

# **SOCIETY OF PETROLEUM ENGINEERS**

## **SPE Eastern Regional Meeting 2005**

Held September 14 – 16, 2005  
Morgantown, West Virginia, USA

**Printed from CD-ROM with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

© 2005 SPE. All rights reserved.

# Copyright and Use Restrictions

## Copyright 2005, Society of Petroleum Engineers

Material included in this *Proceedings* is copyright protected. Electronic reproduction, distribution, or storage of any part of an SPE-copyrighted paper for commercial purposes without the written consent of the Society of Petroleum Engineers is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. For photocopying beyond the above permissions, libraries and other users dealing with the Copyright Clearance Center (CCC) Transactional Reporting Service must pay a base fee of \$3 per copyrighted article plus \$0.25 per page to CCC, 222 Rosewood Drive, Danvers, Massachusetts 01923 U.S.A. For other permissions, contact Librarian, SPE, 222 Palisades Creek Drive, Richardson, Texas 75080-2040 U.S.A.

Use of SPE member or author contact information included on this CD for commercial purposes or reproduction of that information in whole or in part, in any form or medium, is strictly prohibited and subject to legal action. Contact SPE to inquire about rental of mailing lists.

This CD of the 2005 SPE Eastern Regional Meeting was produced by SPE. This product contains Adobe® Reader® Software. Permission to print and distribute content from this product must be obtained from SPE. Duplication of replication products is absolutely prohibited without written permission from SPE and Adobe. Adobe and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Material on the CD was reproduced from original papers and/or electronic files provided by the authors. Some discrepancies are inevitable. Please advise SPE of errors so corrections can be made to the electronic versions of the article. Send corrections by e-mail to [pdf@spe.org](mailto:pdf@spe.org) or mail to the SPE Americas Office, attention Technical Paper Administrator.

### **USE OF MATERIALS LIMITATIONS**

All materials contained in these *Proceedings* are copyrighted to the Society of Petroleum Engineers. Papers on this CD are for your personal non-commercial use and may not be copied, distributed electronically or in print, or reproduced in whole or in part, in any form without the expressed written permission of the Society of Petroleum Engineers.

# 2005 SPE Eastern Regional Meeting

14–16 September 2005 • Morgantown, West Virginia, U.S.A.

## TABLE OF CONTENTS

- 1** SPE/IADC 92647 [Urban Operations: Drilling and Completing a Gas Well on a Downtown University Campus](#)  
*D.W. Spady, Columbia Natural Resources LLC, and J.M. Poole, Union Drilling Inc.*
- 13** SPE 96869 [Fracture Skin: A Primary Cause of Stimulation Ineffectiveness in Gas Wells](#)  
*D.D. Cramer, BJ Services*
- 33** SPE 96917 [Evaluating Barnett Shale Production Performance Using an Integrated Approach](#)  
*J.H. Frantz Jr., J.R. Williamson, W.K. Sawyer, D. Johnston, G. Waters, L.P. Moore, R.J. MacDonald, M. Percy, S.V. Ganpule, and K.S. March, Schlumberger*
- 51** SPE 97365 [Case Histories: Post-Frac Fluid Recovery Improvements of Appalachian Basin Gas Reservoirs](#)  
*J. Paktinat, J. Pinkhouse, W.P. Stoner, C. Williams, and G.A. Carder, Universal Well Services, and G.S. Penny, CESI Chemicals*
- 61** SPE 97627 [An Inflow Performance Relationship for Horizontal Gas Wells](#)  
*N. Akhimiona, Chevron North America E&P Co., and M.L. Wiggins, U. of Oklahoma*
- 71** SPE 97720 [Case History: First Commercial Illinois Coalbed Methane Project Commences Through a Structured Resource Evaluation Plan](#)  
*G.D. Rodvelt, Halliburton, and R.G. Oestreich, BPI Industries Inc.*
- 89** SPE 97807 [Development of High-Resolution Axial Flux Leakage Casing-Inspection Tools](#)  
*D.C. Vogtsberger, Baker Atlas, and B. Girrell, J. Miller, and D. Spencer, Microline Technology Corp.*
- 97** SPE 97829 [A Method for Reservoir Management of Waterfloods](#)  
*K. McLachlan and I. Ershaghi, U. of Southern California*
- 104** SPE 97847 [Case Study of Ultralightweight Slurry Design Providing the Required Properties for Zonal Isolation in Devonian and Mississippian Central Appalachian Reservoirs](#)  
*D. Kulakofsky, S. Snyder, and R. Smith, Halliburton, and K. Mork and D. Coors, Energy Corp. of America*

