

RNS Miscellaneous

Second phase of exploration for Topaz Prospect

EMPYREAN ENERGY PLC

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Empyrean Energy plc

Block 29/11, China - Decision to enter second phase of exploration for drilling Topaz Prospect

10 June 2022

Empyrean Energy plc ("**Empyrean**" or the "**Company**"), the oil and gas development company with interests in China, Indonesia and the United States, is pleased to provide the following update on the completion of post well analysis and entering the second phase of exploration and drilling the Topaz prospect at its 100% owned Block 29/11 permit, offshore China.

Empyrean is the operator of Block 29/11 in China and has 100% working interest during the exploration phase. In the event of a commercial discovery, its partner, China National Offshore Oil Company ("**CNOOC**"), may assume a 51% participating interest in the development and production phase. The second phase of exploration requires the payment to CNOOC of US\$250,000 and the work obligation is the drilling of an exploration well within 2 years.

HIGHLIGHTS

- **Post-well analysis confirmed reservoir quality better than pre-drill estimate with regional seal confirmed and depth conversion approach validated**
- **As a part of post-well evaluation, CNOOC geochemical and basin modelling experts provided excellent assistance in interpreting the critical elements of effective regional oil migration pathways-leading to positive implications for the Topaz prospect**
- **Based on post drill technical evaluation, and CNOOC-assisted migration pathways assessment, Empyrean has decided to enter the second phase of exploration and drill the Topaz prospect**

Jade well results analysis:

Comprehensive post well analysis confirmed the Jade well carbonate reservoir parameters are better than pre-drill estimates with total thickness of 292m and porosity in the range of 25 to 27%. In addition, the Jade well penetrated thick and effective regional seal facies and the reservoir top was encountered within the depth conversion range. These parameters can now be more confidently mapped across Empyrean's 3D data set.

As a result, reservoir, seal and trap validity of the Topaz prospect has been enhanced by the Jade well data.

Key Elements of effective Migration pathways:

As a part of post-well evaluation, CNOOC geochemical and basin modelling experts provided excellent assistance in assessing the critical elements of effective regional oil migration pathways, leading to positive implications for the Topaz prospect. Based on several oil discoveries in the area, CNOOC has identified the following three key elements for effective regional oil migration.

1. A deep sag for oil generation
2. A deep fault for efficient vertical migration that has reactivated at the peak time of oil expulsion (10Ma)
3. A carrier bed for lateral migration to the prospect

Implications for the Topaz Prospect:

Post-well evaluation indicates the Topaz prospect has the potential for oil charge from two kitchen/source rocks - the more recently identified Baiyun North Sag and the Baiyun East Sag that has been bio-marked as the proven source rock for CNOOC light oil discoveries to the immediate West of Block 29/11 .

Baiyun North Sag is located within Block 29/11 immediately south and down dip of the Topaz prospect and it has all three key elements required for successful oil migration. It is a deep sag that is in the timing and depth window for oil generation, and Empyrean has identified a suitable deep fault for efficient vertical migration that reactivated at the peak time of oil expulsion approximately 10 million years ago (10Ma). Finally, a thick carrier bed exists for lateral migration to the Topaz prospect. This carrier bed has been confirmed during the drilling of the Jade well and is mapped on Empyrean's 3D data set.

At the same time, the gas shows within the "gas cloud" zone in the overburden at the Jade well are now interpreted to have migrated from Baiyun North Sag via reactivation of a nearby fault, approximately 800m away rather than coming from basinal faults extending into Baiyun East Sag which is approximately 20km away. The identification of this nearby fault that extends into the Baiyun North Sag is now the most likely explanation for the gas shows in the Jade well. This interpretation enhances the prospects of Baiyun North Sag as a potentially valid additional source rock and, in turn, the likelihood of the Topaz prospect having access to two mature source rocks/kitchens.

Additionally, a CNOOC regional migration map indicates that Topaz has potential for being charged from the proven Baiyun East Sag via spill from the CNOOC discovery well LH 23-1d.

The information contained in this announcement has been reviewed by Empyrean's Executive Technical director, Gaz Bisht, who has over 32 years' experience as a hydrocarbon geologist and geoscientist.

Empyrean CEO, Tom Kelly, stated:

"Being able to combine our excellent quality 3D seismic data with the confirmed well data and post well analysis has improved the validity of the Topaz prospect as a robust and large drilling target of approximately 891 million barrels in place (P10). Empyrean looks forward to maximising the value from its interest in the Mako Gas Field and positioning to drill the exciting Topaz prospect. Empyrean has also started to assess a number of additional oil and gas projects that it believes may enhance a balanced portfolio of opportunity and will update shareholders as required".

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