



# Energy Independence for the Future

A A D E American Association of Drilling Engineers

**2015** NATIONAL TECHNICAL CONFERENCE AND EXHIBITION  
Henry B. Gonzalez Convention Center • San Antonio, Texas • April 8-9 2015



Drilling Fluids | Wellbore Stability | Cementing | Drilling Optimization | ERD & Horizontal Drilling | Real Time Technology | Downhole Vibrations | Completions | Emerging Technologies

# TECHNICAL PROGRAM OVERVIEW

## WEDNESDAY MORNING SESSION 9:30 am - 11:30 am

| ROOM | SESSION CHAIRS                    | CATEGORY                       | PAPER | TITLE  |
|------|-----------------------------------|--------------------------------|-------|--|
| 001A | Gary Cunningham<br>Brandon Renken | Drilling Fluids<br>& Cementing | 02    | Tackling Lost Circulation Challenges for Drilling the Depleted and Naturally Fractured Formations in Bakken<br><i>Ziheng Yao, John Shives, HESS Corporation; Hong (Max) Wang, Sharp-Rock Technologies, Inc.; Sharath Savari, Halliburton</i>   |
|      |                                   |                                | 03    | Study of Filtrate and Mud Cake Characterization in HPHT : Implications for Borehole Strengthening Effects<br><i>  Saeed Salehi, Aderemi Agboola and Stefanie Hussmann, University of Louisiana at Lafayette</i>  |
|      |                                   |                                | 04    | Gel Strength Measurement for the Drilling Fluid : the Reform of Gel Microstructure<br><i>  Allan Ye, Kevin Kleinguetl, and Sandeep Kulkarni, Halliburton</i>   |
|      |                                   |                                | 103   | Improved Fluid-Loss Control of Portland Cement Slurry Compositions Using Combinations of Modified Biopolymer and Modified Cyclodextrin as Environmentally Acceptable Fluid-Loss Additive<br><i>  Snehalata S. Agashe and Remitha A.K., Halliburton; B.R. Reddy, formerly Halliburton</i>   |
| 001B | Blaine Spies<br>Eddie Garcia      | Cementing                      | 05    | Microporous Spongy Carbon as Compressibility/Elasticity Enhancer<br><i>  Changjun Zhou and Richard J Girkant, Superior Graphite Co</i>   |
|      |                                   |                                | 06    | Nanoparticle Modified Smart Oil Well Cement for Monitoring Cementing Applications<br><i>  Cumaraswamy Vipulanandan and Ahmed Mohammed, CIGMAT- University of Houston</i>   |
|      |                                   |                                | 07    | Development of a New Geopolymer Based Cement : Laboratory Investigation<br><i>  Stanley Igbojekwe, Saeed Salehi and Mohammad J. Khattak, University of Louisiana at Lafayette</i>  |
|      |                                   |                                | 08    | Scab Liner Cementing - Successful Cement Placement Technique Applied for Subsalt Deepwater Wells in the Gulf of Mexico<br><i>  Mohammed Dooply, Jose Contreras, Puja Kumari, Schlumberger; and Maxim Voloschuck</i>  |
| 002  | Jasen Walshak<br>Mark Franki      | Drilling<br>Optimization       | 10    | Bit-Based Vibration Tool Records Downhole Vibrations & Improves Drilling Performance in Hard Carbonates<br><i>  John Rodriguez, Tim Webb and Paul Hale, Baker Hughes Incorporated; Steve Carter and Austin Kramr, BlackBrush Oil and Gas</i>   |
|      |                                   |                                | 12    | Flat Time Activities Form Catalyst for Performance Optimization<br><i>  Paul Hardman: The REACH Group</i>  |
|      |                                   |                                | 101   | Best Practices in the Optimization of Drilling Operations in Peru Offshore Through Improvement of Borehole Conditions and Hole-Cleaning Practices<br><i>  Adrian Zanga, Elixio Martins, Pacific Rubiales; Cristina Cavero, Felipe Gonzalez, Jose Palomino, Jose Vasquez, Marcelo Motta, Mauricio Peña, Rogelio Lopez, Victor Laguna, Schlumberger.</i> |
|      |                                   |                                | 104   | Pipe-Handling Integration in Land Drilling Operations - Safety Review, Operational Drivers and Field Performance Feedback<br><i>  Joel Heinen and Tom Yost, National Oilwell Varco; Mike Garvin, Patterson-UTI</i>   |

