SPE Symposium: Unconventionals in the Middle East – From Exploration to Development Optimisation

15–16 April 2020 | Sofitel Bahrain Zallaq Thalassa, Bahrain

Under the patronage of His Excellency, Shaikh Mohammed bin Khalifa al Khalifa
Minister of Oil, Kingdom of Bahrain

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About the Symposium

Unconventional resources exploitation in tight reservoirs and shales has come a long way in recent years and as we witness different unconventional plays unfold throughout the region some challenges still obstruct the optimum exploitation and development of these complex cycles.

However, the industry is dynamic and agile, and scientific and technological advancements continue to guide us towards a better understanding. Over the past few years, the industry has witnessed significant improvement in performance over the entire sphere of unconventional plays from exploration to appraisal to delineation and development. More parties are joining the unconventional approach and contributing to better evaluations, improved operational efficiencies, enhanced production and decline rates, innovative economic approaches and more. This builds realistic hopes that unconventional plays in the Middle East will soon become major economic assets.

Why Attend

• Connect with regional and global experts, regulators and prominent researchers from the unconventional community to share their technical know-how
• Experience the latest technologies, products, and solutions and learn new perspectives in evaluating and optimising unconventional resources
• Access knowledge in the form of case histories and methodologies used during the different stages of unconventional play cycles

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### Symposium Schedule Overview

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<td>0800–0845</td>
<td>Welcome Coffee, Registration and Collection of Badges</td>
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<td>0845–0900</td>
<td>Opening Ceremony</td>
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| 0900–1100| **Executive Plenary Session 1: The Strategy to Deliver Unconventional Resources—Identifying the Weakest Link**  
**Moderators:** Mohamed Al Zaabi, ADNOC; Reinaldo Angulo Yznaga, Halliburton  
The oil and gas industry has quantified a vast amount of unconventional resources, but still to develop this available petroleum volumes. In the current and future state of the world economical drivers and taking into account the high-level variables, i.e. technical versus economical, and at one-floor below, e.g. CAPEX, knowledge, technology, HSE, and objectives grouped in strategies, the panel will elaborate the different point of views to define how to make a commercial delivery of unconventional, and what should be considered the main areas of focus for a sustainable production of this resources. |
| 1100–1130| Coffee Break and ePoster Session                                     |
| 1130–1245| **Session 1: Resource Evaluation and Reservoir Characterisation**  
**Session Chairs:** Tristan Euzen, IFP; Ali Shehab, Tatweer Petroleum  
Unconventional plays are highly heterogeneous systems with complex distributions of rock and fluid properties at multiple scales. Capturing this variability as early as possible in the life of a play is paramount to properly evaluate recoverable resources and to optimise their development. Integrating geoscience with engineering is also key to understand the main controls among the myriads of parameters that influence well productivity. This session aims at exploring recent advances and promoting knowledge sharing about multidisciplinary workflows and technologies in the fields of resource evaluation and reservoir characterisation and their application to the Middle East unconventional plays. |
| 1245–1345| Networking Luncheon                                                  |
| 1345–1500| **Session 2: Modelling and Simulation**  
**Session Chairs:** Ahmed Farid Ibrahim, Apache; Murtada Aljawad, King Fahd University of Petroleum and Minerals  
This session discusses the recent modeling approaches to understand hydraulic fracturing. This includes understanding the mechanism of hydraulic fracture propagation in naturally fractured and weakly bedded formations. Knowledge of proppant transport mechanism also provides insights for better design and productivity estimations. Discussion of proppant distribution in slickwater stimulated fractures should be carried in this session. Presenters will shed light on the impact proppant placement in secondary created fractures and conductivity on productivity prediction. Reservoir modeling to understand transport phenomena in unconventional plays will be discussed. Building reliable geo-mechanical models from logs are also out to be presented. |
| 1500–1530| Coffee Break and ePoster Session                                     |
| 1530–1645| **Session 3: Drilling Practices and Optimisation**  
**Session Chairs:** Mohammad Al-Zaki, Saudi Aramco; Zied Ouled Ameur, King Abdullah University of Science and Technology  
Unconventional Drilling in Saudi Arabia is dedicated to delivering wells safely and efficiently to meet Kingdom’s growing demands for gas. Drilling and Optimisation team implemented fit-for-purpose technologies and conducted detailed optimisation workshops to improve flat time, rig move time, as well as drilling and completion practices. Average time and cost reduced by 70% over past five years by implementing following major initiatives:  
1. Managed Pressure Drilling for narrow mud weight window, extended bit life and improved ROP, allowed access to reserves that could not be drilled conventionally  
2. 4-1/2” longstring cemented completion eliminated clean out and upper completion runs  
3. 5-1/2” longstring cemented monobore completions with 8-3/8” horizontal  
4. Slim design combination of curve and lateral avoided running 7” liner  
5. High dogleg severity in curve section minimised footage  
6. Vibration mitigation tools protected BHA components and improved ROP  
7. Optimised BHA design to achieve highest ROP and lowest CPF. |
## Symposium Schedule

