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Introduction to PETROPHYSICS

Log Analysis, LWD & Wireline



21 - 25 May 2012
Kuala Lumpur, Malaysia – 3rd run in Asia!



**Expert Course Trainer:
Dr. James J. Willis**

“Interesting material and effective presentation style”

Nippon Oil

“Helpful, interesting, knowledgeable, technically”

TSJOC

“Very good course, very detail and fundamental aspect of Petrophysics”

Lundin Oil & Gas BV”

“Good course for Geoscientist”

Petronas Carigali

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Course Summary

Petrophysics remains a vital component to many facets of the petroleum industry, from quantification of hydrocarbon reserves, developmental strategies to real-time decision making for reservoir navigation. This 5 day course addresses the fundamental tenets of petrophysics and formation evaluation, using integrative perspective of multiple datasets, including geological, geophysical, logging and core data. Significant worldwide case histories are included, as well as several exercises designed to provide hands-on experience.

You will learn the latest geological, geophysical and logging/core technologies to understand better their role in petrophysical analysis, formation evaluation, and reservoir characterization. Pros & cons of key datasets will be addressed, with emphasis on need for integrative studies and selection of tool combinations to resolve key issues. You will learn quick-look qualitative techniques as well as quantitative aspects such as volume of shale/clay, porosity, permeability, and water saturation determinations.

Who Should Attend

This 5 day course is recommended for Geologists, Geophysicists, Log and/or Core Analysts, Exploration & Production Managers, and Reservoir Engineers

Course Summary

- Understand better the latest geological, geophysical, and logging/core technologies and their role in petrophysical analysis, formation evaluation, and reservoir characterization.
- Address the pros and cons of key datasets, with emphasis on need for integrative studies and calibration of datasets.
- Apply quick-look qualitative techniques as well as quantitative aspects to understand vital aspects such as volume of shale/clay, porosity, permeability, and water saturation determinations.
- Select tool combinations to resolve key issues and for specific applications.
- Assess uncertainty in petrophysical measurements and techniques and its influence on reserve estimation.

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5 Day Course Outline

- **Welcome and Introduction**
 - Discussion of the “need” for petrophysical analysis and formation evaluation, including integrated core and log analysis with worldwide case examples, illustrating their importance to hydrocarbon exploration and production.
- **Rock and Fluid Properties**
 - Classification and identification of clastic and chemical sedimentary rocks
 - Impact of weathering, burial, and lithification on sedimentary rocks
 - Cement types and origin
 - Porosity and permeability
 - Flow anisotropy and well placement (exercise)
 - Impact of grain arrangements, matrix materials, and fluid types
 - Water saturation determination (basic Archie analysis and complex modifications)
 - Pressure analysis
- **Aspects of Drilling and Logging**
 - Mud logging
 - Core acquisition and interpretation
 - Wireline and LWD logging and imaging
 - Analogue studies
 - Well correlation (exercise)
- **Core and Log Analysis**
 - Gamma ray log analysis, including spectral GR
 - Volume of shale (Vsh) analysis (exercise)
 - Porosity log analysis (density, neutron porosity, and sonic)
 - Lithologic determination (exercise)
 - Resistivity log analysis and water saturation
 - Water saturation (Sw) determination (exercise)
 - Clay conductivity and Sw (exercise)
 - Acoustic log analysis (compressional, shear, and Stoneley waves)
 - Porosity and bulk volume hydrocarbons (exercise)
- **Core and Log Analysis (continued)**
 - Nuclear magnetic resonance
 - Hydrocarbon and water typing (exercise)
 - Azimuthal (image) log analysis
 - Dip determination (exercise)
 - Calibration of core and log data
- **Seismic Petrophysics**
 - Seismic versus log comparison and data integration
 - Seismic attribute analysis
 - Bright, dim, and flat spots; amplitude versus offset/angle analysis; zero- and 90-degree phase
 - Attribute analysis (exercise)
- **Summary and Concluding Remarks**
 - The present state and future role of petrophysical analysis and formation analysis.

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About your Expert Trainer



James J. Willis received his B.S. and M.S. degrees in Geology from the now University of Louisiana-Lafayette in 1989 and 1990, respectively, and his Ph.D. as a National Science Foundation fellow at Baylor University, Waco, Texas, in 1993.

From 1994-1996, he studied planetary tectonics as a NASA-funded postdoctoral fellow at Southern Methodist University. In 1996, he returned to UL-Lafayette, where he was awarded in 1997 the Hensarling-Chapman Endowed Professorship in Geology. He is a Professional Geologist, registered with the Texas Board of Professional Geoscientists. James has been the editor and publisher (both volunteer efforts) for the Lafayette Geological Society since 2002.

James has been an active researcher, receiving several million dollars in grants from federal, state and industry sources, has presented numerous talks, and has published on a diversity of geoscience topics. In particular, as an undergraduate student he developed a 4D quantitative well bore guidance theory, including the concept of positive versus negative thickness (sign indicating direction of drilling section), that predated availability of key real-time data. As an independent trainer and consultant for Baker Hughes INTEQ for the last year and a half, it has been particularly exciting to see just how far the reality of LWD technology, especially azimuthal imaging, has since advanced.

Hear what others have said about James Willis's class in 2009 in Kuala Lumpur:

- ❖ "A very good class; full of new information. Recommended for a newcomer in Petrophysics!"
- ❖ "I really enjoyed the course. Thanks!"
- ❖ "One of the best training attended – very knowledgeable, well presented and great materials"
- ❖ "I got a lot of knowledge attended this course"

Carigali Hess Operation Co., Eaglewood Energy (BVI), Offshore Geo-Surveys, Petronas Carigali (XCM) Exploration Capability Management, Mitsui Oil Exploration, Newfield Sarawak Malaysia and many others.

Feedback from James's international past attendee's around the world.

- ❖ "All well-presented! Great material!"—Log Analysis, PathFinder LWD.
- "Better than excellent. Need more courses with you as instructor."—MWD Supervisor, Baker Hughes INTEQ.
- ❖ "Perhaps the best speaker I've ever heard."—Petrophysicist, Anadarko.
- ❖ "This is one of the best courses I've ever taken. ... Thanks!" Operations Engineer, Pioneer Natural Resources
- ❖ "This course was very informative. I received great insight to the theory behind different log measurements." Drilling Engineer, Apache Corporation
- ❖ "Great analogies, very energetic" Petroleum Engineer, Chevron
- ❖ "The speaker was very knowledgeable and communicated very effectively." Geologist, ENI

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Introduction to Petrophysics Kuala Lumpur, Malaysia 21 – 25 May 2012	Early Bird Price	✓	Normal Price	✓	TEAM DISCOUNTS!
5 day training course	S\$ 4700		S\$ 4900		PetroEdge recognises the value of learning in teams. Group bookings at the same time from the same company receive the following:
PetroEdge In-house Training <input type="checkbox"/> Yes, I would like to organise this training on-site and save over 20% of total course fees! For further information about On-site Solutions, please call +65 67419927 or email info@asiaedge.net					3 or more at 5% off 5 or more at 7% off 8 or more at 10% off All other promotions including early bird are exclusive of the group discount.

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Job Title: -----

Department: -----

Email: -----

Mr Mrs Ms Dr Other

Delegate 2:

Telephone: -----

Email: -----

Job Title: -----

Department: -----

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Company: -----

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Country: -----

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- if you have not received an acknowledgement before the training course, please call us to confirm your booking.
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