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# 2015

# NATIONAL TECHNICAL CONFERENCE AND EXHIBITION

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## WEDNESDAY AFTERNOON SESSION 2:00 pm - 4:00 pm

| ROOM | SESSION CHAIRS                  | CATEGORY                                | PAPER | TITLE   |
|------|---------------------------------|---|-------|---|
| 001A | Ronnie Rothe<br>Mojtaba Shahri  | Drilling Fluids                         | 13    | High Performance Brine Drilling Fluid Proves Cost Effective In Eagle Ford Shale   <i>Jeremy Compton and Chandler Janca, Oak Valley Operating; Harry Dearing, Scott Rotge, Janine Shipman and Casey Waneck, Newpark Drilling Fluids</i>  |
|      |                                 |   | 14    | Software for Analysis of Drilling Fluid Contamination   <i>Neil Trotter, John Trener, Brent Estes, Chevron Energy Technology Company; Ricardo Jardim, Rick Alford, Dale Shank, Newpark Drilling Fluids</i>  |
|      |                                 |   | 15    | Statistical Analysis of the Variation Inherent in the Measurement and Calculation of Drilling Fluid Properties<br><i>Anne Beckly, M-I SWACO, a Schlumberger company</i>   |
|      |                                 |   | 16    | Determining Association of Particles and Emulsion in Invert Emulsion Drilling Fluids : Experiments and Modeling<br>  <i>Sandeep D. Kulkarni and Dale E. Jamison, Halliburton</i>  |
| 001B | Robbie Foster<br>Dom Labruzzo   | Completions                             | 17    | Development of Novel Chemical Systems to Combat Corrosion Caused by Heavy, Saturated Brines<br>  <i>Nihal U. Obeyesekere, Jonathan J. Wylde, Thenuka M. Ariyaratna, Clariant Oil Services</i>   |
|      |                                 |   | 18    | Tailoring Properties of Stimuli Responsive Polymers in Downhole Applications<br>  <i>Sunita Kadam and Rajendra Kalgaonkar, Halliburton</i>  |
|      |                                 |   | 19    | Development of a New Class of Frac Flowback Aids to Prevent Condensate Banking   <i>Amir Mahmoudkhani, Jonathan J. Wylde, Anton Kaiser, Amanda Miller, Neda Blackford and Rashod Smith; Clariant Oil Services</i>   |
|      |                                 |   | 20    | Stopping External Casing Corrosion   <i>James McDonald, Terry Aben PE. and Douglas Mittlesteadt, Hempel Protective Coatings</i>   |
| 002  | Mark Mecke<br>Mike Daniel       | Horizontal Drilling                     | 09    | Organoclay Role On Drilling Fluid Stability And Effect On Formation Damage<br>  <i>Rezki Akkal, Ecole Nationale Polytechnique, Algiers/Algeria. Mohamed Khodja, Ahcene Kaouane and Malika Saber Khodja, Sonatrach/Technologies and Development Division, Boumerdès/Algeria</i>                            |
|      |                                 |   | 21    | Optimization of Stress Relief Groove Length   <i>Rakesh Singh, Ke Li, and Tony Collins, Schlumberger</i>  |
|      |                                 |   | 22    | Roller Cone Bit Wear Resistance in Abrasive, High Angle and Lateral Applications Addressed with Shirttail Protection Technology   <i>Karl Rose, Colin Hackett, Thomas Gallifet, Varel Oil and Gas Drill Bits</i>  |
|      |                                 |   | 24    | Next Generation Shale Drill Pipe to Revolutionize Drilling Efficiency in Shale Plays<br>  <i>Wendell Bassarath, Vallourec Drilling Products, SPE; Andrew Park, Peregrine Petroleum Partners, Ltd, SPE; Scott Granger, Vallourec Drilling Products, SPE; Chris Bayne, Vallourec Drilling Products, SPE</i> |
| 003  | Ryan Broglie<br>Charlie Tomblin | Downhole Vibrations / Software Modeling | 25    | Reducing Downhole Vibrations Through The Utilization of Kymera TM Hybrid Drill Bits   <i>Scott Williams, Jared Kronable, Apache Corporation; Steve Janek, Nina Loureiro, Derek Nelms, Baker Hughes Incorporated</i>   |
|      |                                 |   | 27    | Transient Vibration Analysis of the Bottomhole Assembly   <i>Nader Abedrabbo, Liam Lines and Jerry Webb, Weatherford</i>  |
|      |                                 |   | 28    | Integration of XFEM and CZM to Model 3D Multiple Stage Hydraulic Fracturing in Quasi-Brittle Shale Modeling Formations : Solution Dependent Propagation Direction   <i>Mahdi Haddad and Kamy Sepehrnoori, University of Texas at Austin</i>   |

