



Empyrean Energy PLC - EME Duyung PSC, Operational Update - Tambak -1
Released 07:45 22-Nov-2019



RNS Number : 3433U
Empyrean Energy PLC
22 November 2019

This announcement contains inside information

Empyrean Energy PLC / Index: AIM / Epic: EME / Sector: Oil & Gas

22 November 2019

Empyrean Energy PLC ("Empyrean" or the "Company")

Duyung PSC, Operational Update - Tambak -1

Highlights

- A cased hole DST conducted between 1,276 and 1,282 feet TVDSS resulted in a maximum flow rate of 11.4 MMscf/d from only 6 feet of Intra Muda sand perforations, further confirming the excellent deliverability of the Mako reservoir
- The cased hole technique and excellent flow rate in Tambak-1 provides a valuable data point and an alternate completion technique to the open hole completion used on the Mako South -1 well
- Well-developed upper sandstone unit of 56 feet of high permeability and good porosity sandstone encountered, notably thicker than seen elsewhere in the Mako field
- Well-defined gas-water contact at 1,289 feet TVDSS, has now been logged 5 feet below the previously estimated (from pressure data) gas-water contact at Mako South-1 and Tambak-2
- Reservoir pressure data confirms Mako field to be a simple, single gas tank system
- Gas water contact, pressures, porosity, permeability, flow rate and thicker sands will have a significantly positive impact on tank size, deliverability and therefore value
- The Lower Gabus reservoirs in the underlying Tambak prospect were found to have low gas saturations and poor reservoir characteristics

Summary

Empyrean Energy Plc, the oil and gas development company with interests in China, Indonesia and the United States, is pleased to provide an operational update in relation to the drilling campaign in the Duyung PSC in the West Natuna basin, offshore Indonesia, in which Empyrean holds an 8.5% interest.

The Tambak-1 well, located approximately 4.5 km north of the Mako South-1 well, was designed to both appraise the Mako gas field and test the underlying Tambak exploration prospect.

Following a drill stem test ("DST") at Tambak-1, which flowed dry gas at 11.4 MMscf/d on a 181/64 inch (2.8 inch) choke with well head tubing pressure being maintained at 225psi, operations have now concluded, resulting in the highly successful appraisal of the Mako gas field. The Tambak-1 well encountered 82 feet of total intra-Muda reservoir sandstones with 56 feet of better quality upper sandstone, confirmed a common gas-water contact across the field and culminated in the DST demonstrating the potential deliverability of the Mako reservoir.

The well was deepened beneath the Mako field to a depth of 5,062 feet true vertical depth sub-sea ("TVDS") to test the Tambak exploration prospect. The well encountered multiple sandstone intervals in the Lower Gabus section as predicted, with corresponding hydrocarbon shows seen while drilling. However, petrophysical interpretation of wireline log data has concluded that these sandstones have low gas saturations and attempts to collect fluid samples and pressure data demonstrate low permeabilities.

The well is currently being plugged and abandoned, as originally planned, prior to the Asian Endeavour 1 rig being demobilised. Overall, the drilling campaign has been completed within the expected time frame and within budget.

There is more comprehensive well data that still needs to be retrieved from down hole tools and gauges. All of the data will then be analysed and updated into static and dynamic models for the field.

Tom Kelly, Empyrean CEO commented, "The appraisal drilling at Mako has been a tremendous success. Better quality reservoir, with thicker sands and a gas water contact that is now confirmed from logging to provide a 5 feet uplift in aerial tank size to the Mako discovery. We have also successfully trialled a behind casing DST over a small 6 feet interval that provided an excellent flow rate and demonstrates deliverability of gas from Mako at a different location to the successful Mako South-1 discovery well using behind casing perforations versus the open hole test of Mako South-1. These developments will substantially add to the attractiveness of the Mako field for development. Whilst the deeper exploration result is disappointing, the potential for a very significant uplift in overall tank size and ultimately potential recoverable resources has been demonstrated at Mako. We look forward to updating shareholders on both internal resource work and external resource estimates as they come to hand."

Mako Gas Field Appraisal Campaign

As previously announced, Tambak-2, the initial well of the two well campaign was a 13.5 km step out from the original Mako South-1 discovery well. Tambak-2 encountered 33 feet of high-quality gas-bearing reservoir intra-Muda sandstones, representing a better developed reservoir than seen in the discovery well. It also confirmed a common gas-water contact and pressure system across the Mako structure, which covers an area of approximately 350 square km.

The Tambak-1 well, located on the north-east flank of the Mako structure, was designed to appraise the field limits. The well encountered 82 feet of excellent quality intra-Muda sandstones, exhibiting the gas-water contact in the reservoir section, with 16 feet of sandstones in the gas leg. The gas-water contact was consistent with other wells on the Mako field structure and pressure data again confirming a common pressure system across the field.

