Permanent Downhole Flow Metering Improves Reservoir Management in Subsea Environment: A North Sea Case Study  

Akil, Ihab; Das, Kaushik; Yunusov, Manuchehr; Figueroa, Martin

Addressing and Managing Cyber Security Risks and Exposures in Process Control  

Pitzer, Darrell R.; Girdner, Ana M.

Advanced Machine Learning Methods for Production Data Pattern Recognition  

Subrahmanya, Niranjan; Xu, Peng; El-Bakry, Amr; Reynolds, Carmon

Advanced Well Structures: An Artificial Intelligence Approach to Field Deployment and Performance Prediction  

Enyioha, Chukwuka; Ertekin, Turgay

Advances in Integrated Environmental Monitoring  

Wesenberg, Harald; Hepsoe, Vidar; Hermansen, Anders

Applying Analytics to Production Workflows: Transforming Integrated Operations into Intelligent Operations  

Bravo, Cesar; Rodriguez, Jose; Saputelli, Luigi; Rivas Echevarria, Francklin

Are egos a main Obstacle to Intelligent Energy Implementation - and can we get Around it?  

Jeffery, Karl

Are Machines Better Than Humans in Crisis?  

Wilkins, M.J.

Assessing the Maturity of Digital Oilfield Developments  

Assessment, A; Evaluation, M
Feineman, David R.

**Automated Geomechanical Analysis from Remote Operational Centers** 526

Bartetzko, Anne; Wessling, Stefan; Dahl, Thomas; Thorsen, Arve K.; Anvar, Amir; Fisher, Christopher

**Big Data in Exploration and Production: Silicon Snake-Oil, Magic Bullet, or Useful Tool?** 219

Cameron, David

**Breaking the Implementation Barrier** 39

Kilgore, Laura; Hernandez, Margarita; Scott, Peter; MacKenzie, Kenneth; Whittaker, Paula; Vasquez, Daniel

**Building Effective Teams to Enable Project Success** 285

Lyden, John; Zeringue, Amy;

**A Center of Excellence for Electrical Submersible Pumps** 852


**Closing the Integration Gap for the Next Generation of Drilling Decision Support Systems** 497

Nybo, Roar, SINTEF Petroleumsforskning AS
Sui, Dan, University of Stavanger

**Cloud-Based Data Management in Oil and Gas Fields: Advances, Challenges, and Opportunities** 652

Bello, Oladele, Baker Hughes
Srivastava, Deepak, Baker Hughes
Smith, David, Baker Hughes Incorporated

**Collaborative Work Environments Deployed At Global Scale** 562

van den Berg, Frans G., Shell
McCallum, Giles A.R., Wipro Technologies
Graves, Matt, Wipro Technologies
Heath, Elizabeth, Wipro Technologies
Continuous Improvement of Assets Through Existing and New Digital Oilfield Technology  846

Kamal, S.Z., BP America
Williams, J., BP America
Liddle, J., Molten

Data Security Promotes Improved Intelligent Drilling  823

Cavazos, Catherine, National Oilwell Varco

A Data-Driven Approach Enhances Conventional Reservoir Surveillance Methods for Waterflood Performance Management in the North Sea  331

Jahangiri, Hamid Reza, BP
Adler, Carwyn, BP
Shirzadi, Shawn, BP
Bailey, Richard, BP
Ziegel, Eric, BP
Chesher, James, BP
White, Matthew, BP

A Data-Driven Approach to Modelling and Optimization for a North Sea Asset Using Real-Time Data  340

Ziegel, E., BP
Shirzadi, S., BP
Wang, S., BP
Bailey, R., BP
Griffiths, P., BP
Ghuwalela, K., BP
Ogedengbe, A., BP
Johnson, D., Landmark

Decision Support for Daily Production Optimization: In Genuine Real-Time  457

Ursin-Holm, S., NTNU
Sandnes, A., NTNU
Gunnerud, V., NTNU
Foss, B.A., NTNU
Conn, A.R., IBM Research
Zenith, F., SINTEF ICT
Teixeira, A.F., Petrobras
Detecting and Correcting Pipeline Leaks Before They Become a Big Problem  583
Cramer, Ron, Shell Global Solutions US Inc.  
Shaw, David, Technical Toolbox Consulting  
Tulalian, Robert, Shell Nigeria  
Angelo, Pabs, Shell Norway  
van Stuijvenberg, Maarten, IPCOS

