Green helium for a high-tech world.

# ASX Release

6 November 2023

# Preliminary results from Mbelele-1 point toward Helium Discovery



**Noble Helium Limited (ASX:NHE) ("Noble Helium" or "the Company") is pleased to provide preliminary results for Mbelele-1, at the Company's 100% owned North Rukwa Helium Project in Tanzania.**

**CEO Justyn Wood, commented:**

*"We have achieved an excellent first result confirming a potentially significant helium system in the North Rukwa basin from our first well. Drilling encountered more than double the total net reservoir thicknesses than those estimated by NSAI and the Company.*

*Further laboratory analysis is required to confirm the North Rukwa rift basin as a helium discovery, and we are highly optimistic. Whilst waiting for this analysis, we will continue with our disciplined approach and proceed to drill Mbelele-2, with the aim of fully evaluating the commercial potential of the Mbelele BMFC.*

*The results support the Company's well-researched thesis that the North Rukwa rift basin has the potential to emerge as a globally significant primary helium province. On behalf of the Board, we are extremely delighted with the initial results and look forward to releasing further results from our analysis of Mbelele-1 and drilling progress from Mbelele-2."*

Mbelele-1 was spudded on 27 October at 0400hrs local time and encountered gas at 85mRT, with effervescent bubbling in the mud system and a strong increase in helium over background in the mud gas. Wireline logs clearly demonstrate the presence of well-developed reservoirs and seals, supported by cuttings.

Free helium was clearly present in this top hole "gas cap", however as announced on 30th October the unconsolidated nature of the formation prevented acquisition of a gas sample to quantify helium content. After setting casing and drilling ahead to Total Depth (TD), the well again encountered strong helium shows in mud gas for each of the 6 well-developed reservoir packages encountered and logged within an interval from 135mTVD to 260mTVD in the Upper to Middle Lake Beds (Table 1).

The total net reservoir thickness of 45.7m compares very favourably to the 20m net reservoir used by NSAI and the Company in the Upper and Middle Lake Beds for resource estimation.

These reservoirs are of excellent quality. Petrophysical evaluation of SLB's wireline logs demonstrate very high porosities, consistent with the NSAI parameters and very high mobilities (flow potential) consistently >100mD/cP and up to 1,100 mD/cP, evidenced by very high inflow rates during the MDT sampling.

| *Start MD (mRT)* | *ZONE* | *GROSS THICKNESS (m)* | *NET THICKNESS (PHIE>20%)* | *N:G (PHIE>20%)* | *PHIE (%)* |
|---|---|---|---|---|---|
| 135.5 | S1 | 29.9 | 21.6 | 72.4 | 27.0 |
| 174.3 | S2 | 15.5 | 9.1 | 58.8 | 24.0 |
| 207.5 | S3 | 9.4 | 5.5 | 58.4 | 24.6 |
| 221.4 | S4 | 5.8 | 1.9 | 32.8 | 22.0 |
| 228.7 | S5 | 10.6 | 3.4 | 32.1 | 23.0 |
| 260.4 | S6 | 6.5 | 4.2 | 64.7 | 23.3 |
| 370.0 | BASEMENT | | | | |
| **TOTAL** | | **77.7** | **45.7** | | |

**Table 1. Reservoirs encountered in the Upper and Middle Lake Beds at Mbelele-1 (wireline porosities)**

Three of the reservoir intervals were selected for representative sampling and over the weekend a small amount of gas was successfully recovered at surface from each of the three samples, with concentrations of helium estimated to be within the middle of the range of expectations[1]. However, there is significant evidence of air contamination, potentially from the onsite testing facilities and the Company considers it prudent to wait for the analysis of the downhole samples, which will now be sent for offsite testing under laboratory conditions.

Wireline logging and testing is now completed at the Mbelele-1 well. Mbelele-1 was not designed to be retained as a future producer and as planned has been "Plugged and Abandoned" (ie filled with cement), ensuring the discovered helium remains in the ground for any potential future production wells. Mbelele-2 has a more flexible design that does retain an option for completion as a producer.

The Marriott rig #16 is currently rigging down in preparation for the 4km move southeast to the Mbelele-2 site, a process that is expected to take 7-10 days. As previously advised, Mbelele-2 provides an appraisal opportunity for the Upper and Middle Lake Beds reservoirs encountered at Mbelele-1 as well as further exploration for deeper targets in the Lower Lake Beds, not present at Mbelele-1 but which seismic demonstrates as having potential gas-related anomalies[2].

Mbelele-1 is in a crestal location of the Upper and Middle Lake Beds of the Mbelele Basin Margin Fault Closure. Seismic interpretation suggests a structural closure of over 30km² in the Lower Lake Beds. The structure is located on the western side of the North Rukwa Basin, some 190km northwest of Mbeya and 825km inland from Tanzania's main port city of Dar es Salaam.

