Advanced - Horizontal Wells Applications and Interpretations:

Short Course

The course will review horizontal well applications and interpretations from oil and gas field developments worldwide. The course is hands on and very practical in nature. The objective of the course is to take experienced Petroleum Geoscientists and other disciplines involved in field development and get them to hone in on the important issues of horizontal wells from the planning stage to the execution and interpretations. Many working examples from actual producing fields are used to demonstrate the use and pitfalls of horizontal wells.

The workshop should help the participants understand and build the tool kit needed for optimal horizontal well applications in Field Development and effective Reservoir Management. The examples reviewed and conclusions assembled will help to build personal exposure and lateral learning. This understanding will help to facilitate future work programs, infill drilling and maximize ultimate recovery via 'Excellence in Horizontal well use'.

The objectives are:

1. To hone in on key types of horizontal wells and completions available.
2. To review important themes and issues in horizontal well applications.
3. To review well planning importance and proper execution.
4. Assessment of main issues of horizontal wells.
5. Horizontal well interpretations, skills and toolkits.

The participants will come out with an understanding of the tools and methodologies applicable in their specific reservoirs. By sharing examples of successful and unsuccessful horizontal well applications and interpretations the development community can increase its production and reduce costs.

Need to bring enthusiasm, a calculator and an open mind.

Throughout the workshop, participants are expected to critically review the results and present their conclusions on a regular basis.

Who should attend:

The course is designed for Geoscientists working on new and mature fields: Petrophysicists, Petroleum Engineers, Reservoir Engineers, Production Technologists, Facilities Engineers, Commercial Engineers, Asset leaders, and other disciplines, who are involved in field appraisal, volumetric review, reserves assessment, development planning and economics. This is the team which evaluates, screens and matures oil and gas field production development and exploitation opportunities.

The workshop of some 15 people will be separated into teams of 3-4 people, with each team doing the exercises together, reviewing and summarizing them, taking them apart, assessing the future potential and then comparing the results and the learning.

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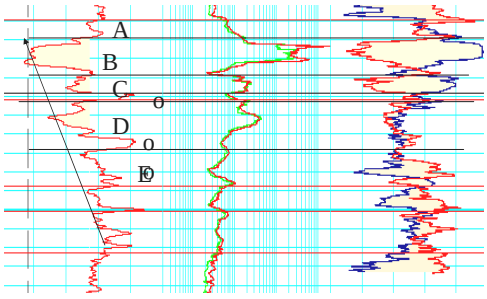
Short Course Content

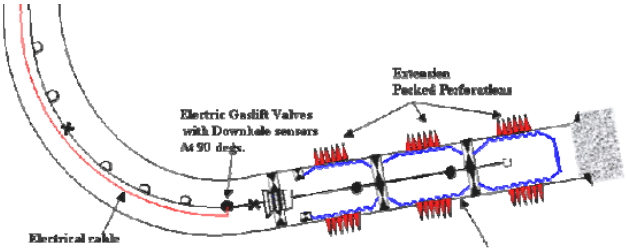


Types of wells

Short & Medium & Long Radius, S Turn Wells
Undulating Snake Wells, Stacked Laterals, Opposing Laterals
Multilaterals, Level I-VI, Pitchfork, Fishbone

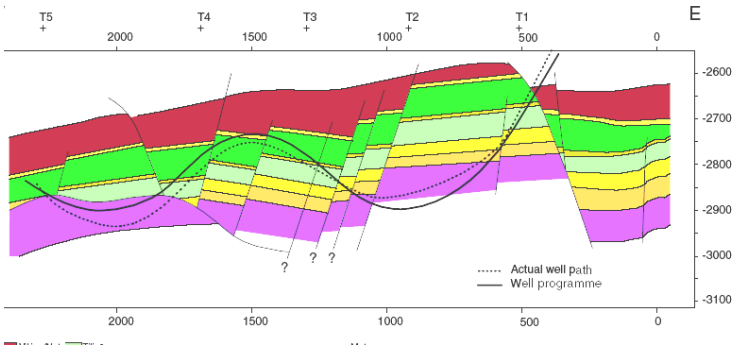
Types of Completions

Open Hole - Barefoot, Slotted liner, Perforated liner, Screens,
ESS, Gravel Pack, Cemented, ECP, Swell Packers
IWT Intelligent well technology
ICV Intelligent control valves - downhole chokes



Horizontal well Applications

Productivity - High Rates
Reduced Formation Damage
Increase Sweep, Drive utilization
Coning Cusping
Multi targets – Structural + Stratigraphic
Stratigraphic contrast
Fracture intersection / avoidance
Delineation - poking around, Contrast, Faults

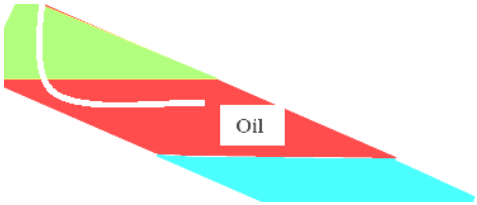


Horizontal Well Issues

The need for Pilot / landing wells
Well Planning, Geo-steering, Well Length
Standoff from GOC and OWC
Well Hydraulics, Flow contribution
Surveillance
True life time cost

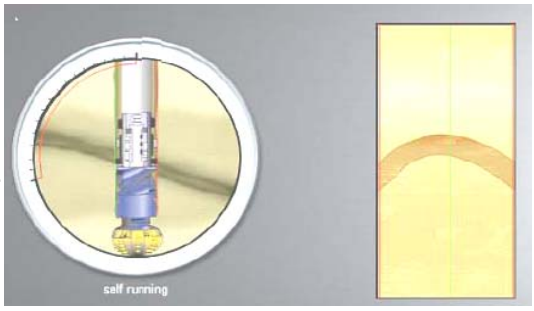
Horizontal well Planning

Well planning, target setting, tvd plan, Geo-steering, Landing
Drilling tools, methods - slide, limitations, costs
Structural Uncertainty, Stratigraphic Uncertainty
Structural and Stratigraphic interpretations



Execution and Interpretations

Drilling tools, Geo-steering, Landing
MWD tools and readings
Stratigraphic Uncertainty Correlation and continuity
Structural Uncertainty Dip and Faults
Structural and Stratigraphic interpretations



Learning's

At Horizontal well scale Seismic interpretations are 'crude' ----
World is much more complicated then we interpret
Need Experience, toolkit and good planning
New technology – yes – still Embryonic
Need lots of PLT data