

Perdido: The First Smart Field in the Western Hemisphere

Robert K. Perrons, SPE, Shell International Exploration and Production

The Perdido is the world's deepest spar and the first Shell 'Smart' approach to be applied. Applying this 'Smartness' consists of 5 elements:

1. Remote Assisted Operations (RAO)

The data from offshore or on-location sites is sent to a remote location such as an office-based operator who is provided with an immediate awareness of the field operations resulting in a great decrease in the decision making time. An added bonus is that as the operator is office based, the engineering teams have a clear point contact with the offshore operations team.

2. Exception Based Surveillance (EBS)

A centralised facility was set up to which the real time production data for all of the wells in Shell's Gulf of Mexico fields are sent. Software is used to highlight any exceptions and unexpected changes in the data allowing the relevant people in operations or engineers. This helps the engineers by shifting the burden of routine monitoring and allowing them to continue with more complex issues.

3. Collaborative Work Environments

Work spaces with all of the video conferencing and IT facilities allowing people to communicate regardless of where they may be were set up. This allowed ideas and images to be shared whilst analysing data and carrying out graphical representations in real time.

4. Hydrocarbon Development Tools and Workflows

It had been found within Shell that engineers could spend 20 – 30% of their time searching for data. Calculations, information and modelling assumptions could be lost or forgotten on shared drives or be misunderstood after important team members retire or move on. The idea was to provide a workflow consisting of the relevant collection of tools and capabilities which overcame these issues. An added advantage was that a reduction of more than 30% in the dynamic testing cycle was achieved as well as weekly meetings being cut down by 50% so that the team members could work more efficiently.

5. Shell Smart Fields Foundation – IT Infrastructure and Applications

This is the collective term for baseline technologies and tools including IPM and IFM which facilitate the integration of appropriate flow path models in different timesteps to assist with production system optimisation and forecasting activities.

The conclusion was that implementing this 5 step approach to ‘Smartening’ Perdido will allow Perdido’s maximum value to be recognised through; field development, reservoir management and production optimisation.