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Minister of Oil and Minister of Electricity and Water, State of Kuwait

SPE International Heavy Oil Conference and Exhibition

Cost Optimisation: The Key to Unlocking Heavy Oil Success

10–12 December 2018 | **American University of the Middle East (AUM) Kuwait**

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Conference Programme

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Dear Respected Colleagues,

On behalf of the Executive and Programme Committees of the SPE International Heavy Oil Conference and Exhibition, it is my honour and pleasure to welcome you to this specialised event, held under the patronage of His Excellency Bakheet S. Al-Rashidi, Minister of Oil and Minister of Electricity and Water of the State of Kuwait. The comprehensive three-day conference and exhibition is aimed to set a milestone of international resonance, in the sharing of technological and business developments in heavy oil.

Heavy oil resources shape an important component in the non-conventional energy basket, and are instrumental for the sustainability of the oil sector towards the future. HOCE 2018 propels Kuwait as a prime hub of knowledge exchange in this important business. The programme is packed with vibrant activities, shaped to share the insights from top executives and world-class technology leaders in heavy oil. Participants will be able to engage in technical discussions, and the discovery of recent developments in the sector, in more than 500 sqm of exhibition, 3 interactive panels, 14 technical sessions, an academic-oriented workshop, and innovative learning opportunities for the participants.

This year's theme is "Cost Optimisation: The Key to Unlocking Heavy Oil Success", attracting the exchange of experiences and novel ideas about heavy oil exploration, development, production, processing, and marketing. I personally look forward to forging new relationships, strengthening existing ties, and enabling a robust learning experience during HOCE 2018.

Welcome to Kuwait!

Sincerely,
Nayef A. Al-Anezi
Conference Chairperson
Deputy Chief Executive Officer, North Kuwait
Kuwait Oil Company

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- Drilling
- Completions
- Management and Information
- Projects Facilities and Construction
- Production and Operations
- Reservoir Description and Dynamics

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Committees

Executive Committee

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Conference Chairperson
Kuwait Oil Company

Ealian Al-Anzi
Executive Co-Chairperson
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Ibrahim Al-Sammak
Executive Co-Chairperson
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Emad Al-Ajmi, **Baker Hughes, a GE company**

Abdullah Al-Awadhi, **KIPIC**

Khalid Al-Begain,
Kuwait College of Science and Technology

Hamad Al-Dalali,
Baker Hughes, a GE company

Abdul Hamid Al-Hashim, **KISR**

Bader Al-Matar, **KUFPEC**

Walid Al Nader, **Shell Kuwait Limited**

Salim Al Salmi, **Occidental Petroleum**

Hassan Al-Shammari, **Kuwait Oil Company**

Mohammed Al-Shatti,
Kuwait Petroleum Corporation

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Wafik Beydoun, **Total**

Maria A. Capello, **Kuwait Oil Company**

Heba Filobbos, **Halliburton**

Junaid Ghulam,
Petroleum Development Oman

Issam Hallal, **WorleyParsons**

David Hicks, **CMG**

John Hornbrook,
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Programme Chairperson
Kuwait Oil Company

Eisa Al-Maraghi
Programme Co-Chairperson
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Mohammad Al-Matrook,
Kuwait Oil Company

Rifaat Al-Mjeni,
Petroleum Development Oman

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Patrick Rigolot, **Total**

Dale Riley, **CMG**

Nader Shehata,
Kuwait College of Science and Technology

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Jeffrey Wingard,
DeGolyer and MacNaughton

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Schedule of Events (as of 29 November 2018)

Sunday, 9 December | Hilton Kuwait Resort	
0700–1500	Field Trip: An Integrated Approach to Geologic Outcrops for Boosting Reservoir Understanding (Jal Az Zor Escarpment)
0800–1600	Seminar: Estimation, Classification and Reporting of Reserves and Resources (Bahara Meeting Room)
0800–1700	Seminar: Strategic Surveillance: Cost-Effective Options (Wafra Meeting Room)
1200–1600	Registration (Teatro Foyer)
1200–1600	Speaker Check–In (Teatro Foyer)

	Conference Hall	Technical Session Room 1	Technical Session Room 2
Monday, 10 December | AUM			
0730–1715	Registration		
0730–1715	Speaker Check–In (First Floor)		
0900–1000	**Opening Ceremony**		
1000–1100	**Exhibition Inauguration**		
1000–1100	Coffee Break (Exhibition Floor)		
1000–1715	Exhibition		
1045–1100	Knowledge Sharing ePoster Sessions (Exhibition Floor)		
1100–1230	**Executive Plenary Session** Cost Optimisation: The Key to unlocking Heavy Oil Success		
1230–1330	Lunch (First Floor)		
1330–1500		**Session 1** Pushing Heavy Oil Reservoir Characterisation Further (I)	**Session 2** Evaluation and Decision-Making in EOR
1500–1545	Coffee Break (Exhibition Floor)		
1500–1545	Knowledge Sharing ePoster Sessions (Exhibition Floor)		
1545–1715		**Session 3** Pushing Heavy Oil Reservoir Characterisation Further (II)	**Session 4** Pushing Heavy Oil Project Management Ahead Through Integration
1900–2100	**Conference Gala Dinner** (Al Dorra Ballroom, Hilton Kuwait Resort)		

Schedule of Events (as of 29 November 2018)

	Conference Hall	Technical Session Room 1	Technical Session Room 2
Tuesday, 11 December | AUM			
0730–1630	Registration		
0730–1630	Speaker Check–In (First Floor)		
0800–0930		**Session 5** Modelling Heavy Oil Performance to Optimise the Future	**Session 6** Business, Management and Leadership (BML): Enabling Success, Enhancing Talent and Products
0930–1700	Exhibition		
0930–1015	Coffee Break (Exhibition Floor)		
0930–1015	Knowledge Sharing ePoster Sessions (Exhibition Floor)		
1015–1145	**Panel Session 1** Innovative Technologies of Heavy Oil: The New Frontiers		
1145–1245	Lunch (First Floor)		
1245–1415		**Session 7** Solutions for Challenges in Drilling and Completions in Heavy Oil	**Session 8** Maximising Recovery Through Innovative Artificial Lift Strategies
1415–1500	Coffee Break (Exhibition Floor)		
1415–1500	Knowledge Sharing ePoster Sessions (Exhibition Floor)		
1500–1630		**Session 9** Innovations to Unlock Heavy Oil Recovery	**Session 10** Managing Heavy Oil Fields: Monitoring and Surveillance *(ends 1650 hours)*
Wednesday, 12 December | AUM			
0730–1300	Registration		
0730–1300	Speaker Check–In (First Floor)		
0800–1500	Energy4me Teacher Workshop: Energise Your Classroom (Ahmed Al-Jaber Oil and Gas Exhibition Centre)		
0800–0930		**Session 11** EOR Methodologies and Strategies for Heavy Oil	**Session 12** Overcoming Challenges for Heavy Oil Cost Optimisation
0930–1430	Exhibition		
0930–1015	Coffee Break (Exhibition Floor)		
0930–1015	Knowledge Sharing ePoster Sessions (Exhibition Floor)		
1015–1145		**Session 13** EOR Applications and Processes	**Session 14** Technologies and Workflows to Optimise Heavy Oil Production
1145–1315	**Panel Session 2** Powering the World. Fuelling the Future with Heavy Oil		
1315–1330	**Closing Ceremony**		
1330–1430	Lunch (First Floor)		

General Information

Registration Times

Teatro Foyer, Hilton Kuwait Resort:

Sunday, 9 December	1200–1600

Ground Floor, AUM:

Monday, 10 December	0730–1715
Tuesday, 11 December	0730–1630
Wednesday, 12 December	0730–1300

Speaker Check-In

Speakers are requested to check-in prior to reporting to their assigned session room.

Teatro Foyer, Hilton Kuwait Resort:

Sunday, 9 December	1200–1600

First Floor, AUM:

Monday, 10 December	0730–1715
Tuesday, 11 December	0730–1630
Wednesday, 12 December	0730–1300

Exhibition Times

Monday, 10 December	1000–1715
Tuesday, 11 December	0930–1700
Wednesday, 12 December	0930–1430

Students

Registration for students is complimentary and includes admission to all technical sessions, exhibition, and coffee breaks. Students are required to present a copy of their current student ID along with the registration form. Student registration does not include conference proceedings or lunch.

Proceedings

A conference proceedings voucher card is included in the full conference registration fee. Vouchers will be activated only on the first day of the conference. The conference papers are automatically available in a delegate's OnePetro account (SPE Member or nonmember) on first login with the voucher code.

One-day attendees can purchase voucher cards for USD 200 for SPE members and USD 300 for nonmembers. Additional voucher cards can be purchased from the registration desk.

Conference Gala Dinner

The Conference Gala Dinner will take place on 10 December from 1900–2100 hours in Al Dorra Ballroom, Hilton Kuwait Resort.

A dinner ticket is included in the full conference registration fee. Additional dinner tickets can be purchased for USD 100.

Lunch

Monday, 10 December	1230–1330
Tuesday, 11 December	1145–1245
Wednesday, 12 December	1330–1430

Lunch will be served on the first floor. Additional lunch tickets can be purchased for USD 70 from the registration desk.

Knowledge Sharing ePoster Sessions

ePosters will be presented on the exhibition floor during coffee breaks. An ePoster is an electronic version of a traditional poster presented on a flat screen monitor. It offers the added benefit of animation and enhances the visual experience to provide greater interactivity between attendees and speakers.

Audio Visual Copyright

All sessions are protected by US copyright laws. Photography and video/audio recording of any kind are strictly prohibited in the sessions and throughout the exhibition area except for authorised press. Press will not be allowed into the technical sessions.

Consent to Use of Multimedia

Attendance or participation in SPE events and other activities constitutes an agreement by the registrant to SPE's use and distribution of the registrant's image or voice in promoting future SPE events in any way SPE deems appropriate.

Cancellations

Cancellations after 10 November and no-shows will not be eligible for a refund.

Complimentary Shuttle Bus Service

Complimentary round-trip shuttle service is available between the Hilton Kuwait Resort and AUM.

Departs Hilton Kuwait Resort:

Monday, 10 December	0800
Monday, 10 December	0900
Tuesday, 11 December	0730
Tuesday, 11 December	0830
Wednesday, 12 December	0730
Wednesday, 12 December	0830

Departs AUM:

Monday, 10 December	1730
Tuesday, 11 December	1700
Wednesday, 12 December	1500

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Pre-Conference Seminars

SPE Seminars help professionals improve their expertise and stay up-to-date on best practices in a dynamic industry.

