NAMIBIA CRITICAL METALS INC.

# Press Release

## Namibia Critical Metals Inc.

## Lofdal Heavy Rare Earth Deposit: Successful hydrometallurgical test work results in highly efficient process to produce a market ready >98% Rare Earth Oxide product

**Halifax, Nova Scotia October 7, 2021** – Namibia Critical Metals Inc. ("Namibia Critical Metals" or the "Company" or "NMI") (TSXV:NMI) is pleased to provide an update on the development of the Lofdal Heavy Rare Earth project since granting of the Mining Licence in July this year. The Lofdal Heavy Rare Earth Deposit is one of only two primary xenotime projects under development in the world. The deposit has the potential for significant production of dysprosium and terbium, the two most valuable heavy rare earth elements used in high powered magnets and other high-tech applications. The Project is being developed in joint venture with Japan Oil, Gas and Metals National Corporation ("JOGMEC") targeting a long term, sustainable supply of heavy rare earths to Japan.

The Company has successfully completed hydrometallurgical test work to develop a flowsheet capable of producing a high-grade rare-earth oxide product from a xenotime flotation concentrate. The Company's lead metallurgical consultants at SGS Minerals Services Canada (SGS) have simplified the final process stage with an acid bake to crack the mineral xenotime, to purify the pregnant leach solution and to precipitate a rare earth oxalate, which is subsequently calcined to form a product containing >98% total rare earth oxides (TREO). The acid bake process and concurrent removal of impurities is highly efficient and resulted in a 95% recovery of Dysprosium and Terbium in the leaching operation of the processing flow sheet. The high-quality product is practically free of typical deleterious elements like thorium and uranium (<3 ppm combined U+Th).

Darrin Campbell, President of Namibia Critical Metals stated:

*These very positive test results are another big milestone for the Lofdal project and show that we are on the right path towards establishing that Lofdal can produce a valuable heavy rare earth product. This will allow us to advance an updated assessment of large-scale and integrated rare earth production towards a high purity Rare Earth Oxide product in Namibia. This would result in further value addition in Namibia and puts the country on the global map of rare earth supply strategies."*

### *Hydrometallurgical test work and results*

Two flotation concentrates produced by processing of bulk samples from the Lofdal deposit were tested at the laboratories of SGS in Lakefield, Ontario, to determine the potential for producing a marketable rare earth product with minimal impurities. Previous

hydrometallurgical test work had focused on more costly caustic cracking following gangue acid leach. The comprehensive test work at SGS has demonstrated the acid bake route is preferred due to lower reagent costs and higher recovery of the heavy rare earths.

A total of 12 acid bake and water leach tests were completed throughout the test program to investigate the dissolution of rare earth elements (REE) and the behaviour of gangue minerals through the addition of sulphuric acid at elevated temperatures (200-300°C). Optimum results were achieved using an acid addition of 1250 kg/t $H_2SO_4$ at 300°C followed by a water leach at 20% solids by weight at 25°C. Under these conditions, the tests showed very good REE recoveries with 97-98% for yttrium, 95% for dysprosium and 94-95% for terbium.

*Table 1: Elemental composition of the calcined oxalate*

| | % oxide |
|---|---|
| La2O3 | 2.79 |
| CeO2 | 5.29 |
| Pr6O11 | 0.55 |
| Nd2O3 | 1.89 |
| Sm2O3 | 0.87 |
| Eu2O3 | 0.54 |

| | % oxide |
|---|---|
| Gd2O3 | 3.48 |
| Tb4O7 | 0.91 |
| Dy2O3 | 7.20 |
| Ho2O3 | 1.66 |
| Y2O3 | 62.10 |
| Er2O3 | 5.29 |
| Tm2O3 | 0.72 |
| Yb2O3 | 4.25 |
| Lu2O3 | 0.57 |

| | % oxide |
|---|---|
| SiO2 | 0.41 |
| Al2O3 | 0.01 |
| Fe2O3 | 0.01 |
| MgO | 0.50 |
| CaO | 0.22 |
| K2O | 0.01 |
| TiO2 | 0.01 |
| P2O5 | 0.01 |
| MnO | 0.01 |

Impurity removal test work using magnesium carbonate and hydrogen peroxide resulted in maximum precipitation of iron and thorium from the pregnant leach solution while minimizing REE co-precipitation. An intermediate and impure REE precipitate was produced via the addition of soda ash (sodium carbonate) solution.

The intermediate REE precipitate was re-leached in sulphuric acid using a two-stage sulphuric acid process at 50°C to achieve a pulp pH of around 3.5. This step resulted in the production of a concentrated REE liquor representing 99% of the available REE and also rejected 94% of the thorium, 85% of the aluminum, and 99% of the remaining iron.