Development of Hybrid Intelligent System for Virtual Flow Metering in Production Wells  629
Bello, Oladele, Baker Hughes Incorporated  
Ade-Jacob, Sam, Texas A & M University, College Station  
Yuan, Kun, Baker Hughes Incorporated

Digital Oilfield Implementation in Naturally Flowing Oil Fields With Increasing Water Encroachment: One Company's Experience in Burgan Field  193
Al-Jasmi, A., Kuwait Oil Company  
Choudhuri, A., Kuwait Oil Company  
Joy, D., Weatherford

Digital Oilfield Implementation: Learning From the Ghostbusters  173
Feineman, David R., BP America

Enabling Best Work Practices With Electronic Procedures  708
Molin, Arthur, TRAClabs Inc.  
Kortenkamp, David, TRAClabs Inc.  
Schreckenghost, Debra, TRAClabs Inc.  
Bell, Scott, TRAClabs Inc.  
Kusy, Kevin, TRAClabs Inc.

Enhanced Data Quality and Lowered Risk Utilizing Remote Operations  517
Thorsen, Arve K., Baker Hughes  
Saeverhagen, Erland, Baker Hughes  
Svensson, Inge, Baker Hughes

Enhancing Wellwork Efficiency With Data Mining and Predictive Analytics  536
Sidahmed, Mohamed, BP
Ziegel, Eric, BP
Shirzadi, Shahryar, BP
Stevens, David, BP
Marcano, Maria, BP

**Enterprise SCADA Case Study: Pipeline, Plants, Production**  313
Seale, Steven R., Weatherford
Cousins, Barrett, Weatherford
Hanna, Ron, Denbury Resources

**Factors Affecting Implementation of Global Remote Operations**  507
Thorsen, Arve K., Baker Hughes
Undheim, Magne, Baker Hughes
Ferrero, Ricardo, Baker Hughes

**Fiber Optic Sensing: Evolution to Value**  837
Kamal, S. Zafar, BP America Inc

**From a Daily Drilling Report to a Data and Performance Management Tool**  305
Dawson, Colin, Independent Data Services
Verkuil, Harry, Petrofac

**From Market Basket Analysis to Wellhead Monitoring: Using Events to Increase Oil Recovery**  207
Bailey, R., BP
Lu, Z., BP
Shirzadi, S., BP
Ziegel, E., BP

**A Functional Networks Softsensor for Flowing Bottomhole Pressures and Temperatures in Multiphase Production Wells**  637
Bello, Oladele, Baker Hughes Incorporated
Asafa, Tesleem, Inter-University Micro-Electronic Center

**The Future of Telemedicine in O&G**  259
Thorvik, K., St. Olavs Hospital
Nystad, A., Center for Integrated Operations in the Petroleum Industry
SkogÅVs, J.G., St. Olavs Hospital
Fernandes, A., Institute for Energy Technology
Reegard, K., Institute for Energy Technology
Simensen, J.E., Institute for Energy Technology
Rindahl, G., Institute for Energy Technology
Silva, E., Albert Einstein Hospital
Bergsland, T., ConocoPhillips
Klingsheim, O., ConocoPhillips
Evjemo, T.E., SINTEF

**A Fuzzy Logic Application to Monitor and Predict Unexpected Behavior in Electric Submersible Pumps (Part of KwIDF Project)  65**

Bermudez, F., Halliburton
Carvajal, G.A., Halliburton
Moricca, G., Halliburton
Dhar, J., Halliburton
Md Adam, F., Halliburton
Al-Jasmi, A., Kuwait Oil Company
Goel, H.K., Kuwait Oil Company
Nasr, H., Kuwait Oil Company

**Geographically-Distributed Databases: A Big Data Technology for Production Analysis in the Oil & Gas Industry  295**

Preveral, Aymeric, IDMOG
Trihoreau, Antoine, IDMOG
Petit, Nicolas, Mines ParisTech

