

Case Study – Zenith Completes Field Development Plan of Oak Field



Client: Glencore Exploration Cameroon Limited
Project: Oak Field Development Plan

Project Objectives

- Carry out an offset well review.
- Identify and evaluate feasible well design concepts for 4 producer and 4 water injection wells from a single well centre for the development of the Oak field.
- Carry out an evaluation of the drilling fluid system to economically drill the proposed wells with minimal issues.
- Carry out a rig selection study to identify the most economical way to drill the wells.
- Create a high level time and cost estimate for all of the proposed well concepts.

Method

An offset well review was carried out using information from 10 wells to identify potential drilling risks and outline possible well designs. A completion study was carried out to evaluate the sand interface and artificial lift concepts to maximise recovery from the Oak Field. Utilising the recommendations from the completion study multiple well design concepts were generated for both water injection and producing wells.

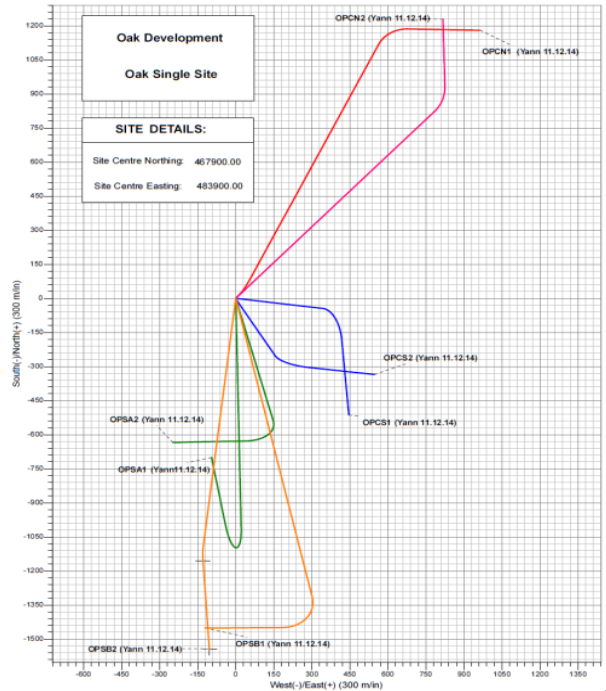
From the well design concepts generated a drilling fluid selection study was carried out. Due to the issues encountered on offset wells, it was recommended that an OBM system be used to maintain wellbore stability whilst drilling the high angle wells.

A rig selection study was performed evaluating all possible options from artificial islands with use of land rigs to MODU jack-ups. From the study, it was concluded that a MODU jackup would be most suited to drilling the wells due to a combination of reduced rig rates and operating capability.

Once a rig had been selected, high level time and cost estimates were generated for each well design concept and varying methods of completion. Producing wells varied from \$16.8m - \$19.2m with water injection wells varying from \$14.4m - \$17.9m

Key Facts/ Main Challenges

- Optimising directional profiles to drill a water injection and producing well into each compartment of the well from one drill centre.
- Obtaining a suitable rig to drill all 8 wells in a water depth of 12m from one well centre.
- Selection of a rig capable of drilling wells up to 71.7° inc with a step out up to 1900 m in a water depth of 12m
- Selecting a cost effective drilling fluid system to enable drilling through the shallow weak & unconsolidated formations whilst providing inhibition against the Agbada shales.



Ewan Denning - Glencore

"We found Zenith to be thorough in all the work carried out for Glencore, quickly grasping the key issues and completing work at the correct level of detail to answer the fundamentally important questions present in the front end planning of this development. The work was completed to a high standard in a timely manner and we would have no hesitation in using them in the future and recommending them to others."

