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Online Bimonthly RPSEA Member Newsletter

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## President's Perspective

While we have lots going on at RPSEA, I'd like to highlight just a few events. First is the selection of our 2008 Unconventional Resources and Small Producer projects. The quantity and quality of the proposals made for a grand challenge for our Program Advisory Committee (PAC) and Research Advisory Group (RAG) selection committees. These 15 highly selective projects, chosen from a total of 92 proposals, exemplify the collective efforts of everyone involved in this innovative public/private partnership. And, with both rounds of our 2008 ultra-deepwater proposals now complete and that selection process well underway, we'll have more selections to announce soon.

Second is the slate of activities we have coming up including OTC 2009 and Clean Tech 2009. Our "Invited Organization" status at OTC on May 6 is something we're especially proud of. And, our three exciting panels at Clean Tech 2009 on May 5 will provide RPSEA and member organizations the opportunity to have a frank discussion on the important role of natural gas in our nation's energy portfolio. On this subject, one of the opportunities I've been able to participate in as an advisory board member is a comprehensive policy study on natural gas at Massachusetts Institute of Technology (MIT). This two-year, multi-variate study, which started in the fall of 2008, will provide federal policymakers with information on natural gas similar to the previous widely acclaimed MIT studies on nuclear power and coal.

One of the enlightening events I've attended recently was Hart's Developing Unconventional Gas (DUG) Conference in Fort Worth, where I was able to give a presentation to almost 700 attendees on the state of the RPSEA research and development program. The magnitude and results of the development efforts presented by multiple operators in gas shales across the country is truly extraordinary and will require our continued collective process improvement to drive down cost, increase efficiency and minimize footprint.

Finally, we just completed our first full-scale review of the progress of our 2007 Unconventional Resources projects. Each principal investigator (PI) gave an overview of their progress and project status to all the other PIs and industry advisors from our PAC – a total of about 50 folks for two full days. The results were impressive, and the dialogue was good and frank to ensure these projects stay on track and deliver the necessary outcomes. Our regular quarterly UDW Technical Advisory Committee (TAC) meetings perform a similar role, and I encourage you to attend on topics of interest to you. In conjunction with all these continuous project management activities, RPSEA recently met with our partners at NETL for the first full benefits analysis review of our 2007 portfolio to ensure our public funding is producing results.

Despite the continuing challenges the industry faces, we are pushing ahead with your strong support in advancing technology to maximize the value of our abundant domestic resources.



Mike Ming  
President

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## RPSEA Selected as the Invited Organization at OTC.09

RPSEA's role at the 40th Offshore Technology Conference (OTC.09) is one of honor and gratitude. OTC.09 selected RPSEA as an Invited Organization, a recognition based on outstanding contributions to the offshore industry. As the Invited Organization, RPSEA will host a Technical Session on Wednesday, May 6, will exhibit on the second floor of Reliant Center and will receive an honorarium during OTC.09.

RPSEA's Technical Session titled "Invited Organization: Research Partnership to Secure Energy for America (RPSEA)" is Wednesday, May 6, at 2 p.m. and includes a diverse oil and gas expert panel that will share insight into RPSEA's role including specific awards and results. The guest panel consist of:

- GE Oil & Gas CEO and President Claudi Santiago
- U.S. Department of Energy Acting Deputy Assistant Secretary for Oil and Natural Gas Guido DeHoratiis
- RPSEA President C. Michael Ming
- Letton-Hall Group Partner Dr. Jim Hall
- Devon Energy Corporation Senior Vice President, Exploration William A. Van Wie
- GE Oil & Gas General Manager - Advanced Technology Mohamed A. Ali
- Rice University Professor of Mechanical Engineering and Material Science Dr. Enrique V. Barrera
- OTC Board Member and RPSEA Ultra-Deepwater Technology Commercialization Manager Art Schroeder

Following RPSEA's Technical Session, a RPSEA Member Reception for all RPSEA members and those interested in becoming RPSEA members will take place from 5:30-7 p.m. at Cafe on the Park on the second floor of Reliant Center. You must RSVP for the reception by [registering](#) on the RPSEA website.

Please come by and visit our booth, #S12-L2, on the second floor of Reliant Center as we exhibit with organizations whose ultra-deepwater projects were selected for RPSEA funding. The following organizations will exhibit with RPSEA in the booth: Monday morning is Lincoln Composites; Monday afternoon is Houston Advanced Research Center; Tuesday morning is Houston Offshore Engineering; Tuesday afternoon is Letton-Hall Group; Wednesday morning is FloaTEC; Wednesday afternoon is NanoRidge Materials; and, Thursday morning is Knowledge Reservoir.

