

Flow Assurance and the New Technology Era - From Origin to Market

25 – 26 NOVEMBER 2019
DOUBLETREE BY HILTON KUALA LUMPUR, MALAYSIA



Disruption in oil and gas production is extremely costly and a time-consuming HSE affair. Assuring flow is a multidiscipline approach to identify flow stoppage risks and devise systematic workflows and protocols can guarantee an uninterrupted flow of hydrocarbons from the reservoir to surface facilities, through pipeline to terminals and, ultimately, to refineries. This workshop centres on an integrated approach to prevent flow disruption by encompassing the industry supply chain. The aim of the workshop is to discuss how a robust strategy and building block can influence the field development plan.

The disruption of hydrocarbon flow can occur from many sources and by many factors including low temperature of deep and ultradeep water, contaminants in the hydrocarbon, reservoir compartmentalisation and many more. Operators deploy flow assurance strategies to ensure disruption-free production operability at their peak capacity, and hence, optimum economic value and appropriate return on investments.

This workshop is an exclusively interactive platform for industry practitioners and subject matter experts in hydrocarbon production and transportation to discuss new developments, best practices and lessons learnt. Topics discussed will cover challenges and solutions to this new era in flow assurance - low oil price, developing difficult and marginal fields and reservoirs, new energy arena, Internet of Things (IoT), technological advancements, industrial digitalisation and more.

Session Highlights

Operational Excellence	Internet of Things in Flow Assurance - Big Data and Digitalisation	Flow Assurance Contribution to Field Development Plans and Project Execution
Advances in Production Chemicals Applications for Flow Assurance	Flow Assurance in Challenging Fields and Situations	
Advances and Current Challenges with Fluid Sampling, Fluid Characterisation and Impact of Contaminants		
Emerging Technology in Flow Assurance Solutions		

GROUP REGISTRATIONS AVAILABLE!
Contact us at spekl@spe.org to arrange your group.

go.spe.org/20WM06W



Who Should Attend

Professionals involved in:

- Flow Assurance Practitioners
- Process Engineers
- Production Engineers
- Production Chemists
- Front End Engineers
- Operations
- Petroleum Engineers
- Project/Assets Managers
- Reservoir Engineers
- Researchers, Scientists and Academicians
- Technical Directors
- Data Scientist
- Downstream

Technical Programme Committee

CO-CHAIRS

Nur Hidayah Din Hatt Bt Abdullah
Head, FEED Upstream
Group Technical Solutions (GTS)
PETRONAS

Fatemeh Mehran
Production Solutions Champion
Schlumberger

COMMITTEE MEMBERS

Rob Bain
VP Flow Solutions
BlueFin Services

Adil Pootayil
Regional Manager (APAC) &
Senior Consultant
Calsep

Siti Fauwizah Binti Johari
Senior Process Engineer
Carigali Hess Operating Company

Tuan M Yusoff b Tuan Mahmud
Manager (Flow Assurance), GTS, PD&T
PETRONAS

Mior Zaiga Sariman
Principal Process
Group Technical Solutions (GTS)
Project Delivery & Technology
PETRONAS

Sofian Bin Abdullah Hashim
Manager (Production Chemistry)
PETRONAS

Raihan Rozlee
Senior Process Engineer / Flow
Assurance Engineer
PETRONAS

Astriyana Anuar
Staff Process Engineer
PETRONAS

Muhammad Abdul Aziz bin Muhammad Tahir
Head of Production Chemistry
PETRONAS Carigali Sarawak Gas

Eadie Azahar Rosland
Head Flow Assurance / PES /
TAG / PED
PETRONAS Carigali Sdn Bhd

Siti Rohaida Mohd Shafian
Staff Researcher
PETRONAS Research Sdn Bhd

Khor Siak Foo
Senior Staff Engineer, Flow
Assurance
**PTT Exploration and Production
Public Company Limited (PTTEP)**

