An Intensive 5 Day Training Course

Basic Formation Evaluation

22 - 26 Jul 2018, Dubai

This course is Designed, Developed, and will be Delivered under ISO Quality Standards
Basic Formation Evaluation

WHY CHOOSE THIS TRAINING COURSE?

This interactive, applications-driven 5-day Basic Formation Evaluation training course will highlight the techniques and principles of formation evaluation for oil industry professionals who need to deal with wireline and/or LWD logs in their job environment.

This PetroKnowledge training course will explore the tools response to different lithologies and will help participants understand log readings, applications and limitations. It will instruct them with the basic Petrophysical concepts as well as the log interpretation techniques and procedures for the correct evaluation of well logs on clean and shaly sand formations.

This training course will feature:

- Discussions on tools physical principles and applications
- Tool limitations on different borehole environments
- Tips and examples to identify and understand common logging issues
- Explanation of petrophysical concepts and techniques for formation evaluation
- Application of interpretation methods in several examples and exercises

WHAT ARE THE GOALS?

By the end of this training course, participants will be able to:

- Understand the physical principles of main logging tools
- Apply basic quality control techniques to validate logging data
- Know the main applications and limitations of the different readings
- Perform a quick qualitative interpretation to determine possible interest zones
- Perform a complete formation evaluation on a shaly sand environment

WHO IS THIS TRAINING COURSE FOR?

This PetroKnowledge training course is suitable to a wide range of professionals but will greatly benefit:

- Engineers in exploration and production departments
- Geologists, geophysicist and petrophysicist
- Petroleum, reservoir and drilling engineers
- In general, all other oil & gas industry professionals who are involved in logging data interpretation and validation

HOW WILL THIS TRAINING COURSE BE PRESENTED?

This training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented, the sessions will include visual, auditory and kinesthetic elements to cover the three different learning modalities. The daily sessions will be highly interactive and participative. This involves regular discussion of applications as well as hands-on exercises that will be solved manually and/or using Microsoft Excel.
Day One: Basic Logging and Petrophysical Concepts

Competency Description: It is crucial that the participant understand the basic concepts and physical principles that rule all the tools, procedures and techniques used to evaluate hydrocarbon reservoirs.

Topics to be covered

- Porosity and Permeability concepts and classification
- The reservoir: minimum conditions for productivity
- Introduction to Well Logging
- Log classification according to the measured properties
- Auxiliary measurements, uses and common issues
- Basic measurements: Gamma Ray and Spontaneous Potential

Day Two: Resistivity and Conductivity Logging Tools

Competency Description: Learn the applications of resistivity and conductivity logging tools to well log interpretation, their use to determine important parameters for proper reservoir evaluation and hydrocarbon detection and quantification.

Topics to be covered

- Resistivity Theory
- The borehole environment: invasion profile
- Principles and applications of laterologs
- Microresistivity devices, principles and applications
- Resistivity tools limitations
- Conductivity tools, uses and limitations
- LWD resistivity determination tools
- Calibrations and log quality control parameters
- RT determination
Day Three: Nuclear Logging Tools

Competency Description: Learn the applications of nuclear logging tools to well log interpretation, their use to determine important parameters for proper reservoir evaluation and hydrocarbon detection and quantification.

Topics to be covered
- Basic principles of nuclear physics applied to borehole logging
- Formation density tools, principles and applications
- The photoelectric factor, a key lithology indicator
- Hydrogen index: Neutron tools principles and applications
- Porosity determination from density and neutron logs
- Porosity compatible scales and density-neutron crossover
- LWD nuclear logging tools
- Lithology determination on simple cases
- Calibrations and log quality control parameters

Day Four: Acoustic Logging Tools and Introduction to Formation Evaluation

Competency Description: Learn the applications of acoustic logging tools to well log interpretation, their use to determine important parameters for proper reservoir evaluation and hydrocarbon detection and quantification. Learn the basics of formation evaluation in simple lithologies.

Topics to be covered
- Acoustic waves propagation in the borehole
- Basic sonic tools, borehole compensation
- Sonic porosity compared to density-neutron
- Dipole sonic tools, applications
- Mechanical properties determination and uses
- Common sonic issues in the borehole
- LWD acoustic tools
- Formation evaluation principles
- Qualitative log interpretation techniques
- Rw determination methods
- Crossplots utilization, Hingle and Pickett plots
- Graphical interpretation techniques for porosity and lithology

Day Five: Complete Formation Evaluation for Simple Lithology

Competency Description: Learn methods and techniques of formation evaluation in simple shaly-sand lithologies including graphical interpretation methods.

