ASX ANNOUNCEMENT

12 February 2024

UPDATE ON BBB #33 EVALUATION AND BOLLING #4 DRILLING

Highlights

BBB #33

- Initial testing and evaluation at BBB #33 resulted in gas to surface flow of >3% helium under light vacuum.
- Engineering analysis is ongoing and additional well testing is planned to evaluate well production potential.

BOLLING #4 SESW

- Drilling completed to TD within the targeted Lyons formation.
- Initial assessment indicates similar initial flow and pressure anomalies to BBB #33.

Blue Star Helium Limited (ASX: BNL, OTCQB: BSNLF) (**Blue Star or the Company**) provides an update on field activities at its Voyager helium development in Las Animas County, Colorado.

BBB #33 well evaluation

Initial post well evaluation continues at BBB #33. Several independent parties are evaluating the apparent and anomalous low reservoir pressure as indicated by surface flow and pressure. Also being considered is the potential for the high quality Lyons formation in this known low pressure environment to be affected by pressure influx and fine dust produced during the drilling process resulting in impeded flow from the exposed reservoir into the wellbore.

Initial testing was performed by putting a light vacuum (~2psi) on the well for 8 hours, maintaining a rate of 18 mscf/d. It should be noted that the current Voyager development plan contemplates wells on varying degrees of vacuum initially and as production progressed.

Initial testing resulted in gas to surface flow containing approximately 3.0% helium, 92.4% nitrogen and 4.6% carbon dioxide. Further, the helium concentration gradually increased over the life of the test and the returning gas flow was still showing signs of 'cleaning up' at the end of the test (most likely related to in reservoir air dilution by influx during the drilling process).

Engineering studies are ongoing to determine the course of further testing (including potential higher pressure and volume vacuum testing) as well as evaluating the potential for enhancing well bore to reservoir connectivity, including potential perforation.

BBB #33 is an offset well to the BBB#1 discovery well where drilling encountered a calculated air-free gas concentration of 8.8% helium in an interpreted 134ft gas column in the Lyons formation. BBB #33 is located approximately 750 feet (230m) from BBB#1 (refer BNL ASX release dated 17 November 2021). The air-corrected helium concentration seen at BBB#1 is comparable to that seen at the Model Dome historic production field, which is located some six miles south on the same regional structure and averaged approximately 8% helium.