Pre-Conference Seminars

Estimation, Classification, and Reporting of Reserves and Resources

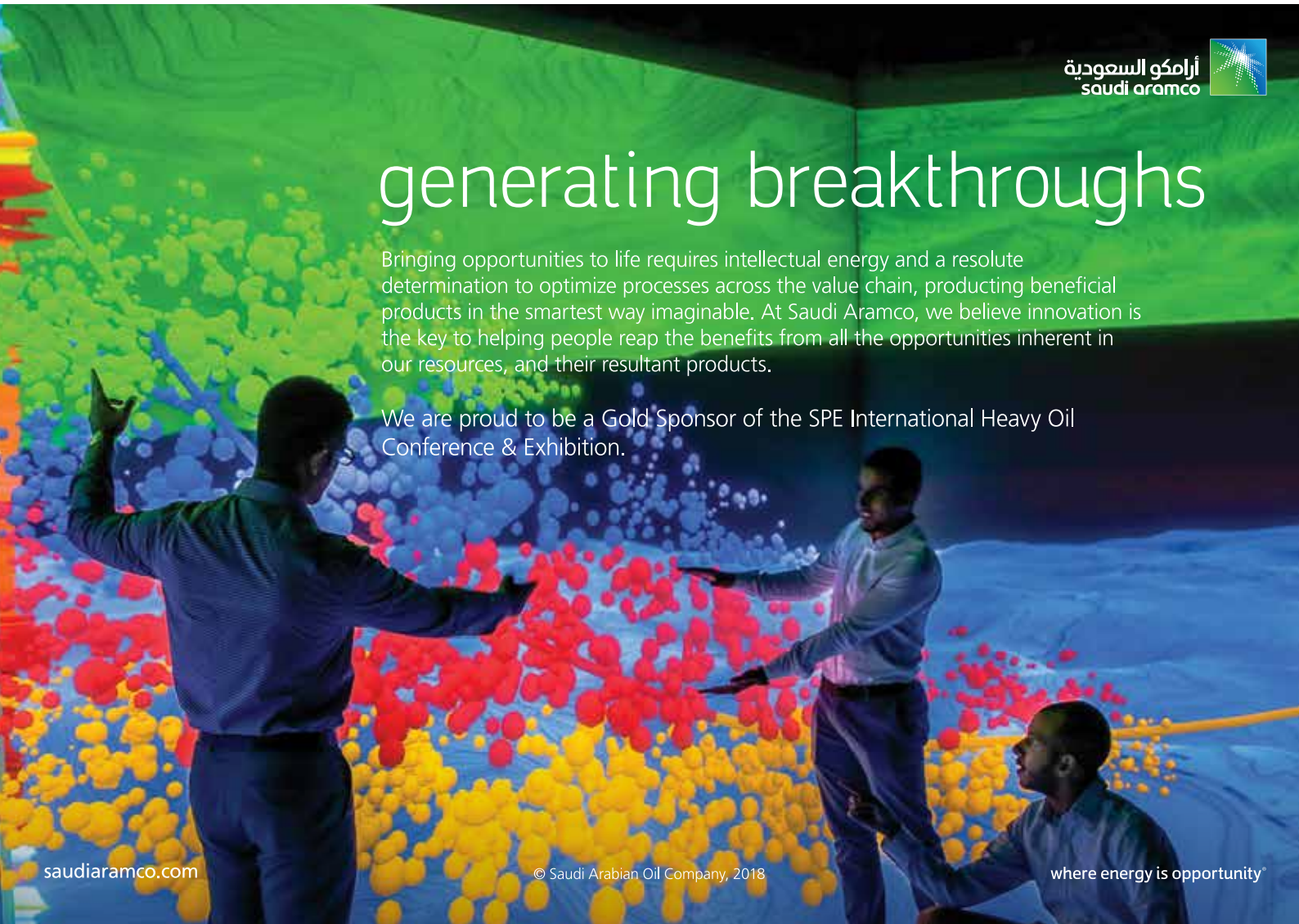
Instructor: Douglas Peacock,
Gaffney, Cline & Associates
Sunday, 9 December | 0800–1600
Bahara Meeting Room, Hilton Kuwait Resort

This seminar provides an overview of the classification, estimation, and reporting of reserves and resources. The focus of the seminar is on the SPE-PRMS, but other systems such as SEC and COGEH are also mentioned. The seminar will outline the key definitions of each of the main classes and categories of reserves and resources. The estimation methods which can be used, together with how and when each should be used, is also covered.

Strategic Surveillance: Cost-Effective Options

Instructor: Ashok K. Singhal,
Premier Reservoir Engineering Services
Sunday, 9 December | 0800–1700
Wafra Meeting Room, Hilton Kuwait Resort

This advanced seminar for effectively managing various production operations/processes under uncertainty, timely capture, and development of reliable relevant information is very critical. Some of the information could be strategic and lead to modification of operations via identification of improvement opportunities or of imminent threats. Therefore, surveillance operations are continued until their marginal value is greater than corresponding marginal costs.



Jal Az Zor Integrated Field Trip

Sunday, 9 December | 0700–1500 Jal Az Zor Escarpment

Organised by Kuwait Oil Company and Shell, the field trip will provide an integrated approach to geologic outcrops, using Jal Az Zor examples, along with discussions on the implications of heterogeneities, scale, and 3D distribution of rock properties to reservoir analysis.

The field trip is specifically designed to relate the geology to a variety of subsurface disciplines involved in heavy oil development. Topics addressed will include baffles, reservoir modelling, steam conformance, cap rock integrity, well spacing, integration of well, reservoir, and facilities management (WRFM), and observation wells placement.

The ultimate goals are to gain an appreciation for the value that the understanding of vital elements of rock description and sedimentology have for reservoir studies, and for the enhancement of production strategies.

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Energy4me Teacher Workshop

Wednesday, 12 December | 0800–1500 Ahmed Al-Jaber Oil and Gas Exhibition Centre

Energise Your Classroom

SPE, through its Energy4me programme, will present a free one-day energy education workshop for 50 Kuwaiti science teachers (grades 8–12). A variety of free instructional materials will be available to take back to the classroom. Educators will receive comprehensive, objective information about the scientific concepts of energy and its importance while discovering the world of oil and natural gas exploration and production.

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Opening Ceremony

Monday, 10 December | 0900–1000 Conference Hall

Honorary Guest

His Excellency
Bakheet S. Al-Rashidi
Minister of Oil and
Minister of Electricity
and Water
State of Kuwait

Speakers

Nizar M. Al-Adsani
Deputy Chairman and
Chief Executive Officer
Kuwait Petroleum Corporation

Nayef A. Al-Anezi
Conference Chairperson
Deputy Chief Executive
Officer, North Kuwait
Kuwait Oil Company

Faisal Al-Nughaimish
SPE Regional Director
Middle East
Saudi Aramco

Executive Plenary Session: Cost Optimisation: The Key to Unlocking Heavy Oil Success

The challenge of the century is to ensure the efficiency and cost optimisation workflows needed to enable the production and refining of the heavy oil resources of the planet. It could not be otherwise, as the estimations of technically recoverable heavy oil round the 50 billion barrels, and those of natural bitumen 651 billion barrels, in accumulations that almost match the total of remaining reserves of light oil worldwide. The production of heavy oil is gaining an incremental importance in the world energy supply, as more ecologically friendly technologies gradually enable its production and processing within the constraints of local, regional, and global environmental laws. Additionally, cost optimisation analysis and strategies ground the viability of profitable returns, opening a clear opportunity for the large investments needed.

This session will include key leaders of the upstream and downstream segments of our industry that will share their vision, experiences, and insights about key heavy oil developments in the world, with a particular emphasis on which elements were key for the financial viability and production optimisation.

Monday, 10 December | 1100–1230 Conference Hall

Moderator

Nayef A. Al-Anezi
Conference Chairperson
Deputy Chief Executive Officer North Kuwait
Kuwait Oil Company

Speakers

Ali Al Gheithy
Director Petroleum Engineering
Petroleum Development Oman

Robert Deutman
Vice President Development Joint Ventures
Shell

Mark McCollum
Chief Executive Officer
Weatherford

D. Nathan Meehan
CGA President
Baker Hughes, a GE company

Gary Sams
Managing Director and Engineering Fellow
Schlumberger

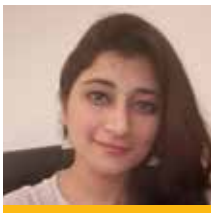
Panel Session 1: Innovative Technologies of Heavy Oil: The New Frontiers

The production and processing of the immense reserves of heavy and extra-heavy oil available worldwide face two major challenges, which are the economic profitability and the respect of the current environmental frameworks and concerns. Both elements constitute a complex hurdle to overcome without innovation, technology, and integration workflows, to ensure meeting a sound viability of operations. Currently, Kuwait and other Gulf region countries are investing massively to increase their hydrocarbon production capacity to cater for the current and future energy demand for oil and gas. Accordingly, the inclusion of their massive reserves of heavy oil account for a large portion of the CAPEX and OPEX of the current and future plans, where technologies that will optimise costs and reduce environmental impact are considered crucial. The panelists will provide their insights and forecasts about how key emerging technologies may pave the way to boost the heavy oil participation into the energy supply basket, in incremental and accelerated rhythms. The implementation at pilot and full-field scales of key enabling technologies coming into the heavy oil scene will be exemplified with practical applications that resulted in successes and learning curves worth sharing. This panel constitutes a great opportunity for getting professionals together to promote dialogue, and present new trends of the emerging technologies covering surface, subsurface and future technology outlooks, which should also enrich the knowledge exchange globally.

Tuesday, 11 December | 1015–1145 Conference Hall

Moderators

Maria A. Capello
Programme Chairperson
Consultant, North Kuwait Directorate
Kuwait Oil Company



Malvika Nagarkoti
Reservoir Engineering Advisor
Baker Hughes, a GE company

Speakers

Rifaat Al-Mjeni
EOR Portfolio Lead
Field Development Centre
Petroleum Development Oman

Xudong Jing
Manager
Shell Technology Oman

Ivo Nuic
Managing Director, Dhahran Technology Center, Saudi Arabia
Baker Hughes, a GE company

Oscar Rivera
Vice President Integrated Services and Projects
Weatherford

Panel Session 2: Powering the World: Fuelling the Future with Heavy Oil

The development of heavy oil is an integral part of Kuwait's strategic plan for economic growth and energy security. Six billion US$ are being invested in developing the first phase of Kuwait's unexploited heavy oil reservoirs. The aim is to produce 60,000 barrels per day of heavy oil by 2018/19, and then ramp it to reach 430 MBOPD by 2040.

However, developing heavy oil resources requires more energy intake than "easy oil", which directly impacts the project finance and the environment. With the dramatic reduction in oil price these past several years, major heavy oil projects were further impacted by delays and even reconsidered. To mitigate such market conditions, different players have started developing integrated projects (e.g. cogeneration units) aimed at lowering costs (CAPEX/OPEX) while addressing technical and environmental challenges.