Topics to be covered
- Saturation determination: Archie equation
- Complete formation evaluation for clean lithology using Archie
- Other saturation determination equations
- Hydrocarbon effects on log readings
- Complete formation evaluation for shaly sand lithology using Simandoux
- Group discussion on interpretation results
Basic Formation Evaluation

COURSE DATES, VENUES AND FEES

<table>
<thead>
<tr>
<th>Dates</th>
<th>Venue</th>
<th>Fee</th>
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<tr>
<td>22 - 26 Jul 2018</td>
<td>Dubai - UAE</td>
<td>$4,750</td>
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This fee is inclusive of Documentation, Lunch and Refreshments

Please use BLOCK CAPITALS to fill in this form. It is important that you read carefully through all information before starting to complete the form.

REGISTRATION DETAILS

Family Name: ____________________________________________ First Name (Mr./Ms.): _________________________________________
Position: ________________________________________________ Company: ____________________________________________________
Mailing Address: _______________________________________________________________________________________________________
Telephone:____________________ Mobile: _____________________ Fax: ________________________ Email: ________________________

AUTHORISATION

Authorisation By: ______________________________________________________________________________________________________
Position: ________________________________________________ Company: ____________________________________________________
Mailing Address: _______________________________________________________________________________________________________
Telephone:____________________ Mobile: _____________________ Fax: ________________________ Email: ________________________

IN-HOUSE TRAINING

Maximize your training budget and have several members of your staff, who require specific training, to attend with the advantage of not incurring additional travel costs when attending a ‘public’ training courses & seminars.

Would you like a PetroKnowledge training course delivered at a time or location to suit you? Would you like PetroKnowledge to tailor a course from our comprehensive library of programmes? Or would you like us to create an entirely new, bespoke course to suit the exact needs of your organisation?

Working in partnership with our clients, PetroKnowledge provides an enjoyable, creative learning experience that enables participants to develop their skills and knowledge. We can deliver not only generic, off-the-shelf courses from our extensive learning portfolio, but we can provide tailored as well as bespoke learning on any aspect of skill development or knowledge. Our in-house courses are conducted by the same expert trainers who conduct PetroKnowledge public courses so you can be assured they will fulfill the learning objective of any organisation.
BOOKING TERMS & CONDITIONS

Booking
• Bookings for courses can be made via our website (petroknowledge.com) or by contacting our Registration Desk on +971 2 5577389 or at reg@petroknowledge.com
• For on-line bookings, please select the course that you require and click on the “Register Now” button, following the instructions step by step
• Upon receipt of booking in order, enrollment on the respective training course will be confirmed by Registration Team with all necessary documentation

Invoicing and Payment
• Our fees include course presentation, relevant materials, physical & digital documentation, lunch and refreshments served during entire training. Accommodation charges are not included in the course fees
• Course fees are payable upon booking unless a valid, authorized Purchase Order is provided and accepted
• Invoices will be sent via email/courier to the ID/name and address provided
• We prefer to have the fees payment in our account before the start of training course. However, if your company has a different payment policy, the same should inform us in advance
• The currency of fees is in US Dollars (USD). Payments can be made in USD or UAE local currency AED (Arab Emirates Dirhams) either by Bank Transfer or by Credit Card. Our Bank Account details will be provided on the Invoice
• Please note that we do accept payment by cash, in USD or AED, only for the last minute bookings

Cancellation of Courses
• It may be necessary for PetroKnowledge to amend or cancel any course, course times, instructors, dates or published fees due to unforeseen circumstances and we reserve the right for such changes
• Any amendments will be advised before the course start date and any bookings already paid in full will not be subject to increased fees

Cancellation by Client
• Once you have completed your booking, received your confirmation of enrollment and a dated payment Invoice, you are deemed to have a contract with PetroKnowledge. You reserve the right to cancel this contract given the below terms
• All cancellations must be received in writing at reg@petroknowledge.com and info@petroknowledge.com at least 14 days prior to the training
• After the cancellation period has expired, consideration may be given, on a case to case basis, if a registered delegate nominates a substitute on the same course, shifts to next session of the course or moves to a new course
• For a cancellation request made on or before the statutory 14 day cancellation period, a refund may be given or a credit note issued which can be used against future course fees
• A 25% administration fee (of the total course fee at the time of booking) will be charged for any cancellations made outside of the statutory cancellation period

Attendance Certificate
• The daily course schedule should be accurately followed to ensure undeterred implementation of our training
• All delegates, who participated in their course throughout, will receive the Certificate of Completion on the last day
• Please report any foreseeable absences to a PetroKnowledge representative or to your sponsors directly
• An absence of three (3) or more sessions of the course will invalidate your eligibility for the Certificate of Completion