

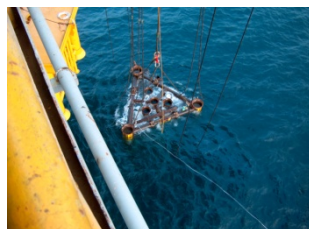
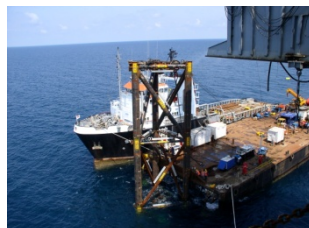
## SANTOS (SAMPANG) Ltd - OYONG FIELD DEVELOPMENT

### Tall Template Structure

ICON Engineering was contracted by Santos (Sampang) Ltd. to provide conceptual engineering, multi-discipline detailed design and installation engineering for the Oyong wellhead platform. The platform is located in 41m of water in the Madura Strait, East Java, Indonesia.

Icon developed a Tall Template Structure (TTS) and Short Template Structure (STS) for the jacket and topsides respectively. The TTS acts as a drilling template with 30" conductors drilled and grouted into the three (3) 36" legs and doubling as structural piles. Four internal 20" conductors can be supported within the TTS thus accommodating seven wells in total.

Both the STS and TTS were fabricated in Balikpapan, East Kalimantan, Indonesia.



#### TTS up-ending on barge and installation onto seabed

The 130 tonne TTS was transported with the lower half suspended out over the end of the transport barge. Once at location, the TTS was up-ended with the aid of a tailing winch to the vertical position. Once vertical, stabilizing rigging and lift rigging were attached and the TTS lifted clear of the barge using the Diamond Drilling Ocean Sovereign jack-up drilling rig. It was then lowered to the seabed and stabbed over a previously installed central 20" guide pile. Once on the seabed, the lift rigging was removed by divers and the TTS was held in position by the stabilisation rigging. Three 30" conductors were then drilled & grouted into the corner legs and left suspended several meters above sea level.



#### STS stabbed over 30" conductors. Production module not yet installed

The STS was then lifted and stabbed over the freestanding conductors and temporarily supported whilst it was grouted into position.

Production is to an adjacent floating MOPU production facility using flexible jumpers.

ICON was engaged at the conceptual stage to develop the TTS and STS in conjunction with Santos' installation and operational requirements. ICON went on to produce the multi-discipline detailed design of the wellhead facility and installation engineering / procedures for all components using the jack-up drilling rig. ICON further chaired an installation HAZID at Santos' offices in Indonesia prior to the offshore installation phase.

By using the rig install method, the TTS and STS installation was not subject to a specific "lift" date and the schedule allowed significant float on the design & fabrication completion. Furthermore, the significant cost of an installation barge was not incurred.

The TTS & STS were installed April/May 2005.

#### Platform Data

<b>Water Depth</b>	<b>41 m</b>
<b>TTS Lift Weight</b>	<b>130 t</b>
<b>STS Lift Weight</b>	<b>55 t</b>
<b>Well Slots</b>	<b>7</b>
<b>Legs</b>	<b>3 no. vertical 36"</b>
<b>Conductor Piles</b>	<b>3 no. 30" x 1" to 86.0m</b>