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high-tech world.

## ASX Release

4 December 2023

### Mbelele-2 results provide further evidence for North Rukwa as a new Helium Province

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- Mbelele sample calculated free-air composition of 2% to 3% helium
  - Mbelele-2 wireline logging and sampling program successfully completed
  - Excellent reservoir parameters and flow potential
    - Total net reservoir thickness of 163m, a 243% increase over pre-drill estimates
    - High mobility, representing very high flow potential similar to Mbelele-1
  - Mbelele-2 cased and suspended for future flow testing
  - Focus to now shift to appraisal and early monetisation
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**Noble Helium Limited (ASX:NHE) (“Noble Helium” or “the Company”) has successfully completed wireline logging and sampling at the Mbelele-2 well, at the Company’s 100% owned North Rukwa Helium Project in Tanzania.**

**CEO Justyn Wood, commented:**

*“Our maiden drilling program has been an incredible success, both operationally and in confirming the potential for a significant helium resource at Mbelele. Multiple data points throughout the drilling campaign point to a prolific helium system: a probable 10-15 metre column of nitrogen and helium at the crest, helium-rich downhole samples calculated at 2-3% helium in exsolved gas and helium-rich gas bubbles in the drilling mud at multiple depths in both wells.*

*These results also significantly de-risk the balance of the Company’s North Rukwa acreage, with clear evidence we are in a globally unique and prolific helium producing system, supporting the Company’s well-researched thesis that the North Rukwa rift basin has the potential to emerge as a globally significant primary helium province.*

*The new reservoir thicknesses and other acquired data will now be applied to updating the reservoir models and other technical work with a view to satisfying the SPE-PRMS requirements for declaration of a discovery.*

*On behalf of the Board, we are extremely delighted with these initial results and look forward to providing further updates after integrated analysis of the information gathered from Mbebele-1 and Mbebele-2.”*

Mbebele-2 was spudded on 16 November at 0100hrs local time and similar to Mbebele-1 soon encountered helium-enriched gas bubbling in the mud system, initially at 140mMD, which may correlate laterally to the formation at Mbebele-1 that contained the probable nitrogen-helium gas cap at 85mMD. This bubbling with helium shows repeated at multiple intervals throughout the entire drilled section to immediately above Total Depth of 763.5mMD.

These results provide a clear indication of high levels of gas saturation and availability of helium at Mbebele, in line with the Company’s growing body of evidence and conviction that the North Rukwa Basin hosts a prolific helium system.

Preliminary interpretation of the Mbebele-2 open-hole section, drilled from casing point at 250mMD to top basement at 722mMD, shows the well encountered approximately 163m of stacked net reservoir in the Middle and Lower Lake Beds (Table 1).

This total net reservoir thickness of 163m compares very favourably to the 47.5m net reservoir encountered at Mbebele-1 in the Upper and Middle Lake Beds and is significantly greater than the pre-drill estimates (~20m in this interval).

These reservoirs are again of excellent quality. Petrophysical evaluation of SLB’s wireline logs demonstrate good to very good porosities and permeabilities, which are slightly lower than Mbebele-1 but significantly thicker. High mobilities, similar to Mbebele-1 and consistently >100mD/cP and up to 780 mD/cP, provide very high flow potential.

<b>Start Depth (mMD)</b>	<b>ZONE</b>	<b>GROSS THICKNESS (m)</b>	<b>NET THICKNESS (PHIE&gt;20%)</b>	<b>N:G (PHIE&gt;8%, Vclay&lt;50%)</b>	<b>PHIE of Net Res (%)</b>
287.2	R1	20.1	18.5	91.9%	18.4%
308.7	R2	34.5	31.6	91.6%	15.9%
345.6	R2	29.6	25.6	86.4%	12.7%
378.6	R4	15.4	14.0	90.8%	14.1%
415.1	R5	40.0	23.3	58.1%	14.1%
476.4	R6	56.2	24.8	44.1%	12.2%
576.0	R7	86.0	25.3	29.5%	11.7%
722.0	TOP BASEMENT				
TOTAL		270.8	163.0		

**Table 1.** Lake Beds Reservoirs encountered in the 8.5” section at Mbebele-2 (wireline porosities)

The initial Mbebele-2 sample results are extremely encouraging and appear consistent with the Mbebele-1 results below. Limitations with the onsite facilities require that the helium concentrations from the samples recovered to surface be verified in the laboratory.