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# TECHNICAL PROGRAM OVERVIEW

## THURSDAY MORNING SESSION 9:30 am - 11:30 am

| ROOM | SESSION CHAIRS                  | CATEGORY                 | PAPER | TITLE  |
|------|---------------------------------|--------------------------|-------|--|
| 001A | Chad Burkhardt<br>Robert Slocum | Real Time<br>Technology  | 01    | High-Performance, Seawater-Based Drilling Fluid for High-Temperature Wells<br>  <i>Kay A. Galindo, Weibin Zha, and Jay P. Deville, Halliburton</i>   |
|      |                                 |                          | 29    | The Metrics and Value of Real Time Data : Mitigating Hazards   <i>D.M. Pritchard, Successful Energy Practices Intl;</i><br>  <i>P. York, Weatherford; J. Roye, Digital Oilfield</i>  |
|      |                                 |                          | 30    | Rapid Detection of Salt Contamination in Bentonite Drilling Mud in Deep Oil Well Applications<br>  <i>Cumaraswamy Vipulanandan and Aram M.Raheem, CIGMAT-University of Houston</i>   |
|      |                                 |                          | 32    | Changing Your Disposal Model : Utilization of E & P Generated Recycled Solids<br>  <i>Richard L. Wynn, CEO, Deep River Group, Geologist</i>  |
| 001B | Steve Carter<br>Jared Durst     | Wellbore<br>Stability    | 33    | Real Time Monitoring of Piezoresistive Smart Cement to Verify Oil Well Cementing Operations Using Simulated Model Tests   <i>Cumaraswamy Vipulanandan, Praveen Ramanathan, Kausar Ali and Bahareh Basirat, CIGMAT-University of Houston</i>    |
|      |                                 |                          | 34    | Fracture-Based Wellbore Strengthening Design and Application : An Analytical Approach<br>  <i>Mojtaba P. Shahri, Reza Safari and Uno Mutlu, Weatherford; Reza Majidi, BP</i>   |
|      |                                 |                          | 35    | Pump-in And Flow-back Tests For Determination of Fracture Parameters And In-Situ Stresses   <i>Yongcun Feng, The University of Texas at Austin; John F. Jones, Marathon Oil Company; K. E. Gray, The University of Texas at Austin</i>         |
|      |                                 |                          | 37    | Statistical Time Estimates for Deepwater Completions in the Gulf of Mexico : Integration of Neural Networking and Distribution Modeling   <i>Paul Robinson, Stone Energy; Saeed Salehi, University of Louisiana at Lafayette</i>               |
| 002  | Steve Bruington<br>Greg Rivera  | Emerging<br>Technologies | 39    | PDC Bits Equipped With Rolling Cutters Improve ROP by 34% and Increase Footage by 11% in Texas Panhandle Granite Wash Laterals   <i>Derek Lebsack, Sabine Oil &amp; Gas, Preston Wolfram, Armando Leal, Smith Bits, a Schlumberger Company</i> |
|      |                                 |                          | 40    | OH - Hot Stuff!!! HPHT Wellbore Design With A Solid Expandable!   <i>Neven Ruzic, Jerry Fritsch, Enventure Global Technology, Inc.</i>   |
|      |                                 |                          | 105   | 2004-2014 : A Decade of Drill Pipe Grades and Industry Standards Evolutions to Address Increasing H2S Challenges   <i>Vincent Flores, Vallourec</i>  |
|      |                                 |                          | 38    | Hydraulic Fracturing Fluid Modified With Nanosilica Proppant and Salt Water For Clay Shale Rocks<br>  <i>Cumaraswamy Vipulanandan and Ahmed Mohammed CIGMAT- University of Houston</i>   |