The purpose of this panel is to share recent advances in developing heavy oil projects around the globe, by illustrating how costs have been optimised since 2014, and also how high-tech and cutting edge technological processes and innovations are enabling heavy oil to become a viable energy in fuelling the future.

Wednesday, 12 December | 1145–1315 Conference Hall

Moderators

Ealian Al-Anzi
Manager Operations
Heavy Oil Group
Kuwait Oil Company

Junaid Ghulam
Field Development Manager
Petroleum Development Oman

Speakers

Eissa Al-Safran
Professor of Petroleum Engineering
College of Engineering and Petroleum
Kuwait University

Paul Connolly
Head EMEA Oil and Gas
HSBC

James Farhart
Project Manager
WorleyParsons

Hisham Saadawi
Senior Surface Facilities Advisor
Baker Hughes, a GE company

Technical Sessions

Monday, 10 December

Session 1: Pushing Heavy Oil Reservoir Characterisation Further (I)

1330–1500 | Technical Session Room 1

Session Chairs: Abdullah F. Alajmi, **Kuwait University**; Georg Mathis Warrlich, **Shell**

Presentation	
1330	193711
Spatial Distribution of Clay Minerals in the Neogene Sediments of North Kuwait and its Impact on Thermal Production P.K. Mishra, K. Ahmad, J. Al Khandari, Kuwait Oil Company	
1350	193657
Seismic Quantitative Interpretation of Heavy Oil Reservoir Characterisation in North Kuwait Z. Ren, A.A. Al-Rabah, A.A. Albloushi, M. Freeman, Kuwait Oil Company	
1410	193686
From Outcrop to Producing Reservoirs: Applying Jal Az Zor Outcrop Studies to a Multi-Disciplinary Development Approach in Kuwait Heavy Oil Fields P.H. Benham, M.J. Cheers, G.M. Warrlich, Shell; M. Freeman, P. Choudhary, S.K. Tanoli, M.A. Capello, A.A. Al-Rabah, Kuwait Oil Company	
1430	193661
Geological and Petrophysical Evaluations of Tayarat Heavy Oil Carbonates in Burgan Field-Kuwait L. Hayat, M.N. Al-Qattan, Kuwait Oil Company; O.A. Aljallad, M.R. Dernaika, S. Koronfol, A. Kayali, D. Gonzalez, Ingrain, a Halliburton Service	

Session 2: Evaluation and Decision-Making in EOR

1330–1500 | Technical Session Room 2

Session Chairs: Haya Al-Mayyan, **Kuwait Oil Company**; Adel Mohamed Elsharkawy, **Kuwait University**

Presentation	
1330	193664
Geochemical Modelling to Evaluate the Performance of Polymer Flooding in a Highly Sour Sandstone Heavy Oil Reservoir M.T. Al-Murayri, D.S. Kamal, J.G. Garcia, Kuwait Oil Company; M. Delshad, C. Britton, R. Fortenberry, Ultimate EOR Services	
1350	193708
Polymer Field Development with a Strong Bottom-Up Aquifer in a Field in the South of the Sultanate of Oman A. Alkindi, R. Mjeni, R. Al-Jabri, M.S. Al Gharbi, Petroleum Development Oman	
1410	193649
Laboratory Experimental Study on New Polymer in Xinjiang Lukeqin High Temperature and High Salt Reservoir M. Wang, Y. Gou, F. Deng, B. Wang, D. Zhang, PetroChina Research Institute of Petroleum Exploration & Development; Q. Xiao, China University of Petroleum, Beijing	
1430	193695
Evaluation of Novel Surfactant for Foam Assisted High Temperature Steam Floods to Improve Oil Recovery B. Mukherjee, P.D. Patil, M. Gao, V. Prasad, H. Mounzer, P.M. Rozowski, The Dow Chemical Company	

Technical Sessions

Monday, 10 December

Session 3: Pushing Heavy Oil Reservoir Characterisation Further (II)

1545–1715 | Technical Session Room 1

Session Chairs: Mohamad Ghasemi, **Kuwait University**; Mohamed Abdulsalam Ali Omar, **Australian College of Kuwait**

Presentation	
1545	193669
Pressure Transient Analysis for Heavy Oil and Low Transmissivity Formations R. Alcantara Viruete, J.E. Paredes Enciso, Pemex; M.F. Briones C, Universidad de Oriente	
1605	193721
Integrated Approach for Evaluation of Free Gas Distribution Assists in Improved Well Management Practices in a Northern Kuwait Heavy Oil Field P. Saikia, S. Al-Rashdan, F.A. Taqi, K. Al-Dohaiem, A.A. Al-Rabah, A. Tyagi, P.K. Choudhary, K. Ahmed, A. Kharghoria, Kuwait Oil Company; S. Malik, I. Zhang, M. Cheers, Shell	
1625	193716
Fluid Contact Identification for a Heavy Oil Shaly Sand Reservoir with a Biodegraded Oil Column F. Al-Battashi, M.A. Khattak, R.K. Svec, Petroleum Development Oman	
1645	193712
Waterflood Study of High Viscosity Saturated Reservoir with Multiwell Retrospective Testing and Cross-Well Pressure Pulse-Code Testing A. Aslanyan, Nafta College; I. Kovalenko, Gazpromneft STC; I. Ilyasov, Messoyahaneftegas; D. Gulyaev, A. Buyanov, Sofoil; K. Musaleev, Polykod	

Session 4: Pushing Heavy Oil Project Management Ahead Through Integration

1545–1715 | Technical Session Room 2

Session Chairs: Mohammed Al-Arfaj, **Saudi Aramco**; Herminio Passalacqua, **Australian College of Kuwait**

Presentation	
1545	193728
Urban Planning in North Kuwait: Collaborating Across All Assets to Optimise Developments and Exploit Synergies G. Warrlich, S.S. Schrameyer, M. Cheers, B. Hulshof, G.C. Reijnders, F. Snater, Shell; K. Aldohaiem, A. Alboloushi, H. Abdelrahman, V.S. Kumar, S. Al-Rashdan, H. Alhaqqan, A.A. Al-Rabah, Kuwait Oil Company	
1605	193655
Corporate Portfolio Management in NOCs: The Implementation Dilemma in Real-Life Business F.H. Shanat, S. Almunayes, S. Al-Mutawa, F. Arikat, A.S. Ameen, Kuwait Oil Company	
1625	193654
Once Through Steam Generator Integrity E.Y. Wahba, Kuwait Oil Company	
1645	193688
From Exploration to Production in Record Time: A Case Study of Lower Fars Heavy Oil Reservoir in Umm Niqqa Field, Kuwait A. Sajer, H. Al-Bader, A.A. Al-Rabah, S. Singh, G. Dillabough, A. Al Ajmi, A.R. Al-ibrahim, M. Ayyavoo, A. Al-Ateeq, A. Bosalhah, J.M. Dashti, F. Al-Qattan, S. Al-Houti, S. Mushnuri, Kuwait Oil Company; K.K. Harami, A. William, L.G. M. Arguello, P. Sangani, S. Chakravorty, F.M. Franco, R. Sahmkow, Schlumberger	

Technical Sessions

Tuesday, 11 December

Session 5: Modelling Heavy Oil Performance to Optimise the Future

0800–0930 | Technical Session Room 1

Session Chairs: Malvika Nagarkoti, **Baker and Hughes, a GE company**; Dale Riley, **CMG**

Presentation	
0800	193726
Assessment of Waterflood Performance in a Heterogeneous Heavy Oil Field in Northern Kuwait A. Kharghoria, J. Garcia, K. AlRasheedi, A. Al-Rabah, A.O. Sanwoolu, Kuwait Oil Company; H. Hisham, Shell	
0820	193651
Improvement and Learnings from Reservoir Performance Analysis in a Large Scale Thermal Pilot in North Kuwait L.A. AlAbbasi, M. AlMatrook, A. AlRabah, Kuwait Oil Company; S. Rawnsley-Bettembourg, Shell	
0840	193650
Augmented AI Solutions for Heavy Oil Reservoirs: Innovative Workflows that Build from Smart Analytics, Machine Learning and Expert-Based Systems D. Castineira, X. Zhai, H. Darabi, Quantum Reservoir Impact	
0900	193645
Multi-Scale Approach to Estimating Two-Phase Relative Permeability from Unstable Heavy Oil Displacement by History Matching U.H. Taura, Y. Al-Wahaibi, Sultan Qaboos University; P. Mahzari, M. Sohrabi, Heriot-Watt University	

Session 6: Business, Management and Leadership (BML): Enabling Success, Enhancing Talent and Products

0800–0930 | Technical Session Room 2

Session Chairs: Bashar Al-Khashti, **Kuwait Oil Company**; Ahmed Maher, **Shell**

Presentation	
0800	193684
Optimising Training Paths in the Heavy Oil Realm: Insights developed in KOC M.A. Capello, M.J. De Sousa, M.J. Cheers, Kuwait Oil Company; P.H. Benham, G. Warlich, M. Nassef, Shell	
0820	193672
Refining Technology and Processing Developments H. Alazemi, KIPIC	
0840	193677
Investigating the Viscosity Reduction of Ultra-Heavy Crude Oil Using Hydrocarbon Soluble Low Molecular Weight Compounds to Improve Oil Production and Transportation S.M. Fakher, A.H. Imqam, Missouri University of Science & Technology; E. Wanas, Future University in Egypt	
0900	193671
Strategic Competencies for Non-Conventional Heavy and Extra Heavy Oil Fields: Identification, Definition and Measurement J.L. Ortiz-volcan, W. Al-Khamees, K. Ahmed, Kuwait Oil Company	

Technical Sessions

Tuesday, 11 December

Session 7: Solutions for Challenges in Drilling and Completion in Heavy Oil
1245–1415 | Technical Session Room 1

Session Chairs: Faisal Aladwani, **Kuwait Oil Company**; Abdulkareem Al-Sofi, **Saudi Aramco**

Presentation	
1245	193678
Loss Circulation Materials Testing Methods: Literature Review M.K. Al-Arfaj, M. Amanullah, R. Al-Ouhali, Saudi Aramco	
1305	193704
Engineered Hybrid Drill Bit Technology Doubles Drilling Performance in Impact-Prone Carbonates Heavy Oil Application W. Agawani, M.R. Pandya, A. Abdelhamid, S.A. El-Touny, Baker Hughes, a GE company; D. Rasheed Al Enezi, P.K. Gupta, H. Al-Habib, T. Ahmad, Kuwait Oil Company	
1325	193653
Evaluation of Well Completions in the First Steamflood Pilot Performed in an Unconsolidated Sandstone Reservoir in Kuwait D.C. Pandey, A. Al Naqi, N. AlShammari, A. Al-Dhafeeri, F. Al-Arfan, S. Gonzalez, Kuwait Oil Company; M. Diri, Shell	
1345	193658
Tackling High Water Production in Oman South Fields with New Technology A. Sivrikoz, M. Jimenez Chavez, S. Buwaiqi, Petroleum Development Oman	