Ali Didanloo
Petroleum Engineering Manager,
South East Asia & India
Schlumberger

Assoc Prof. Dr. Fakhruddin Hashim
Dean, Faculty of Engineering
Universiti Teknologi PETRONAS

Dr Jalal Foroozesh
Senior Lecturer
Universiti Teknologi PETRONAS

Dr Shaharin A. Sulaiman
Professor
Universiti Teknologi PETRONAS

Dr. Norida Binti Ridzuan
Senior Lecturer
Universiti Malaysia Pahang

Dr James Holbeach
Director, Strategy and Development
Wood

WORKSHOP ADVISORS

Rohaizad Bin Mohd Norpia
Upstream Process
Engineering Custodian
PETRONAS

Abul Jamaluddin
Flow Assurance Principle
PETRONAS

Workshop Objectives

This technical workshop will impart participants with an integrated and holistic approach in the application of flow assurance strategies from hydrocarbon origin to market. Participants will be able to:

- Acquire insights to the new challenges practitioners are facing, as well as new technology developments and applications throughout the industry
- Identify threats to flow assurance as well as effective remedial and preventive measures that can be taken to stop disruption
- Learn from experts and peers from not only the oil and gas industry, but also from different disciplines and industries



10+

hours of peer-to-peer networking opportunities



30+

hours of knowledge sharing and technical discussion



30

expert-led technical discussion topics



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TECHNICAL PROGRAMME PREVIEW

MONDAY, 25 NOVEMBER 2019

0800 – 0850 Arrival of Delegates and Registration

0850 – 0900 Safety Announcement by Hotel

0900 – 1000 **Session 1: Welcome and Introduction**

Co-Chairs: Nur Hidayah Din Hatt Bt Abdullah, **PETRONAS**; Fatemeh Mehran, **Schlumberger**

Panel Session: Digitalisation in Flow Assurance

Moderators: Rohaizad Bin Mohd Norpiah, **PETRONAS**; Abul Jamaluddin, **PETRONAS**

1000 – 1030 Group Photo / Coffee and Tea Break

1030 – 1230 **Session 2: Operational Excellence**

Session Managers: Fatemeh Mehran, **Schlumberger**; Rob Bain, **BlueFin Services**

The recent oil and gas downturn has changed the industry forever; forcing improvement in operational efficiencies with reduced operating costs. However, complex flow assurance challenges persist, and significant strides have been made recently to develop and improve technologies and methodologies to ensure productivity is maximised whilst reducing integrity risks. This session will focus on flow assurance challenges throughout the cradle-to-grave lifecycle of developments, ageing infrastructure and asset integrity, increasing demand of water injection and associated produced water handling, and the latest advanced techniques for monitoring and surveillance.

1230 – 1330 Networking Luncheon

1330 – 1530 **Session 3: Internet of Things in Flow Assurance - Big Data and Digitalisation**

Session Managers: James Holbeach, **Wood**; Jalal Foroozesh, **Universiti Teknologi PETRONAS**

Industry 4.0 is the move towards the use of massive amounts of discrete operational data to automate and optimise operational decisions. Driving this is the increasing prevalence and importance of IIoT technology and our ability to utilise data analytic techniques (both Edge and Server) to deal with what was once insurmountable mountains of data (Big Data). Technologies in this area are rapidly expanding and being utilised in the upstream oil and gas sector. Recent advances have combined data centric analytical techniques with more traditional physics based workflows to realise true operational optimisation. Both new and well-developed data analytic techniques such as Machine Learning and Artificial Intelligence are being applied to optimise workflows and enable rapid application of predictive analytics. Process and multi-dimensional asset digital twins are now largely the norm in new greenfield operating assets and are being retrospectively applied to brownfield assets as data filtering and data centric techniques improve.

This session will focus the importance of domain knowledge in this area as well as these new technologies and techniques with a particular emphasis on case studies and use cases.

