Offshore Marginal Field Development

The history of oil exploration includes the natural evolution from land to offshore to deep water offshore. Underneath a vast majority of the oceans, in 500 ft. to 10,000 ft. water depths, oil and gas fields have been discovered with some of them developed and producing millions of barrels of oil. The Golden triangle of this deep water production is the Gulf of Mexico, Offshore Brazil and Offshore West Africa. More deep water oil and gas fields have been discovered in these three areas than all the rest of the world’s deep water regions. However, there have been a large number of deep water fields that will not be discovered for years to come, even with high oil prices. Why? Another reality is geophysics and geological analysis shows there are even more deep water fields, probably a greater number than have been discovered, yet to discover. Yet the vast majority of these fields will not be drilled. Why? The simple answer to both questions is that conventional perceptions of reserves and deep water technology, costs, time, and the deployment of human resources continue to limit the development of these deep water fields.

Course Objective

- To provide participants insight on why billions of barrels of deep water marginal oil and gas fields, already discovered, will not be developed in the foreseeable future. It will also address solutions on how these fields could be developed beyond the conventional method and by using unconventional technologies.
- To touch on issues why companies will not pursue a great many hot prospects for exploration in deep water when the prospects look too small. The bottom-line is: most concession holders of what is considered marginal oil and gas deep water fields will not exploit these fields to commerciality.
- To provide participants with an overview of advantages/disadvantages of conventions/non-conventional methods for offshore marginal field development through comparative analysis of both methods.
- To introduce economically viable innovative solutions for testing and production of shallow deep water oil wells. In its unique approach will make comparisons on conventional and non-conventional approaches and other methods for exploiting what is considered marginal deep water prospects, both discovered and yet to be discovered.
- To evaluate potentially best option for the development of ANY OFFSHORE MARGINAL FIELD, taking all things into consideration.
- To create a feasible exploitation module for ANY OFFSHORE MARGINAL FIELD, through economic analysis and evaluation of technologies and methodologies.
- To present approaches on using existing reservoir to exploit other potentials.
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Course Objective Cont.

- To evaluate a field development plan for offshore marginal field using small FPSO and vessels – matters for consideration to include, but not limited to:
  (A) Gas capture, utilization and commercialization
  (B) Choice of technology
  (C) Environmental concerns, both in terms of technology and materials
  (D) Up-side potentials, optimization and scale up
  (E) Safety
  (F) Approach to improved recovery etc.
- To initiate a preliminary field development approach using the experience and technology of the course providers.

Course Outline

- Overview of the oil and gas industry, fundamentals of exploration and production of oil and gas
- Global trends and changes affecting the oil and gas industry
- Designing and development of reservoir
- Delineation of other reservoir similarities
- Segmenting a generic offshore field development plan considering the following outlines:
  SUBSEA - Geology & Geophysics, Reserves Evaluation, Petrophysics, Reservoir Characterization, PVT Analysis & Simulations, Depletion Strategy
  SURFACE – Drilling & Completions, Production Facilities and hydrocarbon Evacuation, HSE operations and Economics
- Technologies for efficient development of oil and gas from ANY OFFSHORE MARGINAL FIELD, such as tie-back, gas re-injection for WAG, Geological storage, floating LNG, Offshore gas liquefaction, etc.
- Commence Workshop approach. Talking Points:

The Challenges of Developing Marginal Deep Water

- Oil and Gas Field
- Expediting Exploration and Development of Deep Water Fields in West Africa
- Early Deep Water Fields Testing and Production
- Making Offshore Marginal Fields Economically Feasible
  - Evaluating for early testing and production of oil and gas
  - Conventional and non – conventional technologies
  - FPSO, mini – FPSO, Small vessels
  - Review of West Africa Marginal Oil fields
  - Typical Cluster of West African Fields
  - Field Development Strategy based on what was learnt from early testing and production of oil and gas
  - Economic Analysis for conventional and unconventional technologies
  - Actual Field Development Comparison - incorporating actual data from ANY OFFSHORE MARGINAL FIELD, to develop a possible preliminary plan taking into consideration technological limits, gas utilization/commercialization, and improved recovery techniques and complete with economic modeling and optimization.
  - Review all the options/outcomes
- Review of all course outline and problem sets
- Integrate solutions acquired from solving problems with lessons learnt
- Summary and Conclusion

Who should attend:

- Geologist, Geophysicist, engineer, petrophysicist, production engineer
- Reservoir engineer, exploration and production engineer, leaders, research personnel

Course Duration:

1 Week