[1] Refer ASX release dated 6 April 2022: Prospectus
[2] Refer ASX release dated 25 July 2023: Mbelele Resource Increase

With gas to surface in both the top-hole and bottom-hole sections, the results to date provide confirmation of a potentially significant helium system at Mbelele-1 and lend considerable support for further evaluation of both this structure and the North Rukwa basin, where an additional nine prospects and leads have been identified in two "strings of pearls"[3]. These results also confirm the potential for the North Rukwa basin to emerge as a new primary helium province.

The weather remains fine, and with local advice on the limited impact from the coming wet season, we remain confident in being able to complete the current play-opening program without weather delays.

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

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[3] Refer ASX release dated 20 April 2023: String of Pearls emerge in North Rukwa

## 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.

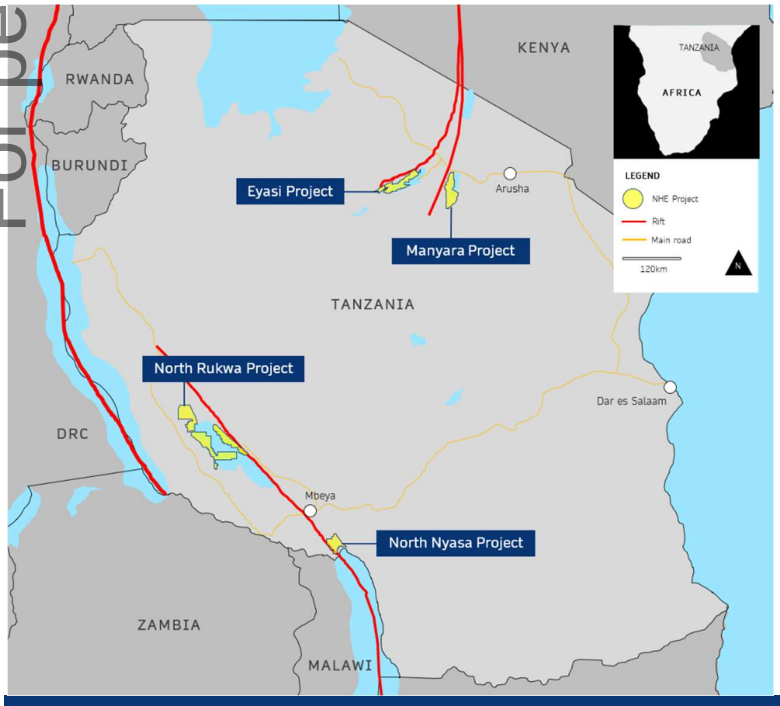
Noble Helium is answering the world's growing need for a primary, ideally carbon-free, and geo-politically independent source of helium. Located along Tanzania's East African Rift System, the Company's four projects are being advanced according to the highest ESG benchmarks to serve the increasing supply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

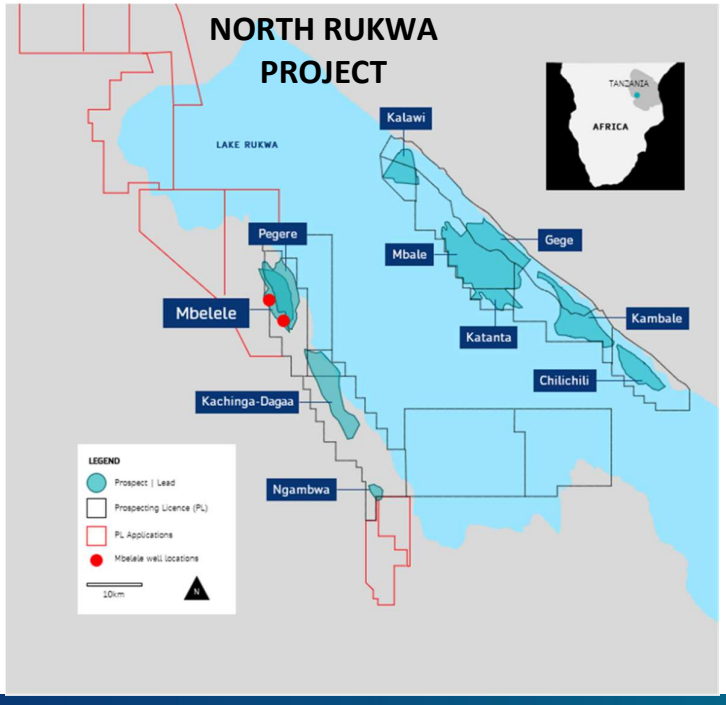
Our flagship North Rukwa Project has an independently certified, summed unrisked mean Prospective Helium Resource of 176 billion cubic feet (equivalent to approximately 30 years' supply). The project lies within the Rukwa Basin, which has the potential to be the world's third largest helium reserve behind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



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