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## Join RPSEA at the Clean Technology Conference & Expo 2009

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Despite aggressive objectives to develop and commercialize alternative and renewable energy sources, traditional energy will continue to play an important role in our nation's energy portfolio for decades to come while these new sources ramp up. Domestic natural gas will lead this traditional energy role with its cleanliness, efficiency, low carbon intensity, diversity and security as the premium fossil fuel. With the advent of new and increasing unconventional natural gas resources and production, the dogma on supply and availability concerns is rapidly being dispelled. Join RPSEA and many of its member organizations as they present three highly informative panels on natural gas as a bridge, an enabler and a destination at the Clean Technology Conference & Expo 2009.

RPSEA is coexhibiting with the Gas Technology Institute at booth #1214. Please come by and visit us.

RPSEA President Mike Ming and GTI's President and CEO David Carroll are cochairing the Traditional Energy Track Session Natural Gas: a Bridge, Enabler and a Destination on Tuesday, May 5, at 11 a.m., Room 320CF. Please see below the experts on natural gas that will be speaking in the session.

11 a.m. - 12:15 p.m.

Natural Gas: A Bridge, Enabler and A Destination - Vision

Session Chair: David Carroll, Gas Technology Institute

- Broad Energy Framework - Don Paul, USC Energy Institute
- Natural Gas Resources - Vello Kuuskra, Advanced Resources International, Inc.
- Natural Gas Technology & Supply - C. Michael Ming, RPSEA

1:30 - 3:30 p.m.

Natural Gas: A Bridge, Enabler and A Destination - Implementation

Session Chair: C. Michael Ming, RPSEA

- Understanding and Mitigating Natural Gas Price Volatility - Dr. Michelle Michot Foss, Bureau of Economic Geology
- Natural Gas Development & Environmental Trade-Offs - Dr. Rich Haut, Houston Advanced Research Center
- Consumer & Industrial Applications - Donna Peeples, AGL Resources
- Wellhead to Burner Tip Technologies & Systems - David Carroll, Gas Technology Institute

3:30 - 5:30 p.m.

Natural Gas: A Bridge, Enabler and A Destination - Policy & Market

Session Chair: C. Michael Ming, RPSEA

- Capital Markets & Traditional Energies - Dirk McDermott, Altira Group LLC
- Natural Gas Markets - Rod Lowman, American Natural Gas Alliance (ANGA)
- Federal Energy Policy - Melanie Kenderdine, Massachusetts Institute of Technology Energy Initiative
- Natural Gas Vehicles - Rich Kolodziej, Natural Gas Vehicles of America

You may learn more about the event by visiting [www.cleantech2009.com](http://www.cleantech2009.com).

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## RPSEA Sponsors Energy Award at the 2009 Rice University Business Plan Competition

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The Rice Business Plan Competition is the world's largest and richest graduate, intercollegiate business plan competition. Forty-two finalist teams from around the world were selected to compete at Rice University in Houston for more than \$800,000 in funding and prizes in front of more than 170 investors, venture capitalists, private equity, CEO entrepreneurs and other judges.

RPSEA is proud, once again, to sponsor one of many awards for the competition, the Energy Award, that amounts to \$2,500 and is given to one of the teams competing. The winner of this year's Energy Award was Skillman DownStroke, LLC of Southern Methodist University for their new, patented technology that offers a completely unique production solution and represents a giant leap forward in system efficiency and performance. The Skillman DownStroke rod pump uses gravity and displacement to produce fluid on the downstroke and never lifts. This upside-down approach delivers significant benefits and new application choices to producers worldwide. Features and benefits of the Skillman DownStroke Pump include 100% efficiency; produces more fluid; consumes less energy; extends run times; reduces rod failures; and, performs in problem wells.



In presenting the award at the banquet, RPSEA Ultra-Deepwater Technology Commercialization Manager Art Schroeder said, "Cheap, plentiful and reliable energy helped make the USA an economic powerhouse. According to the World Bank, with over 1 billion people earning the equivalent of less than \$1/day, it will be a challenge to supply them with light, heat and mobility. While efficiencies, breeze and sunshine and other sources will be an important part of the solution, RPSEA believes oil and particularly natural gas will also be critically important. RPSEA is pleased to present the "Best Energy Award" to Skillman DownStroke in recognition of their commitment to ingenuity, innovation and entrepreneurship in the oil and natural industry. "

Pictured left to right are RPSEA Director of Corporate Affairs Steve Beach, RPSEA Communications Danette Mozisek, Skillman COO Mukesh Singh, Skillman CFO Kevin Shtofman, Art Schroeder and RPSEA Contracts Director Wiley Wells.

