

American Institute of Professional Geologists

*April 13-14, 2011 - Pittsburgh, PA*

# The Marcellus Shale: Energy Development and Enhancement by Hydraulic Fracturing



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# Program



**Wednesday, April 13, 2011**

<b>7:30 am - 8:30 am</b>	<b>Registration and Continental Breakfast</b>
8:30 am - 8:40 am	Welcome and Opening Remarks <b>Thomas M. Johnson, CPG, Moderator - Alpha Geoscience, Inc.</b>
8:40 am - 9:10 am	The Marcellus Shale - A Look in the Rear View Mirror <b>Jack Ward, PhD - PetroEdge Energy</b>
9:10 am - 9:40 am	Shale Gas Water Management <b>Patrick Horner, P.Eng. - Aqua-Pure Ventures Inc.</b>
9:40 am - 10:10 am	Proven "Green" Solution to the Treatment of Frac Wastewater <b>Jay N. Smith - Salt Water Solutions, LLC</b>
<b>10:10 am - 10:40 am</b>	<b>Break and Visit Exhibits</b>
10:40 am - 11:10 am	Characterization of Microbial Populations in Flowback Water Impoundments from Hydraulic Fracturing Operations in Pennsylvania <b>Arvind Murali Mohan - Carnegie Mellon University</b>
11:10 am - 11:40 am	The Origin of Some Natural Gases in Permian through Devonian Age Systems in the Appalachian Basin & the Implications to Investigations of Stray Gas Migration <b>Fred Baldassare, PG - Echelon Applied Geoscience Consulting</b>
11:40 am - 12:10 pm	Stray Gas Migration and Shale Gas Development on the Appalachian Plateau: Effects of Geologic Structure <b>Peter Muller, PhD, CPG - Alpha Geoscience, Inc.</b>
<b>12:10 pm - 1:30 pm</b>	Luncheon Keynote Speaker <b>Joseph Frantz, VP-Engineering Marcellus Shale Division Range Resources - Appalachia, LLC</b> <i>"A New Paradigm – "Our Source Rocks Now Are Our Reservoirs" – How a Combination of Horizontal Drilling, Hydraulic Fracturing, Vision and Creativity Have Defined a New Path for Our Industry and Future Energy Policy"</i>

# Program



## Wednesday, April 13, 2011

1:30 pm - 2:00 pm	The Benefits of Integrated Environmental and Community Planning Practices and Context Sensitive Site Design Principles in Lessening the Impacts of Shale Development <b>John P. Martin - JPMartin Energy Strategy LLC</b>
2:00 pm - 2:30 pm	Using Noble Gas Geochemistry to Evaluate the Generation, Migration, and Thermal History of Natural Gas Reservoirs in the Appalachian Basin <b>Thomas H. Darrah, PhD - University of Massachusetts</b>
2:30 pm - 3:00 pm	Treatability of Marcellus Shale Wastewater <b>Michael E. Tamblin, PE - GHD Consulting Engineers, LLC</b>
<b>3:00 pm - 3:30 pm</b>	<b>Break and Visit Exhibits</b>
3:30 pm - 4:00 pm	Exploring Community-Level Socioeconomic Impacts of Development of the Marcellus Shale in Pennsylvania <b>Crawford M. White, SA - Louisiana State University</b>
4:00 pm - 4:30 pm	Best Practices for Secondary Containment of Surface Leaks and Spills <b>Beth Powell - New Pig Corporation</b>

## Thursday, April 14, 2011

<b>7:30 am - 8:00 am</b>	<b>Registration and Continental Breakfast</b>
8:00 am - 8:30 am	A Legal Update: Pennsylvania and New York <b>David R. Overstreet, Esq. - K&amp;L Gates</b>
8:30 am - 9:00 am	A Legal Update: Pennsylvania and New York <b>Craig P. Wilson, Esq. - K&amp;L Gates</b>
9:00 am - 9:30 am	Water Sources for Marcellus Shale Development - What's New in the Susquehanna River Basin <b>Paula Ballaron, PG - Susquehanna River Basin Commission</b>

