Coring and Conventional Core Analysis

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Introduction:

One thing that is very important for both geologist and reservoir engineers is to have a reasonable justification and explanation to some odd reservoir behavior and ambiguities.

By choosing this BTS training course, all participants will be able differentiate between good and bad data, how to retrieve what they need from core reports; link their work and interpretation to solid conclusive material especially for facies, zonation and petrophysical parameters.

Participants to this 5-day intensive Coring and Conventional Core Analysis training course will enrich their geological, geophysical, petrophysical and reservoir engineering knowledge and experience with some real rock data and knowing where this data is coming from and how they were interpreted in addition to the in-depth background on how to maximize the usage of such 3d real data in hand.

All participants will have a strong background on knowing what analysis, laboratory work and even type of methods used to request once the core is ready as well as having a good quality control scheme on presented data by the coring company

This training course will highlight:

- Why we need a core and what is the maximum we can get from
- How to have a good core and hence accurate analysis
- The application of core data and analysis onto reservoir rock evaluation
- How core can help explaining odd reservoir behavior and ambiguities
- All type of tools and lab analysis that we can have what they provide per reservoir type
- Link all core interpreted data to environment of deposition, modeling and volumetric

By the end of this training course, participants will:

- Know the vital role of coring
- Learn what to get from core analysis
- Be able to maximize the usage of core data
- Who is this Training Course for?
- This BTS training course suits all exploration and development staff and reservoir engineers, but it is mainly designed to for:
- Petrophysicists
- Geologists and Modeler
- Reservoir Engineers
- Geophysicists
- Understand and justify possible reservoir behavior ambiguities
- Be able to apply interpreted core data to environment and facies

Objectives:

The main goals of this BTS training course are to enrich the participant's knowledge with in-depth core data, understand the coring procedure and importance, maximize the usage of core analysis, learn the benefit of core interpreted data to geologists and engineers, create the best justification several reservoir behavior ambiguities and link all results in hand to future facies/zonation and modeling.

Course Outline

Day One: Introduction to Coring - Why and How

Competency Description: During day one, attendees will know the importance of coring, how to plan for it and the main tools involved in handling and cleaning the core

Key behaviors

- Knowing the vital importance of the core and why
- Learning the detailed coring objectives and procedure
- Define the main tools used for getting a core
- Plan for coring operation (steps, problems and actions)
- Understand how to handle and clean the core
- Differentiate types of core analysis

Topics to be covered

- What is coring and why
- Coring objectives, procedure ad used tools
- Planning for coring (when to take it or not)
- Related geo-hazards
- Handling and cleaning the core
- Why we need core analysis

Day Two: From Core Preservation to Analysis

Competency Description: During this second day, participants will be exposed to several types of core preservation and analysis in both field and in lab after shipment as well as view real cases core report in the oil industry

Key behaviors

- Determine how to do Core preservation, drying and sampling
- Learn types of Core analysis ,SWC and usage
- Understand Core shipment and GR in both field and lab
- Know how to get the maximum out of the core
- Define types of core Petrography and photomicrograph
- Differentiate between Clastics and carbonate cores in reports

Topics to be covered

- Core preservation, drying and sampling
- Core analysis ,SWC, type and tool
- A brief on SCAL

- Core from field to lab
- Core Gamma and well logs
- getting the maximum out of the core
- Petrography ,SEM and photomicrograph
- Clastics and carbonate cores in oil industry reports

Day Three: From Sedimentological Core Description to Full Interpretation

Competency Description: During this third day, participants will understand how sedimentologist interpret the core and how the complete core analysis is merged with both electric zonation and sedimentary facies

Key behaviours

- Analyze Core photo types, lithostratigraphy and HC description
- Learn how core description is done
- Define and evaluate sedimentary log
- Analyze sedimentary facies and facies association
- Examine XRD and XRF,SEM output
- Evaluate types of Ø types and related parameters (K, packing, sorting, etc)
- Explain the effect of Fractures, collapse and dissolution on reservoir parameters

Topics to be covered

- Core photo types Vs lithostratigraphy and hydrocarbon description
- Core description
- Sedimentary log
- Sedimentary facies and facies association
- XRD,XRF,Ø types, K, packing ,etc
- Fractures, collapse and dissolution

Day Four: Reservoir Parameters – Define and Apply

Competency Description: During the fourth course day, attendees will be exposed to getting most reservoir parameters from core and its conventional analysis. They will know how and why clay effect can be a major player in reservoir behavior while on production as well as defining the main core application onto reservoir parameters population

Key behaviours

- Project Core sedimentary facies to E logs
- Define how to get SW,Vsh,etc
- Learn different Reservoir lith-anisotropy
- Evaluate the Clay mineral effect on reservoirs and production
- Analyze the Archie formula and related OIP
- Secondary recovery and flow units
- Fractures and image analysis

Topics to be covered

- Core facies Vs E logs
- SW,Vsh,etc
- Reservoir facies anisotropy
- Clay mineral effect
- Archie formula and OIP
- Secondary recovery and flow units
- Fractures and image analysis

Day Five: From Core Data Application to Reservoir Modeling

Competency Description: During the last course day, participants will learn how to apply the core data interpretation onto reservoir and pay analysis leading to reservoir modeling both static and dynamic

Key behaviours

- From core interpretation to mapping
- Thins layers, hidden facies and shoulder effect problems
- Understand Cutoffs
- Define core data to correlations
- Core data application to fault sealing analysis
- FZI, por to perm charts and upscaling
- Apply Core interpretation to Static and dynamic modeling

Topics to be covered

- From core interpretation to mapping
- Thins layers, hidden facies and shoulder effect problems
- Cutoffs ,From core data to correlations
- Core data application to fault sealing analysis
- FZI, por to perm charts and upscaling
- From Core interpretation to Static and dynamic modeling