Session 8: Maximising Recovery Through Innovative Artificial Lift Strategies
1245–1415 | Technical Session Room 2

Session Chair: Feras Ahmad Al-Ruhaimani, **Kuwait University**

Presentation	
1245	193729
Conceptual ESP Completion Design to Maximise Rig-Less Intervention and Reduce Overall Workover Rig Utilisation A. Al-Khaldy, A.A. Bou Khamseen, J.M. Hassan, A. Hasan, R. Dashti, K.F. Hantoush, Z. Al-Buloushi, Kuwait Oil Company	
1305	193698
Successful Installation of Stand Alone Screen in Challenging Environment in Umm Niqa Field A.A. Zeidan, H. Al-Bader, D.C. Pandey, A.R. Al-Ibrahim, M.M. Ayyavoo, A.F. Al-Ateeq, A.T. Erhamah, E. Al-Kandary, Kuwait Oil Company; D. Bosilca, Shell	
1325	193652
Industry First; Rigless ESP Enables Wellbore Access to Perform a Coiled-Tubing Clean Out S. Autry, G. Dornan, P. Fox, M. Krysinski, ConocoPhillips Alaska; G. Nutter, S.A. Cheblak, AccessESP	
1345	193699
First All Metal Progressive Cavity Pump Experience in Mexico M. Rodriguez, J. Morales, Geolis	

Technical Sessions

Tuesday, 11 December

Session 9: Innovations to Unlock Heavy Oil Recovery
1500–1630 | Technical Session Room 1

Session Chairs: Jassim Al-Kandari, **Kuwait Oil Company**; Mortadha Al-Saba, **Australian College of Kuwait**

Presentation	
1500	193681
Hydraulic Dilation Stimulation to Improve Steam Injectivity and Conformance in Thermal Heavy Oil Production Y. Yuan, B. Xu, B. Yang, BitCan G&E	
1520	193676
The Application of CO2 Assisted Cyclic Steam Stimulation N. Liu, Liaohe Oilfield	
1540	193673
Low-Temperature Bitumen Recovery from Oil Sand Reservoirs Using Ionic Liquids E.R. Abdelfatah, P. Berton, S.L. Bryant, University of Calgary; R. Rogers, 525 Solutions	
1600	193703
Hot Dry Air Diffusion (HDAD) Technology for Lower Fars Heavy Oil W.H. Al-Bazzaz, Kuwait Institute for Scientific Research; L.A. Abdullah, A. Qurban, S. Al-Shatti, Kuwait University	

Session 10: Managing Heavy Oil Fields: Monitoring and Surveillance
1500–1650 | Technical Session Room 2

Session Chairs: Khalid Al-Nuaimi, **Saudi Aramco**; Saad Matar, **Kuwait Oil Company**

Presentation	
1500	Keynote Speaker
Managing Heavy Oil Fields: Monitoring and Surveillance Reem Al-Shammari	
1520	193674
Maintaining Seal Integrity During Waterflooding In Shallow Depleted Heavy-Oil Sands: Implications to Geomechanical Model K.A. Gafeer, F.A. Taqi, P. Saikia, R. Mirhasanov, A.A. Al-Rabah, Kuwait Oil Company; I. Zhang, P.M. Schutjens, P.H. Benham, G. Warrlich, G.C. Reijnders, Shell	
1540	193662
Downhole Receiver Based Technology for Geophysical Monitoring of Super-Viscous Oil Deposits Development by Steam Injection V. Sudakov, D. Khasanov, A. Stepanov, D. Nurgaliev, S.A. Usmanov, Kazan Federal University; M. Amerkhanov, M. Lyabipov, PJSC Tatneft	
1600	193701
Satellite INSAR Technology for Cap Rock Integrity Monitoring of CSS and SF Heavy Oil Production Kuwait Z. Ren, A.A. Al-Rabah, P. Bansal, Kuwait Oil Company; Y. Freudenreich, K. Rawnsley, I. Zhang, Shell	
1620	193722
Workflows to Assist in Managing a Heavy Oil Field in the Middle Magdalena Basin, Colombia F.M. Franco, M.A. Useche, Schlumberger; L. Vargas, Mansarovar	

Technical Sessions

Wednesday, 12 December

Session 11: EOR Methodologies and Strategies for Heavy Oil

0800–0930 | Technical Session Room 1

Session Chairs: Fatma Ahmad, **Kuwait Oil Company**; Philip Edward Mosher, **Baker Hughes, a GE company**

Presentation	
0800	193665
Methodology to Improve Techno-Economic Viability of Surfactant-Flooding in a Shallow Sandstone Heavy Oil Reservoir M.T. Al-Murayri, A.A. Hassan, N.A. Al-Ajmi, Kuwait Oil Company; N. Wartenberg, Solvay; A. Delbos, IFPEN; G.P. Suzanne, Beicip-Franlab	
0820	193719
Improving the Decision Making for Heavy Oil Field Development Projects Using the Fuzzy Analytical Hierarchy Process (FAHP) H. Passalacqua, Australian College of Kuwait; A. Qubian, Kuwait Oil Company	
0840	193702
Simultaneous Occurrence of Miscible and Immiscible Displacement Processes During Solvent Displacement of Heavy-Oil: A Parametric Analysis Using Micro-Scale Experiments Y. Shi, T. Babadagli, University of Alberta	
0900	193660
Pore Scale Simulation of Surfactant Flooding by Lattice Boltzmann Method B. Wei, J. Hou, D. Wu, H. Wang, H. Liu, China University of Petroleum	

Session 12: Overcoming Challenges for Heavy Oil Cost Optimisation

0800–0930 | Technical Session Room 2

Session Chairs: Carmen Hinds, **Ecopetrol**; Faisal Hassan Shanat, **Kuwait Oil Company**

Presentation	
0800	193647
Benchmarking of Heavy Oil Fields: A Tool for Identification of Opportunities for Total Cost and Production Optimisation J.L. Ortiz-Volcan, W.K. Al-Khamees, K. Ahmed, Kuwait Oil Company	
0820	193700
Field Surveillance and AI Based Steam Allocation Optimisation Workflow for Mature Brownfield Steam Floods A. Kumar, A. Novlesky, E. Bityutsky, Computer Modelling Group; P.F. Koci, T.J. Wightman, Oxy	
0840	193680
Implementation and Assessment of Production Optimisation in a Steamflood Using Machine-Learning Assisted Modelling P. Sarma, K. Lawrence, Tachyus	
0900	193683
Integrated Study for Well Productivity Enhancement in a Heavy oil Reservoir in Northern Kuwait A. Kharghoria, K. Ahmad, A.A. Al-Rabah, Kuwait Oil Company; K. Guha, D. Kalia, J.E. Montero, Shell	

Technical Sessions

Wednesday, 12 December

Session 13: EOR Applications and Processes

1015–1145 | Technical Session Room 1

Session Chairs: Abdullah Al-Rabah, **Kuwait Oil Company**; Shahvir Pooniwala, **Baker Hughes, a GE company**

Presentation	
1015	193666
Heavy Oil Enhancement Processes for Deep Heavy Oil Reservoirs in Kuwait N. Mohammed, H. Al-Rashidi, B. Duncan, A. Al-Sagheer, A.S. Abbas, Kuwait Oil Company	
1035	193707
Optimisation of Recovery Using Electrical Heating in Heavy Oil Reservoirs C. Temizel, Aera Energy; M. Irani, Ashaw Energy; C.H. Canbaz, Schlumberger; Y. Palabiyik, Istanbul Teknik Universitesi; R.A. Moreno, Smart Recovery; J.M. Diaz Franco, VCG O&G Consultants; T. Tao, Texas Southern University; A.B. Alkouh, Middle East Oilfield Services	
1055	193737
Rock-Fluid Evaluation in Presence of Polymer Formulations Through Displacement Test in Heavy Oil Porous Media E.J. Medina, Pequiven-Indesca; Y.E. Castro, PDVSA	
1115	193642
Microemulsion Flooding of Heavy Oil Using Biodiesel Under Cold Conditions J. Lee, T. Babadagli, University of Alberta; B. Ozum, Apex Engineering	

Session 14: Technologies and Workflows to Optimise Heavy Oil Production

1015–1145 | Technical Session Room 2

Session Chairs: Faisal Al-Otaibi, **Kuwait Oil Company**; Khalid Harami, **Schlumberger**

Presentation	
1015	193682
Generation of BFW Using Bacteria Containing Reject Streams from Municipality Sewage Plant—Kuwait and Related Challenges to Meet Set BFW Spec R. Ghouti, M. Al-Hasan, M. Ealian H., Kuwait Oil Company; C. Kuijvernhoven, Shell Kuwait Exploration and Production	
1035	193723
Effective Matrix Acidising Based in Chelating Agents: Case Study in Romanian Heavy Oil Reservoirs E. Panait, C. Isac, M. Csaba, OMV Petrom; A.A. Dos Santos, S. Girardi, Nouryon	
1055	193739
A Computational Fluid Dynamics Model for Simulating the Rotating Disk Apparatus A. Kotb, M.T. Ali, A. Aziz Ezzat, A. Elwany, H.A. Nasr-El-Din, Texas A&M University	
1115	193663
A New Technologies Enhance Efficiency of Hydraulic Fracturing Stimulation in Heavy Oil Reservoirs B. Cai, G. Duan, C. He, Y. Gao, Y. Li, Z. Xu, W. Jiang, Research Institute of Petroleum Exploration & Development	

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Knowledge Sharing ePoster Sessions