**Getting More Value of Your Production Data by Using Datamart  695**

Pedersen, Lars Petter, Statoil
Tran, Tram T.N., Schlumberger

**Global Mnemonics: The Dual Challenge of Supporting Decisions and Users  739**

Krupa, James, Kongsberg Oil & Gas Technologies
Beach, Jaynee, Kongsberg Oil & Gas Technologies
Stiffel, Zoltan, Kongsberg Oil & Gas Technologies
Bharath, Sharada, Kongsberg Oil & Gas Technologies

**How IO Leaders Can Use Technology to Enhance Risk Perception and Communication  228**
Identification of Reservoir Analogues in the Presence of Uncertainty  10

Perez-Valiente, M.L., Repsol
Martin Rodriguez, H., Repsol
Santos, C.N., IBM Research
Vieira, M.R., IBM Research
Embid, S.M., Repsol


Al-Jasmi, Ahmad K., Kuwait Oil Company
Choudhuri, Amit, Kuwait Oil Company
Goel, Harish, Kuwait Oil Company

Implementation of Complex Event Processing for Intelligent-Field  44

Al-Gosayir, Muhammad, Saudi Aramco
Al-Nammi, Moayad, Saudi Aramco
Awadh, Waleed, Saudi Aramco
Al-Bar, Abdullah, Saudi Aramco
Nasser, Nasser, Saudi Aramco

An Innovative Approach To Select Shallow Casing Points Remotely, Utilizing Real-Time WITSML Data  22

Al-Khudiri, Musab M, Saudi Aramco
Oteibi, Munahi D, Saudi Aramco
Gadri, Waleed I, Saudi Aramco
AlSanie, Faisal S, Saudi Aramco
Kashif, Muhammad, Petrolink International
Hickin, Gary, Petrolink International

Instituting Data Quality Into a Real-Time Decision Support Infrastructure  725

Tjostheim, Sigurd, Kongsberg Oil And Gas Technologies
Andresen, Per Arild, Kongsberg Oil and Gas Technologies

Integrated Operation Collaboration Technologies - Remaining Challenges and Opportunities  758
The Integration of Drilling Sensor Real-Time Data with Drilling Reporting Data at Saudi Aramco using WITSML  575

Khudiri, M., Saudi Aramco
James, J., Saudi Aramco
Amer, M., Saudi Aramco
Otaibi, B., Saudi Aramco
Nefai, M., Saudi Aramco
Curtis, J., Petrolink

Intelligent Energy: The Past, the Present, and the Future  765

Gilman, Helen, Wipro
Nordtvedt, Jan-Erik, Epsis

Intelligent Field Infrastructure: Distributed Intelligence and Retention Based System  131

Almadi, Soloman, Saudi Aramco

ISA99 Compliant Architecture for Realtime Drilling Data Capture and Remote Monitoring  322

Callander, M., Eigen
Hashim, M., Eigen Limited
Pickering, J., Digital Oilfield Solutions

Keep Calm and Carry On: How Dynamic Modelling and Optimisation Has Helped to Maintain Production Across the Azeri-Chirag-Guneshli Field  609

Calvert, Patrick, BP
Pashayev, Ahad, BP

M2M Field Communications: Keeping Workers and Key Systems Connected  378

Lewis, Kenneth, Chevron
Burt, Michael, Chevron

Managing Safety Overrides across your Upstream Business  802
A New WITSML/PRODML Data Object to Handle Completions and Well Services Over the Life of a Well  424

Aydelotte, R., ExxonMobil Technical Computing Company
Prather, F., Weatherford
Hugot, A., Paradigm
Lucas-Clements, D., Schlumberger
Mao, M., Energistics
Magsipok, J., Energistics
Marcotte, D., Consultant
Ormerod, L., Consultant

Optimal Well Work-over Scheduling: Application of Intelligent Well Control Optimisation Technology to Conventional Wells  54

Zarei, Faraj, Heriot-Watt University
Muradov, Khafiz, Heriot-Watt University
Davies, David, Heriot-Watt University

Overcoming Constraints with a Visualisation Environment; How such a Facility has Begun to Change the Way We Work  247

