



**Society of Petroleum Engineers**

**20–22 March 2012** | Amwaj Rotana Hotel | Dubai, UAE

**Early Bird Registration Deadline:  
20 January 2012**

# ***SPE Applied Technology Workshop*** ***Tracer Technology for Reservoir Description and Optimisation***



## **Who Should Attend**

Reservoir engineers, production engineers, production technologists, petrophysicists, reservoir geologists, researchers, supervisors, asset team leaders, managers, and anyone interested in the applications of tracer technology as a source of information to improve production, and to understand and manage the reservoir.

## **Committee Members**

**Co-Chairperson**  
**Anne Dyrli**  
RESMAN

**Co-Chairperson**  
**Modiu Sanni**  
Saudi Aramco

**Co-Chairperson**  
**Oyvind Dugstad**  
IFE

**Alex Alexandrou**  
ProTechnics

**Ardian Nengkoda**  
Petroleum Development Oman

**Carolina Romero**  
Total

**Helber Cubillos**  
CEPSA

**Hugues Preud'homme**  
University of Pau

**Marcos Beaumont**  
Tracerco

**Nicolas Ruby**  
Chevron

**R. Karantharath**  
Dubai Petroleum Establishment

**Rick Grayson**  
Tracerco

**Sven Kristian Hartvig**  
IFE

**Tom Skoglunn**  
Statoil

## **Workshop Abstract**

We invite you to the third SPE Tracer Technology ATW. This workshop is a follow up to the successful 2008 and 2010 tracer workshops in Dubai and Tunis respectively. It will focus on practical use of tracer test results for reservoir and production engineers in their daily work, including detailed information on new developments and opportunities. The technical sessions will cover in detail the applications of tracer technology. We will discuss technical subjects on inter-well tracer operations for reservoir characterisation and modelling and also single-well subjects with focus on inflow monitoring and profiling.

## **Workshop Objectives**

Tracer technology is an extremely valuable tool for improving reservoir description and understanding reservoir dynamics in addition to production optimisation. The oil industry faces a future with mature fields and where secondary and tertiary production methods become increasingly important. The consequence of this is that demand for more detailed reservoir information will increase. Industry has used tracer technology to obtain qualitative reservoir information and in some situations also for more advanced quantitative reservoir information. This workshop will focus on a broad range of application of tracer technology. From inter-well to near-well to in-well use as an efficient tool in reservoir management in order to acquire information suited for production optimisation. The workshop will also promote sharing of experience from planning procedures to field operations. There will be a focus on how results can be integrated best with other reservoir and well data in order to obtain valuable information.

# WORKSHOP

## Tracer Technology for Reservoir Description and Optimisation

### Sponsorship Support

Sponsorship support helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operations-level individuals, those who benefit most from these technical workshops.

Sponsors benefit both directly and indirectly by having their names associated with a specific workshop.

While SPE prohibits any type of commercialism within the conference hall itself, the society recognises that sponsoring companies offer valuable information to attendees outside the technical sessions.

### Sponsorship Categories

Sponsorships are offered on a first come basis. Please contact SPE to verify the availability of a particular sponsorship. Existing sponsors have the opportunity to renew the same level of sponsorship for annual workshops. Sponsorship packages remaining are as follows:

- Gold Sponsorship
- Silver Sponsorship
- Bronze Sponsorship
- Welcome Reception and Dinner
- Workshop Luncheons—Per Day

### Sponsorship Benefits

In addition to onsite recognition; SPE will recognise sponsors on the SPE website and in all printed material for the workshop. Based on the sponsorship selected, sponsoring companies can also receive a selected number of complimentary local registrations.

### For More Information

For a detailed list of available sponsorships, including benefits and pricing, contact Deepa Makhija, at [dmakhija@spe.org](mailto:dmakhija@spe.org).