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## Welcome New Members

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RPSEA's membership has grown tremendously in the past year with more than 140 members. Membership is approved through a two-step process. Once prospects are approved internally through RPSEA, the organization must be approved by the Secretary of Energy, which takes place quarterly with the Department of Energy.

Thirteen new organizations were "officially" approved for RPSEA membership at the end of 2008. This list includes all organizations who applied for membership during the fourth quarter of 2008. The organizations include:

Capstone Turbine Corporation, Chatsworth, Calif.  
Deepwater Structures, Inc., Houston  
Drilling & Production Company, Torrance, Calif.  
ExxonMobil, Irving, Texas  
Gunnison Energy Corporation, Denver  
HW Process Technologies, Inc., Lakewood, Colo.  
Independent Petroleum Association of New Mexico, Roswell, NM  
Leede Operating Company, Englewood, Colo.  
Nance Resources, Inc., Billings, Mont.  
OTM Consulting, Inc., Houston  
Petrobras America, Inc., Houston  
Spatial Energy, Boulder, Colo.  
Titanium Engineers, Inc., Stafford, Texas

RPSEA welcomes and is proud to be affiliated with the above organizations. For a list of all RPSEA members, [click here](#).

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## Fellowship/Scholarship Program Recipient Spotlight

RPSEA created the Fellowship/Scholarship Program to establish long-term industry/education partnerships. RPSEA members Schlumberger and Strata Production designate financial resources through RPSEA to award multiple scholarships to the following member universities: Colorado School of Mines, Louisiana State University, New Mexico Institute of Mining and Technology, Stanford University, Texas A&M University, The University of Texas at Austin, The University of Oklahoma and West Virginia University. The most promising students with studies relevant to the oil and gas industry are awarded fellowships to help with their education and/or research activities. Through private funding from these two members, \$240,000 is established for these member universities to provide much needed support for 16 students per year for three years.



Current Louisiana State University student Courtney Sample was awarded a fellowship through the Fellowship/Scholarship Program for the 2007-08 school year. RPSEA spotlights Sample this month in the following interview, while wishing her success in her final year of school and in her internship with Chevron.

### 1. What was the title of your dissertation?

*Optimal Spacing and Geometry in the Haynesville*

### 2. Where did your project take place?

Haynesville Shale in North Louisiana and East Texas

### 3. What school were you attending during the fellowship?

Louisiana State University

### 4. What are your degree and major while working on the fellowship?

I am graduating in December 2009 in Petroleum Engineering.

### 5. What was the time frame spent on the entire project?

August 2008 – May 2009

### 6. Why did you pick this focus for your project?

I chose this project because as oil reserves decline, unconventional resources, such as shale gas, must be explored. We do not know much about these reservoirs, but if we find ways to economically develop shale gas plays we will keep natural gas prices stable in the coming years.

### 7. What were the major accomplishments of your project?

1st Place in the SPE undergraduate paper contest at LSU

### 8. How did RPSEA help you achieve your project goals?

RPSEA provided funding so I could go to school and complete my project.

### 9. How have you grown both personally and professionally from your fellowship with RPSEA?

I have been an officer and a member of many clubs and societies such as: Society of Petroleum Engineers member, Pi Epsilon Tau (Petroleum Engineering Honor Society) officer, Society of Women Engineers member, and Delta Gamma Sorority member. I have also interned with Anadarko and Chevron.

### 10. What is your role today?

I am currently an undergraduate at LSU in Petroleum Engineering, and I am interning with Chevron this summer in Covington, Louisiana.

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## 2008 Unconventional Resources and Small Producer Project Selections Announced

RPSEA has selected the 2008 project proposals for the Unconventional Resources and Small Producer Programs. Nine proposals were selected for the Unconventional Resources Program focused on increasing the supply of domestic natural gas and other petroleum resources. Six proposals were selected for the Small Producer Program focused on the technology challenges of small producers that targets advancing technology for mature fields.

Click here to view the Unconventional Resources [press release](#).

Click here to view the Small Producer [press release](#).