To remove residual uranium and thorium, the re-leach liquor was processed through sequential ion exchange (Purolite A660) and solvent extraction (0.5% Primene JMT, 2.5% isodecanol in Aromatic 150ND) steps to selectively remove uranium and thorium from the REE liquor. Consequently, 99.9% of the uranium was removed in the IX contacts. A significant fraction (94%) the thorium was also removed in the IX steps and 75% of the remaining thorium was removed in the solvent extraction steps. The practically thorium-free raffinate from the solvent extraction step advanced to final REE precipitation with oxalic acid and calcination of the REE oxalate.

In the REE oxalate precipitation step, all REE were precipitated with minimal co-precipitation of impurities such as sodium, magnesium, silica and calcium. The final REE oxalate was calcined and produced a final solid containing 98.1% total rare earth oxides (TREO) or 86.2% of heavy rare earth oxides (HREO). High leach extractions of ~95% were achieved in the test

program and REE losses in the REE recovery steps (as shown in Figure 1) are expected to be minimal.

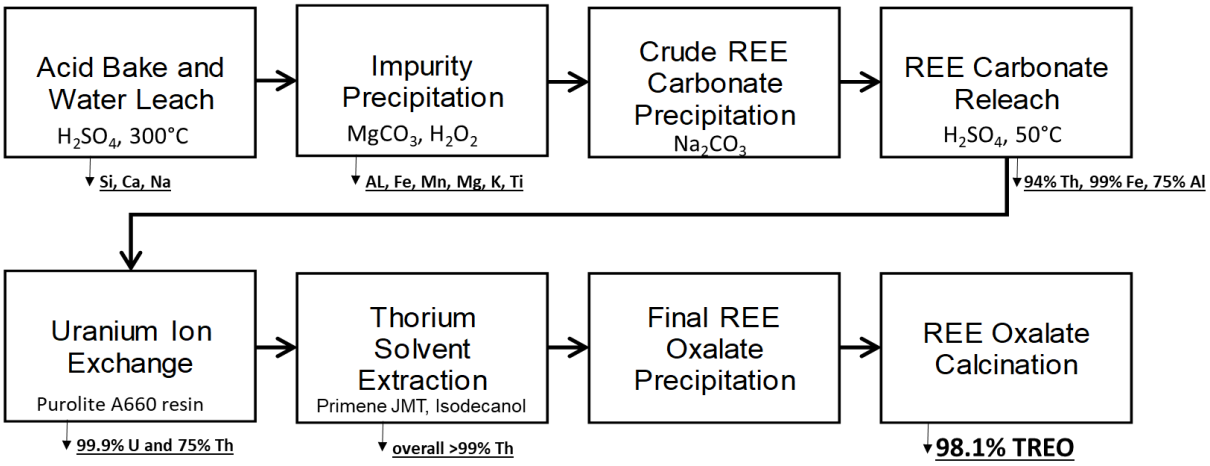


*Figure 1: Hydrometallurgical process flowsheet developed using Lofdal flotation concentrate*

While the results are extremely positive, there remains room to optimise these processes regarding OPEX and CAPEX as well as recoveries. This final optimisation on flotation concentrate produced from the currently mined bulk samples is planned for 2022.

***Planning for further value addition in Namibia***

The positive hydrometallurgical test results allow for planning of value addition beyond the production of a xenotime concentrate at the Lofdal Mine providing for a win-win for the country and the company.

The addition of a hydrometallurgical plant would create further jobs in the southern Kunene Region of Namibia, and provides a marketable product for export as the rare earth oxalate with thorium and uranium levels below 3 ppm would be acceptable for import into Japan without restrictions or penalties.

***About Japan Oil, Gas and Metals National Corporation (JOGMEC)***

JOGMEC is a Japanese government independent administrative agency which among other things seeks to secure stable resource supplies for Japan. JOGMEC has a strong reputation as a long term, strategic partner in mineral projects globally. The mandated areas of responsibilities within JOGMEC relate to oil and natural gas, metals, coal and geothermal energy. JOGMEC facilitates opportunities with Japanese private companies to secure supplies of natural resources for the benefit of the country's economic development.

Rare earths are of critical importance to Japanese industrial interests and JOGMEC has extensive experience with all aspects of the sector. JOGMEC provided Lynas with

US$250,000,000 in loans and equity in 2011 to ensure supplies of the Light Rare Earths metals suite to the Japanese industry.

The Company currently owns a 95% interest in the Lofdal project with the remaining 5% held for the benefit of historically disadvantaged Namibians. The terms of the JOGMEC joint venture agreement with the Company stipulate that JOGMEC provides $3,000,000 in Term 1 and $7,000,000 in Term 2 to earn a 40% interest in the Lofdal project. Term 3 calls for a further $10,000,000 of expenditures to earn an additional 10% interest. JOGMEC can also purchase another 1% for $5,000,000 and has first right of refusal to fully fund the project through to commercial production and to purchase all production at market prices. The collective interests of NMI and historically disadvantaged Namibians cannot be diluted below a 26% carried working interest upon payment of $5,000,000 to JOGMEC for the dilution protection. The JV Agreement is structured such that no NMI equity will be issued and it is totally non-dilutive to NMI shareholders. To date, JOGMEC, has funded Term 1 and 2 expenditures totaling $6,600,000.