# Program



Thursday, April 14, 2011

9:30 am - 10:00 am	<b>Break and Visit Exhibits</b>
10:00 am - 10:30 am	De-coupling Conductivity From Proppant Performance Through Channel Fracturing <b>John Lassek - Schlumberger</b>
10:30 am - 11:00 am	Overview and Utilization of the National Hydraulic Fracturing Chemical Disclosure Registry <b>Dan Arthur - ALL Consulting</b>
11:00 am - 11:30 am	Flowback Water and Abandoned Mine Drainage: Chemistry and Potential Reuse as Fracturing Fluid <b>Elise Barbot, PhD - University of Pittsburgh</b>
11:30 am - 12:00 noon	Shale Gas Environmental Issues: A Natural Resource Perspective <b>John H. Quigley - Former Secretary of PA Department of Conservation and Natural Resources</b>
12:00 noon - 1:30 pm	<b>Lunch - in the Exhibit Room</b>
1:30 pm - 2:00 pm	Geochemical Reactions During Hydraulic Fracturing <b>Tracy Bank, PhD - University at Buffalo</b>
2:00 pm - 2:30 pm	Proppants Derived from Industrial/Domestic Waste Streams <b>John R. Hellmann - Pennsylvania State University</b>
2:30 pm - 3:00 pm	Water Storage for Hydro-Fracking <b>Andrew J. Coleman, PhD, CPG, PG - Electric Power Research Institute</b>
3:00 pm - 3:30 pm	<b>Break and Visit Exhibits</b>

***Thank You for Attending! Have a safe trip home!***

*Please fill out the Questionnaire in the back of the book and leave it at the registration table.*

# Presenter Biographies

**Thomas M. Johnson, CPG, Moderator - Alpha Geoscience, Inc.**

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Tom Johnson is a hydrogeologist and Vice President of Alpha Geoscience in Clifton Park, NY. He has been a member of AIPG since 1987, is a licensed geologist in Washington, and a certified professional geologist in Virginia. He is an active member in the NYS Council of Professional Geologists and the Hudson-Mohawk Professional Geologists Association. Tom received a BS degree in geology from SUNY Cortland and a MS degree in geology from SUNY Fredonia. He recently assisted in preparing a technical report for developing natural gas using horizontal drilling and high volume hydrofracturing in support of the NYSDEC Supplemental Generic Environmental Impact Statement (SGEIS). His career as a consultant also includes providing a wide range of geologic, hydrogeologic, and environmental evaluations, primarily for private sector clients.

**John A. “Jack” Ward, Ph.D. - PetroEdge Energy**

**Email: [jward@petroedge.com](mailto:jward@petroedge.com)**

Dr. John A. “Jack” Ward is the Executive Vice President – Exploration & Production. Dr. Ward has over 30 years of experience in the oil and gas industry. He was a consultant and international advisor for Petroleum Geoservices (“PGS”) and Teknica Inc. Employment history prior to Teknica included experience with a U.S major and an independent. He developed many of the techniques employed for seismic reservoir mapping and for the integrated study of hydrocarbon reservoirs. He has extensive experience managing projects within the U.S. for independent and national oil companies and implementing field development strategies. He and his teams have completed significant development programs. He is recognized as an expert in seismic inversion, seismic stratigraphy, AVO, and multicomponent interpretation. He has lectured extensively for the SEG, AAPG, IHRDC and New World Horizon in Germany, Venezuela, U.S., Ecuador, Colombia, Indonesia, South Africa, Australia, Argentina, Mexico, Peru and Bolivia. Dr. Ward received his Ph.D. from the State University of New York at Binghamton in 1979. Dr. Ward served on the Board of Directors and represented PGS on the management team of Triumph Petroleum.