## Specialty Sponsors



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Wednesday Breakfast Sponsor



Thursday Lunch Sponsor



Thursday Morning Break Sponsor



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The AADE would like to thank those volunteers who gave extra time for the students including evaluating abstracts, coordinating registration and reservations, judging the student posters, participating in the "Interaction with Industry Professionals" and other student events. We especially thank our Student Sponsors who generously support this endeavor and make it possible to give scholarships.

# STUDENT POSTERS



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## Wednesday AM Student Presentations | 9:30-11:30 AM

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A Simple Chart Approach to Estimate Hole Cleaning for Directional Drilling  
*Feifei Zhang | University of Tulsa*

Benefits of Remote Operations for Drilling  
*Garrett Hadley | West Virginia University*

Enhancing Drilling Performance Through Vibration Modeling and Post Well Analysis  
*Mohammed Al Dushaishi - Missouri University of Science and Technology*

Using Economics Analysis to Determine Optimal Number of Wells in Drilling Operation  
*Ali Al Isawi | Louisiana State University*

## Thursday AM Student Presentations | 9:30-11:30 AM

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Modeling of Dynamic Forces and Transient Surge/Swab Pressures for Optimization of Tripping Operations  
*Zahra Zamanipou | University of Tulsa*

Investigation of Well Control Procedures for Casing Drilling in Horizontal Wells  
*Tawfik Elshehabi | West Virginia University*

Finding Fluids for Ultra-cold Antarctic Drilling Operations  
*Benton Ellis | Colorado School of Mines*

Experimental Investigation of Particle Bridging and Wellbore Strengthening Effects in Casing While Drilling (CwD) Application  
*Chinedum Peter Ezeakacha | University of Louisiana at Lafayette*



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Posters will be presented in the Exhibit area.

### Student Presentations:

Held Wednesday and Thursday  
from 09:30 am to 11:30 am in Room 003

### Student Organizers:

Austin Kramr and Steve Carter | *Blackbrush Oil & Gas*

# SPEAKERS



*Wednesday  
Morning  
Speaker*

**Robert L.G. Watson**

*President and CEO, Abraxas*

Mr. Watson has served as Chairman of the Board, President, Chief Executive Officer and a director of Abraxas since founding the Company in 1977. Prior to forming Abraxas, Mr. Watson was associated with the independent reservoir engineering firm of DeGolyer and MacNaughton and Tesoro Petroleum Corporation in various engineering, operations, administrative and management positions, including Assistant to the President of Tesoro Exploration and Production Company. Mr. Watson received a Bachelor of Science degree in Mechanical Engineering from Southern Methodist University in 1972 and a Master of Business Administration degree from the University of Texas at San Antonio in 1974.