A cased hole DST was conducted across a 6 feet interval of intra-Muda reservoir in the Tambak-1 well. A section between 1,276 and 1,282 feet TVDSS was perforated and flowed dry gas at 11.4 MMscf/d on a 181/64 inch (2.8 inch) choke with well head tubing pressure being maintained at 225psi. Onsite gas composition analysis confirms high quality, dry, sweet natural gas.

An independent review by Gaffney Cline & Associates previously ascribed gross 2C resources of 276 Bcf (48.78 MMboe) of recoverable dry gas in the Mako field with gross 3C resources of 392 Bcf (69.3 MMboe) representing additional field upside. Estimates are that the drilling campaign should result in a significant increase in gross resources in the Mako gas field.

Tambak Exploration Results

The Tambak-1 well was drilled to a total depth of 5,062 feet, encountering several sand bodies in the Lower Gabus section, with associated hydrocarbon shows while drilling. Individual sand bodies were 10 to 50 feet in thickness with average porosities in the range of 5% - 15%. Following wireline logging, pressure surveying and fluid sampling, a petrophysical evaluation concluded that these sandstones contained low hydrocarbon saturation levels of between 20% - 30%. The sandstones were of very poor reservoir quality, having very low permeabilities of circa 1 to 5 millidarcies. While not commercial the exploration results did provide evidence of an active petroleum system which is encouraging for future exploration upside within the Duyung PSC.

Next Steps

The valuable information collected from this campaign will be used to revisit the resource estimates for the field. The Duyung PSC partners will be commissioning an independent assessment of resources, which we currently expect to be completed late Q1 2020.

Further details will be provided in due course.

The information contained in this announcement has been reviewed by Empyrean's Executive Technical director, Gaz Bisht, who has over 30 years' experience as a hydrocarbon geologist and geoscientist.

****ENDS****

For further information:

Empyrean Energy plc

Tom Kelly

Tel: +61 8 9380 9920

Cenkos Securities plc

Neil McDonald

Tel: +44 (0) 131 220 9771

Pete Lynch

Tel: +44 (0) 131 220 9772

St Brides Partners Ltd

Priit Piip

Tel: +44 (0) 20 7236 1177

Frank Buhagiar

Tel: +44 (0) 20 7236 1177

The Mako Gas Field, Duyung PSC, Offshore Indonesia

The Mako gas field is an extremely large, shallow structural closure, with an area extent of over 350 square km. The reservoir is a Pliocene-age sandstone, with a gas-water contact at approximately 391m true vertical depth sub-sea. The field has excellent seismic definition with direct hydrocarbon indicators being very evident.

Having been drilled but not tested by prior operators of the acreage, the commercial viability of the Mako gas field was demonstrated by the Mako South-1 well drilled by Emphyrean and its partner and operator, Conrad Petroleum Limited in 2017. The well was drilled to core and test the Mako reservoir, flowing up to 10.8 MMscf/d of dry gas on test. Overall four wells have penetrated the reservoir section, and while further appraisal is planned given the huge areal extent of the field, the reservoir distribution is reasonably well understood.

The Mako field is located in the prolific West Natuna basin, approximately 16 km from the WNTS pipeline system which delivers gas from Indonesia to Singapore. A plan of development has recently been approved by Indonesian authorities and initial gas marketing discussions have commenced, with a gas buyer in Singapore for the Mako gas. An independent report on the field's potential was recently carried out by Gaffney Cline & Associates, giving a 2C recoverable resource assessment of 276 Bcf and 392 Bcf of 3C recoverable resources.

Near Field Exploration Potential, To Be Tested in 2019

A series of prospects both beneath and above the Mako field have been mapped. Of particular note is the Tambak (formerly 'Mako Deep') prospect, a Lower Gabus structure that sits beneath the northern end of the Mako field. The target interval within Tambak exhibits seismic amplitude brightening, conformable with structural closure. The prospect has a prospective resource range of 200 to 300 Bcf with a mid-case 250 Bcf and a CoS of 45%.

At the southern end of the field, over the structure's crest, sits the Mako Shallow prospect. This again shows a very strong direct hydrocarbon indicators on seismic, conformable with closure in shallow Muda sandstones. The Shallow Muda prospect has potential to add a further 100 Bcf of recoverable resources and a very high CoS of 75%.

This information is provided by RNS, the news service of the London Stock Exchange. RNS is approved by the Financial Conduct Authority to act as a Primary Information Provider in the United Kingdom. Terms and conditions relating to the use and distribution of this information may apply. For further information, please contact rns@lseg.com or visit www.rns.com.

END

UPDCKBDNOBDKADB

CLOSE

London Stock Exchange plc is not responsible for and does not check content on this Website. Website users are responsible for checking content. Any news item (including any prospectus) which is addressed solely to the persons and countries specified therein should not be relied upon other than by such persons and/or outside the specified countries. [Terms and conditions](#), including restrictions on use and distribution apply.

©2014 London Stock Exchange plc. All rights reserved