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Improved Oil Recovery (IOR) Techniques
And
their Role in Boosting the Recovery Factor

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Challenges of Heavy Oil Production

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Introduction:

The importance of producing heavy oil increased due to the decrease in the world's giant conventional oil discoveries.

Heavy oil represents a massive world resource more than twice the size of global reserves of light or conventional oil .However, being an under utilized resource for requiring a long term investment, technology transfer from international experienced production and services companies involved in heavy oil production is mandatory.

Key Features:

With crude oil market, knocking on the \$70 / bbl door , several times , since the Hurricane Katrina , starting with \$70.85/bbl on August 30th,2005, and, with the rapid increase on demand , it is the right time to focus on the costly, difficult to produce, oil.

Heavy oil is a thick, viscous, tar-like crude oil that does not pump readily or flow well. This presents challenges in reserves estimate and extraction from the ground, as well as pipeline transportation to refineries. Increasing attention is being focused on technologies to most efficiently recover & process heavy oil . The challenge is in finding the best way to produce, transport & process the oil . There have been significant technology advances in heavy oil development in recent years, especially related to remote imaging(seismic) , recovery techniques (thermal injection), drilling & completion technologies. These advances have encouraged a new wave of interest in heavy oil .

Egypt is considered one of the first countries that produced heavy oil where the production started in 1920 in Abu Durba area at the eastern cost of the Gulf of Suez . New technologies will play a significant role in identifying these opportunities and such technologies require further foreign investment and the impact of the most up to date technologies on heavy oil production, from countries producing heavy oil since long time ago are discussed.

Conclusion:

1. Heavy oil potential in Egypt are not yet developed commercially
2. Heavy crude reserves in Egypt are not defined accurately with respect to Commercial accumulations areas, accumulations depths(Shallow - Deep), reservoir characterization , fluid properties , and crude classification.
3. Recently, the Petroleum Sector in Egypt succeeded to produce heavy oil through cyclic steam injection. Current production rates 7500 BOPD with API 14 from Asran field in the Eastern Desert
4. Development of heavy oil takes years to get high recovery and high production (Drlg, Secondary recovery, steam injection, large number of wells, etc)
5. High investment and high technology are needed

Yet , fundamental challenge remains: "how to get it out of the reservoir at the lowest cost"

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Speaker's biography

Mostafa Mohamed Safwat, BSc. in Petroleum Engineering, 1980

**Chairman Assistant for Reservoir & Production Engineering
Ganoub El wadi Holding Petroleum Company - Egypt**

- Have high profile Experience in Reservoir & Production Engineering
- Responsible for Technical and Economic Evaluation of Ganope's International Bid rounds
- Manage all the Reservoir and Production activities in oil and gas fields, includes Proper and prompt Reservoir Management- Reserves Evaluation – Reservoir Exploitation Strategies – Planning of Development Investment – Manage Numerical Simulation of both Oil & Gas Reservoir Engineering Studies – Reservoir Monitoring and Management – Field development operations follows-up
- Production Process optimization of all development activities which requires interaction with field drilling , Work-Over and Production Engineering follow-up and optimization of water injection facilities – artificial lifting – well testing & Completions.