Time	Paper#	Presentation
Monday, 10 December		**Station 1**
1045	193648	**Upgrading of Heavy Crude Oil Using NiCo/Al2O3 Catalysts** O.P. Avbenake, Bayero University Kano; Y.B. Jibril, Ahmadu Bello University; R.S. Al-Hajri, Sultan Qaboos University
1500	193770	**Non-Equilibrium Interactions Between Heavy Oil and Hydrocarbon Solvents at Elevated Temperatures** K.S. Athar, M.R. Yassin, H. Dehghanpour, University of Alberta
1515	193759	**Study on the Characteristics of Production Performance and Steam Chamber of SAGD Considering Interlayer** Y. Xia, S. Huang, X. Chen, M. Cao, L. Yang, China University of Petroleum-Beijing
1530	193740	**A Prediction Model of Steam Front of Horizontal Steam Flooding for Thin Heavy Oil Reservoirs** S. Huang, Y. Xia, M. Cao, X. Chen, China University of Petroleum
Monday, 10 December		**Station 2**
1045	193670	**Design Optimisation of Slotted Liner Completions in Cased and Perforated Wells: A Numerical Skin Model** A. Velayati, A. Nouri, University of Alberta; M. Roostaei, V. Fattahpour, M. Mahmoudi, B. Fermaniuk, M. Kyanpour, RGL Reservoir Management; A.B. Alkouh, College of Technological Studies
1500	193687	**Drilling Through Data: Automated Kick Detection Using Data Mining** R.A. Alouhali, M.J. Aljubran, S.H. Gharbi, A.S. Al-Yami, Saudi Aramco
1515	193755	**Wellbore Trajectory Optimisation Using Rate of Penetration and Wellbore Stability Analysis** A. Abbas, Iraqi Drilling Company; U. Alameedy, University of Baghdad; M. Alsaba, Australian College of Kuwait; S. Rushdi, University of Al-Qadisiyah
1530	193718	**Production Optimisation of Heavy Oil Wells Using Autonomous Inflow Control Devices** M. Moradi, M. Konopczynski, I. Mohd Ismail, I. Oguche, Tendeka BV
Monday, 10 December		**Station 3**
1045	193714	**Petrofacies Classification Method for Enhanced Reservoir Characterisation in a Complex Highly Heterogeneous Shallow Unconventional Reservoir in Northern Kuwait: A Case Study** P.K. Choudhary, M. Freeman, A. Al-Boloushi, P. Saikia, A. Tyagi, K. Ahmad, M.K. Jha, A. Al-Rabah, Kuwait Oil Company; P. Benham, G. Warrlich, I. Zhang, Shell
1500	193781	**The Optimisation Application of Electric Submersible Progressing Cavity Pump in Heavy Oil and Highly Deviated Wells** L. Jin, W. Wang, Q. Kang, C. Jiang, Hangzhou QIANJING Technology; T. Han, Q. Han, X. Zheng, R. Chen, X. Lai, Dagang Oilfield Company Production Technology Research Institute; H. Ji, X. Meng, China National Petroleum Corporation Dagang Oil Field Second Oil Production Plant; Y. Bian, China National Petroleum Corporation Dagang Oil Field Fifth Oil Production Plant
1515	193795	**Identification of Field-Wide Well Performance Enhancement Strategies in a Heavy Oil Field in Northern Kuwait Using Parametric Analysis Techniques** J.G. Garcia, A. Kharghoria, A.A. Al-Rabah, A.A. Al-Mansour, Kuwait Oil Company; J.E. Montero, Shell Kuwait Exploration & Production
1530	193760	**Development and Testing of an Effective Lost Circulation Pill to Cure Highly Permeable Formations** M.T. Alsaba, M.A. Fahmy, A.M. Farhat, Australian College of Kuwait; M.Q. Al Mejadi, Kuwait Gulf Oil Company; Y.M. Aldarakh, Kuwait Energy; J.A. Majli, Al-Meer Technical Services

Knowledge Sharing ePoster Sessions

Time	Paper#	Presentation
Monday, 10 December		**Station 4**
1500	193776	**The Role of Big Data Analytics in Exploration and Production; An Industry Review of Benefits and Applications** C. Noshi, J.J. Schubert, A. Assem, Texas A&M University
1515	193742	**Resolving Contract Management Challenges in Research Collaboration Agreements** S. Chaturvedi, Kuwait Oil Company
1530	193791	**Optimisation of a Thermochemical Recovery Process Using Global Optimisation Methods to Enhance Heavy Oil Recovery** T. Moussa, M. Mahmoud, S. Patil, S. Elkatatny, K. Abdelgawad, King Fahd University of Petroleum and Minerals
Monday, 10 December		**Station 5**
1500	193763	**Simulation and Experimental Investigation of Gel Propagation Through Heavy Oil Fractured Reservoirs Using Embedded Discrete Fracture Model** A.K. Alhuraishawy, Missan Oil Company; B. Bai, Missouri University of Science & Technology
1515	193747	**Designing of a Groundwater Production Scheme for the Northern Oil Fields, Kuwait** H. El Enizi, I. AlMaheimid, M. AlSenafi, M. AlMutairi, Kuwait Oil Company; A. Al-Khalid, Kuwait Institute for Scientific Research
1530	193751	**Evaluation of Surfactants Wettability Alteration Using the Washburn Contact Angle Method** A.B. Fuseni, B. Al-Zahrani, A. Al-Shehri, A.M. Alsofi, Saudi Aramco
Monday, 10 December		**Station 6**
1500	193797	**Experimental Investigation of Steam-Alkali Flooding with Borax: A Case Study on Bati Raman Oil Field** W. Hashim Noori, M. Cinar, M. Salehian, Istanbul Technical University; A. Alkouh, College of Technological Studies
1515	193730	**Evaluation of the Scaling Resistance of Different Coating and Material for Thermal Operations** V. Fattahpour, M. Mahmoudi, M. Roostaei, M. Kyanpour, B. Fermaniuk, RGL Reservoir Management; A.B. Alkouh, College of Technological Studies
1530	193659	**Effect of Pressure and Temperature of Steam in Parallel Vertical Injection Wells on Productivity of a Horizontal Well During the SAGD Process: A Numerical Case Study** F. Sun, Y. Yao, G. Li, S. Qu, S. Zhang, Y. Shi, Z. Xu, X. Li, China University of Petroleum, Beijing
Monday, 10 December		**Station 7**
1500	193646	**A Comprehensive Review Heavy Oil Reservoirs, Latest Techniques, Discoveries, Technologies, and Applications in the Oil and Gas Industry** C. Temizel, Aera Energy; C.H. Canbaz, Schlumberger; M. Tran, USC; E.R. Abdelfatah, University of Calgary; B. Jia, University of Kansas; D.F. Putra, Rafflesia Energy; M. Irani, Ashaw Energy
1515	193738	**Cost-Effective Improvement of Core Analysis for Heavy Oil Development in Northern Kuwait** K. Ahmed, F.A. Taqi, A.A. Al-Rabah, P. Saikia, A. Tyagi, Kuwait Oil Company; P.H. Benham, I. Zhang, M. Appel, Shell; G.M. Mani, Core Laboratories International; J. Luague, Corpro System
1530	193735	**Exploring Resilience in the Oil Industry: Theory vs. Practice** M.A. Capello, Kuwait Oil Company; A. Passalacqua, Gerard-Daniels

Knowledge Sharing ePoster Sessions

Time	Paper#	Presentation
Tuesday, 11 December		**Station 1**
0930	193783	**Thru-Tubing Conveyed (Rigless) ESP Technology: A 20-Year Case History of Wireline Retrievable ESPs** J.C. Patterson, Patterson Consulting; G. Dornan, G. Targac, ConocoPhillips Alaska; D. Malone, S.A. Cheblak, M. Walker, AccessESP; J.Y. Julian, BP
0945	193771	**Does Polymer's Viscoelasticity Influence Heavy Oil Sweep Efficiency and Injectivity at 1ft/Day?** M.S. Azad, J.J. Trivedi, University of Alberta, Edmonton
1000	193803	**The Application of Chemistry to Manage Wellbore Instability While Drilling the Mechanically Weak Burgan Shale Formation and the Vugular Shuaiba Limestone Formation** A.H. Hussein, M. Al-Khaja, F. Al-Menayes, H. Al-Haddad, A.A. Malik, A.A. Durge, R. Dashti, Kuwait Oil Company; R.M. Abdelaziz, V. Barsoum, Impact Fluids Solutions; B. Abdul Aleem, M. Samak, EMEC Kuwait
1415	193806	**Seismic Facies Classification and Rock Typing to Better Understand Heavy Oil Reservoirs: A Case Study from North Kuwait** H. Moubarak, T. AlRashid, Z. REN, Kuwait Oil Company
1430	193765	**Reservoir Characterisation of Heavy Oil in Burgan Formation of North Kuwait** H. Al-Hamad, S.A. Azim, L. BoGammaz, M.F. Al-Ajmi, A.K. Al-Jasmi, Kuwait Oil Company
1445	193766	**Cost Optimisation Study of Soak Period and Production Cycles of Cyclic Steam Injection in Lower Fares Heavy Oil (LFHO) Reservoir** A.T. Alshammari, Petrofac/CCC - Consortium - Kuwait; H.M. Alajmi, F.S. AlOtaibi, Kuwait Oil Company; S.G. Marquez, Australian College of Kuwait; J.L. Farhart, WorleyParsons Kuwait
Tuesday, 11 December		**Station 2**
0930	193786	**Application of a New IPR Model with a Comparison to PGOR Tests and PLT Data to Evaluate Well Productivity** M. Elyas, A. Abba, D. Freile, J. Alshatti, Weatherford; A. Al-Watyan, Kuwait Oil Company
0945	193643	**Controlled Source EM for Monitoring Steam Injection in the Ratqa Heavy Oil Reservoir** N.H. Cuevas, F. Ceci, M. Pezzoli, Schlumberger; A.H. El-Emam, J. Al-Jenaie, M. Hafez, Kuwait Oil Company
1000	193801	**Solar Energy Enhanced Oil Recovery: A Case Study for Kuwait** J. Avaritsiotis, Kuwait College of Science and Technology (KCST)
1415	193743	**Surfactant-Polymer Flooding: One-Spot EOR Pilot Design for a Middle-Eastern Heavy Oil Reservoir** M.T. Al-Murayri, A.A. Hassan, N. Al-Mahmeed, Kuwait Oil Company; G.P. Suzanne, J. Sanchez, Beicip-Franlab
1430	193787	**Balancing Sub-Surface Needs, Surface Planning and Reduction in Operational Cost for Placement of Observation Wells in a Kuwait Heavy Oil Field** P.H. Benham, I. Zhang, J.E. Montero, L.Y. Spring, G. Warrlich, C. Shen, Shell Kuwait Exploration & Production; M.E. Freeman, P.K. Choudhary, K. Ahmed, Z. Ren, K. Aldohaiem, A.A. Al-Rabah, Kuwait Oil Company
1445	193793	**An Innovative Approach to Test Heavy Oil in Burgan Reservoir of Greater Burgan Field** V. Naik, D. Mudhfar, E.M. Karam, I. Attar, S.M. Al-Haddad, Kuwait Oil Company; A. Pal, Schlumberger