1530 – 1545 Coffee and Tea Break

1545 – 1745 **Session 4: Flow Assurance Contribution to Field Development Plans and Project Execution**

Session Managers: Mior Zaiga Sariman **PETRONAS**; Ali Didanloo, **Schlumberger**

The oracle, the defender and the healer. In the current oil and gas economic scenario, the application, systems and practices of flow assurance have to be envisaged at early field development phase to address the challenges throughout the different production stages - from first oil to the abandonment of a field. Without doubt, flow

POSTER SOLICITATION & INFORMATION

All participants are encouraged to prepare a poster for the Workshop. Presentations on both research and field experience are welcomed. Posters, including unconfirmed/partial results, are to be presented at an assigned time and are open for discussion. Posters will be on display for the entire Workshop period.

When preparing your poster:

- Avoid commercialism. No mention of trademarks/product name
- Poster size should be approximately 0.8m x 1.2m (W x H) or size A0 in portrait layout
- Identify topic by title, affiliation, address, and phone number
- Include a brief abstract that summarises the technology to be addressed
- Make the display as self-explanatory as possible
- Place the information in sequence: beginning with the main idea or problem, method used, results, etc. (Draw a plan keeping the size and number of illustrations in mind)
- Keep illustrations simple by using charts, graphs, drawings, and pictures to create interest and visually explain a point
- Use contrasting colours
- Use large print for narrative materials. (We suggest a minimum of 24 points or 3" high letters for the title)

Note that the Workshop Programme Committee will review all poster abstracts/materials prior to display, and reserves the right to refuse permission to display any poster considered to be commercial in nature.

If you are interested to participate, please email your proposed topic with a short abstract (between 200-300 words) to **Joachim Soon** at jsoon@spe.org by **25 October 2019**.

The Society of Petroleum Engineers (SPE) is a not-for-profit organisation. Income from this event will be invested back into SPE to support many other Society programmes. When you attend an SPE event, you help provide even more opportunities for industry professionals to enhance their technical and professional competence. Scholarships, certification, the Distinguished Lecturer programmes, and SPE's energy education programmes Energy4me are just a few examples of programmes that are supported by SPE.

assurance is an essential building block of a field development plan that can influence architecture, cost and schedule.

This session will focus on how flow assurance plays its role to pre-empt, prevent, and cure production problems. The design and strategies for ensuring that there is uninterrupted hydrocarbon production flowing from the reservoir to the point of sale will be covered in this session. Examples will be presented to demonstrate flow assurance aspect of field/area development; long-term mitigation plans to assure the flow and an integrated approach to incorporate pore to sales journey of flow assurance.

1745 - 1900

Session 5: Advances in Production Chemicals Applications for Flow Assurance

Session Managers: Siti Fauwizah Johari, **Carigali Hess Operating Company**; Khor Siak Foo, **PTTEP**

With the oil industry moving towards increasingly challenging production environments, in mature fields and ultra-deepwater hydrocarbon production, it will require innovative advancement in production chemistry engineering and application approaches to ensure fluid delivery and profitability. In the last decade, industries are seeing positive changes in production chemicals selection and deployment. Many chemical companies and operators are working together to address new flow assurance challenges with a more stringent requirement on production chemical performance and quality control.

The session will focus on the potential for new chemical application approaches and chemistry advancement such as nanoengineering, integration and synergy of multifunctional chemicals, squeeze treatments, and more. This holistic approach ensures safe operations while maintaining minimum lifecycle operating costs.

1900 onwards Welcome Dinner

TUESDAY, 26 NOVEMBER 2019

0900 - 1100

Session 6: Flow Assurance in Challenging Fields and Situations

Session Managers: Astriyana Anuar, **PETRONAS**; Assoc Prof. Dr. Fakhruddin Hashim, **Universiti Teknologi PETRONAS**

In recent years, flow assurance issues have been a major challenge in developing and operating oil and gas fields, especially in deeper environments and increasing tieback distances. Projects and productions were halted midway due to its costly flow assurance prevention and remediation measures, or limited proven technology, which makes production economically unattractive. This is even more critical in challenging fields and situations such as ultra-deepwater production, arctic regions, heavy oils, hydrate reservoirs and many others. This session will focus on flow assurance mitigation in challenging fields and situations using cost-effective methods.

