FLOW ASSURANCE
FOR OFFSHORE FIELD DEVELOPMENT
17 – 21 JUNE 2013, KUALA LUMPUR

Expert Faculty: Dr. Kashmir Johal
Over 35 years of experience in the exploitation and development of Oil and Gas fields. Technical expertise in multi-phase flow dynamics related to the design and operational analysis of subsea facilities systems in the North sea, Gulf of Mexico and the Middle & Far East.

New Book by Dr. Kashmir Johal
FLOW ASSURANCE FOR OIL & GAS FIELDS PRODUCTION TRANSPORT

Please visit us for more information:
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Course Objectives

This training course provides an in-depth understanding of the issues to be considered in the development of offshore fields.

Each day consists of lectures in the morning and a hands-on workshop in the afternoon. The workshop allows the participants to appreciate the design process associated with field developments. Various software will be available during the training course to predict multiphase flows through wells, pipelines and risers, as well as evaluating reservoir production profiles using alternative technologies to develop reservoirs. Further software to assess surge and environmental safety will also be available.

The field design approach will consider an integrated solution through modelling the reservoir decline, wells, flowlines, risers and the host facility. The participants will have a total appreciation of the methodology required to develop offshore oil & gas fields and have an understanding of all of the Flow Assurance issues and technology requirements.

Here are the key course objectives from this 5 day comprehensive training course:

• Provide an understanding of Flow Assurance and issues and their mitigation techniques.
• An appreciation of the field design process in consideration to flow assurance through integrating the reservoir to the host facility.
• An understanding of the benefits and risks associated with innovative technology application to offshore field development.
• Provide hands on workshop sessions to appreciate flow assurance importance in field design infrastructure and operations.
• To ensure that the attendees understand and appreciation flow assurance and solution techniques for the design and operation of offshore/onshore fields.

Target Audience

Engineering graduates & technologists who will be involved with the management, supervision, design and operating oil & gas fields in their work: R&D engineers and researchers, Reservoir engineers, Petroleum engineers, Subsea engineers and Drilling engineers, addressing drilling problems in deep off-shore environments.

What previous participants have said about this course in 2012:

"The flow assurance for offshore field development is important and as a good knowledge in terms of tackling FA issues at the first place. This training provides all the needed. Congrats!” TS Engineer, Clariant Oil Services

“Good effort to keep knowledge transfer within the shortest delivery time of this course” Principal Facilities Engineer, Sarawak Shell

“Well organised & relaxed atmosphere. A lot of time provided for discussion, Q &A and Exercises” Global Commercial Manager, PPSC

“Very comprehensive training. The group workshop and presentation is an excellent approach to enhance the understanding of the topic. Keep up the good work” Well Services Engineer, CPOC

“Excellent training with excellent expert presentation” Senior Flow Assurance, SPTGroup

“Very nice and good training” Flow Assurance Engineer, Inpex Masela Ltd

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Course Outline and Timing

Day 1:- The Big Picture

- Industry Outlook
- Reservoirs
- Fluids Transportation
- Host Facilities
- Development Costs
- Summary of FA Issues & Opportunities for New Technologies
- Start of Design Workshop
- Selection of Fields & Groups
- Design of Pipelines & Risers
- Insulation Requirements
- Chemicals
- Other Technologies

**Day 1** of the course will provide the big picture from a wide perspective by looking at the continuously changing industry outlook through the world supply, future prospects and demand. A refresher in reservoir types, characteristics, reserves evaluation, well logging, seismic surveys and drilling and production operations, wells, pipelines and host facilities will be provided.

A summary of typical costs for developments in terms of both Capex and Opex will be presented. A summary of the main flow assurance issues will identify the opportunities for new technologies that are required for the future.

Day 1 starts the hands on workshop in which the participants are split into two groups with the objective of designing the best systems architecture for the field to cater for all anticipated operational scenarios. Basic design of pipelines, risers and insulation will be undertaken, with associated requirements for chemicals and the need for innovative technologies.

Day 2:- Flow Assurance Considerations

- Multiphase Thermo-hydraulics
- Slugging
- Hydrates
- Wax
- Asphaltenes
- Scales
- Erosion
- Corrosion
- Chemical Inhibitors
- Workshop Continuation
- Development of Flow Assurance Strategies

**Day 2** concentrates on detailed flow assurance analyses. Provides a detailed explanation of multiphase modelling / simulation methodology and theory for both empirical and mechanistic mathematics. Slugging models are discussed using statistical based steady state models that include mean and 99.9 percentile predictions as compared to a totally based mechanistic approach using transient based operational models such as Olga. The prediction, control, management, and removal of hydrates, wax, asphaltenes, scales are presented and further developed during the workshop.