***About Namibia Critical Metals Inc.***

Namibia Critical Metals Inc. holds a diversified portfolio of exploration and advanced stage projects in the country of Namibia focused on the development of sustainable and ethical sources of metals for the battery, electric vehicle and associated industries. The two advanced stage projects in the portfolio are Lofdal and Epembe. The Company also holds significant land positions in areas favourable for gold mineralization.

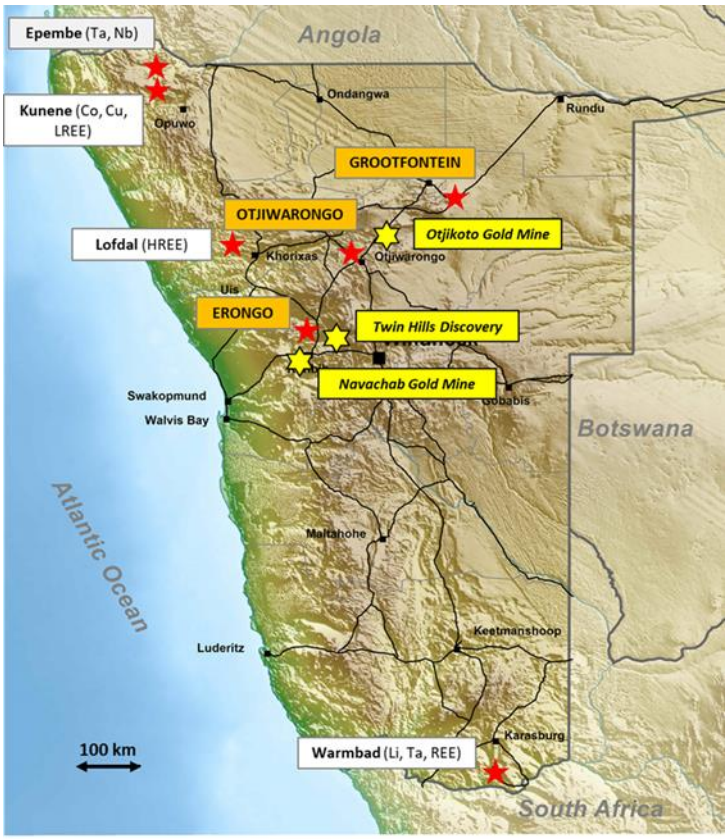


*Figure 2: Location of Namibia Critical Metals' projects highlighting position of gold projects (Erongo, Otjiwarongo and Grootfontein) in relation to important gold projects within the Navachab-Otjikoto gold belt*

**Heavy Rare Earths:** The **Lofdal Dysprosium-Terbium Project** is the Company's most advanced project being fully permitted with a Mining Licence (ML 200) issued in 2021. The project is being developed in joint venture with Japan Oil, Gas and Metals National Corporation ("JOGMEC") to provide a sustainable supply of heavy rare earths to Japan, most notably dysprosium and terbium.

**Gold:** The Company's Exclusive Prospecting Licenses ("EPLs") prospective for gold are located in the Central Namibian Gold Belt which hosts a number of significant orogenic gold deposits including the Navachab Gold Mine, the Otjikoto Gold Mine and more recently the discovery of the Twin Hills deposit. At the **Erongo Gold Project**, stratigraphic equivalents to the meta-sediments hosting the recent Osino gold discovery at Twin Hills have been identified and soil surveys are progressing over this highly prospective area. The **Grootfontein Base Metal and Gold Project** has potential for magmatic copper-nickel mineralization, Mississippi Valley-type zinc-lead-vanadium mineralization and Otjikoto-style gold mineralization. Detailed interpretation of geophysical data and regional geochemical soil sampling have identified first gold targets, with the first targets currently being drill-tested.

**Tantalum-Niobium:** The **Epembe Tantalum-Niobium-Uranium Project** is at an advanced stage with a well-defined, 10 km long carbonatite dyke that has been delineated by detailed mapping and radiometric surveys and over 11,000 meters of drilling. Preliminary mineralogical and metallurgical studies including sorting tests (XRT), indicate the potential for significant physical upgrading. Further work will be undertaken to advance the project to a preliminary economic assessment stage.

**Copper-Cobalt:** The **Kunene Copper-Cobalt Project** comprises a large area of favorable stratigraphy along strike of the Opuwo cobalt-copper-zinc deposit. Secondary copper mineralization over a wide area points to preliminary evidence of a regional-scale hydrothermal system. Exploration targets on EPLs held in the Kunene project comprise direct extensions of the cobalt-copper mineralization to the west, sediment-hosted copper, orogenic copper, and stratabound manganese and zinc-lead mineralization.

The common shares of Namibia Critical Metals Inc. trade on the TSX Venture Exchange under the symbol "NMI".

Micheal Archer of SGS is the Company's Qualified Person and has reviewed and approved the scientific and technical information in this press release.

**Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.**

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