hosted within a large layered, mafic intrusive complex (the Barrambie Igneous Complex), which has intruded into and is conformable with the general trend of the enclosing Greenstone Belt. From aeromagnetic data and regional geological mapping, it appears that this layered sill complex extends over a distance of at least 25 km into tenements to the north and south of M57/173 that have been acquired by Neometals. The layered sill varies in width from 500 m to 1,700 m. The sill is comprised of anorthositic magnetite-bearing gabbros that intrude a sequence of metasediments, banded iron formation, metabasalts and metamorphosed felsic volcanics of the Barrambie Greenstone Belt. The metasediment unit forms the hanging-wall to the layered sill complex. Exposure is poor due to deep weathering, masking by laterite, widespread cover of transported regolith (wind-blown and water-borne sandy and silty clay), laterite scree and colluvium. Where remnant laterite profiles occur on low hills, there is ferricrete capping over a strongly weathered material that extends down to depths of 70 m. Ti-V-Fe mineralisation occurs as bands of cumulate aggregations of vanadiferous magnetite (martite)-ilmenite (leucoxene) in massive and disseminated layers and lenses. Within the tenement the layered deposit has been divided into five sections established at major fault offsets. Cross faults have displacements that range from a few metres to 400 m. The water table occurs at about 35 m below the surface (when measured where the laterite profile has been stripped).
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• No new exploration results being reported. Exploration results can be found in previous public reports.

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Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No new exploration results being reported. Exploration results can be found in previous public reports.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• There are no new exploration results to report. For past news releases of exploration results, all holes drilled at an angle of 60° from the horizontal toward grid east or west, depending on the apparent dip of mineralised bands. All depths and intercept lengths are down-hole distances and not intended to represent the true width of high-grade bands. Metallurgical holes were drilled within the plane of the mineralisation (i.e. down-dip) and therefore do not reflect the true width of the orebody.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• All appropriate maps (with scales) and tabulations of survey parameters are reported.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Due to size of the drill hole database, it is not practicable to report all drilling results. Cut-off grade for reporting is a natural well-defined boundary for the higher-grade massive magnetite bands that will be the principal target for selective mining of the deposit.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Only drill hole data used for resource calculation purposes.