Knowledge Sharing ePoster Sessions

Time	Paper#	Presentation
Tuesday, 11 December		**Station 3**
0930	193767	**The Study of the Difference Between Spontaneous Co-Current and Counter-Current Imbibition in Heavy Oil Fractured Reservoirs with the Focus on their Distinctions in Numerical Simulation Methods** E. Hamidpour, S. Fathollahi, A. Mirzaei Paiaman, National Iranian South Oil Company; M. Bardestani, Petroleum University of Technology; H. Kamalifar, Azad University of Abadan
0945	193782	**Concentric Coiled Tubing Technology for Well Cleaning and Evaluation in Shallow Horizontal Wells: A Case Study from Heavy Oil Field, Kuwait** S.K. Rao, J.G. Garcia, A.M. Al-Bahri, M.J. Al-Faudari, A.M. Al-Naqi, Kuwait Oil Company
1000	193773	**Optimisation of Outflow Control Devices Placement and Design in SAGD Wells with Trajectory Excursions** A. Sidahmed, A. Nouri, S. Nejadi, University of Alberta; M. Kyanpour, B. Fermaniuk, RGL Reservoir Management
1415	193778	**In Situ Heavy Oil Upgrading by Electric Enhanced Oil Recovery, Complex Carbonate Heavy Oil Field Case** K. Keglevic, White Falcon Petroleum Technologies AG
1430	193748	**Miscible Gases Based EOR in Unconventional Liquids Rich Reservoirs: What We Can Learn** D.K. Alfarge, M. Wei, B. Bai, Missouri University of Science & Technology; M.T. Alsaba, Australian College of Kuwait
1445	193732	**Characterisation of the Stratigraphic Column in an Extra Heavy Oil Field to Optimise Production Costs, from the Disposal of Wastewater Effluents to the Evaluation of Shallow Aquifers for Water Production. Cerro Negro Area, Venezuela** I. Rodriguez, E. Hernandez, R. Velasquez, J. Fernandez, R. Contreras, A. Korabelnikov, Petrolera RN Limited; F. Yegres, R. Martinez, Petromonagas
Tuesday, 11 December		**Station 4**
0930	193768	**Technical and Economical Aspects of Use of Solar Energy in Oil and Gas Industry in the Middle East** C. Temizel, Aera Energy; M. Irani, Ashaw Energy; C.H. Canbaz, Schlumberger; Y. Palabiyik, Istanbul Teknik Universitesi; R.A. Moreno, Smart Recovery; A. Balikcioglu, USC; J.M. Diaz Franco, VCG O&G Consultants; G. Zhang, J. Wang, China Petroleum Engineering & Construction Corporation; A.B. Alkouh, Middle East Oilfield Services
1000	193752	**A Bayesian Approach for Hidrualic Flow Identification and Permeability Prediction: Field Case Application in a Carbonate Reservoir** A.A. Dwindt, A. Al-Saleh, Q.M. Dashti, Kuwait Oil Company; E.N. Quint, Shell
1415	193706	**Investigation Wettability Contact Angle Measurement in Kuwaiti Heavy Oil Reservoir and Modelling Using 2D Imaging Technologies** W.H. Al-Bazzaz, M. Alostath, Kuwait Institute for Scientific Research; S. Al-Muddhi, Kuwait University
1430	193799	**Doing the Right Things...Taking Risk Management to the Next Level: Managing H2S Risks in Heavy Oil Facilities in Kuwait Oil Company** C. Devaraj, Y.E. Al-Qallaf, A.M. Qabazard, R. Chakrapani, Kuwait Oil Company
1445	193792	**Sand Control Strategy for Unconsolidated Sandstone Heavy Oil Reservoir in Kuwait** A. Boqrais, M.R. Aly Hussein, Y.H. Al-Mula, A.M. Al-Naqi, Kuwait Oil Company; K.J. Henderson, Shell International

Knowledge Sharing ePoster Sessions

Time	Paper#	Presentation
Tuesday, 11 December		**Station 5**
0930	RPT-192503	**Hybrid Artificial Lift System—Alternate SRP/PCP in Cyclic Steam Injection for Heavy Oil Wells** H.M. Mesbah, Ajal Contracting-General Trading Company
0945	193794	**Reducing Operating Costs Through Accurate Flow Measurement** C. Marshall, TUV SUD NEL
1000	193777	**Sand Production Assessment and Sand Control Selection for Steam Flood in South Oman** W. Shizawi, R.J. Al Zadjali, S. Mahajan, L. Bellmann, Petroleum Development Oman
1415	193790	**Process Safety Challenges in Heavy Oil Production** A.M. Qabazard, S.R. Ketavarapu, V. Sawlikar, Kuwait Oil Company
1430	193761	**Use of Air with Different Solvents Mixtures for Improved Foam Stability and Cost-Effective Heavy Oil Recovery** E. Basilio, T. Babadagli, University of Alberta
1445	193774	**Study on Radio Frequency Heating Pattern of Heavy Oil Reservoir Based on Multi-Antenna Configuration** Z. Wang, D. Gao, K. Liu, L. Tan, W. Li, China University of Petroleum, Beijing; Z. Wang, CNPC Engineering Technology R&D Company Limited
Tuesday, 11 December		**Station 6**
0930	193802	**Experimental Investigation of Nanoparticles/Polymer Enhanced CO2-Foam in the Presence of Hydrocarbon at High-Temperature Conditions** A. Bashir, A. Sharifi Haddad, R. Rafati, University of Aberdeen
0945	193769	**Optimisation of Steam Injection for Thermal Heavy Oil Reservoirs Using Reinforcement Learning** J.L. Urdaneta, R. Patel, J.J. Trivedi, University of Alberta
1000	193744	**New Insights of Low Salinity Water Flooding in Low Permeability-Low Porosity Clay Rich Sandstone Reservoir** A.K. Alhuraishawy, M. Wei, Missan Oil Company; B. Bai, Missouri University of Science & Technology
1415	193798	**The Expansive and Binding Forces of Oil and Gas Industry Best Practices** J. Cardenas, University of Houston Law Center
1430	193789	**Comparison of Formation and Stability of Emulsions in the Injection of Smart Water and Nanofluid into Heavy Oil Reservoirs** Y. Kazemzadeh, M. Sharifi, Amirkabir University of Technology; I. Ismail, M. Riazi, Shiraz University; H. Rezvani, Isfahan University of Technology
1445	193756	**Application of Super-Critical Water for Heavy oil EOR: A Case Study from Pilot Field Test** M. Dong, X. Yue, S. Qu, F. Sun, China University of Petroleum, Beijing

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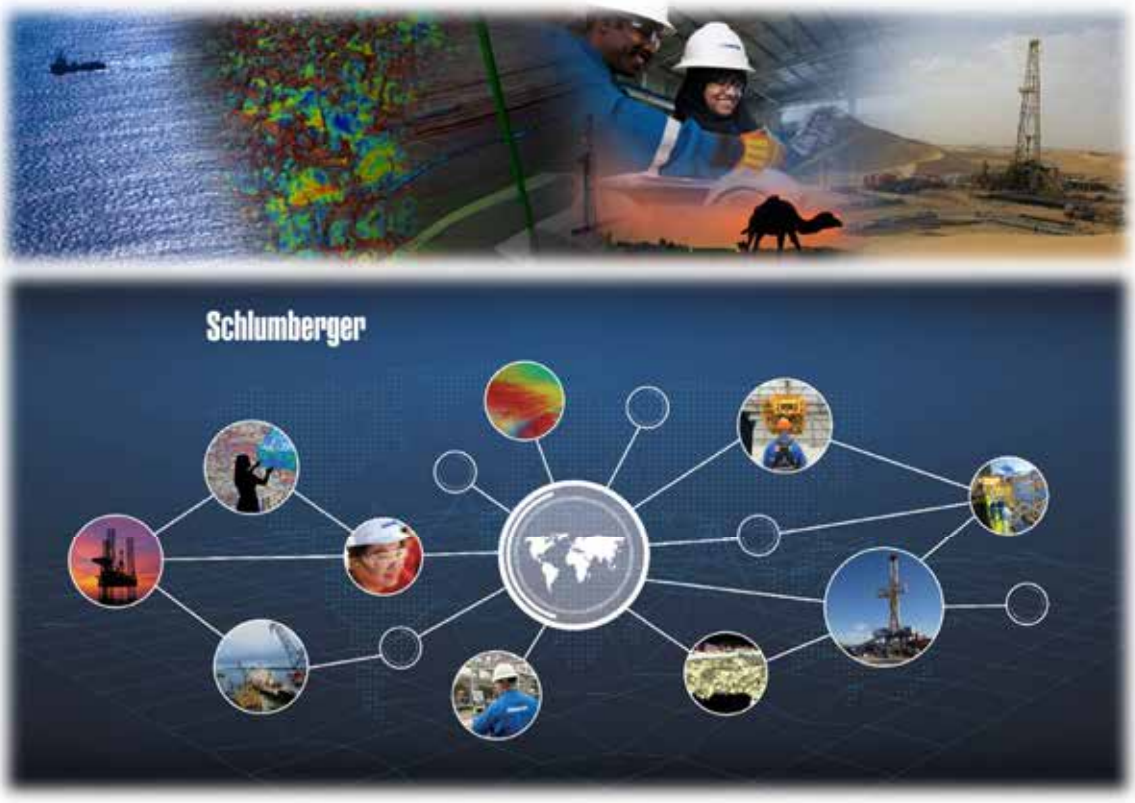
0930	193667	**Implementation of Well Performance Management System "WPMS" Leads to Significant Cost, Time Reduction** N. Al-Barazi, H. Elekhteiar, S. Bhamare, S.A. Bhatevara, Kuwait Oil Company
0945	193717	**Economic Benefits of Implementing Alternative Energy: A Heavy Oil Fields Case Study** M.A. Al-Yatama, A. Al-Khulaifi, F. Gomez, R. Ghouti, M. Al-Hasan, Kuwait Oil Company; S. Afifi, Shell
1000	193709	**Experimental Study on the Matching Relationship Between PPG Size and Reservoir Heterogeneity** D. Wu, K. Zhou, Z. An, J. Hou, China University of Petroleum
1415	193720	**Application of Supercritical Water Coupled with Toe-Point Injection Technique for Heavy oil EOR: A Case Study** S. Qu, H. Jiang, J. Li, J. Hu, F. Sun, Y. Qiao, M. Dong, W. Chen, Y. Zhou, China University of Petroleum
1445	193736	**Cost-Effective Water Management Strategy for Developing Large Heavy Oil Field in Northern Kuwait** S. Al-Ballam, D.C. Pandey, Kuwait Oil Company; G.J. Pallath, C. Kuijvernhoven, Shell