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## Small Producer Project Highlight

### Preformed Particle Gel for Conformance Control

**Principal Investigator:** Baojun Bai

**Partners:** Missouri University of Science and Technology, ChemEOR Company and BJ Services

The Missouri University of Science and Technology, ChemEOR Company and BJ Services are collaborating together to develop further and deploy Pre-formed Particle Gel (PPG) technology for conformance control in mature oilfields. When adding to injection water, the PPG particles swell and provide desirable selective plugging of reservoir thief zones or fractures. Significant progress to date includes:

- Ongoing review of PPG treatments performed in oilfields are providing valuable input to meet the project objective of creating guidelines for PPG applications in the U.S.
- Laboratory screen apparatus and glass bead model (Figure 1) were constructed to test PPG rheology and injectivity.
- First laboratory injectivity tests show better injectivity if PPG is suspended in lower rather than higher salinity brine (Figure 2).
- Experiments are undergoing to test if coupling surfactant EOR and particle gel treatment can provide a more cost-effective EOR method than a single treatment.
- The project has been provided commercial and experimental samples of PPG products. Additional PPG samples are being synthesized with novel features such as controllable swelling time and adjustable strength.

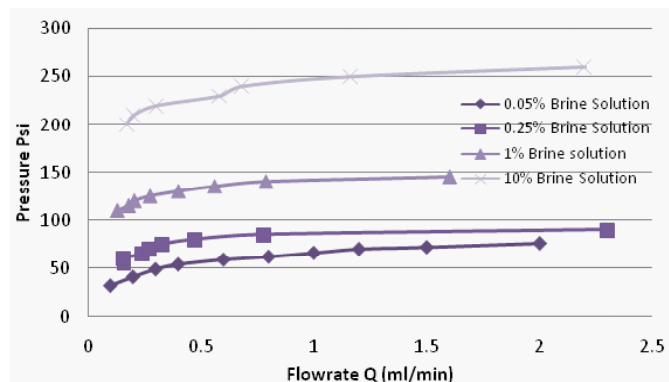
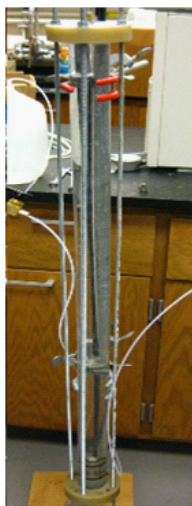
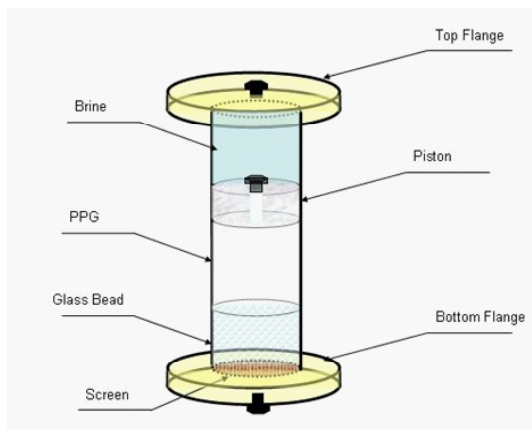


Figure 2. PPG injectivity as a function of brine concentrations and flow rates (screen test results)

Figure 1. Glass bead model and picture.

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## Unconventional Resources Project Highlight

### Geological Foundation for Production of Natural Gas from Diverse Shale Formations

Principal Investigators: Jack Pashin

Partner: Alabama Geological Survey

Unconventional gas plays require an integrated, multidisciplinary approach to exploration and development; however, broadly applicable geologic models of resource distribution and producibility have yet to be developed for Alabama gas shale formations. The ongoing project will employ a spectrum of field and laboratory techniques to characterize gas shale reservoirs in the Black Warrior Basin and the Appalachian Thrust Belt of Alabama.

The Alabama area contains a diversity of emerging gas shale plays in Cambrian (Conasauga Formation), Devonian (Chattanooga Shale and unnamed shale units), and Mississippian (Floyd Shale) strata.

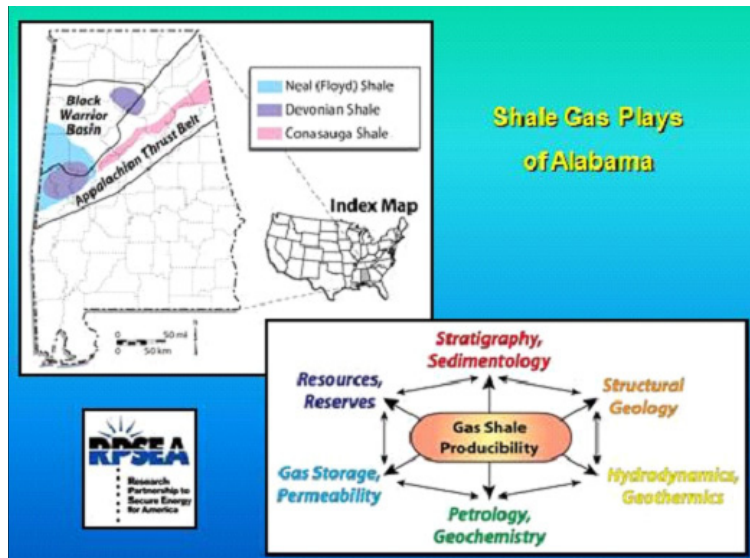
Geologic topics to be included within the study include:

