

## ASX Release

7 February 2024

# Mbelele lab results confirm high helium concentrations at North Rukwa Project

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## Highlights

- Helium concentration of 2.46% confirmed in highly permeable reservoirs at the North Rukwa Project's Mbelele prospect
  - Full section net reservoir increased by over three times to 148m in Mbelele-1 and almost two times to 271m in Mbelele-2 after whole wellbore petrophysics analysis
  - Hydrogen shows at up to 1,500 times background consistently for the upper 350m of Mbelele-2
  - Funding in place to complete all required appraisal work
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**Noble Helium Limited (ASX:NHE) ("Noble Helium" or "the Company") confirms the Mbelele prospect at its North Rukwa Project in Tanzania has returned very high helium concentrations of 2.46% following lab testing.**

The results are in line with the Company's initial field calculations based on the gas recovered from helium-enriched fluids across multiple reservoirs during the two-well drilling campaign in the December quarter. Results compare favourably against other helium projects around the world. To put it in perspective, Mbelele's helium concentrations are more than seven times the USA's average concentrations of 0.35%. Average helium concentrations in the established production precincts of Qatar and Algeria are 0.05% and 0.19% respectively.<sup>1</sup>

**Noble Helium's Chairman, Mr Shaun Scott, said the lab results were an exceptional outcome for the company.**

*"Many positives are now aligning. The Mbelele structure has very good helium concentrations contained within exceedingly thick, porous, permeable and stacked reservoirs, and we're now pursuing low-cost testing, production and development technologies," Mr Scott said.*

*"Further, this result doesn't include the shallower gas cap which wasn't sampled due to operational constraints. When you consider there's a noticeable increase in helium concentration from deep to shallow, the upside looks very exciting."*

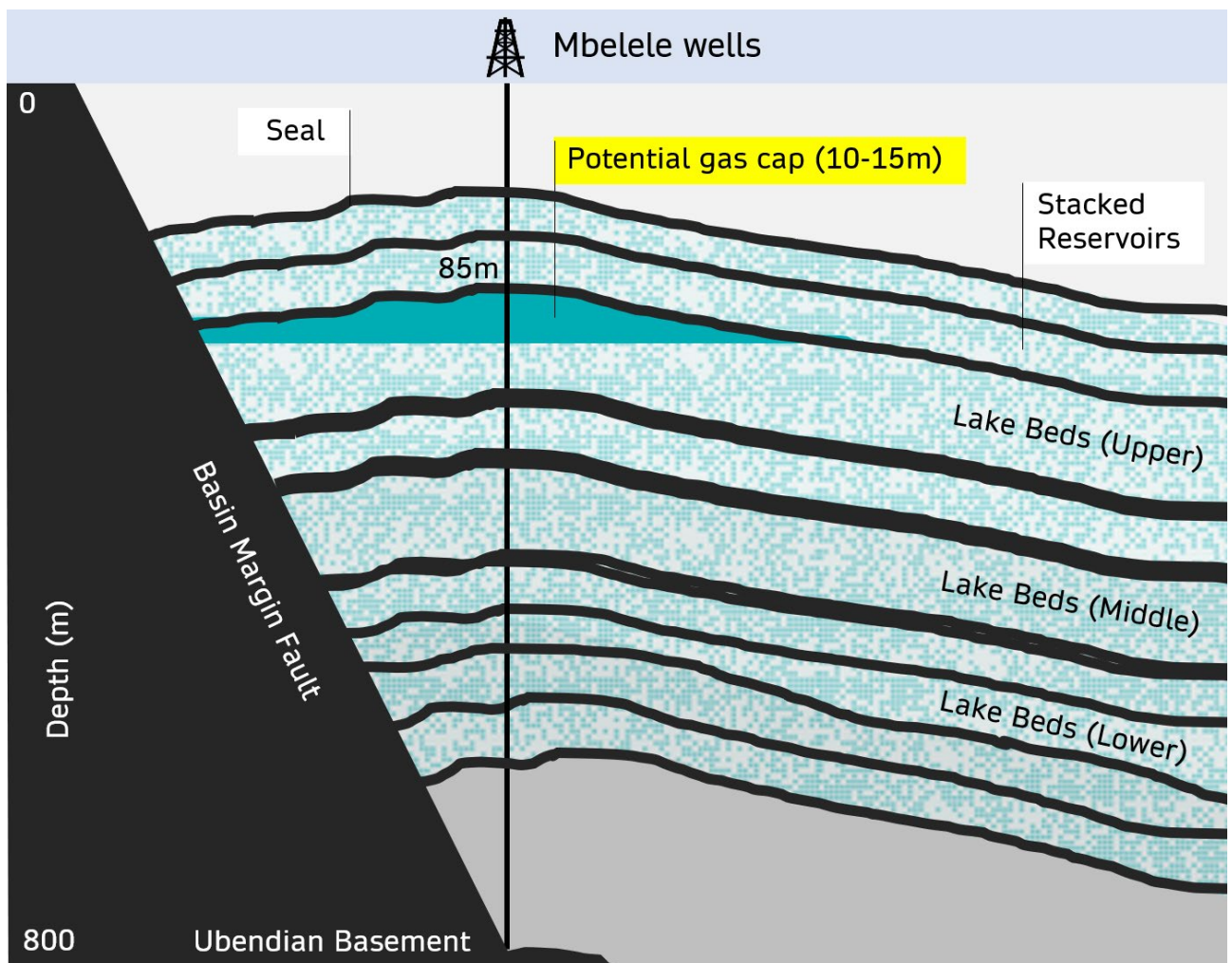
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<sup>1</sup> Source: United States Geological Survey

*“We’re now planning additional appraisal of the Mbebele structure to sample and flow-test the gas gap as well as conducting a pilot program to flow test the helium-enriched fluids in the deeper reservoirs. The hydrogen was an unexpected surprise which could provide significant additional upside and we plan to sample and test as part of the appraisal program,” he said.*

Multiple data points throughout the drilling campaign pointed to a prolific helium system: a possible 10-15m column of free gas around 85m from surface, and multiple reservoir zones filled with helium enriched fluids that could be at or very close to fully saturated.