**SAVE USD 400  
BY REGISTERING  
BEFORE  
20 JANUARY 2012**

### Workshop Sponsors

#### Audio-Visual Equipment Sponsor



Coffee Break Sponsor  
22 March 2012



Coffee Break Sponsor  
20 March 2012



Institute for Energy Technology

Coffee Break Sponsor  
21 March 2012



### Schedule

#### Tuesday, 20 March 2012

**0800–0830 hours** Welcome Refreshments, Registration, and Badge Collection  
**0830–0840 hours** Hotel Safety and Security Briefing and Co-Chairpersons' Welcome Remarks  
**0840–0900 hours** Opening Keynote Address

**0900–1030 hours** **Session 1: Inter-Well Tracer Test I—Case Studies and Practical Tests**  
Session Chairs: **Alex Alexandrou**, ProTechnics; **Anne Dyrli**, RESMAN

This session will provide case studies of how innovative approaches, adoption of new technologies, and detailed study of previous field activities, helped to improve reservoir management and production performance. Such activities include project design and execution, evaluation, and interpretation of the results and efforts to present the benefits and potential value created through successful tracer projects and practical tests. In addition to lessons learnt from such studies, it is hoped that the case studies and tests provide better understanding of reservoir fluid movements, injection well optimisation, and sweep efficiency. Evaluation in comparison to or in combination with other information such as seismic and geo markers will be sought.

**1030–1100 hours** Coffee Break/Group Photograph  
**1100–1230 hours** Session 1 Continued  
**1230–1400 hours** Luncheon

**1400–1500 hours** **Session 2: Inter-Well Tracer Test II—Interpretation and Simulation**  
Session Chairs: **Modiu Sanni**, Saudi Aramco; **Sven Kristian Hartvig**, IFE

In this session the focus will be interpretation and simulation of field data from inter-well tracer campaigns. In some cases inter-well tracer data may be used solely to confirm communication and transport time between well pairs. An integration of tracer data with other static and dynamic field data (incorporated in the reservoir modelling workflow) gives enhanced and invaluable information for reservoir management and surveillance, and production optimisation. Discussion leaders will share their experience in developing numerical tracer models, predicting tracer behaviour, and history-matching observed tracer data. This session is intended to facilitate discussions about a variety of combinations of tracers, numerical models, and applications of tracer simulation including:

- Modelling conservative tracers, partitioning tracers, and natural tracers
- Finite-difference and streamline simulators, dedicated tracer simulators, and analytic models
- Planning, assessment of uncertainty, and interpretation for tracer applications
- Evaluation of communication, flow paths, and sweep efficiency
- Tracer curve analysis and quantitative use of tracer data in reservoir modelling

**1500–1530 hours** Coffee Break  
**1530–1730 hours** Session 2 Continued  
**1900–2200 hours** Group Dinner

#### Wednesday, 21 March 2012

**0830–0900 hours** Welcome Refreshments, Registration, and Badge Collection

**0900–1030 hours** **Session 3: Near-Well Tracer Test—SWCTT and Chemical Treatment**  
Session Chairs: **Hugues Preud'homme**, University of Pau; **Oyvind Dugstad**, IFE

The session will review case histories of single well chemical tracer tests. The presentations in this session will attempt to provide information about what data is needed to obtain the most accurate results. It will be a focus on interpretation and tools that are used to calculate remaining oil saturation. In order to make this interpretation, it will be necessary to evaluate the importance of reservoir parameters and well properties that influence on the results. The session will also aim at including experience with use of tracers to monitor chemical treatment in near well areas. In addition to lessons learnt from field examples, it is a hope that discussions can provide information which helps the engineers to make the best design in order to obtain best possible results from such field studies.

**1030–1100 hours** Coffee Break  
**1100–1230 hours** Session 3 Continued  
**1230–1400 hours** Luncheon

**1400–1530 hours** **Session 4: In-Well Tracer Test–Inflow Monitoring and Injection Profiling**  
 Session Chairs: **Marcos Beaumont**, Tracerco; **Nicolas Ruby**, Chevron

With the variety in completion designs now used in the industry, e.g. fractured wells, multi-laterals, long horizontal, and layered reservoir completions, the need for inflow or injection profiling is becoming more important than ever. With a better understanding of the reservoir fluid movements and sweep efficiency, improved reservoir management, and enhanced production can be achieved.

Beside the traditional approach of assessing connectivity between producers and injectors, tracers can also provide valuable information on the production/injection profiles as a low-risk non-intrusive technique. They are a safe and cost-effective alternative to traditional well interventions, such as conducting a PLT in subsea wells.