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0930	193807	**Solving 12-1/4-in. Directional Drilling Challenges by Minimising Stick/Slip Vibrations in North Kuwait** K.M. Beheiry, H. Horra, Halliburton; M. Almulaifi, A. Sekhri, Kuwait Oil Company
0945	193772	**HSE Challenges in Thermal Operations used for Heavy Oil Recovery** A.M. Qabazard, G. Al-Qattan, S.R. Ketavarapu, N.W. Khan, Kuwait Oil Company
1000	193734	**Land Controlled Source Electromagnetic Technique for Shallow Viscous Oil Reservoir Characterisation of North Kuwait** R. Kumar, R. Biao, K. Ahmad, Kuwait Oil Company
Wednesday, 12 December		**Station 2**
0930	193796	**A Feasibility Study of Hybrid-Thermal and Chemical EOR Methods in a Low-Permeability Carbonate Heavy Oil Reservoir with Strong Aquifer Drive** M.T. Al-Murayri, E.H. Fadli, F.M. Al-Shati, A. Qubian, Kuwait Oil Company; Z. Li, E. Trine, A.H. Alizadeh, M. Delshad, Ultimate EOR Services
0945	193775	**The Function of Baffles Within Heavy Oil Reservoir and Their Impact on Field Development: A Case Study from Kuwait** P.H. Benham, I. Zhang, L. Spring, G. Warrlich, C. Shen, Shell; M.E. Freeman, P.K. Choudhary, K. Ahmed, H. Al-Haqqan, A. Al-Boloushi, M.K. Jha, A.O. Sanwoolu, A.A. Al-Rabah, Kuwait Oil Company
1000	193762	**Production Data Management (Collaboration Effort) in an Integrated Journey for More Than 1,000 Wells in the Northern Kuwait Heavy Oil Fields** S.G. Fernandez, T. AlMuhanna, W. Abdalla, D.C. Pandey, A. Al Naqi, L. Al Mezal, A. Al Saqer, A. Safar, S.S. Rajab, Kuwait Oil Company; S. Malik, G. Gonzalez, Shell; A. Hamlaoui, I. Fadul, Schlumberger Information Solutions
Wednesday, 12 December		**Station 3**
0930	193697	**Risk Assessment in Sand Control Selection: Introducing a Traffic Light System in Stand-Alone Screen Selection** M. Mahmoudi, V. Fattahpour, M. Roostaei, M. Kyanpour, B. Fermaniuk, RGL Reservoir Management; A.B. Alkouh, College of Technological Studies
0945	193800	**Improving Sucker Rod Pump Performance and Overall Production After Applying Continues Steam Injection in Heavy Oil Project, North Kuwait** F. Al-Ajeel, F. AbdulHadi, Kuwait Oil Company; T. Sierra, A.M. Ibrahim, K. Heshmat, Weatherford Kuwait
1000	193779	**Application of Data Analytics to Improve Drilling Performance and Manage Drill Stem Vibrations** M.F. Al Dushaishi, Texas A&M International University; S. Hellvik, National Oilwell Varco; A. Aladasani, Consultant; M.T. Al-Saba, Australian College of Kuwait; Q. Okasha, Kuwait Oil Company

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0930	193713	**Integrated Petrophysical Evaluation of Tayarat Formation for Water Disposal Purposes** F.A. Taqi, K.A. Gafeer, Kuwait Oil Company; I. Zhang, Shell; A.A. Al-Rabah, A. Tyagi, P. Saikia, Kuwait Oil Company; M. Diri, G. Warrlich, Shell; Z.B. Ren, Kuwait Oil Company
0945	193785	**Evaluating the Performance of CO2 Foam and CO2 Polymer Enhanced Foam for Heavy Oil Recovery: Laboratory Experiments in Unconsolidated and Consolidated Porous Media** A. Telmadarreie, University of Calgary; J.J. Trivedi, University of Alberta
1000	193780	**Enhancing Safety Culture through Changing the Mindset: Business Partners' HSE Performance: Practical Evaluation, Benchmarking and Path to Improvement** B.S. Adivi, A.A. Alazmi, Y.E. Al-Qallaf, M. Al-Harbi, C. Devaraj, Kuwait Oil Company
Wednesday, 12 December		**Station 5**
0930	193758	**A New, Fast, and Efficient Method for Evaluating the Influence of Catalysts on In-Situ Combustion Process for Heavy Oil Recovery** K. Sadikov, C. Yuan, S. Mehrabi-Kalajahi, M.A. Varfolomeev, S. Talipov, Kazan Federal University
0945	193725	**Integral Analysis of Production Behaviour of Horizontal Wells Associated to the First Polymerised Water Injection Pilot Project in Unconventional Reservoir: Zuata Principal Field, Venezuela** A.E. Ramirez, L.D. Quevedo, E.M. Vasquez, Petroleos de Venezuela S.A.; I.M. Ulacio, Universidad De Oriente
1000	193731	**Experimental Comparison Between WASP and LSASF in Bartlesville Sandstone Reservoir Cores Bearing Heavy Oil** H. Al-Saedi, R.E. Flori, Y. Long, Missouri University of Science and Technology; U. AlAmeedy, University of Baghdad; W. Al-Bazzaz, Kuwait Institute for Scientific Research
Wednesday, 12 December		**Station 6**
0930	193679	**Understanding and Parameterisation of Greater Burgan Fluid Spatial Variation Using an Extensive PVT Data Base** L.R. Diaz Teran Ortegon, Schlumberger; N.A. Al-Shammari, A. Al-Qattan, A.M. Al-Samhan, N.K. Al-Enizi, Kuwait Oil Company; G. Duvivier, R.C. Brown, G. Perez, R. Sarah, BP
0945	193696	**An Integrated Approach to Characterise Heavy Oil in Complex Clastics—A Case Study from Southern Part of India** S. Chakraborty, A. Panchakarla, C.V. Deshpande, S. Malik, Baker Hughes, a GE company; P. Majithia, S. Chaudhary, A. Murthy, ONGC
1000	193675	**Opportunity Assessment of a Deep Extra Heavy Oil Green Field: Scenarios for Life Cycle Cost Optimisation Under Uncertainty and Risk** J.L. Ortiz-volcan, K. Ahmed, S.A. Azim, Y. Issa, R. Pandit, A.K. Al-Jasmi, M.O. Hassan, A. Sanyal, Kuwait Oil Company; S. Taduri, Kuwait Gulf Oil Company

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0930	193693	**Implementing WRFM (Well, Reservoir, Facility Management) and Smart Field Best Practices for EOR Optimisation** A.A. Zeidan, R.A. Redha, A.T. Erhamah, Kuwait Oil Company; J.E. Montero, D.D. Williams, Shell
0945	193694	**Analytical and Numerical Models Assist in Water Production Management in a Heavy Oil Reservoir in Northern Kuwait** A. Al-Shammari, A. Kharghoria, J.G. Garcia, P. Saikia, A.F. Alshammari, A.A. Al-Rabah, Kuwait Oil Company; H. Husain, D. Kalia, Shell
1000	193690	**Feasibility of Multi-Physics Reservoir Monitoring for Heavy Oil** H. Passalacqua, Australian College of Kuwait (ACK); S. Davydycheva, K. Strack, KMS Technologies

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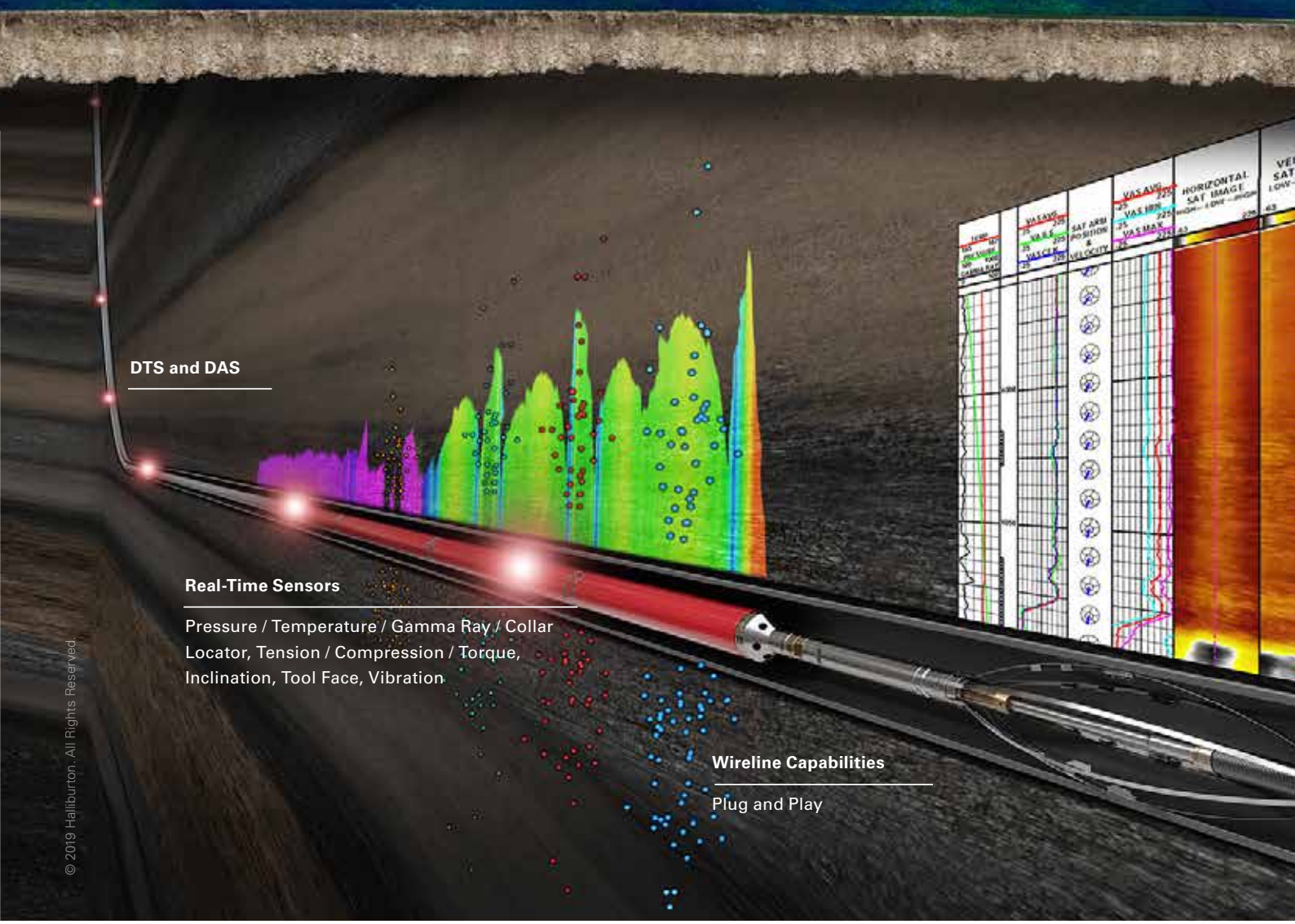

