

PROJECT DESCRIPTION

**Client: AGIP Oil Co. Ltd.,
Bouri Field**

*Recently
Completed
or
Ongoing
Projects*

PROJECT DESCRIPTION

On behalf of AGIP Oil Company Ltd., Libyan Branch, Teknica Petroleum Services Ltd. has conducted four studies of the Bouri Oil Field of offshore Libya. These are:

1. Reservoir Characterization;
2. Structural Analysis and 3D Seismic Mapping;
3. Velocity Mapping and Seislog Study; and
4. Reservoir Engineering.

PROBLEMS

1. Rapid pressure drop.
2. Rapid encroachment of gas and water.
3. The recovery and production rates are much lower than expected.
4. The reservoir depths predicted were unreliable.
5. Need to identify ways to maximize production from the current 50 producing wells.
6. Should additional production platforms be located, and if so, where to locate them.

OBJECTIVES

The objectives of these studies were to provide detailed up-to-date descriptions of the Metlaoui reservoir, to determine causes of well problems and to provide recommendations for future development of the Bouri Field.

PROJECT TEAM

Teknica's project team consisted of senior geologists, geophysicists, and reservoir engineers. Teknica also subcontracted several well recognized consulting groups to provide interpretations in specialized fields, such as petrography, pore imaging studies, and specialized engineering analyses. The AGIP representative provided guidance and help to the team on a continuing basis.

METHODOLOGY

1. Stratigraphic, sedimentologic and petrographic analyses
2. Structural analysis
3. Inversion (Seislog) study
4. 3D structural interpretation
5. Reservoir characterization
6. Reservoir Engineering
7. Recommend production modifications
8. Identify development locations

RESULTS

1. The 3D velocity studies and the seismic mapping improved the depth predictions to the reservoir horizons to an accuracy of ± 15 m.
2. The seismic inversion study showed that the porosity decreased dramatically off the structure; therefore, the expected flank water drive did not exist.
3. The petrographic studies determined that previously used porosity values were highly inaccurate.
4. Microfractures were the key to effective permeability (these were previously not seen).
5. Faults and associated fractures created conduits for rapid influx of gas and water into the oil reservoir.
6. Structure maps and porosity quality maps showed areas of best reservoir for future development.
7. Pressure transient analyses confirmed presence of many faults.
8. Parameters affecting production rates were identified.
9. Areas with good production potential were identified and mapped.
10. Areas with bad production potential were identified and mapped.
11. Recommendations to improve ultimate recovery were made.



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