

Advances in Drilling and Completion Technology

Speaker

¹ Broderick Sutcliffe

ABSTRACT

Recent years have seen impressive advances in all aspects of exploration and production technology which have reshaped global economic predictions regarding the availability of hydrocarbons.

During the 1970's and early 1980's, geopolitical pressures drove the hydrocarbon production business. The exhaustion of oil reserves was frequently predicted as a "doomsday scenario". The hydrocarbon exploration and exploitation industry geared up to the point where, by the mid 1980's, an oil glut precipitated a collapse of prices to the lowest levels seen for twenty years. This led to significant restructuring throughout the industry. Technology developments necessitated by the shortage of secure reserves were now advanced further by the necessity to reduce oil lifting costs to maintain the economic viability of existing production. Terms such as "enhanced oil recovery (EOR)" became the order of the day as it now made far more sense to squeeze more out of known assets than to direct investment into high risk exploration.

The desire to reduce lifting costs, thus maintaining the economic viability of existing reserves and making marginal discoveries viable, has spurred technology development in the fields of drilling and completion. These advances have focused on the following areas:

- Technologies which reduce surface facilities; these include all forms of extended reach drilling (i.e. further reservoir coverage from single surface location), stacked template platforms (ideal for satellite accumulations) and multi-lateral wells (effectively 2 (or more) wells rolled into one).
- Technologies which reduce wellbore construction cost; these include performance drilling bits and motors (reducing drilling and tripping time), slimhole and coiled tubing drilling (reducing rig and drilling time and lowering casing costs) and logging while drilling (reducing logging time).
- Technologies which enhance productivity; these include reservoir oriented completions (completion matched to formation), drill-in fluids (reduced formation damage), improved production logging technology (better understanding of production dynamics) and geosteering services (optimised borehole placement in reservoir).

This talk will focus on the advances in drilling and completion technologies over the last ten years and try to predict future developments.

About the author

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¹ Currently Business Development Manager for Baker Hughes Inteq Indonesia representing Directional/Horizontal Drilling, MWD/LWD and Drilling Fluid Graduated from Leeds University, England with a degree in Geological Sciences. Commenced work in the oilfield in 1980. Worked in the West Africa, Europe & North Sea, Middle East and S.E.Asia as an MWD Engineer and Directional Driller. Based in Jakarta Indonesia since 1992.