**Patrick Horner, P.Eng. - Aqua-Pure Ventures Inc.**

**Email: [patrick.horner@aqua-pure.com](mailto:patrick.horner@aqua-pure.com)**

Patrick Horner is a Professional Chemical Engineer with 11 years of experience with Oil and Gas Facility Process Design and Construction, Petro-chemical Plant Operation, and Industrial Wastewater Treatment. He holds a B.Sc. in Chemical Engineering from the University of Alberta. A key portion of Mr. Horner’s experience has involved the project management of new technology trials in both petrochemical and wastewater applications. He was heavily involved in the design and construction of the NOMAD 2000 units and led the development of Aqua-Pure’s gas shale treatment portfolio.

**Jay N. Smith - Salt Water Solutions, LLC**

**Email: [jnswater@frontiernet.net](mailto:jnswater@frontiernet.net)**

Mr. Jay N. Smith is the President of Salt Water Solutions, LLC. He graduated from Alfred University with a BS in Engineering in 1966 and graduated from Finger Lakes Community College with an AS

# Presenter Biographies

in Computer Science in 1995. From 1989 to 2004 he worked at Culligan Water Conditioning as the General Manager of the local franchise at the time of the Retsof Mine Collapse in 1994 and worked as engineer and licensed operator for Akzo Nobel Inc. and Zurich Insurance on water problems resulting from the mine collapse.

From 2004 to present he has been a consultant for Zurich Insurance responsible for all phases of the Brine Mitigation Project including both construction and operation, which was designed to control the “mine squeeze” coming from the collapsed mine. In 2009 he formed Salt Water Solutions, LLC with LMC Industrial Contractors and Alpha Geoscience to manufacture, maintain and operate crystallizers to operate on multi-chlorides generating beneficial products of high purity salt, high calcium products and distilled water.

## **Arvind Murali Mohan, PhD Candidate - Carnegie Mellon University**

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Arvind Murali Mohan is currently a Ph.D candidate in the Dept. of Civil and Environmental Engineering at Carnegie Mellon University. Arvind earned a chemical engineering degree from the Anna University (India) and a M.S. in Civil and Environmental Engineering from Carnegie Mellon University. His research work is centered on characterizing flowback water microbiology and understanding microbial transformations that affect flowback water quality for reuse, recycle and/or disposal. At Carnegie Mellon, he works with Dr. Gregory's group and is involved in a collaborative research project with the University of Pittsburgh in developing sustainable management strategies for flowback water from gas fracturing operations in the Marcellus shale.

## **Fred Baldassare, PG - ECHELON Applied Geoscience Consulting**

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Fred Baldassare is a Senior Geoscientist and owner of Echelon Applied Geoscience Consulting. He has more than 18 years of experience investigating incidents of stray gas migration. He previously served as the statewide consultant for the Pennsylvania Department of Environmental Protection for investigating and characterizing source(s) of stray carbon dioxide and methane. Fred has helped to pioneer the application and advancement of isotope geochemistry to identify the origin of stray gases in the Appalachian Basin. He has authored and co-authored numerous professional papers for peer reviewed publications on the application of isotope geochemistry to identify the origin of stray gases.

## **Peter Muller, PhD, CPG - Alpha Geoscience, Inc.**

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Peter Muller is a geologist with Alpha Geoscience in Ardmore, PA. Prior to his recent move to Alpha he was a professor of geology at the State University of New York at Oneonta for 27 years, teaching undergraduate and graduate courses in structural geology and tectonics, engineering geology, map and field geology, mineral resources, physical geology, and waste management. Peter received his BS in geology from Bucknell University and his PhD from Binghamton University. He has extensive field experience in a wide range of domestic geologic settings including the Pennsylvania and Maryland

# Presenter Biographies

Piedmont, Mesozoic basins, and Valley and Ridge; the Appalachian Plateau and Adirondacks of New York; the Laramide ranges of southwest Montana and internationally, in the Betic Cordillera of southern Spain; Caribbean-North American plate boundary zone in Guatemala; and the western Zagros of Iran. He recently assisted in preparing a technical report for developing natural gas using horizontal drilling and high volume hydrofracturing in support of the NYSDEC Supplemental Generic Environmental Impact Statement (SGEIS). He also has conducted considerable research for, and participated in, a successful demonstration project to treat frac water from the Marcellus shale. Peter is a CPG and serves on the new AIPG Student Outreach Committee.