Erosion and Corrosion principles are presented using mathematical models of Selama and Venkatesh and DeWard Milliams. Chemical inhibition techniques for all the above flow assurance issues are presented. The workshop continues with the evaluation of flow assurance and its mitigation options as part of the flow assurance strategy development.
Days 3 & 4 :- Enabling / Emerging Technologies

- Subsea Processing
- Separation
- Multiphase Pumping
- Metering
- Subsea Gas Compression
- Pipeline Thermal Management
- Raw Sea Water Injection
- Gas to Liquids Conversion
- Gas to Liquids Absorption
- Other Emerging Technologies
- Workshop Continuation
- Selection of Best Technologies for Field Type
- Analysis of Technologies
- Risks in use of Technologies

Days 3 & 4 presents the available and emerging subsea technologies in the areas of subsea processing, separation, multiphase metering, pumping and subsea gas compression. Subsea thermal management systems are presented in addition to emerging technologies such as raw seawater injection, gas to liquids conversion and absorption and other technologies. The final part of the workshop analysis is undertaken that includes the selection of the best technologies for the field being considered for development. Analysis and benefits of each the technologies considered is undertaken along with the associated risks in its deployment for the life of the field.

Day 5:- Application and Workshop Sessions

- Software Solutions- Field Options
- Results of Workshop
- Group A: Deep Water Oil Field Presentation
- Long distance Oil field tie-back to Platform
- Group B: Long Distance Gas Condensate Field Presentation
- Open Forum & Additional Cases
- Workshop Conclusion

Day 5 presents the range of software that is available and used during the workshop followed by a detailed presentation of the “FIELD OPTIONS” predictive software. This is followed by detailed presentations by each of the group’s field development solution. A critical and constructive evaluation through question and answer session is presented with each group defending its logistics and development philosophy. Any free time will be used in discussions of actual problems experience by the participants of the workshop.
About Your Expert Trainer: Dr. Kashmir Johal

Over 35 years’ experience in providing specialist training and advisory services for the exploitation and development of Oil & Gas fields. Technical expertise in multi-phase flow dynamics related to the design and operational analysis of subsea facilities systems in the North Sea, Gulf of Mexico and the Middle/Far East.

Specialist expertise in areas of multi-phase transients hydrates and wax / asphaltenes issues associated with subsea deepwater and onshore field developments. An exceptional academic background and natural leadership abilities are supported by practical experience of diverse projects worldwide, along with numerous publications at key conferences. Particular interests in developing novel and innovative technologies for subsea applications to solve difficult flow assurance problem areas and improve field development economics.

Since 2006, he has been providing specialist consultancy services to a number of international clients in the development of the following oil & gas fields:

- Flow Assurance Consultancy/Management on USAN deep water development for Cameron/Total.
- North Idku offshore Egypt (PDI/RWE).
- Rona Heavy Oil Field Development Study for PDI.
- Kashagan development in Kazakhstan (AGIP / Worley Parsons / Fluor).


From 1993 – July 2000 he was attached with Stolt Offshore – Leadon Development. He was responsible for the design and flow assurance evaluation of the Kerr-McGee Leadon field development. He was also primarily responsible for all process related engineering undertaken Mentor in support of its core subsea engineering activities.

In addition to providing on-going technical input to project proposals, he also participated in the following projects: BP Foinaven West of Shetlands Development, Marathon West Brae North Sea Subsea Development, BP Bruce Design Competition and BHP Petroleum Vancouver Prospect

Prior to his appoint with Stolt Offshore, Dr. Johal was previously with Caltec Ltd, BHR Group and ADNOC in Abu Dhabi, UAE

PetroEdge is a specialist Oil & Gas training provider with our key training hub based in Asia. Since inception in 2007, we have trained over 1000 engineers in various disciplines. Our core focus is in developing competency in the local workforce in leading national & international oil producers and contractors in this region. In our commitment to create sustainable skills development, we facilitate cost-effective skills transfer opportunities through world-class training courses with leading experts. Through our unique client engagement model and local presence, we are better positioned to fulfill critical learning requirements of our Asian based clients.

To learn more about us, visit www.petroedgeasia.net
# REGISTRATION FORM

**FLOW ASSURANCE FOR OFFSHORE PRODUCTION**

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**Online:** www.petroedgeasia.net

**Email:** info@asiaedge.net

**Phone:** (65) 67419927

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- photocopy this form to register multiple delegates.

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- By Cheque/ Bank Draft: Make Payable to Asia Edge Pte. Ltd.
- By Direct Transfer: Please quote AE1 with the remittance advice
- Account Name: Asia Edge Pte. Ltd.
- Swift Code: 762903-001

**Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to Asia Edge Pte Ltd. payment terms.**

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