**Overview**

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<th>Thursday, April 16</th>
<th>0800–0845</th>
<th>Welcome Coffee and Registration</th>
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<td>0845–0900</td>
<td>Keynote Speech</td>
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<td>0900–1100</td>
<td><strong>Executive Plenary Session 2: Cooperation Synergies between Service Companies, NOCs and IOCs Across the Region</strong>&lt;br&gt;Moderators: Ziad Al Jalal, Schlumberger; Ali Shehab, Tatweer Petroleum</td>
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In the last few years, unconventional plays in the Middle East have evolved significantly. Many companies in the region already embarked on their own exploration and appraisal programs to unlock the significant volumes of unconventional resources. Few others have initiated their development plans. And as these plays evolve, several geological, technical as well as operational and logistical challenges arise. As the success of these unconventional plays is highly dependent overcoming these challenges; cooperation synergies between service companies, NOCs and IOCs plays a crucial role in shortening the learning curve and help developing solutions to such challenges. This panel session aims at generating a constructive discussion about how to build long-term cooperation between services companies, IOCs, and NOCs, how to build cooperation programs including joint R&D, training, technology development, HSE, and operational efficiency, and others and how to ensure alignment in the objectives and goals eventually leading to successful development of unconventional resources in Middle East. |
| 1100–1130         | Coffee Break and ePoster Session |
| 1130–1245         | **Session 4: Well Completions and Production Enhancement**<br>Session Chairs: Amit D. Nakhwa, NCS Multistage; Ziad Al Jalal, Schlumberger |  
Over the past decade, Operators and Service Companies have put significant efforts towards engineering and developing well completion, production enhancement and stimulation techniques for unconventional fields. The Middle East Region has its own challenges, from high bottom-hole temperatures and pressures, tectonic activities to diverse reservoirs heterogeneity, all of which are considered when modelling and proposing treatments and solutions. This session aims to bring together subject matter experts to discuss the current state, best practices, and emerging technologies for consideration in the Middle East and around the world focusing on completion and production solutions including hardware, well/stage spacing, cluster density, hydraulic fracturing materials, methods, techniques and modelling, furthermore artificial lift equipment and production optimisation operations. |
| 1224–1345         | Networking Luncheon |
| 1345–1500         | **Session 5: Overcoming Logistic and Environmental Challenges Efficiently**<br>Session Chairs: Stephen Drylie, Core Laboratories; Moin Muhammad, NESR |  
The development of unconventional resources requires extensive operations on large number of wells drilled and completed in often remote and challenging environments. Performing these operations efficiently ensures that environmental impact and development costs are minimised while the abundant resources are made available for use as quickly as possible. In the extreme surface environment coupled with limited unconventional oilfield infrastructure of the Middle East, the efficiency gains can be more difficult but are all the more critical. This session will explore practical efforts that have been made to:  
- Move drilling time from months to weeks  
- Accelerate fracturing rates from one stage every few days to 5 to 7 stages every day  
- Reduce the overall carbon footprint and water use. |
| 1500–1515         | Coffee Break and ePoster Session |
The remarkable increase of production from the more mature unconventional plays has brought deeper insights and challenges about the economics of this type of resources. The operators and technology providers are working play by play and well by well to improve development and lifting costs. The fund lenders are struggling to support the required long-term investments based in the current economic environment.

In the oil and gas industry has always considered paramount the commercial competition between the options when dealing with investment in different exploration and development opportunities, e.g. onshore versus offshore, primary/secondary versus EOR, light/medium versus heavy oil, according to the limited availability of capital. Unconventional resources are also competing with these limited resources in the complex economic environment that the oil and gas industry is facing.

This section is aimed to provide an open discussion about the current and future primers and drivers for the cost-effective development and production of the unconventional plays in other petroleum basins in the world, and especially in the Middle East. The topic includes what the main areas of attention are, the main risks that the industry is facing to produce this resources, and the most critical areas to trigger a sustainable unconventional petroleum based production.