## **John P. Martin - JPMartin Energy Strategy LLC**

**Email: [jpm@alum.rpi.edu](mailto:jpm@alum.rpi.edu)**

Prior to forming JPMartin Energy Strategy LLC in 2011, John spent 17 years working on energy research and policy issues at the New York State Energy Research and Development Authority and developed a series of projects targeting oil and gas resources, renewable energy development and environmental mitigation. He has served on various state and national panels including the USDOE's Unconventional Resources Technical Advisory Committee established to advise the department on the development and implementation of programs related to onshore unconventional natural gas and other petroleum resources. He co-directed the Governor's Carbon Capture and Sequestration (CCS) Working Group, an interagency committee organized in 2007 to address CCS issues and was NYSERDA's point person on a series of technical studies looking at all aspects of hydraulic fracturing and multiwell pad development. In addition, he completed the initial research on the natural gas potential of New York's Utica Shale that helped stimulate significant industry investment in this resource. John regularly lectures and publishes on such diverse topics as the development of shale gas resources, carbon capture and sequestration, compressed-air energy storage, renewable energy resource development, and research policy. Prior to joining NYSERDA, he worked in academia, consulting and regional planning. He holds a Ph.D. in Urban and Environmental Studies, an M.S. in Economics and a B.S. in Geology, all from Rensselaer Polytechnic Institute. He also holds an M.B.A. from Miami University and completed graduate work in mineral economics at West Virginia University.

## **Thomas H. Darrah, PhD - University of Massachusetts**

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Dr. Thomas Darrah, Research Assistant Professor, Env. Earth and Ocean Sciences, UMass Boston, Chief Research Officer, Smart Gas Sciences, Wilburton, PA 17888.

## **Michael E. Tamblin, PE - GHD**

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Michael Tamblin is a Principal at GHD. He received his Bachelor of Science and Master of Science degrees from Clarkson University. He has worked in New York and Pennsylvania on water quality and wastewater treatment projects for over 20 years. He has been involved in some of the most challenging projects at GHD. He has delivered over 30 treatment projects in his carrier. Recently, he has been responsible for developing potential treatment options for the Marcellus Shale wastewater. In addition,

# Presenter Biographies

he has been involved in the regulatory permitting, engineering design, and construction of Marcellus Shale projects.

## **Crawford M. White, SA - Louisiana State University**

**Email: [crawford.white@gmail.com](mailto:crawford.white@gmail.com)**

Crawford White is a graduate student under the guidance of Dr. Margaret Reams in Louisiana State University's Department of Environmental Sciences within the School of the Coast and Environment. Crawford is pursuing a Masters of Environmental Science, and his thesis work is titled "Hydraulic Fracturing Technology in The United States: A Synthesis of Regulatory Policy and Public Perception." He is a Graduate Research Assistant with the LSU Superfund Research Center, funded by the National Institute of Environmental Health Sciences (NIEHS). Crawford graduated in the spring of 2010 from Georgia Southern University with a Bachelors of Science in Geology, and is enjoying exploring the intersection of applied geology, policy, and socioeconomics. His presentation here represents a portion of the framework he intends to complete for both Pennsylvania and Louisiana, in order to better compare their differences in public perception.