- 111** SPE 97899 [Field Trials for Sonic Treatment of Natural Gas Storage Wells and Stripper Oil Wells for Well Remediation and Increased Productivity](#)  
*P.D. Paulsen, Furness-Newburge Inc.; D.O. Johnson and D.E. Edgar, TechSavants Inc.; and J.C. Furness, Furness-Newburge Inc.*
- 118** SPE 97957 [Type Curves for Production Prediction and Evaluation of Coalbed Methane Reservoirs](#)  
*K. Aminian, S. Ameri, A.B. Bhavsar, and S. Lakshminarayanan, West Virginia U.*
- 128** SPE 97962 [Successful Application of Viscoelastic Fluid Technology To Stimulate a Gas Storage Reservoir](#)  
*L. Fry and N. Stegent, Halliburton, and J. Amos, J. Martin, R. Silber, and U. Young, Columbia Gas Transmission*
- 134** SPE 97963 [Matrix Shrinkage and Swelling Effects on Economics of Enhanced Coalbed Methane Production and CO<sub>2</sub> Sequestration in Coal](#)  
*F.B. Gorucu, Natl. Energy Technology Laboratory, U.S. DOE, and Pennsylvania State U.; S.A. Jikich, Natl. Energy Technology Laboratory/Parsons; G.S. Bromhal, Natl. Energy Technology Laboratory/ U.S. DOE; W.N. Sams, Natl. Energy Technology Laboratory/EG&G; T. Ertekin, Pennsylvania State U.; and D.H. Smith, Natl. Energy Technology Laboratory, U.S. DOE*
- 149** SPE 97967 [Testing Cement Static Tensile Behavior Under Downhole Conditions](#)  
*R.L. Dillenbeck, V. GoBoncan, and M.J. Rogers, BJ Services Co.*
- 161** SPE 97972 [Post-Fracture Performance Diagnostics for Gas Wells With Finite-Conductivity Vertical Fractures](#)  
*J.A. Rushing and R.B. Sullivan, Anadarko Petroleum Corp., and T.A. Blasingame, Texas A&M U.*
- 173** SPE 97978 [Temperature Distribution in Natural Gas/Condensate Pipelines Using a Hydrodynamic Model](#)  
*A.A. Sadegh and M.A. Adewumi, Pennsylvania State U.*
- 183** SPE 97979 [PDA Program for Small Producing Companies](#)  
*J.R. Cook, Cook Contracting Services LLC*
- 189** SPE 97980 [Near-Wellbore Damage Remediation in Stripper Wells](#)  
*A. Gitman and R. Watson, Pennsylvania State U.*
- 193** SPE 97981 [Long-Term Gas Storage Deliverability Improvement From Fracturing and Refracturing Treatments Using a Proppant Surface Modification Agent](#)  
*J. Guoyes and G.A. Kozera, Halliburton, and J.S. Shaw and J. McCallister, Columbia Gas Transmission Corp.*
- 201** SPE 97988 [New Applications of Well Log Parameters in Coalbed Methane \(CBM\) Reservoir Evaluation at the Drunkards Wash Unit, Uinta Basin, Utah](#)  
*Y. Yang, Colorado School of Mines; T.A. Cloud, ConocoPhillips Co.; and C.W. Van Kirk, Colorado School of Mines*