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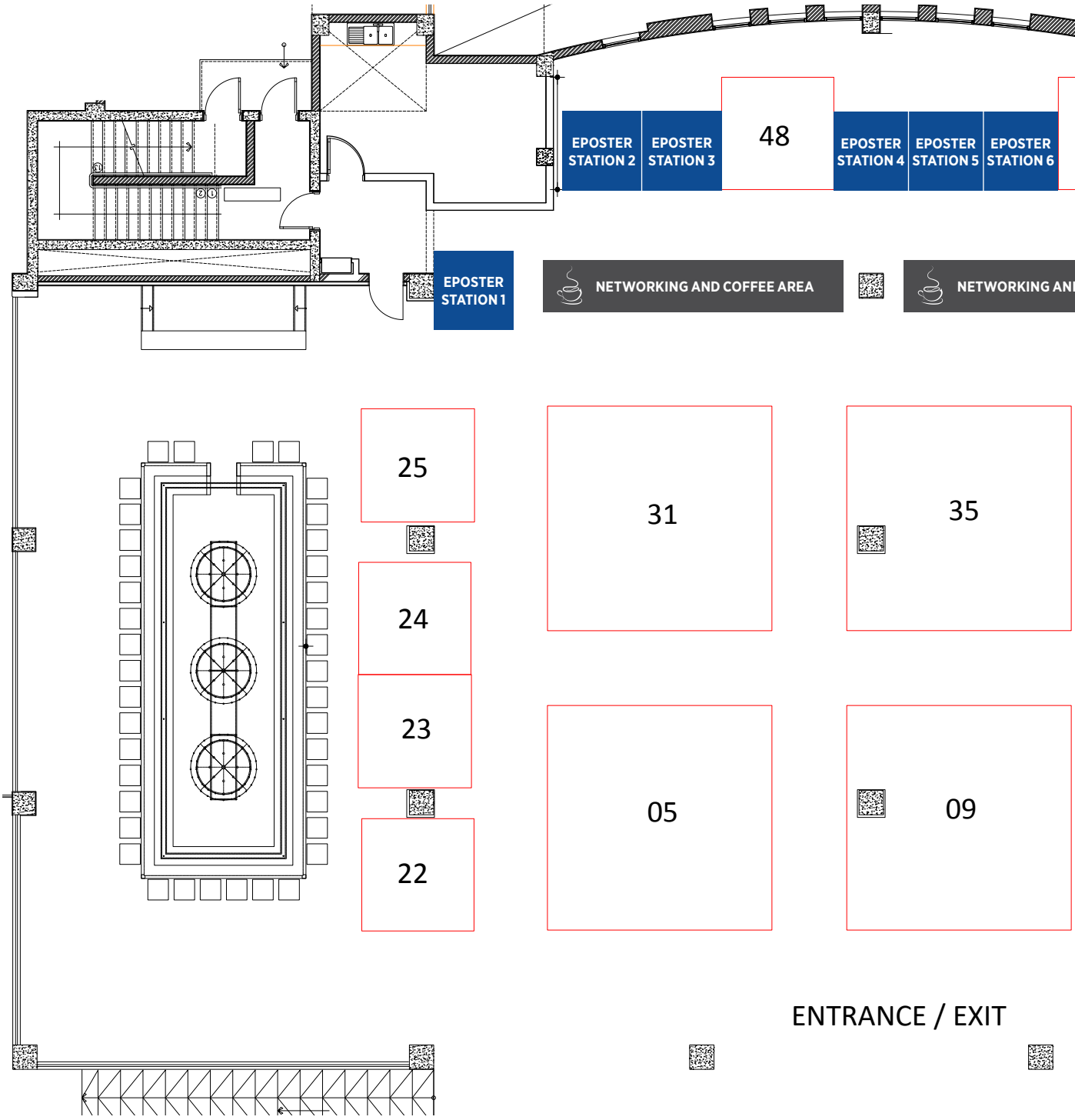

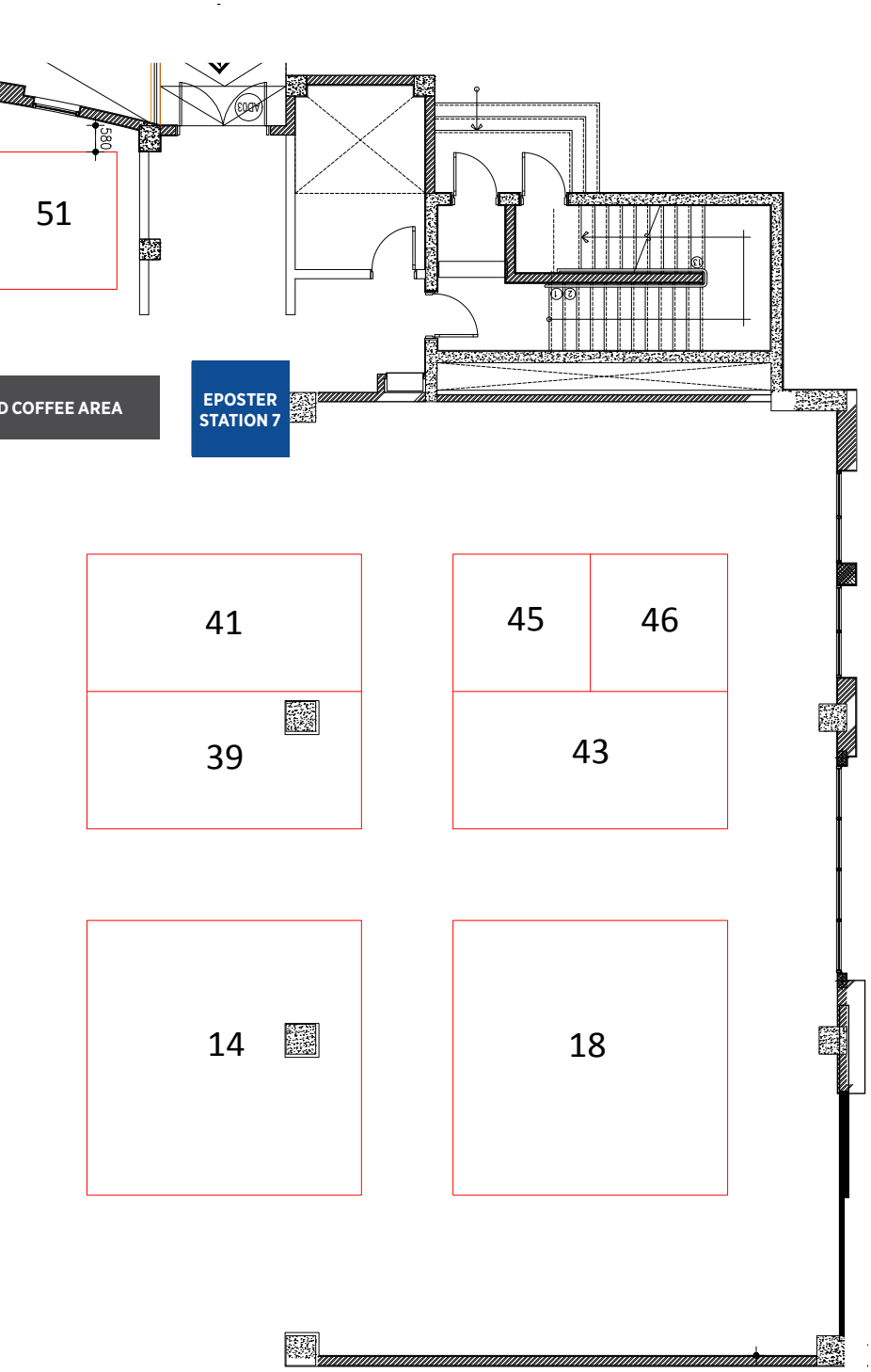

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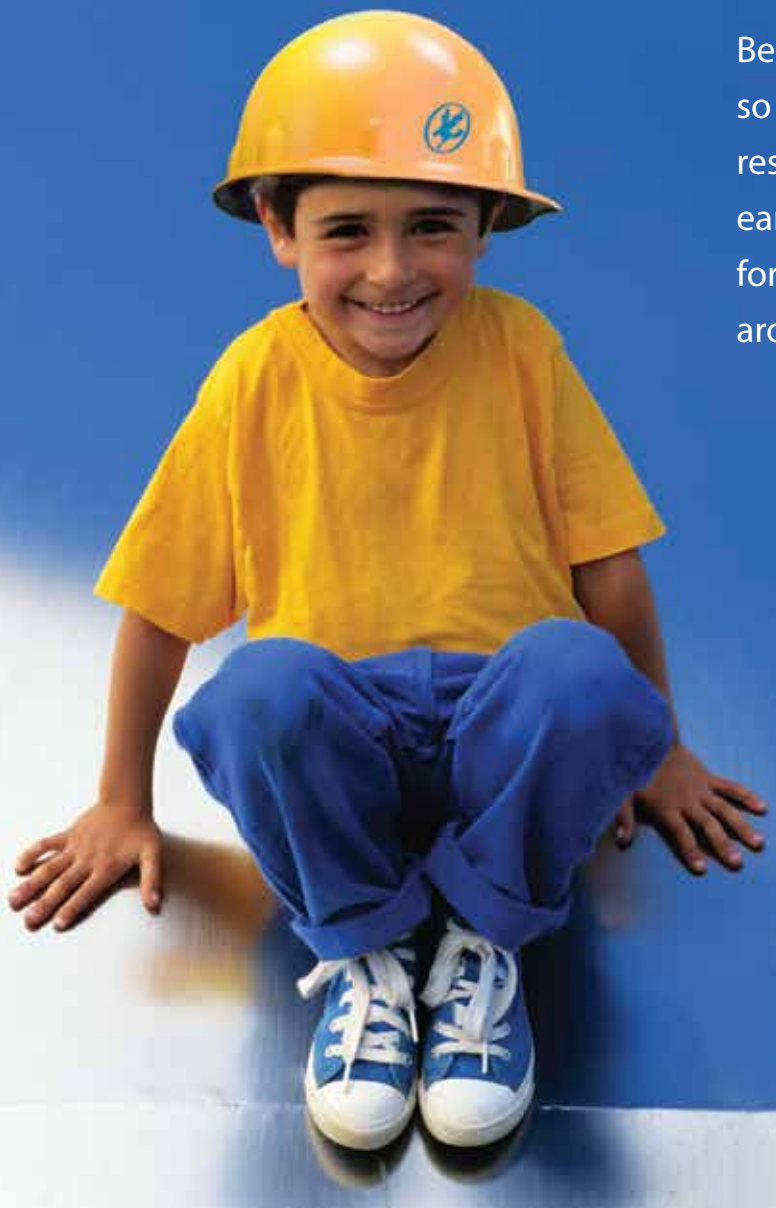

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