Since gathering the original air-contaminated Mbebele-1 samples, the Company has undertaken work with the University of Queensland to assist in calculating the air-free helium concentrations and can advise a Company-estimated air-free helium percentage of the exsolved gas of between 2% and 3% across all samples at Mbebele-1. The balance of the gas is Nitrogen with no evidence of CO<sub>2</sub> or hydrocarbons. This is of course subject to ultimate confirmation from the full laboratory analysis and the Mbebele-1 samples are currently enroute to labs in the US and Australia for independent analysis, with the Mbebele-2 samples now in close pursuit.

The Company has been in discussion with NSAI in relation to SPE-PRMS requirements for declaring a discovery and also the data required for our early monetisation opportunity. The next steps in order to be in a position to be able to declare a discovery are within reach - results of the lab analysis, updating the Company's Petrel™ model with all of the upgraded data acquired from Mbebele-1 and Mbebele-2, completion of the reservoir flow modelling in partnership with University of Queensland with the potential addition of in-field flow testing.

Collectively, these results point to a potentially very significant helium resource resident and producible from within the Mbebele structure's reservoirs. Planning is now underway to move as quickly as possible to flow testing Mbebele-2 in the Lake Beds and test the potential shallow gas column identified at Mbebele-1. This information will be critical in executing our early monetization strategy.

With Wireline logging and testing now completed at the current well, Mbebele-2 has now been cased and suspended for future flow testing and as a potential future producer well. The Marriott rig #16 is being stacked onsite at Mbebele-2 to enable rapid return to Operation as required.

Mbebele contains Neogene-aged Lake Beds and is located on the western side of the North Rukwa Basin, some 190 km northwest of Mbeya and 825km inland from Tanzania's main port city of Dar es Salaam.

***This announcement has been authorised for release on ASX by Noble Helium's Board of Directors.***

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### Forward-looking statements

This announcement may contain certain “forward-looking statements”. Forward looking statements can generally be identified by the use of forward-looking words such as, “expect”, “should”, “could”, “may”, “predict”, “plan”, “will”, “believe”, “forecast”, “estimate”, “target” and other similar expressions. Indications of, and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this presentation are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements including projections, guidance on future earnings and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance.

### Competent Persons Statement

The technical information provided in this announcement has been compiled by Mr. Ashley Howlett, Exploration Manager, Professor Andrew Garnett, Non-Executive Director, and Mr. Justyn Wood, Chief Executive Officer, all of Noble Helium Limited. The resource estimates have been prepared in accordance with the definitions and guidelines set forth in the Petroleum Resources Management System, 2018, approved by the Society of Petroleum Engineers.

Mr Howlett is a qualified geologist with over 20 years technical, and management experience in exploration for, appraisal and development of, oil and gas resources. Mr Howlett has reviewed the results, procedures and data contained in this announcement and consents to the inclusion in this announcement of the matters based on the information in the form and context in which it appears.

### Cautionary Statement for Prospective Resource Estimates

With respect to the Prospective Resource estimates contained within this report, it should be noted that the estimated quantities of gas that may potentially be recovered by the future application of a development project relate to undiscovered accumulations. These estimates have an associated risk of discovery and risk of development. Further exploration and appraisal is required to determine the existence of a significant quantity of potentially moveable helium.

## Primary helium for a high-tech world.

Noble Helium is answering the world’s growing need for a primary, ideally carbon-free, and geo-politically independent source of helium. Located along Tanzania’s East African Rift System, the Company’s four projects are being advanced according to the highest ESG benchmarks to serve the increasing supply chain fragility and supply-demand imbalance for this scarce, tech-critical and high-value industrial gas.

Our flagship North Rukwa Project has an independently certified, summed unrisks mean Prospective Helium Resource of 176 billion cubic feet (equivalent to approximately 30 years’ supply). The project lies within the Rukwa Basin, which has the potential to be the world’s third largest helium reserve behind USA and Qatar.

Priced at up to 50 times the price of LNG in liquid form, helium is now essential to many modern applications as an irreplaceable element in vital hi-tech products such as computer and smartphone components, MRI systems, medical treatments, superconducting magnets, fibre optic cables, microscopes, particle accelerators, and space rocket launches – NASA is a major consumer. Rising demand and constrained supply are fuelling growth prospects within the global marketplace, particularly for cleaner “green helium” sourced from non-carbon environments. At present, more than 95% of the world’s helium is produced as a by-product of the processing of hydrocarbon-bearing gas.

Additionally, Noble Helium has commissioned the first ever Helium Atlas, with an exclusive five-year agreement allowing the Company to identify additional prospective areas to target for diversification. The Atlas uniquely positions Noble Helium as a world leading helium explorer.