*Wednesday  
Luncheon  
Keynote Speaker*

**Dr. Stephen A. Holditch**

*Distinguished Research Professor*

Dr. Stephen A. Holditch served full-time on the faculty at Texas A&M University from 1976 to 2013. He taught graduate and undergraduate courses and supervised research involving unconventional gas reservoirs and well stimulation, including hydraulic fracturing. Dr. Holditch currently works part-time at Texas A&M University as a TEES Distinguished Research Professor. He was the Director of the Texas A&M Energy Institute from 2011 to 2013 and was the Head of the Harold Vance Department of Petroleum Engineering from 2004 to 2012.

Dr. Holditch started S.A. Holditch & Associates, Inc., a full service petroleum engineering and geologic consulting company in 1977. After the company was acquired by Schlumberger Ltd. in 1997, Dr. Holditch became an advisor to Schlumberger executives until 2004. He also was the President of the Society of Petroleum Engineers and on the board of directors. He was elected to the National Academy of Engineering, the Petroleum Engineering Academy of Distinguished Graduates, President of the Academy of Medicine, Engineering and Science of Texas, and as an SPE and AIME Honorary Member. Dr. Holditch was honored as an Outstanding Graduate of the College of Engineering at Texas A&M University and as a Distinguished Alumnus of Texas A&M University. He currently serves on Board of Directors of Gastar Exploration Ltd.



*Thursday  
Morning  
Speaker*

**Stacy Locke**

*President and CEO, Pioneer Energy*

Wm. Stacy Locke has served as one of our directors as well as President of the Company since May 1995, when he joined Pioneer. In December 2003, Mr. Locke was appointed Chief Executive Officer. In addition to his role as President, He has also served as our Chief Financial Officer and Chief Operating Officer. Prior to joining Pioneer, Mr. Locke was in investment banking with Arneson, Kercheville, Ehrenberg & Associates from 1993 to 1995 and Chemical Banking Corporation from 1988 to 1992. Mr. Locke worked for Tesoro Petroleum Corporation, Valero Energy Corporation and Huffco Petroleum Corporation as a geologist from 1979 to 1986. Mr. Locke received a Bachelor's Degree in geology from the University of California Santa Barbara and a Master of Business Administration Degree from Southern Methodist University. Mr. Locke has obtained a certificate as a Board Governance Fellow from the National Association of Corporate Directors.

Mr. Locke's 19 years of experience at Pioneer and familiarity with all aspects of Pioneer's business and operations, combined with his understanding of the oil and gas industry, geology and investment banking makes him uniquely qualified to advise the board of directors and to lead Pioneer as Chief Executive Officer. In addition to serving on Pioneer's board of directors, Mr. Locke also serves as a board member of privately-held Omni Water Solutions, Inc.



*Thursday  
Luncheon  
Speaker*

**Dr. Paul Bommer**

*UT Petroleum Engineering Professor*

Paul M. Bommer is a Senior Lecturer in Petroleum Engineering at the University of Texas at Austin and holder of the Chevron Lectureship in Petroleum Engineering. He received his Bachelor's (1976), Master's (1977), and Doctoral (1979) degrees in Petroleum Engineering, all from the University of Texas at Austin.

He spent over twenty-five years in industry as an oil and gas operator and consultant in Texas and other parts of the United States. He and his brother Peter (University of Texas, BSPGE, 1978) are co-owners of Bommer Engineering Company.

He has served on several National Academy of Engineering Committees, including the committee investigating the Deep Water Horizon Disaster. His research interests include sucker rod failure, down hole separation, and oilfield cement life. He lectures in drilling, production, artificial lift, and oil and gas production facilities. He received the 2014 Regents Outstanding Teaching Award from the University of Texas system.

The AADE sincerely thanks all the companies who have contributed to the success of this conference by dedicating resources and allowing their personnel time for planning, organizing, and the realization of this conference.