1100 - 1115

Coffee and Tea Break

1115 - 1315

Session 7: Advances and Current Challenges with Fluid Sampling, Fluid Characterisation and Impact of Contaminants

Session Managers: Adil Pootayil, **Calsep**; Muhammad Abdul Aziz bin Muhammad Tahir, **PETRONAS Carigali Sarawak Gas**

Fluid sampling is critical for short-, medium- and long-term management of petroleum resources and production particularly during the early stages of field development. Accuracy of measurements thereafter is very dependent on the representativeness of these samples. Thus, meticulous planning of the sampling programme is of foremost importance in the process.

Presence of contaminants such as H₂S and Hg due to their high reactivity and adsorptive tendency to steel surfaces will add additional challenges to sampling activities and will significantly impact the design, integrity and efficiency of transport and processing facilities of oil and gas production during the entire field lifecycle. Another aspect that has generated great interest in recent years and added a new dimension to fluid characterisation of reservoir fluids is the Common Equation of State modelling. While an EoS model, just a few years back, would be developed to work for one or a few related fluids, an EoS model today may well have to be applicable to multiple fields, often covering 50 or more fluids and fluid types spanning from light gas condensates to heavy oils.

This session will present recent works in this area to highlight the current state of the art in sampling and analysis. Moreover, the session will also address the requirements of a PVT simulator to meet common EOS target.

1315 - 1415

Networking Luncheon

1415 - 1615

Session 8: Emerging Technology in Flow Assurance Solutions

Session Managers: Eadie Azahar Rosland, **PETRONAS Carigali Sdn Bhd**; Dr. Norida Binti Ridzuan, **Universiti Malaysia Pahang**

Easy oil era is no longer available. The industry is currently facing greater challenges in developing and operating in complex environments such as deepwater, high CO₂ & contaminant reservoirs and more. Dealing with flow assurance challenges requires the correct understanding; a systematic approach and applicable technologies. This session will address the advancement in flow assurance technology, lessons learnt from field applications of new and emerging technologies, examples of successful applications of matured technology, future technology and questions of benefits and pitfalls. Cutting-edge technology, advanced design methods and tools that cover the areas of deepwater, reservoir souring, contaminant management, hydrates, sand, emulsion, wax, asphaltene, scale, and corrosion will be discussed as well.

1615 - 1630

Coffee and Tea Break

1630 - 1700

Session 9: Wrap-up Panel Session

Moderators: Nur Hidayah Din Hatt Bt Abdullah, **PETRONAS**; Fatemeh Mehran, **Schlumberger**

Speakers: Rohazad Bin Mohd Norpia, **PETRONAS**; Abul Jamaluddin, **PETRONAS**

SPONSORSHIP SUPPORT INFORMATION

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

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In addition to onsite recognition, SPE will recognise sponsors on the SPE website and in all printed materials for the workshop. Based on the category selected, supporting companies also receive logo visibility on promotional workshop items.

FOR MORE INFORMATION

For a detailed list of available sponsorship opportunities, including benefits and pricing, contact **Joachim Soon** at jsoon@spe.org.

GENERAL INFORMATION

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.
- Note-taking by attendees is encouraged. However, to ensure free and open discussions, no formal records will be kept.

WORKSHOP DELIVERABLES

- The committee will prepare a full report containing highlights of the Workshop and the report will be circulated to all attendees.
- Powerpoint presentations will be posted online and provided to attendees after the Workshop. Provision of the materials by Discussion Leaders will signify their permission for SPE to do so.