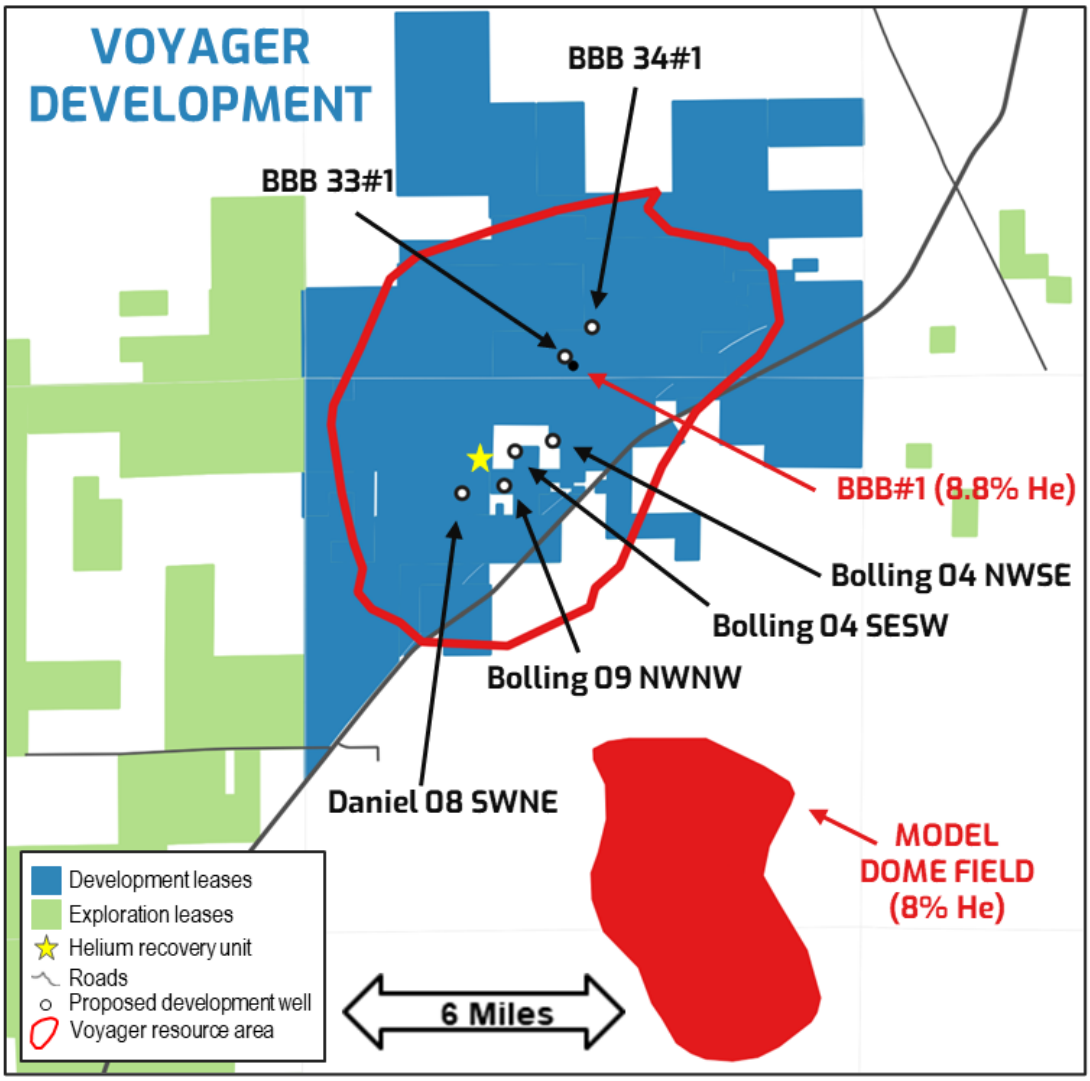
Bolling #4 SESW drilling

The Bolling #4 SESW well has been drilled to the targeted total depth (**TD**). Confirmed by drilling, the well is located in an interpreted up-dip position from the BBB#1 discovery and BBB #33 well.

Drilling was completed to 922 feet as planned, approximately 48 feet into the top of the high-quality Lyons formation. Wireline logs again confirm the high quality of the Lyons sand (average porosity of approximately 27%) and that the reservoir is gas filled to TD as expected. No water was observed while drilling or seen on the wire line logs.

Initial flow and pressure from Bolling #4 SESW are similar to those encountered at BBB#33 (refer BNL ASX release dated 30 January 2024, *BBB 33 Drilling Completed and Rig Mobilised to Bolling 4*). This outcome is also considered anomalous given the data from wireline logs and offset well evaluations.

A well head has been fitted as planned, and initial testing is underway with the benefit of analysis and progress at BBB #33. Evaluation of the initial test results will be integrated with the learnings from the BBB #33 evaluation to date. Further evaluation and potential testing will be undertaken to determine well completion and production potential.