## **Beth Powell - New Pig Corporation**

**Email: [bethp@newpig.com](mailto:bethp@newpig.com)**

Beth Powell has over 17 years of experience in chemicals and plastics manufacturing. She has designed and filed patents for absorbents, hazardous material packaging, and containment systems. She holds patents in fluid delivery devices. Beth has a BS in Chemical Engineering and a MBA from The Pennsylvania State University. She works for New Pig Corporation in Tipton, which is located in Central PA. New Pig supplies environmental, health and safety products to over 200,000 industrial sites in over 70 countries. New Pig was "Voted One of the Best Large Companies to Work for in PA" and has over 350 employees in the state.

## **David R. Overstreet, Esq. - K&L Gates**

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Mr. Overstreet has been with K&L Gates since 1993 and has an administrative law and litigation practice spanning several substantive disciplines with an emphasis on energy and environmental matters. He assists clients in a variety of business sectors with permit applications and enforcement matters before state and federal regulatory agencies, including the Pennsylvania Department of Environmental Protection and the United States Environmental Protection Agency. Mr. Overstreet appears regularly before the Pennsylvania Environmental Hearing Board as well as state and federal courts in Pennsylvania and, in addition to being a member of the Pennsylvania bar, is admitted to practice before the United States Supreme Court and the United States Court of Appeals for the Third, Fifth and D.C. Circuits. Mr. Overstreet also represents state and national trade associations in connection with administrative agency rulemakings and adjudications and judicial review of such actions. On behalf of national clients, he has appeared before, and litigated against, federal and state agencies throughout the United States and has successfully prosecuted civil actions brought against local and state government officials in federal courts in several states.

# Presenter Biographies

## **Craig P. Wilson, Esq. - K&L Gates**

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Mr. Wilson concentrates his practice in the areas of environmental compliance counseling and transactional advice, environmental permitting, zoning and land development, environmental and commercial litigation, energy development, and natural resources management. Mr. Wilson has counseled clients who are exploring for, producing and transporting natural gas, clients who are developing energy projects and other commercial and industrial projects, including Brownfields projects, clients who are seeking environmental permits and zoning and land development approvals from government agencies and clients who are parties to business transactions involving potential environmental liabilities. Mr. Wilson also has represented clients in defense of federal and state environmental enforcement proceedings and cost recovery actions. Mr. Wilson has been associated with K&L Gates since 1992 and a partner with the firm since 2001.

## **Paula Ballaron, PG - Susquehanna River Basin Commission**

**Email: [pballaron@srbc.net](mailto:pballaron@srbc.net)**

Paula Ballaron is the Manager for Policy Implementation & Outreach at the Susquehanna River Basin Commission (SRBC). The Commission is a regulatory, federal/interstate compact commission vested with the responsibility for management and control of the water resources of the 27,500-square-mile Susquehanna River Basin, which drains portions of New York, Pennsylvania, and Maryland.

Ms. Ballaron has more than 25 years of diverse professional experience, principally in hydrogeology and geology. Currently, her major work responsibilities are drafting guidance and procedures for the project review program and coordination with SRBC's sister agencies. She formerly served as the Director of the Regulatory Program and supervised a professional team of geologists, hydrologists, environmental scientists, and biologists. The Regulatory Program was responsible for withdrawal and consumptive water use application review; aquifer testing review and analysis; and the Approval by Rule Program. Prior to working for the Commission, Ms. Ballaron worked for the Pennsylvania Department of Environmental Resources and the Maine Geologic Survey. She holds a Master of Science degree in Geological Sciences from the University of Maine and a Bachelor of Science degree in Geology from Dickinson College.

## **John Lassek - Schlumberger**

**Email: [lassek1@slb.com](mailto:lassek1@slb.com)**

John Lassek joined Schlumberger after attaining his BSc in Petroleum Engineering from the University of Alaska Fairbanks. John has completion optimization experience in a wide range of reservoirs from unconsolidated sands in Asia to the many unconventional reservoirs in North America. Prior to his current position as North America Land Engineering Manager, John has held a variety of technical and management positions with increasing geographic responsibilities including Product Champion, Eastern Regional Technical Manager and Global Product Development Manager for Stimulation.