COMMERCIALISM

In keeping with the Workshop objectives and the SPE mission, excessive commercialism in posters or presentations is not permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter.

ATTENDANCE CERTIFICATE

All attendees will receive a Workshop attendance certificate. This certificate will be provided in exchange for a complete Attendee Survey Form.

CONTINUING EDUCATION UNITS

This Workshop qualifies for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the Workshop.

TRAVEL/VISA

Attendees are advised to book their airline tickets early. All travellers must be in possession of passports valid for at least six (6) months with proof of onward passage. Contact your local travel agent for information on visa requirements.

DRESS CODE

Business casual clothing is recommended. The Workshop atmosphere is informal.

REGISTRATION FEE

- Registration fee ONLY includes all workshop sessions, coffee breaks and luncheons for the registrant.
- Accommodation is NOT included. SPE will provide details of recommended hotels upon receipt of your registration.

REGISTRATION POLICY

- Registration fee MUST be paid in advance for attending the Workshop.
- Full fixed fee is charged regardless of the length of time the registrant attends the Workshop, and cannot be prorated or reduced for anyone.

REGISTRATION FORM

SPE WORKSHOP: Flow Assurance and the New Technology Era - From Origin to Market

25 – 26 November 2019 | DoubleTree by Hilton Kuala Lumpur, Malaysia



ATTENDEE INFORMATION

SPE Member	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Membership Number	
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Job Title				
Company Name				
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Postal Code		Country		
Office Phone		Office Fax		Company URL
Direct Line		Mobile Phone		
Email Address				

Do you wish to be considered a Discussion Leader (10-15 minutes presentation)? Yes No
 If yes, please indicate the subject/topic on which you would like to present:

Please state your Technical Discipline (Select one ONLY):

Completions Drilling Health, Safety and Environment Management and Information
 Production and Operations Reservoir Projects, Facilities and Construction

Please state your expectation for the Workshop, so that we can tailor a portion for the Workshop to answer attendees' concerns

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REGISTRATION CATEGORY

Description		Fee Per Person			Tick (✓)	Amount (USD)
		Super Early Bird by 27 Sep	Early Bird by 25 Oct	Standard after 25 Oct		
Workshop	Member	USD 1,500	USD 1,600	USD 1,700		
	Non-Member	USD 1,700	USD 1,800	USD 1,900		
TOTAL AMOUNT (USD)						

TERMS & CONDITIONS

- Registration Fee**
- Fee includes workshop sessions, workbook, certificate, daily luncheons and coffee breaks.
 - Fee DOES NOT include accommodation. SPE will provide details of recommended hotels upon receipt of your registration.
 - Registration of participant will only be confirmed upon registration and receipt of full payment or an acceptable employer's letter of guarantee.
 - All outstanding payments must be received on or prior to the date of the event for participants to be allowed to attend. SPE reserves the right to cancel the registration if no payment is received prior to or on the date of the event.
 - Full fee is charged regardless of the length of time the Participant attends the event and cannot be pro-rated.
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- Fee are made free and clear of, and without any deduction or withholding for and on account of, any taxes, duties or other deductions. Any such deduction or withholding, if required by the laws of any country are the sole responsibility of the Participant.
- Cancellation Policy**
- A processing fee of USD150.00 will be charged for cancellation received thirty (30) days or more prior to the first day of the workshop.
 - Registration cancelled between fifteen (15) days to twenty-nine (29) days prior to the first day of the event will be refunded 25% of the registration fees.
 - Registration cancelled fourteen (14) days or less prior to the first day of the workshop will not be eligible for a refund.
 - Participant who failed to attend will not be eligible for a refund.
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SPE Contact:
Society of Petroleum Engineers
 Suite 12.01, Level 12, Menara IGB
 Mid Valley City, Lingkaran Syed Putra
 59200 Kuala Lumpur Malaysia
 Tel: +60 3 2182 3000 Fax: +60 3 2182 3030
 Email: spekl@spe.org

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