



# Wytch Farm L97/10-A12y (1A-12ySP) Well

## BOLDON DRILLING RIG 41



### Event

The A12 well was planned to exploit the Sherwood reservoir sandstones in the X03 Horst area and also to appraise a bright seismic anomaly to the NW which hadn't previously been explored. By proving the seismic related to good quality oil bearing reservoir this could have the potential to identify future targets in a relatively unexploited area.

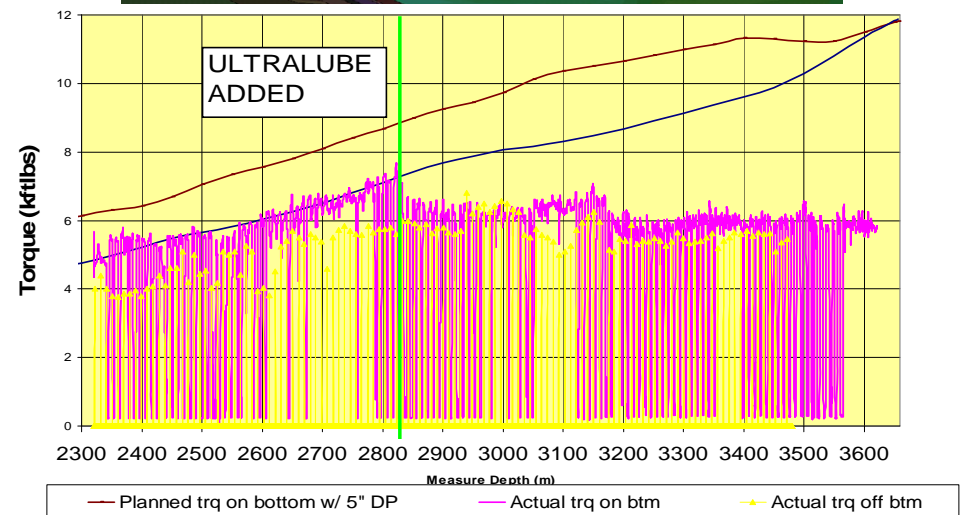
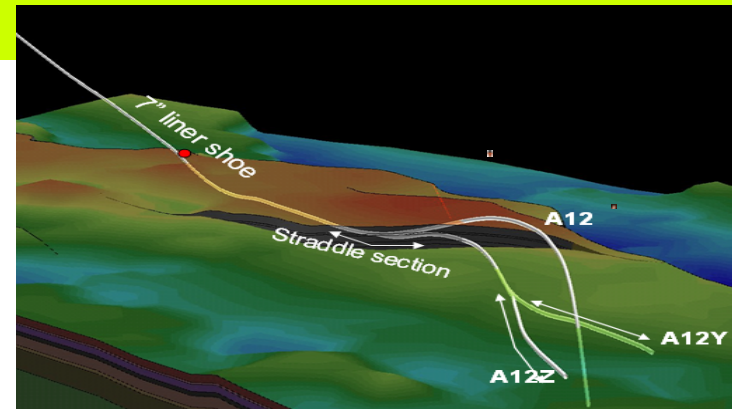
The main production zone of Sherwood reservoir was the horst section planned as a horizontal well. The additional appraisal section was to build out of the reservoir to a maximum inclination of 103° crossing a fault before dropping to 50° inclination to appraise the seismic anomaly to the NW. In the success case the appraisal section was to then be abandoned with a swellpacker before performing an open hole sidetrack (NW extension, A12z) to exploit the results of the appraisal section. Owing to the appraisal section structure being 27m high to prognosis an additional lateral, A12y, was drilled following A12z to exploit the thicker oil column.

### Challenges

- Optimisation of drill string design to allow the trajectory to build inclination from 90° to 103° whilst retaining the ability to rotate and slide ahead at all times due to drilling with a Kelly and also to gain azimuthal data
- Drilling at the limit of the B41 capabilities in terms of pressure and torque (limited to 12kftlbs torque and 3600psi surface pressure)
- Kicking off into unstable formation
- Differential sticking when entering the water leg
- Successfully isolating water at the toe of the appraisal section
- Utilising azimuthal resistivity tool to its full potential
- Re-entry of lateral with straddle/swellpacker assembly

### New Technologies

- Ultralube II lubricant used in the mud system to reduce rotary torque
- First use in BP worldwide of Sperry Sun ADR tool to provide azimuthal deep reading resistivity.
- First use in BP NS of Poseidon ESP system to handle a greater Gas volume fraction at pump intake



- **Successfully appraised reservoir section, found structure to be 27m shallower than prognosis increasing oil column height and suggesting an increase in reserves associated with well and potential for future targets.**
- **Concise planning allowed for the addition of a third lateral to the well after the appraisal section was completed.**
- **Ultralube II used successfully used resulting in an instantaneous reduction in torque of 15% torque remained flat to TD.**
- **Ran swellpacker straddle assembly across junction between A12 and A12z saving 5 days rig time**
- **Well delivered 3 days ahead of time at a saving of £1.5m**