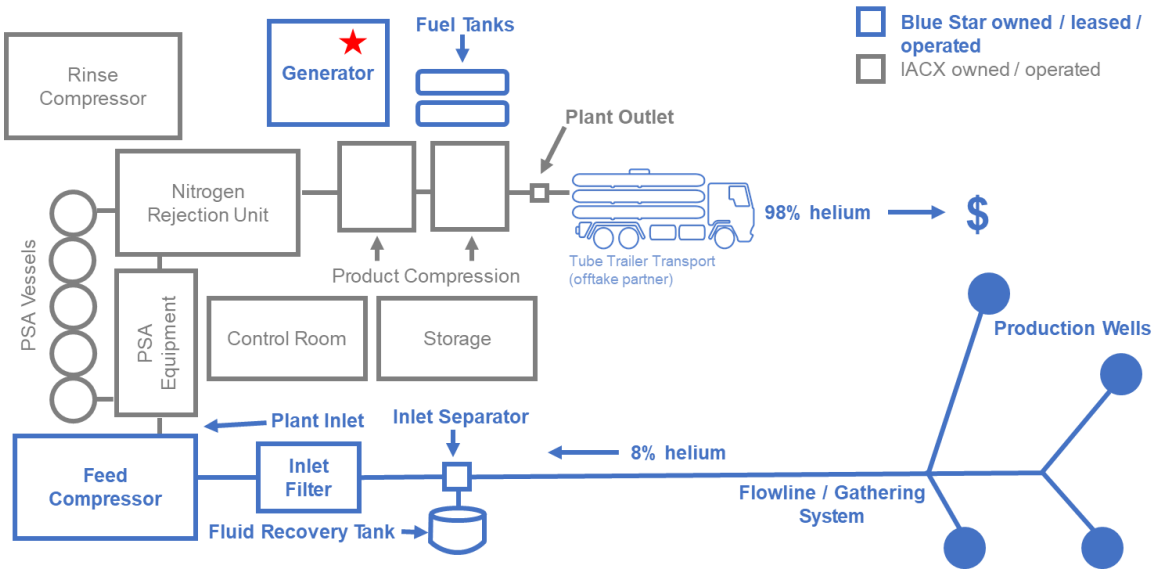


Voyager helium development ECMC approved well locations.

Voyager Development Plan

Engineering studies and well testing are ongoing to understand the anomalous initial flow and pressure results seen at Voyager in order to develop a forward well completion and drilling strategy.

The current Voyager development plan contemplates wells on varying degrees of vacuum via the feed compressor located between the helium recovery unit and the production well gathering system.



Voyager Development Plant Layout

This ASX Announcement has been authorised for release by the Board of Blue Star Helium Limited.

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Appendix

BBB #33 well details

The BBB #33 well is located in Township 28 Range 60 Section 33 (see figure above). The minerals are the subject of one mineral lease entered into between Blue Star's wholly owned subsidiary, Las Animas Leasing Inc (**LAL**), and a private mineral owner. The lease has an effective date of 2 July 2021, the total area of the leases is 1,552 gross acres (1,266 net acres), the term is 5 years from the effective date, the rental is payable on signing, the royalty is 12.5% and LAL's working interest in the lease is 100%.

The BBB #33 well was tested as described below.

Sampling methodologies

Laboratory methodology

The analysis was caried out by Gas Analysis Service, Farmington NM using a single thermal conductivity detector (TCD) for gas compositional analysis for the determination of C1-C6+ hydrocarbons, helium, nitrogen and CO2 adopted from Gas Processors Association standard 2261-00. Concentrations of the compounds are measured using thermal conductivity detectors using ultra-high purity hydrogen as a carrier gas.

Flow Testing

Flow tests were conducted with a Singer-American Meter SN:169623 with an orifice plate tester. Specific gravity of the gas was calculated using data obtained from an Inficon/Future Mass Spectrometer in-field. Tests were conducted over a 8 hour period flowing through a 0.25" orifice plate to atmospheric pressure.

About The Voyager Project

Voyager is Blue Star's maiden development project. The BBB#1 well tested the Voyager prospect in November 2021 and encountered a calculated air-free gas concentration of 8.8% helium and interpreted a 134ft gas column in the Lyons formation (see BNL ASX release of 17 November 2021).

Voyager is located only 6 miles from the historic Model Dome analogue production which produces a similar high helium gas composition, averaging 8% concentration.

It is expected that Voyager will ultimately utilise a 20 well development inventory to maximise the contingent resource.

A midstream solution has been selected for gas processing where IACX will provide gas processing services via an owned and operated helium recovery plant.

Total forecast field and plant operating cost is highly attractive at around US$100-120/Mcf of helium product gas (full capacity) with targeted helium production of 38 MMcf in first full capacity year (see BNL ASX release of 30 June 2023).

Discussions for distributor and end user relationships are in progress.

About Blue Star Helium

Blue Star Helium Ltd (ASX:BNL, OTCQB:BSNLF) is an independent helium exploration and production company, headquartered in Australia, with operations and exploration in North America. Blue Star's strategy is to find and develop new supplies of low cost, high grade helium in North America. For further information please visit the Company's website at www.bluestarhelium.com

About Helium

Helium is a unique industrial gas that exhibits characteristics both of a bulk, commodity gas and of a high value specialty gas and is considered a "high tech" strategic element. Due to its unique chemical and physical qualities, helium is a vital element in the manufacture of MRIs and semiconductors and is critical for fibre optic cable manufacturing, hard disc manufacture and cooling, space exploration, rocketry, lifting and high-level science. There is no way of manufacturing helium artificially and most of the world's reserves have been derived as a by-product of the extraction of natural hydrocarbon gas.