



Cambodian Apsara Oil Development Mini Phase 1A

Mini Phase 1A is an additional five-well mini platform to supplement Phase 1A¹ of the Production Permit Application dated 10 January 2017.

The components of Mini Phase 1A are:

- A simple wellhead support structure capable of housing up to six development wells, (the “Mini-Platform”);
- Five initial development wells;
- *Ingenium II* production barge for oil, gas and water processing; and
- Initial use of shuttle tankers for oil storage and transportation.



Mini Phase 1A simplifies the original Phase 1A development with a smaller platform, fewer initial development wells and the use of lower cost leased shuttle tankers versus the original plan for a permanent floating storage and offloading vessel (“FSO”).

Mini Phase 1A is an integral stage to Phase 1A. The initial five wells will provide critical, long-term well performance data to understand the reservoir drive mechanism, especially the strength of water drive. The well performance data will be used to modify and optimise the remaining development phases.

¹ Phase 1A as described in the Production Permit Application (“PPA”) dated 10 January 2017 comprises a single unmanned minimum facility 24-slot wellhead platform, Platform A, producing to a moored production barge with produced oil sent for storage to an FSO vessel from which sales and lifting take place. Phase 1A envisaged the drilling of 20 development wells

Mini Phase 1A is scheduled to commence oil production in the first half 2020 and to reach a peak production rate of 7,500 barrels of oil per day.

The Mini-Platform

The Mini-Platform is a similar structure to the 24-slot platform describe under the PPA except that it is smaller and houses only up to six wells.

Other aspects of the Mini-Platform, including minimal facilities, transfer of produced fluids to the production barge and the transfer of electrical power from the production barge are unchanged from the original platform.

The Mini-Platform topsides consist of three decks with minimal facilities and dual export lines for produced well fluids.

The Production Barge

Keppel Shipyard Ltd commenced upgrade and refurbishment of the production barge, *Ingenium II*, in November 2018 in the Benoi yard in Singapore. The oil, gas and water separation facilities on the barge will be capable of processing up to 30,000 barrels of fluid per day. The barge will also house the living quarters for the field.

Shuttle Tankers

Mini Phase 1A will use lower cost leased shuttle tankers for oil storage and the transportation of the produced Apsara crude oil to market. Two shuttle tankers, each with a capacity of 100,000 to 200,000 barrels, will be employed during Mini Phase 1.

While in the field, one shuttle tanker is moored by hawser to the production barge and a floating hose transfers processed oil from the barge.

A leased FSO will be used in future Apsara development phases.

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