Scholtz, E., PetroSA
Wood, L., Schlumberger

Overcoming the Technology Barrier - Experience and lessons learned from deploying a chemical management system into multiple operating assets  794

Grange, Brett, BP
Sutton, Rob, BP
Richardson, Dave, BP

The Pace of Change: Can We Keep Up? A 35 Year Reflection and Projection on the Future of our Industry  788

Roberts, Steve, BP

Pattern Recognition and Data-Driven Analytics for Fast and Accurate Replication of Complex Numerical Reservoir Models at the Grid Block Level  781
Possibilities of Using Wired Drill Pipe Telemetry During Managed Pressure Drilling in Extended Reach Wells  
Siahaan, Hardy B., IRIS  
Bjorkevoll, Knut S., SINTEF Petroleum Research  
Gravdal, Jan E., IRIS

Production Data Management and Surveillance in Shale Operations  
Farid, Kemal, Merrick  
Bhatti, Kashif, Merrick  
Dassinger, Janet, Kodiak Oil and Gas  
Fudickar, Ben, Continental Resources  
Fuge, Clara, Merrick  
Gartrell, Kimberly, Merrick  
Kristensen, Eivind L., Statoil  
Kuzma, Heidi, BetaZi  
McLaughlin, Sharon, J-W Operating  
Nichols, Dana, Cimarex Energy

Real-time Diagnostic Analysis of Artificially Lifted Wells: A Smart Workflow Approach  
Agarwal, Amit Kumar, Halliburton  
Purwar, Suryansh, Halliburton  
Bravo, Cesar Enrique, Halliburton

Real-Time Modelling of Drilling Using Nitrogen Enriched Mud: A Case Study  
Cayeux, E., IRIS  
Kucs, R., OMV  
Gibson, N., Sekal

Real-Time Rate of Penetration Optimization Using the Shuffled Frog Leaping Algorithm (SFLA)  
Yi, Ping, University of Houston  
Kumar, Aniket, Halliburton  
Samuel, Robello, Halliburton
Real-Time Surveillance: How System Integration Allows One Company to
Minimize Deferment, Optimize Production, Maximize Test Unit Capacity,
and Track the Operating Envelopes of its Wells  418

Al-Balushi, M., Brunei Shell Petroleum
Konwar, A., Brunei Shell Petroleum
Abdullah, Z., Brunei Shell Petroleum
Sahu, S., Shell Projects and Technologies
Briers, J., Shell Projects and Technologies

Reducing Production Deferrals From Rotating Equipment using a
Standardised Approach across Multiple Assets  688

Hickey, Greg, BP
Gamblin, Bryan, BP
Hocking, Paul, BP
Grange, Brett, BP

Reducing Unplanned Loss Through Multifield Operations  29

Kjellsen, Kristine, Kongsberg Oil & Gas Technologies

Remote Operations for Drilling Services in Deepwater Environments: An
Industry Breakthrough  715

Menezes, Ana Leticia S., Schlumberger
Kolomiets, Alexander, Schlumberger
Toco, Leonardo, Schlumberger

Removing Risk and Cost from Remote Operations through Intelligent
Practices  352

Dickson, David, Honeywell Process Solutions

Reservoir Simulations in a High Performance Cloud Computing
Environment  613

Eldred, Morgan Edward, Maersk Oil
Orangi, Abdollah, Maersk Oil
Al-Emadi, Ahmed Abubakr, Maersk Oil
Ahmad, Asma, Maersk Oil
O'Reilly, Thomas James, Maersk Oil
Barghouti, Nedal, Maersk Oil
RESQML Version 2 Uses New Technologies to Improve Data Exchange for Subsurface Modeling Processes  812

Verney, Philippe, Geosiris
Gautreau, Christian, Total
Rainaud, Jean-Francois, IFPEN
Deny, Laurent, Paradigm
Magsipok, Joey, Energistics
Marcotte, Donna, Donna Marcotte Consulting