# Presenter Biographies

## **Dan Arthur - ALL Consulting**

**Email: [darthur@all-llc.com](mailto:darthur@all-llc.com)**

Mr. Arthur is a registered professional petroleum engineer specializing in fossil energy, planning/engineering analysis and environmental issues. He has over 25 years of diverse experience that includes work in industry, government and consulting. Mr. Arthur is a founding member of ALL Consulting and has served as the company's President since its inception in 1999.

In 2010, Mr. Arthur was appointed to serve as a Sub-Group Leader for a National Petroleum Council study on North American Resource Development. His Sub-Group focuses on technology that is and will be needed to address development and environmental challenges through the year 2050. Mr. Arthur was also appointed to a U.S. Department of Energy Federal Advisory Committee on Unconventional Resources. Over the last 5 years, Mr. Arthur has been asked to support the U.S. Department of Energy through the Annex III Agreement between the United States and China to provide support relative to coal bed methane and shale gas development in China. Mr. Arthur is currently managing an independent research effort at the request of an industry coalition regarding proposed rulemaking by the Delaware Basin River Commission; research on the Risks Associated with Hydraulic Fracturing for the Petroleum Technology Alliance of Canada and the Science and Community Environmental Knowledge Fund; Lifecycle Water Research in the Marcellus Shale for the U.S. Department of Energy's National Energy Technology Laboratory; water resources management for conventional and unconventional natural gas development in East and South Texas; and he supports regulatory/environmental projects throughout the United States, Canada, and outside of North America. Additionally, over the last five years, Mr. Arthur has supported dozens of studies, evaluations, and market research efforts related to unconventional gas plays throughout North America.

## **Elise Barbot, PhD - University of Pittsburgh**

**Email: [elisebarbot@gmail.com](mailto:elisebarbot@gmail.com)**

Elise Barbot, Ph.D., currently holds a post-doctoral position at the University of Pittsburgh, department of Civil and Environmental Engineering. Dr. Barbot earned a chemical engineering degree from the National Higher School of Chemical Synthesis, Process and Engineering, University of Aix-Marseille (France), a M.S. in Chemical Engineering and Physical-Chemistry, and a Ph.D. in Chemical/Environmental Engineering from University of Aix-Marseille. After her Ph.D. in 2007, she obtained a 2-year non tenure track assistant professor at the Institut Universitaire de Technologies de Marseille (Technologies University Institute of Marseilles, France) where she taught Chemical Engineering for undergraduate students. Her research work is centered on chemical and physical processes for industrial and municipal water treatment, specifically pressure-driven membrane filtration. At the University of Pittsburgh, she works within Dr Vidic's group where she is developing processes for the sustainable management of wastewater from the gas extraction in the Marcellus Shale basin and evaluating potential reuse of abandoned mine drainage for hydraulic fracturing.

# Presenter Biographies

**John H. Quigley - Former Secretary of PA Department of Conservation and Natural Resources**

**Email: [john.h.quigley@gmail.com](mailto:john.h.quigley@gmail.com)**

John H. Quigley LLC, Strategic Advisor and Consultant, Citizens for Pennsylvania's Future (PennFuture), John Quigley served as secretary of the Pennsylvania Department of Conservation and Natural Resources from April 2009 to January 2011. Prior to his appointment, Quigley worked for the agency in several capacities, including overseeing strategic initiatives and operations, and as chief of staff. As secretary, Quigley helped to position Pennsylvania as a leader in land conservation, outdoor recreation, alternative energy, and public land management. He tirelessly fought to protect the integrity of the state park and forest systems in tough economic times. During his tenure as secretary, Pennsylvania State Parks were named the Best in the Nation. He also directed agency efforts that have become a national model in helping communities capitalize on their natural resources to improve economic development and quality of life. Under Quigley's leadership, Pennsylvania undertook efforts to address the impacts of climate change, including studying the use of biomass as an alternative fuel, the impacts of wind power on wildlife, and storing carbon dioxide in underground geologic formations. He led a cross-organizational strategic response to Marcellus Shale gas development, including a comprehensive monitoring program to assess the impacts of gas exploration on the state forest.