On average across the samples, the balance of the gases were nitrogen, argon with traces of oxygen and carbon dioxide and no evidence of hydrocarbons (methane).



**Figure 1.** Mbebele drilling results show a potential 10-15m gas cap above multiple reservoir zones of helium-rich fluids.

**Significant upgrade net reservoir across both Mbelele-1 and 2**

Analysis and interpretation of the fully integrated well logs has confirmed significant additional net reservoir across both wells. Mbelele-1 net reservoir has increased from 47.5m to 148m and Mbelele-2 has increased from 163m to 271m with consistently high permeability and good porosity indicative of very high flow potential.

**Strong hydrogen potential at North Rukwa Project**

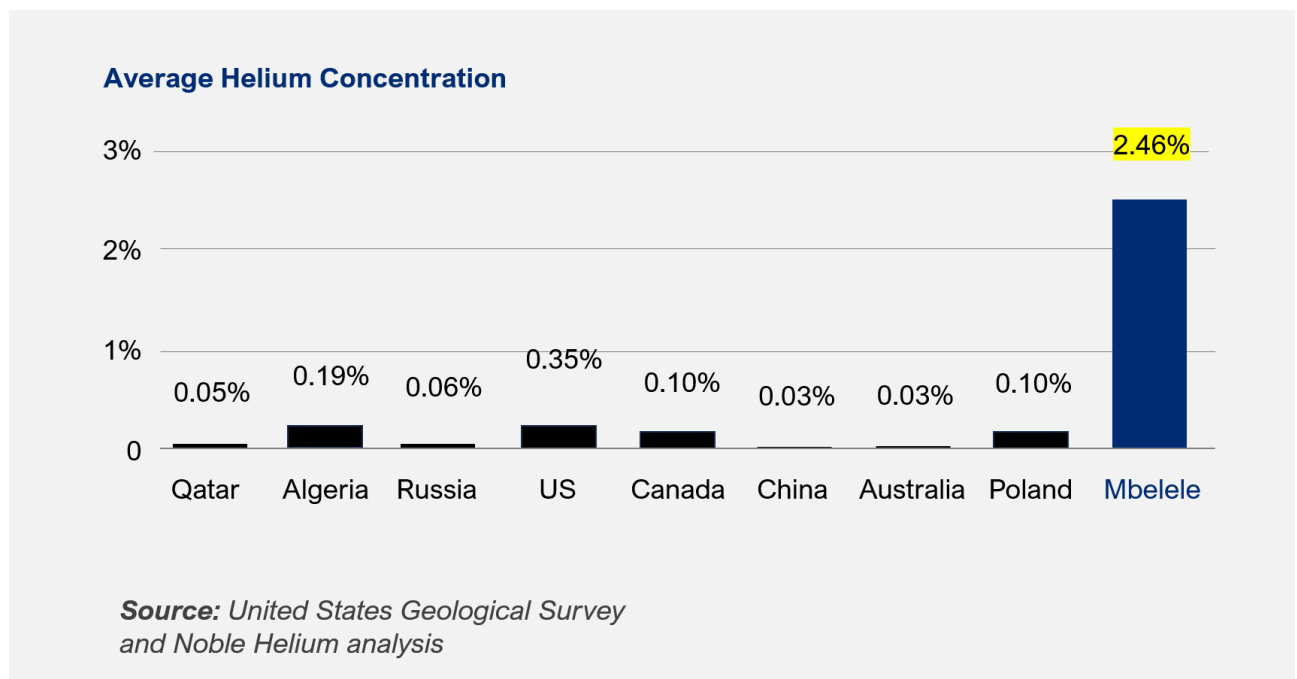
The potential for hydrogen was previously identified during earlier geological studies conducted by Oxford University. A review of the drilling program data identified a significant hydrogen anomaly of up to 1,500 times atmospheric in mudgas which persisted while drilling the uppermost 350m section of Mbelele-2. Hydrogen was not the focus of our program, however the 2024 Mbelele appraisal program will now include plans to sample and test the hydrogen potential.

**Next step – upgrade resource estimates**

Planning is underway to test the potential gas cap at Mbelele-1 and flow test Lake Beds reservoirs encountered in both Mbelele-1 and Mbelele-2. This information will be used to update reservoir models and resource estimates and will be critical in executing our early monetisation strategy.

The Company is now working with University of Queensland Centre for Natural Gas to apply very low-cost drilling technologies for an ultra-low-cost flow testing system that will allow comprehensive analysis in real time to abbreviate timelines.

In parallel, commercial negotiations towards securing a leased plant and offtake agreement are continuing.



**Figure 2.** Mbelele’s helium concentration compares very favourably to other helium-producing countries.

## A world class helium system

**The Company reiterates that the North Rukwa basin is clearly a world class prolific, primary helium producing system.**

***This announcement has been authorised for release on the 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.

## Green 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.