Samarang Integrated Operations (IO) - Begin To Deliver Value  386

B Wan Mamat, Dato' Wan Hassan, PETRONAS Carigali Sdn Bhd
Sayung, Colinus Lajim, PETRONAS Carigali Sdn Bhd
Ahmad, M Zul Izzi, PETRONAS Carigali Sdn Bhd
Hashimi, M Hafez Izzami, PETRONAS Carigali Sdn Bhd
Wong, Lee Hin, Schlumberger
Muhamed Salim, Muzahidin, Schlumberger
Mohd Som, Mohamad Kasim, Schlumberger
Kurniawan, Rudy, Schlumberger
Biniwale, Shripad, Schlumberger

Samarang Integrated Operations (IO): Well Performance Workflows Enable Continuous Well Status and Performance Monitoring  395

B Ahmad, M Zul Izzi, Petronas
Sayung, Colinus, PETRONAS
Wong, Lee Hin, Schlumberger
Muhamed Salim, Muzahidin Muhamed, Schlumberger
Mohd Som, Mohamad Kasim, Schlumberger
Kurniawan, Rudy, Schlumberger
Biniwale, Shripad, Schlumberger

A Shared Asset Model to Enable Navigation of Data in Continuously Changing Production Assets  437

McKenzie, W., Consultant
Segura, D., Consultant
Hollier, M., Atman Consulting
Crawford, M.L., ExxonMobil Technical Computing Company
Iype, T., Perfomix
Ormerod, L., Consultant

"Smart Decision Making Needs Automated Analysis" Making sense out of big data in real-time  621
Crockett, Brian, Wipro
Kurrey, Kshitiz, Wipro

**Smart Fields - 10 Years of Experience in Intelligent Energy and Collaboration** 568

Chai, Chon Fui, Shell
Van Den Berg, Frans, Shell
Engbers, Peter, Shell
Sondak, Glenn, Shell

**A Smart Flow for SmartWells: Reactive and Proactive Modes** 78

Carvajal, G.A., Halliburton
Boisvert, I., Halliburton
Knabe, S., Halliburton

**Social Networking Technologies: Can They Help Increase Production and Improve Operations?** 126

Morneau, Richard, Morneau Consulting
Brink, James, Chevron USA

**Standardized Reporting of Hydraulic Fracturing Treatments Supports Production Optimization and Meeting Regulatory Requirements** 163

White, Ky W., Baker Hughes
Lamborn, Raymond, Baker Hughes
Svensson, Inge, Baker Hughes
Sui, Xiaojing, Baker Hughes
Sanders, Steven, Baker Hughes
Thorsen, Arve, Baker Hughes
Parks, John, Baker Hughes
Hughes, Jeffrey A., Baker Hughes
Hamilton, Fiona, Peloton Computer Enterprises Ltd
DeSantis, Cory, Devon Energy Corporation
Fore, Keith, Devon Energy Corporation
Slack, Ronnie, Devon Energy Corporation

**Strategic Well Test Planning Using Random Forest** 140

Aulia, Akmal, Schlumberger
Rahman, Aulia, Schlumberger
Quijano Velasco, Juan Jose, Schlumberger
A Successful Approach to Developing Digital Oilfield Opportunities

Wiemers, Suzan, ExxonMobil Production Co.
Kocian, Eric, ExxonMobil Production Co.
Wright, Andrew, ExxonMobil Production Co.
Stewart, Steven, ExxonMobil Production Co.

Table That Table: Intuitive Dashboard Design for Oil and Gas

Stiffel, Zoltan, Kongsberg Oil and Gas Technologies
Beach, Jaynee, Kongsberg Oil and Gas Technologies
Arntzen, Jarl Frode, Kongsberg Oil and Gas Technologies

Trusted Operations--Integrating Operational Performance, Safety and Security Assurance

Jose, S.J., Baker Hughes
Arango, G., Baker Hughes
Flichy, P., Baker Hughes
Featherly, J., Baker Hughes

Use of Computational Fluid Dynamics Model for Evaluating Performance of High Pressure High Temperature Wells

Yuan, Kun, Baker Hughes Incorporated
Bello, Oladele, Baker Hughes Incorporated

Additional Paper:

Automated Modeling by Recognition

Amir Anvar, Chevron
Christopher Fisher, Chevron