Quigley has had a diverse career in the nonprofit, public, and private sectors, including eight years as the mayor of the City of Hazleton, government relations manager with Citizens for Pennsylvania's Future, and management positions with industry-leading companies. He is a graduate of Bloomsburg University with a degree in economics, and holds a Master of Public Administration degree from Lehigh University.

**Tracy Bank, PhD - University at Buffalo**

**Email: [tlbank@buffalo.edu](mailto:tlbank@buffalo.edu)**

Dr. Bank received her BSc degrees in geology and chemistry from St Francis Xavier University in Nova Scotia, Canada. Her MS degree in economic geology is from the University of Nevada, Las Vegas and she earned her PhD in geochemistry from Virginia Tech. Dr. Bank worked as a post-doctoral research associate in the Environmental Sciences Division at Oak Ridge National Lab prior to joining department of geology at the University at Buffalo. Dr. Bank is currently an assistant professor and has been studying fluid-rock interactions related to the Marcellus Shale since arriving in Buffalo in 2007.

**John R. Hellmann - Pennsylvania State University**

**Email: [jrh3@psu.edu](mailto:jrh3@psu.edu)**

John R. Hellmann is Professor of Materials Science and Engineering and Associate Dean for Education in the College of Earth and Mineral Sciences. His research interests concern the mechanical reliability and thermochemical durability of ceramics, metals, and intermetallic materials in severe thermal environments. He has active research programs in development and characterization of materials for gas turbines, advanced propulsion systems, and enhanced oil and natural gas recovery technology, as well as in the design and fabrication of laminated ceramic composites possessing engineered stress states for use as armor and cutting tools. His most recent research interests include

# Presenter Biographies

the development of new proppant materials with tailored functionality for use in hydrofracturing in the Marcellus, Utica, and Bakken plays.

**Andrew J. Coleman, PhD, CPG, PG - Electric Power Research Institute**

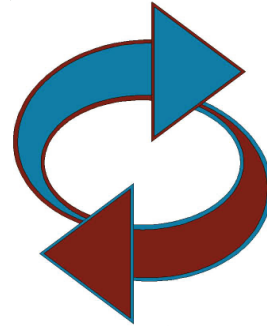
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Andrew J. Coleman, Ph.D. is the Marketing Manager of Environment and Renewables. Dr. Coleman rejoined EPRI in 2010 from Lehigh University, where he was appointed Professor of Practice and Director of Lehigh's Energy Systems Engineering Institute. Professor Coleman was appointed the director of ESEI in 2009 and launched the ESE master's program in 2008. Before taking on this role, he was an EPRI Account Executive in Member Services and a Senior Project Manager in EPRI's Land and Groundwater area, focusing on manufactured gas plant research and site remediation. Before joining EPRI, Dr. Coleman was a consultant for utility companies from 1991 to 1994 in environmental risk management. He was consulting full time for the utility industry, specifically Public Service Enterprise Group in Newark, New Jersey, until 2000. Dr. Coleman's technical areas of expertise include structural geology and designing specifications for heat transfer in hot dry rock geothermal wells.

# Exhibitors & Sponsors



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# Questionnaire



How satisfied were you with:	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Does Not Apply
On-Line Registration					
Location of Meeting					
Facility					
Food					
Conference Materials					
Presentations					
Exhibits					
Length of Presentations					
Length of Conference					

How can we improve this conference?

Would you like to see this subject offered again?

What other conference topics would you be interested in attending?

Overall comments?