- stratigraphy
- sedimentology
- geologic structure
- hydrodynamics
- geothermics,
- petrology
- geochemistry
- resource/reserve base

Development of these reservoirs has been slowed by a series of technical challenges, including uncertainty about the best practices for exploration, drilling, and well completion. This uncertainty stems largely from inadequate characterization of the geologic framework of the targeted shale formations and is compounded by major differences of composition, thickness, geometry, and fracture architecture that exist between these formations and proven gas shale reservoirs in other regions.

This project will reduce risks associated with exploration and development and provide an accurate assessment of resources and reserves. Further, the project will assist industry in the formulation of exploration and development strategies that are optimized for each gas shale play and reveal basic concepts that can be applied to other emerging and frontier plays.

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## Ultra-Deepwater Project Highlight

### Graduate Student Design Project: Flow Phenomena in Jumpers

Principal Investigator: Dr. Michael Volk, Jr.

Partners: The University of Tulsa and BP America, Inc.

The objective of this project is to perform transient flow experiments in pipeline flow geometries typical of the low spots encountered in subsea flowline jumper systems. This project aims to improve the industry understanding of liquid displacement and flow patterns in jumper-like systems during production restart operations.

This project will utilize the expertise and infrastructure available at The University of Tulsa Hydrate Research Project to improve the understanding of liquid displacement and flow pattern in jumper-like systems during restart operations. Previous research at The University of Tulsa has shown the importance of the presence of a free-water phase and its displacement on the plugging tendency of a system. This project will carry out transient flow experiments in geometries typical of the low spots encountered in jumper systems. The liquid displacement, and more importantly the water displacement, will be measured as a function of operating parameters such as water cut, liquid loading, restart rates, and oil viscosity. The measured water displacement, liquid carry-over from the low spot and flow patterns taking place during the restart process will be compared to state-of-the-art transient simulation results. The effects of liquid loadings, water loadings and restart rates on the displacement of the water phase will be studied.

Work on this project began in September 2008 and the accomplishments to date include:

- The design of the facility was completed and the facility was constructed.
- Fifty transient gas-water tests in the jumper were completed. Final liquid hold-up was a function of velocity. OLGA was found to significantly over predict hold-up.
- Fifty-four gas restart experiments with the 19 and 220 cp model oils were conducted. Gas restart data in a bridged configuration for water and two model oils were compared. As expected, the liquid hold-up is higher (14 to 33%) for the 220 cp model oil than water. For velocities less than 10 ft/sec, the 19 cp oil behaves as expected, that is, hold-ups between water and the 220 cp oil (17% more than water). However, at higher velocities an unexpected result was seen where the displacement was greater than that seen for water (6%). This trend was seen for all liquid loadings studied. It is hypothesized at this point that at the lower velocities the displacement is dominated by viscosity, but at higher velocities the displacement is dominated by density.



- Seventy-four gas restarts with oil-water mixtures were completed. As with the single phase tests, OLGA simulations over predicted the liquid hold up. For the single phase experiments, the liquid hold up was affected by velocity while for the two phase displacements the liquid hold up was affected by both velocity and water cut.

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## Calendar of Events

- 4.30 Small Producer Forum - Establishing RPSEA-Funded Initiatives, Wichita, Kansas
- 5.3-7 Clean Technology Conference & Expo 2009 (RPSEA Day is May 5<sup>th</sup>), Houston
- 5.4-7 2009 Offshore Technology Conference (RPSEA Day is May 6<sup>th</sup>), Houston
- 5.6 RPSEA Member Reception at OTC, Houston
- 5.12 Unconventional Gas Development in the Western Energy Corridor Forum, Idaho Falls, Idaho
- 5.18-22 2009 International Coalbed & Shale Gas Symposium/RPSEA Forum, Tuscaloosa, Alabama
- 5.26 Ultra-Deepwater Geoscience TAC Quarterly Meeting, Houston
- 5.19-20 Delivering and Using Emerging Technology to Make Money in E&P, San Antonio, Texas
- 5.28 Natural Fractures and Producibility in Unconventional Gas Reservoirs, East Texas Basin Forum, Houston

Click here for more information, to register and the [complete calendar](#).

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