

# WELL COMPLETION & SAND CONTROL CASE STUDY

Santos Limited - Oyong Field  
Offshore East Java, Indonesia

## AWT DISCIPLINES

**Drilling Engineering**

**Drilling Operations**

**Geoscience**

**Well Test Engineering**

## AWT WORKSCOPE

After the Oyong discovery in 2001, Santos and its JV partners sanctioned feasibility studies in 2003. AWT was engaged to provide a well completion and sand control design to ensure life of well high flow efficiency and cost efficient completion and operational strategy.

The purpose of the study was to:

- Complete a comprehensive reservoir competency study
- Recommend production tubing size, metallurgy and completion design.
- Develop a well operability strategy and provide intervention options.
- Formulate a completion strategy that would achieve the liquid and gas target rates of 10,000 stbd and 44 MMscfd respectively.

Three oil wells were planned to be drilled horizontally into the thin oil rim and two gas wells into the gas cap. Reservoir geology dictated all production wells would require some form of sand control and fines were predicted to be very high, with the following development implications:

- Possible compaction as pore pressure declines
- Migration of fines
- Potential flow of solids in significant quantities

This could potentially lead to:

- Subsidence
- Wellbore stretch – not all compaction transmitted to surface
- Productivity decline
- Borehole collapse / casing slumping
- Solids production / erosion

## AWT ADDED VALUE

AWT undertook a comprehensive investigation of the well design focusing on available sand control technologies in order to determine the most appropriate type, secure the best hardware and develop a deployment strategy.

AWT were involved in the design of the laboratory experiments to test the applicability of each method of sand control. After reviewing the results from experiments the recommendation was for wire wrapped screen (WWS) with 150µm slots. This would provide a balance between solids retention and limited plugging.

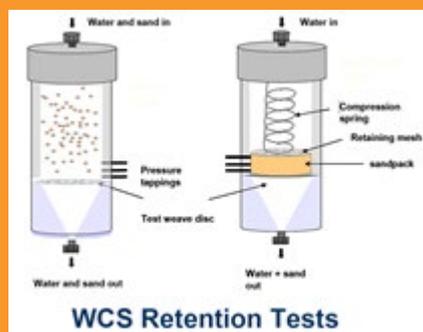
AWT was able to provide Santos with long term life-of-asset well design and sand management strategy for the strategically important Oyong field. AWT's well design, workover and sand control management expertise provided the opportunity of reduced interventions & sand production for the Oyong oil and gas production wells.

## PROJECT BACKGROUND

The offshore Oyong oil & gas field in the Sampang PSC, 80km from Surabaya, Indonesia was discovered in 2001. The field was operated by Santos Pty Ltd. (45%) on behalf of joint venture partners:

- Singapore Petroleum (40%)
- Cue Energy (15%)

The Oyong Field contained estimated initial recoverable reserves of 5 MMstb of oil / 90 BSCF of gas. Oyong was a very complex reservoir with a highly friable formation comprised of oolitic limestone/carbonates, which was expected to produce a large amount of formation solids over the life of the field.



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