- 210** SPE 97993 [Geology and Geometry: A Review of Factors Affecting the Effectiveness of Hydraulic Fractures](#)  
*R.B. Willis and J. Fontaine, Universal Well Services Inc.; L. Paugh, Great Lakes Energy Partners LLC; and L.Griffin, Pinnacle Technologies*
- 218** SPE 97994 [Application of Microseismic Imaging Technology in Appalachian Basin Upper Devonian Stimulation](#)  
*J. Fontaine and R. Willis, Universal Well Services; L. Griffin, Pinnacle Technologies; and L. Paugh and J. Watson, Great Lakes Energy Partners LLC*
- 228** SPE 97998 [The Effect of Using a Lightweight Proppant in Treatment of a Low-Permeability, Dry Gas Reservoir: A Case Study](#)  
*D. Posey and B. Strickland, BJ Services*
- 234** SPE 98003 [Computer-Based Engineering Evaluation on Underground Waterflooding Fields in the Appalachian Region](#)  
*J. Zaghoul, M. Farías, T. Ertekin, and R. Watson, Pennsylvania State U.*
- 244** SPE 98006 [Ultralightweight Proppants: A Field Study in the Big Sandy Field of Eastern Kentucky](#)  
*D.E. Kendrick, BJ Services Co., and M.P. Puskar and S.T. Schlotterbeck, Equitable Production*
- 251** SPE 98007 [Stripper Well Consortium Offers Opportunities and Technologies to the Stripper Well Industry](#)  
*G.L. Covatch, U.S. DOE, and J. Morrison, Pennsylvania State U.*
- 255** SPE 98010 [New Method for Production Data Analysis To Identify New Opportunities in Mature Fields: Methodology and Application](#)  
*S.D. Mohaghegh, R. Gaskari, and J. Jalali, West Virginia U.*
- 277** SPE 98011 [Development of a Series of National Coalbed Methane Databases](#)  
*S.D. Mohaghegh, U.N. Nunsavathu, J. Jalal, M. Tovar, N. Maricic, R. Gaskari, and S. Ameri, West Virginia U.*
- 300** SPE 98012 [Reservoir Characterization Using Intelligent Seismic Inversion](#)  
*E. Artun, S.D. Mohaghegh, J. Toro, and T. Wilson, West Virginia U., and A. Sanchez, Anadarko Petroleum Corp.*
- 318** SPE 98013 [Developing Synthetic Well Logs for the Upper Devonian Units in Southern Pennsylvania](#)  
*L.F. Rolon, Chevron; S.D. Mohaghegh, S. Ameri, and R. Gaskari, West Virginia U.; and B.A. McDaniel, Dominion E&P Inc.*
- 328** SPE 98014 [Projections of Marginal Wells and Their Contributions to Oil and Natural Gas Supplies](#)  
*J.R. Duda and Gary Covatch, U.S. Dept. of Energy, and D. Remson and S. Wang, Northrop Grumman Mission*

- 339** SPE 98017 [Well-Completion Strategies for Methane Gas Production From Coal Seams Using Simulation](#)  
*H.I. Bilgesu and M.W. Ali, West Virginia U.*
- 345** SPE 98019 [Analysis of Non-API Industrial Sands for Use in Hydraulic Fracturing](#)  
*J.C. Gottschling, BJ Services Co.*
- 351** SPE 98025 [Review of Current Fracture Stimulation Techniques for Best Economics in Multilayer, Lower-Permeability Reservoirs](#)  
*B.W. McDaniel, Halliburton*
- 370** SPE 98035 [Determination of Effective Drainage Area for Tight Gas Wells](#)  
*S.A. Cox, R.P. Sutton, and R.P. Stoltz, Marathon Oil Co., and T. Knobloch, James Engineering Inc.*
- 379** SPE 98042 [A Production-Based Method for Direct Estimation of Gas-in-Place and Reserves](#)  
*T.A. Blasingame, Texas A&M U., and J.A. Rushing, Anadarko Petroleum Corp.*
- 396** SPE 98061 [Strategies for Unraveling the Mystery of Low-Resistivity Pay Zones](#)  
*R.R. Myers, BJ Services Co.; G. Batcheller, GWB Consultants; and S. Phipps, Allegheny Wireline Services*
- 415** SPE 98068 [Application of Viscoelastic Fracturing Fluids in Appalachian Basin Reservoirs](#)  
*C.M. Boyer II, S. Glenn, and B. Claypool, Schlumberger; S.D. Weida, Samson; and C.D. Crain, Columbia Natural Resources*
- 420** SPE 98069 [Challenging the Traditional Coalbed Methane Exploration and Evaluation Model](#)  
*S.D. Weida and S.W. Lambert, and C.M. Boyer II, Schlumberger*