

## **SPE 123201**

### A Systematic Approach to Well Integrity Management

#### **Abstract**

Recognising the importance of good well integrity management practices, Marathon Oil UK developed an online database in conjunction with Expro to capture their well integrity data. The database has become a focal point to help facilitate Marathon's well integrity management processes and philosophies. The aim of this paper is to provide an overview of the rationale for developing the system and the benefits that are being realised for both the Brae and Alvheim assets.

#### **Introduction**

The Brae Field is a mature asset located in the North Sea and consists of 3 fixed production platforms of around 100 wells, and several subsea tiebacks including Central Brae and West Brae.

Due to the age of the asset and the recognition by Marathon of the importance of good well integrity data management, an online database was developed in 2004 in conjunction with Expro to help store well integrity data associated with the asset.

The main issue identified by Marathon, was that integrity related well data was commonly located across the organisation by individual departments and would often be time consuming to locate. The ability to analyse information from various data sources was also inefficient and as a result auditing, trending and summary reporting became major tasks. Initially, the system was developed for use on the Brae platforms and a number of further enhancements were made to ensure the system was suitable for the Alvheim subsea development in Norway.

Alvheim lies on the Norwegian Continental Shelf, west of Heimdal. The Alvheim development is comprised of the Kneler, Boa and Kameleon fields. The field came online in June 2008 with eight producing wells and two water disposal wells as part of the Phase 1 drilling program. A Phase 2 drilling program is planned in 2010/2011 for further production wells. The development provides for the transportation of produced oil by shuttle tanker, and transportation of produced natural gas to the existing U.K. Scottish Area Gas Evacuation (SAGE) system.

Marathon Norway requested that the database was utilised to capture the integrity related data from the initial drilling operations, well handovers and scheduled tree/subsurface safety valve/tubing string testing. The system would supply a regular summary of the integrity status of the well stock.

#### **A Systematic Approach**

A web based system was developed allowing access to the same dataset by both wellsite and office based personnel. The database was designed to address the failings of other methods of data collection that had previously been in place. It provides a real time well integrity management capability and an auditable trail of operations and documentation incorporating wellhead activities, pressure data and part information.

To view information on a particular well, the well is selected through a simple series of steps from geographical region to country then field. This allows the user to log into the main tree schematic screen from which a drop down menu allows either the wellhead module or manifold centre to be selected.

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