PETROSYNC
Synchronize Your Petroleum Skills

Applied Reservoir Engineering

Optimize Your Field Performance and Maximize Your Hydrocarbon Recoveries!

Date: 7th - 11th September 2015
Location: Kuala Lumpur, Malaysia

Practical Exercises and hands-on examples

Petrosync Distinguished Lecturer

Dr. Tarek Ahmed, Ph.D., P.E.
Founder
Tarek Ahmed & Associates Ltd

Course Objectives

- Have a deep comprehension knowledge of the application of Reservoir Engineering
- Optimize field performance
- Maximize and manage hydrocarbon recoveries
- Learn associated modern theories which are balanced with pratical things
- Understand how to apply immediately latest techniques of Reservoir Engineering

This course is designed for

This course is design for Petroleum Engineers, Drilling Engineers, Production Engineers, Reservoir Engineers and other disciplines who desire to obtain a comprehensive knowledge of the application of reservoir engineering to optimize field performance and maximizing hydrocarbon recoveries.

IN-HOUSE SOLUTIONS

SAVE COST • IMPROVE PERFORMANCE • REDUCE RISK

PetroSync understands that in current economic climate, getting an excellent return on your training investment is critical for all our clients. This excellent training can be conducted exclusively for your organization. The training can be tailored to meet your specific needs at your preferred location and time. We will meet you anywhere around the globe.

If you like to know more about this excellent program, please contact Jerry Tay (Conference Director) on +65 6415 4502 or email jerry.t@petrosync.com

Supported by

Applied Reservoir Engineering

7th-11th September2015, Kuala Lumpur, Malaysia

Course Overview

This is an in-depth course that is designed to provide the participants with a solid understanding of reservoir engineering and associated modern theories in order to manage and maximize hydrocarbon recovery. Hands-on examples and exercises are used throughout the course to help participants with understanding key performance concepts. Participants are encouraged to bring their own laptop computer to class.

Petrosync Distinguished Lecturer

Dr. Tarek Ahmed, Ph.D., P.E.
Founder
Tarek Ahmed & Associates Ltd

Dr. Tarek Ahmed, Ph.D., P.E., is the founder of Tarek Ahmed & Associates Ltd; a consulting firm specializes in providing high quality public and in-house Petroleum Engineering courses and consulting services to the petroleum industry worldwide. Dr. Ahmed is a former Professor and Chairman of the Petroleum Engineering Department at Montana Tech of the University of Montana for 22 years. Dr. Ahmed had held positions as a Senior Reservoir Engineering Advisor with Anadarko Petroleum and Baker Hughes. Dr. Ahmed authored numerous SPE technical papers and several textbooks, including:

- Hydrocarbon Phase Behavior
- Reservoir Engineering Handbook
- Advanced Reservoir Engineering
- Equations of State and PVT Analysis
- Working Guide to Vapor-Liquid Phase Equilibria Calculations
- Working Guide to Reservoir Rock Properties and Fluid Flow
- Advanced Reservoir Management and Engineering

Dr. Ahmed is currently completing a new textbook on Unconventional Reservoirs.

WHY YOU SHOULD ATTEND PETROSYNC'S EVENTS

- To ensure that all objectives of the course matches yours, all PetroSync programs are developed after intensive and extensive research within the industry
- PetroSync programs focus on your immediate working issues to ensure that you are able to apply and deliver immediate results in real work situations
- Application and implementation of industry knowledge and experience are the drivers for our course design, not theoretical academic lectures
- PetroSync training focuses on practical interactive learning tools and techniques including case studies, group discussions, scenarios, simulations, practical exercises and knowledge assessments during the course. Invest a small amount of your time to prepare before attending the course to ensure maximum learning
- PetroSync follows a rigorous selection process to ensure that all expert trainers have first-hand, up-to-date and practical knowledge and are leaders of their respective industrial discipline

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Course Agenda

I. Introduction and Review of Basic Reservoir Engineering

- Primary Depletion and Recovery Mechanisms
- Depletion Drive Index
- Variable Bubble Point Concept

II. Performance of Condensate Reservoirs and Liquid Blockage

III. Simulating Laboratory Experiments and EOS

- Hands-on Modeling and Tuning of EOS

IV. Capillary Pressure and Relative Permeability Concepts

- Capillary Pressure and Fluid Distributions
- Two and Three Relative Permeability
- Normalization of Relative Permeability
- Generating Relative Permeability Ratio from CCE Tests For Modeling Retrograde Gas Reservoirs
- Relative Permeability Hysteresis Models
  - Land's Trapping Coefficient
  - Carlson's Model
  - Killoough's Model

