Advanced Well Log Interpretation

10 - 14 Dec 2017, Dubai
**WHY CHOOSE THIS TRAINING COURSE?**

This interactive, applications-driven 5-day Advanced Well Log Interpretation training course will highlight the techniques and principles of advanced well log interpretation for oil industry professionals who needs to deal with wireline and/or LWD logs in their daily job.

This PetroKnowledge training course will explore the tools response explained from their physical principles as well as their relationship with the rock and fluid properties, most existing open hole logging technologies will be covered explaining their main applications and limitations. Advanced interpretation methods will be discussed with numerous examples and exercises including complex lithology interpretation techniques. At the end of the training course, we will hold a mini-workshop on optimum logging program selection based on: minimum set of logs needed for a proper evaluation, company budget and tools' limitations.

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 advanced 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 most existing logging tools
- Apply basic quality control techniques to validate logging data
- Know the main applications and limitations of the different tool readings
- Perform a quantitative formation evaluation on a complex lithology
- Understand the uses of advanced logging tools in complex lithology interpretation

**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 Concepts Review and Resistivity Tools**

**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. Learn the use of resistivity logging tools for hydrocarbon identification.

**Topics to be covered**
- Petrophysics concepts review
- Introduction to Well Logging
- Log classification according to the measured properties
- Auxiliary measurements, uses and common issues
- Basic measurements: Gamma Ray and Spontaneous Potential
- Resistivity Theory, principles and applications of laterologs
- Advanced Laterolog logging tools: array and azimuthal
- Microresistivity devices, principles and applications

**Day Two: Conductivity and Nuclear Logging Tools**

**Competency Description:** Learn the applications of conductivity and 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**
- Conductivity tools, uses and limitations
- LWD resistivity determination tools
- Advanced Induction logging tools, 3D induction
- RT and invasion profile determination
- Formation density tools, principles and applications
- The photoelectric factor, a key lithology indicator
- Neutron tools principles and applications
- Porosity determination from density and neutron logs
- LWD nuclear logging tools
- Lithology determination, calibrations and log quality control parameters
Day Three: Acoustic and Geological Logging Tools

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

Topics to be covered

- Basic sonic tools, borehole compensation
- Dipole sonic tools, applications
- Mechanical properties determination and uses
- Sonic scanner principles and applications
- Common sonic issues in the borehole
- LWD acoustic tools
- Dipmeter interpretation principles
- Geological Image Logging Tools
- Structural and Stratigraphic Interpretation Principles
- Open, partially open and healed fractures interpretation
- Faults and unconformities interpretation examples
- Facies analysis for reservoir characterization with image logs
- Ultrasonic logging tools

Day Four: Advanced Logging Tools and Introduction to Formation Evaluation

Competency Description: Learn the applications of advanced logging tools to well log interpretation, their use to determine important parameters for proper reservoir evaluation, hydrocarbon detection and quantification and reservoir models. Learn the log interpretation principles to evaluate simple shaly-sand reservoirs including graphical interpretation methods.

Topics to be covered

- Nuclear Magnetic Resonance, principles and applications
- Relaxation mechanisms and their association with fluid and rock properties
- Porosity, irreducible water saturation and permeability determination
- Advanced fluid determination methods: 3D map T1-T2-Diffusion
- Dielectric tools principles and applications
- Saturation determination parameters, m, n and CEC
- Geochemical Logging tools
- Complex lithology evaluation examples
- Formation evaluation principles
- R*, determination methods
- Crossplots utilization, Hingle and Pickett plots
- Graphical interpretation techniques for porosity and lithology

Day Five: Complex Lithology Evaluation, Formation Testers and Mini-Workshop

Competency Description: Learn the applications of formation testers tools to well log interpretation, their use to determine important parameters for proper reservoir evaluation, hydrocarbon detection and quantification and reservoir models. Learn the log interpretation methods and techniques to evaluate complex lithology reservoirs. Learn the basics to determine and optimum well log acquisition program maximizing company return and benefits.

Topics to be covered

- Saturation determination equations and techniques
- Complete formation evaluation for Complex lithology
- Reservoir pressure determination tools
- Pre-test interpretation
- Lost seal, dry tests and supercharging
- Pressure gradient interpretation
- Fluid sampling, optical and composition fluid analyzers
- Advanced probes for special well and reservoir conditions
- Permeability determination
- Mini-workshop on logging program selection

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Advanced Well Log Interpretation

**COURSE DATES, VENUES AND FEES**

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<thead>
<tr>
<th>Date</th>
<th>Venue</th>
<th>Fee</th>
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<tbody>
<tr>
<td>10 - 14 Dec 2017</td>
<td>Dubai</td>
<td>$4,500</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 5577 389 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