Case Study – Vertechs Trident Rigless ESP System

Achieved a high production rate target offshore, China with a run-life more than 7 years.

Objective

The operator in North China Sea wanted to replace ESP in later stage due to potential high production rate target.

Challenges

- Ultra-High Production Rate Target
  ESP is installed in a Rigless permanent string, the size of permanent string is large enough for further workover operations.
- Operation Reliability of Rigless System.
  Main concern of client is to ensure the Rigless ESP itself is reliable enough in an ultra-high production well and will not cause more workover jobs.
- Success of ESP Replacement is the most basic requirement.

Solution

- Based on the requirement of high production rate compatibility, a 7” Trident Rigless ESP system was proposed.

Well & ESP Info.

<table>
<thead>
<tr>
<th>Well Location: North China Sea</th>
<th>Deviation @ ESP setting depth: 3’</th>
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<tbody>
<tr>
<td>ESP setting depth: 1,411 ft (MD)</td>
<td>Dogleg @ ESP setting depth: 0.5°/100ft</td>
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<tr>
<td>Gas Contents: N/A</td>
<td>Solid Contents: N/A</td>
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<tr>
<td>Casing Size: 9¾”. Weight: 46 ppf</td>
<td>Rigless ESP System: 7” Rigless System + 562 series ESP System</td>
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Results

- The 7” Trident Rigless ESP System was successfully installed in 2013, and replaced larger ESP the next year.
- The system has been running for more than 7 years since then.
- The production rate was up to 15,000 BPD.