V. Gas Well Performance

- Vertical Gas Well Performance
- Horizontal Gas Well Performance

VI. Gas Recovery Mechanisms and Material Balance Equation

VII. Modeling of Gas Reservoir Systems

- Hands-on Reservoir Simulation of Gas Reservoirs

VIII. Modern Type Curves Analysis

- Generating the P90, P50, and P10 Recovery Performance

IX. Water Influx

- Recognition of Natural Water Influx
- Water Influx Models

X. Oil Well Performance

- Vertical Well Performance
- Horizontal Well Performance

XI. Oil Recovery Mechanisms and the Material Balance Equation

- Hands-on Reservoir Simulation of Oil Reservoirs

XII. Fundamentals of Reservoir Fluid Flow

- Fluid Flow Equations
- Principles of Superposition
- Transient Well Testing

PROGRAM SCHEDULE

08:00 – 09:00	Registration (Day1)
09:00 – 11:00	Session I
11:00 – 11:15	Refreshment & Networking Session I
11:15 – 13:00	Session II
13:00 – 14:00	Lunch
14:00 – 15:30	Session III
15:30 – 15:45	Refreshment & Networking Session II
15:45 – 17:00	Session IV
17:00	End of Day

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Over 60 Class Problems will include the following examples:

The Nameless Oil Field under consideration for miscible displacement by different types of gas injection, these are:
1. 100% C1
2. 100% N2
3. 80% C1 & 20% CO2

Using the PVT simulator:
a) Tune EOS to match saturation pressure of 1936 psig
b) Perform DE, CCE , and Separator Tests on original oil composition
c) Add a second stage separator with T=100 deg F, optimize the separator pressure
d) Perform Swelling test on each type of gas injection
e) Estimate the MMP EOS for each type of gas

A gas well with a specific gravity of 0.65 is producing under the pseudosteady-state condition. The following additional data is available:
k = 65 md h = 15'T = 600oR
re = 1000' rw = 0.25' s = 0.4

Calculate the gas flow rate under the following conditions:
1) avg res pressure = 4000 psi, pwf = 3200 psi
2) avg. res pressure = 2000 psi, pwf = 1200 psi
Use the appropriate approximation methods and compare results with the exact solution.

The following simulation case study presented below shows the combined production performance of four wells in an unconventional gas reservoir. The objective of the study case is to evaluate and compare the recovery performance of these four wells as completed in the following two different well configurations; unfractured and Hydraulically fractured. The following reservoir and gas data are given:
Reservoir area = 320 acres
Thickness = 50 ft
Porosity =20%
Gas Saturation = 80%
Gas FVF = 0.00349 ft3/scf
Initial Pressure = 4000 psi
Z-Factor Pi = 0.85

Calculate:
a. Gas Initially in Place "G" volumetrically
b. Evaluate and compare the performance of the un fractured and fractured 4 wells
c. Calculate contacted gas in place for the unfractured and fractured wells
d. Time to Reach the boundary dominated flow regime

A four-point stabilized flow test was conducted on a well producing from a saturated reservoir that exists at an average pressure of 3600 psi.

a. construct a complete IPR by using Fetkovich's method
b. construct the IPR when the reservoir pressure declines to 2000 psi

Reservoir Engineering Training Courses (JANUARY - DECEMBER 2015)

DATE	COURSE TITLE	INSTRUCTOR
16th - 20th March	Well Test Analysis	Alain Gringarten
18th - 22nd May	Special Core Analysis	Jos Maas
8th - 12th June	Modern Aspects of Chemical EOR	James Sheng
15th - 19th June	Practical Reservoir Simulation	James Sheng
3rd-7th August	Integrated Reservoir Chracterization & Modeling	Hai-Zui Meng
26th - 30th Oct	Coal Bed Methane & Shale Gas Evaluation & Development	Steve Hennings
19th - 23rd Oct	Special Core Analysis	Jos Maas
2nd - 6th Nov	Well Test Analysis	Alain Gringarten
16th -19th Nov	Petrophysics Operations Quality Control	Ahmed Taha Amin
14th - 18th Dec	Modern Aspects of Chemical EOR	James Sheng

For a copy of PetroSync's Training Calendar for 2015, please visit : http://petrosync.com/PetroSync_Catalog_Yearly_2015_-_1.pdf

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Course Details

Title : Applied Reservoir Engineering
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INVESTMENT PACKAGES

Please circle the package that you are attending!