This session will focus on case studies where in-well tracer have been used and discuss how much information and value were obtained. The aim is to share best practices and lessons learnt but also identify and discuss new opportunities or technology advances such as onsite tracer quantification, stimulation flowback evaluation.

**1530–1600 hours** Coffee Break  
**1600–1730 hours** Session 4 Continued

## Thursday, 22 March 2012

**0830–0900 hours** Welcome Refreshments

**0900–1030 hours** **Session 5: Tracers for Monitoring of EOR/IOR Operations–Project Design and Field Experience**  
 Session Chairs: **Carolina Romero**, Total; **Helber Cubillos**, CEPESA

The session will be designed to encourage open discussions and promote networking and learning opportunities for all participants. Many operators have used tracer technology to successfully improve their understanding of waterfloods, conformance treatments, and EOR projects, such as, chemical processes, CO<sub>2</sub>, gas, WAG/FAWAG, and thermal floods. This session will therefore focus on the discussion of case histories in EOR/IOR tracer applications in the field. The objective will be to share lessons learnt and best practices from all phases of the tracer programme.

Important topics which will be discussed in this session are:

- Use of inter-well tracer tests (IWTT) in EOR operations
- Single-well tracer tests (SWTT) and one-spot pilots
- Tracer selection for EOR operations (i.e. well integrity, flow profiles, oil saturation, stability of the EOR agents, lab testing in advance of operations, etc.)

**1030–1100 hours** Coffee Break  
**1100–1230 hours** Session 5 Continued  
**1230–1400 hours** Luncheon

**1400–1500 hours** **Session 6: New Developments and Opportunities**  
 Session Chairs: **Ardian Nengkoda**, Petroleum Development Oman;  
**R. Karantharath**, Dubai Petroleum Establishment

The application of chemical tracer are now beyond reservoir management and production enhancement, it includes formation characterisation evaluation, flood effectiveness control, EOR performance applications. Today's applications are overseeing the advance utilisation in various areas of the petroleum industry.

The main objective of this session is to introduce the latest developments in tracer technology to the participants. The demand for use of simple technology like tracer is on the rise.

This session will focus on ongoing research, development, and trial opportunities of tracer technology; special emphasis will be placed on tracer applications in enhanced oil recovery projects.

Participants will be able to enhance their understanding of the advances in tracer technology and its implications in future oil field management. Application of tracer technology in non-conventional areas like water shut-off, polymer flooding, IOR, and EOR applications will also be discussed.

**1500–1530 hours** Coffee Break  
**1530–1730 hours** Session 6 Continued  
**1730–1800 hours** Workshop Summary and Closing

## General Information

### Workshop Venue

Amwaj Rotana Hotel  
 Jumeirah Beach Residences  
 P.O. Box 86834, Dubai, UAE  
 Tel: +971 4 428 2000  
 Fax: +971 4 434 3666

### Workshop Guidelines

#### Format

Three (3) days of informal discussions prompted by selected keynote presentations and discussions. Workshops maximise the exchange of ideas among attendees and presenters through brief technical presentations followed by extended Q&A periods. Focused topics attract an informed audience eager to discuss issues critical to advancing both technology and best practices. The majority of the presentations are in the form of case studies, highlighting engineering achievements, and lessons learnt. In order to stimulate frank discussion, no proceedings are published and the press is not invited to attend.

#### Documentation

- Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
- Work in progress, new ideas, and interesting projects are sought.
- Professionally-prepared visual aids are not required; handwritten view graphs are entirely acceptable.
- Note-taking by participants is encouraged.

#### Poster Session

The Steering Committee encourages registrations from professionals who are able to prepare and present a poster on a relevant project. For further details kindly contact Deepa Makhija, event manager at [dmakhija@spe.org](mailto:dmakhija@spe.org)

#### Attendance

Registrations will be accepted on a first-come, first-serve basis. The Steering Committee encourages attendance from those who can contribute to the workshop most effectively either in discussions or with posters. A mix of attendees in terms of geographic origin, companies, and disciplines will be encouraged.