## EXHIBITORS



**2015 TECHNICAL  
CONFERENCE  
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Sharon Sedwick, *Gate Guard Services, LP*  
Jeff Marshall, *Abraxas Petroleum*

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Steve Bruington, *Bruington Engineering*  
Ronnie Rothe, *Zachry Exploration*

**STEERING COMMITTEE**

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Robbie Foster, *Halliburton*  
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Mark Franki, *Metano Energy*

**STUDENT PAPERS**

Austin Kramr, *Blackbrush Oil & Gas*  
Steve Carter, *Blackbrush Oil & Gas*

**EXHIBITS**

Lisa Mainz, *Acock Engineering*  
Jake Davis, *DeLaune Drilling*

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Jan Meuth, *You Name It Specialties*

**SPEAKERS**

Jason May, *Ultrerra*

**2015**

**NATIONAL TECHNICAL CONFERENCE AND EXHIBITION**  
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**TECHNICAL PROGRAM SCHEDULE OVERVIEW**

**Wednesday | April 8, 2015**

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|          |   |          |   |
|----------|---|----------|---|
| 7:00 am  | – | 8:30 am  | Breakfast - <i>Sponsored by Blackbrush Oil &amp; Gas - Banquet Room</i>   |
| 8:15 am  | – | 8:30 am  | Opening: Jeff Marshall and Sharon Sedwick, <i>Conference Chairs</i><br>Geree Wald Morton, <i>AADE National President</i>                        |
| 8:30 am  | – | 9:15 am  | Breakfast Speaker: Robert L.G. Watson, <i>President/CEO, Abraxas Petroleum</i>  |
| 9:15 am  | – | 9:30 am  | Morning Break - <i>Sponsored by DeLaune Drilling</i>  |
| 9:30 am  | – | 11:30 am | Morning Technical Paper Sessions <i>(See page 1)</i>  |
| 9:30 am  | – | 11:30 am | Student Paper Presentations <i>(See page 4)</i>   |
| 9:30 am  | – | 5:00 pm  | Student Posters - <i>Please visit the Exhibit Hall</i>  |
| 11:30 am | – | 1:30 pm  | Lunch Break - <i>Lunch sponsored by Marathon Oil and Gas</i>  |
| 12:00 pm | – | 1:30 pm  | Luncheon Keynote Speaker: Dr. Stephen A. Holditch, <i>Distinguished Research Professor</i>  |
| 2:00 pm  | – | 4:00 pm  | Afternoon Technical Paper Sessions <i>(See page 2)</i>  |
| 4:00 pm  | – | 4:30 pm  | Afternoon Break - <i>Sponsored by Premier Directional Drilling</i>  |
| 4:30 pm  | – | 6:00 pm  | Cocktail Reception - <i>Sponsored by Acock Engineering and Gate Guard Services, LP</i><br><i>Grotto Area (Convention Center) on River Level</i> |

**Thursday | April 9, 2015**

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|          |   |          |  |
|----------|---|----------|--|
| 7:00 am  | – | 8:30 am  | Breakfast - <i>Banquet Room</i>  |
| 8:30 am  | – | 9:15 am  | Morning Speaker: Stacy Locke, <i>President/Director/CEO, Pioneer Energy</i>                    |
| 9:15 am  | – | 9:30 am  | Morning Break - <i>Sponsored by Scout Downhole</i>   |
| 9:30 am  | – | 11:30 am | Morning Technical Paper Sessions <i>(See page 3)</i>   |
| 9:30 am  | – | 11:30 am | Student Paper Presentations <i>(See page 4)</i>  |
| 9:30 am  | – | 11:30 am | Student Posters - <i>Please visit the Exhibit Hall</i>   |
| 11:30 am | – | 1:30 pm  | Lunch Break - <i>Lunch sponsored by Mike Jordan Pipe Company</i>                               |
| 12:00 pm | – | 1:30 pm  | Luncheon Speaker: Dr. Paul Bommer, <i>Professor Petroleum Engineering, University of Texas</i> |
|          |   |          | AADE Awards Presentation during Luncheon   |
|          |   |          | - Sandy Purdy Gold Medal for Best University Student Poster                                    |
|          |   |          | - Benny Manuel AADE Service Award  |
|          |   |          | - Best Exhibitor Award   |

**Registration booth opens at 7:00 am each morning.**

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