Investment Package	Deadline	5 DAYS MASTERCLASS
Standard Price	4th Sept 2015	USD $ 4,295
Early Bird Offer	7th August 2015	USD $ 4,095
Group Discount (3 or more Delegates)	4th Sept 2015	10% discount for groups of 3 registering from the same organization at the same time

* To enjoy the promotion & discount offer, payment must be made before deadline
* For 5 or more delegates, please inquire for more attractive package.
* Prices include lunches, refreshments and materials. Promotion & discount cannot be combined with other promotional offers.
* Important: Please note that registration without payment will incur a SGD 200 administration fee.

DELEGATES DETAILS

1st Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐
Direct Line Number: _____ Email: _____
Job Title: _____ Department: _____
Head of Department: _____

2nd Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐
Direct Line Number: _____ Email: _____
Job Title: _____ Department: _____
Head of Department: _____

3rd Delegate Name _____ Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Others ☐
Direct Line Number: _____ Email: _____
Job Title: _____ Department: _____
Head of Department: _____

INVOICE DETAILS

Attention Invoice to: _____
Direct Line Number: _____ Fax: _____
Company: _____ Industry : _____
Address: _____ Postcode: _____
Country: _____ Email: _____

Please note:
- Indicate if you have already registered by Phone ☐ Fax ☐ Email ☐ Web ☐
- If you have not received an acknowledgement before the training, please call us to confirm your booking.

PAYMENT METHODS

☐ By Credit Card :
Please debit my credit card: ❑ Visa ❑ MasterCard ❑ AMEX Security Code: ☐☐☐☐
Card Number: ☐☐☐☐–☐☐☐☐–☐☐☐☐–☐☐☐☐ Expiry Date: ☐☐☐☐
Name printed on card: _____

☐ By Direct Transfer : Please quote invoice number(s) on remittance advice
PetroSync Global Pte. Ltd. Bank details:
Account Name: PetroSync Global Pte Ltd
Bank Name : DBS Bank Ltd
Bank Code : 7171 • Bank Swift Code : DBSSSGSGXXX • Branch code : 288
Account No : • SGD : 288-901898-0 • USD : 0288-002682-01-6
Bank Address : 12 Marina Boulevard, Level 3. Marina Bay Financial Centre Tower 3. Singapore 018982

All bank charges to be borne by payer. Please ensure that PetroSync LLP receives the full invoiced amount.

PROGRAMME CONSULTANT

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TERMS AND CONDITIONS

DISCLAIMER

Please note that trainers and topics were confirmed at the time of publishing; however, PetroSync may necessitate substitutions, alterations or cancellations of the trainers or topics. As such, PetroSync reserves the right to change or cancel any part of its published programme due to unforeseen circumstances. Any substitutions or alterations will be updated on our web page as soon as possible.

DATA PROTECTION

The information you provide will be safeguarded by PetroSync that may be used to keep you informed of relevant products and services. As an international group we may transfer your data on a global basis for the purpose indicated above. If you do not want us to share your information with other reputable companies, please tick this box

CANCELLATION POLICY

You may substitute delegates at any time as long as reasonable advance notice is given to PetroSync. For any cancellation received in writing not less than fourteen (14) working days prior to the training course, you will receive **credit voucher** less a SGD $200 administration fee and any related bank or credit card charges.

Delegates who cancel less than fourteen (14) working days of the training course, or who do not attend the course, are liable to pay the full course fee and no refunds will be granted.

In the event that PetroSync cancels or postpones an event for any reason and that the delegate is unable or unwilling to attend in on the rescheduled date, you will receive a credit voucher for 100% of the contract fee paid. You may use this credit voucher for another PetroSync to be mutually agreed with PetroSync, which must occur within a year from the date of postponement.

PetroSync is not responsible for any loss or damage as a result of the cancellation policy. PetroSync will assume no liability whatsoever in the event this event is cancelled, rescheduled or postponed due to any Act of God, fire, act of government or state, war, civil commotion, insurrection, embargo, industrial action, or any other reason beyond management control.

CERTIFICATE OF ATTENDANCE

A minimum of 70% attendance is required prior issuance of PetroSync's Certificate.

DETAILS

Please accept our apologies for mail or email that is incorrectly addressed.
Please email us at registration@petrosync.com and inform us of any incorrect details. We will amend them accordingly.

CHARGES & FEE(s)

- For Payment by Direct TelegraphicTransfer, client has to bear both local and oversea bank charges.

- For credit card payment, there is additional 4% credit card processsing fee.

Confirmation

I agree to PetroSync's terms & conditions,payment terms and cancellation policy.

Authorized Signature : _____

PAYMENT TERMS : **Payment is due in full at the time of registration. Full payment is mandatory for event attendance.**