#### Workshop Deliverables

- The Steering Committee will appoint a "scribe" to record the discussions and to produce the full workshop report for SPE.
- This report will be circulated to all attendees as the workshop deliverable within 4–6 weeks following the workshop. The copyright of the report is with SPE.
- PowerPoint presentation materials will be posted on a specific SPE URL address after the workshop. Provision of the materials by the speakers will signify their permission for SPE to do so.

#### Commercialism

In keeping with ATW objectives and the SPE mission, commercialism in posters or presentations will not be permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter and others involved in the work.

#### Attendance Certificate

All attendees will receive an attendance certificate attesting to their participation in the workshop. This certificate will be provided in exchange for a completed Workshop Questionnaire.

#### Continuing Education Units

Attendees at this workshop qualify for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the workshop.

**PLEASE USE INSIDE FORM FOR REGISTRATION**

# REGISTRATION FORM

Tracer Technology for Reservoir Description and Optimisation

20–22 March 2012, Amwaj Rotana Hotel, Dubai, UAE

**Important: Attendance is limited and is not guaranteed. Early registration is recommended. Please print or type in black ink. Registration Fee MUST be paid in advance for attending the Applied Technology Workshop.**

First Name/Forename \_\_\_\_\_ Middle Name \_\_\_\_\_

Last/Family Name \_\_\_\_\_ SPE Member?  Yes  No

Member No. \_\_\_\_\_ Job Title \_\_\_\_\_

Company/Organisation \_\_\_\_\_

Street or P.O. Box Number \_\_\_\_\_ City \_\_\_\_\_

State/Province \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_

Telephone \_\_\_\_\_ Facsimile \_\_\_\_\_

Email (required) \_\_\_\_\_

**Applied Technology Workshop Fee:** *Before 20 January 2012*  USD 1,450 for SPE Members  USD 1,650 for Nonmembers  
*After 20 January 2012*  USD 1,850 for SPE Members  USD 2,050 for Nonmembers

**Workshop Fee includes:** Technical sessions, materials, daily coffee breaks, luncheons, welcome reception and dinner (if applicable). *Accommodation is NOT included in the workshop registration fee.*

**IMPORTANT:** All fees paid to SPE are net of taxes. The registration fees in this form do not include any local or withholding taxes. All such taxes will be added to the above-mentioned registration fees in the invoice.

Do you wish to present a poster? (subject to selection)  Yes  No

Do you wish to be considered a Discussion Leader? (subject to selection)  Yes  No

If yes, please indicate which subject you would like to present on: \_\_\_\_\_

**Credit Card** (Check One):  American Express  MasterCard  Visa

**NO REFUNDS will be granted on cancellations on or after 13 March 2012.**

\_\_\_\_\_

**Card Number** (will be billed through Society of Petroleum Engineers)

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**Payment by Bank Transfer: IMPORTANT—For reference: Please quote “12ADU5” and name of delegate**

**Make Payment to: HSBC Bank Middle East Ltd, Jebel Ali Branch, P.O. Box 66, Dubai, UAE**

**Account Name: SPE Middle East DMCC Account Number: 036-217131-100 Swift Code: BBMEAEAD IBAN: AE18020000036217131100**

**Cancellation and Refund Policy:**

- A processing fee of USD 100 will be charged for cancellations received before the registration deadline 20 February 2012.
- For cancellations received after the registration deadline, 20 February 2012, 25% refund will be made to the registrant.
- No refund on cancellations received within seven (7) days prior to the workshop date, i.e. on or after 13 March 2012.
- No refund will be issued if a registrant fails to attend the workshop.

Visa:

SPE Middle East, North Africa and India will assist in providing a visa invitation letter, upon request in writing, to confirmed registrants after receiving full payment of registration fees. Visa invitation letters take five days to issue from the date of request and it is the delegate's responsibility to obtain their own visa. SPE cannot issue the visa nor can we guarantee it will be obtained.

For questions or additional information contact: Deepa Makhija at [dmakhija@spe.org](mailto:dmakhija@spe.org).

To submit your registration online, please visit the event's website at: [www.spe.org/events/12adu5](http://www.spe.org/events/12adu5).  
Alternatively, you can email this form to: [formsdubai@spe.org](mailto:formsdubai@spe.org), or fax it to: +971.4.457.3164.

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