



SHALE GAS IN NORTH CAROLINA



**What can North Carolina learn from shale-gas development in other states?
How is public understanding of the technology framing NC opinion and policy?**

What will be the economic and environmental impact if shale-gas potential is fully developed?

The purpose of the program is to provide a balanced information-exchange opportunity among the energy industry, the water industry and citizens and communities with an interest in the economic potential of shale-gas development and the long-term environmental sustainability of water sources and water-dependent ecosystems. The objective is to facilitate informed discussion to ensure that science-based policy decisions are made on energy development that will best serve the citizens of North Carolina.

DAY ONE PROGRAM - THURSDAY, AUGUST 9TH, 2012

[Go to www.agwt.org for more presenter details]

9:00 – 10:00 REGISTRATION, EXHIBITS, CEU sign-in

10:00 – 12:30 Session 1 issues & concerns – resource assessment – shale-gas footprint

10:00 – 10:15 **WELCOME AND PROGRAM INTRODUCTION**
Paul Weaver, AEG Carolinas Chairman, ESP Associates, Greensboro, NC
Rick Kolb, AEG Carolinas Past-Chairman, Duncklee & Dunham, Cary, NC

10:15 - 10:30 **PUBLIC PERCEPTIONS & MIS-PERCEPTIONS OF SHALE-GAS DEVELOPMENT IMPACTS**
Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

Andrew Stone has over 35 years of ground water experience in as a university professor, groundwater consultant, advocate & educator. He has convened and coordinated over 150 conference programs related to source-water protection, geothermal technology, well design, ground water management, aquifer storage recovery, conjunctive use, water banking, and asset management. From 1990 to 2002, he taught an annual course on Ground Water Protection Policy at Antioch New England Graduate School. He is the Director of the *International Association of Hydrogeologists' Commission on Groundwater for Decision Makers*.

10:30 – 11:00 **USGS SHALE-GAS RESERVE ASSESSMENT METHODS**
Robert Milici, Research Geologist, US Geological Survey, Reston, VA

Dr. Milici is the Leader of the East Coast Mesozoic Basin Assessment Team. In June 2012, USGS Fact Sheet 3075 was released "*Assessment of Undiscovered Oil & Gas Resources of the East Coast Mesozoic Basins...*" Dr Milici has a Ph.D. from the University of Tennessee. He has worked in the area of fossil fuel resources, coal and oil and gas, since 1973; including geologic mapping of the coal fields in Tennessee; supervising mine safety studies in the coalfields of Virginia; and conducting coal, oil and gas research projects for the USGS. He has published 200+ articles and abstracts on geology and energy resources.

11:00 – 11:30 **THE POTENTIAL FOR SHALE GAS EXPLORATION & PRODUCTION IN NORTH CAROLINA**
Kenneth B. Taylor, PG, Assistant State Geologist and Chief N.C. Geological Survey -- Division of Land Resources, N.C. DENR

Dr. Kenneth B. Taylor manages the N.C. Geological Survey in the Department of Environment and Natural Resources. During his 17 years with state government, he has worked in both geosciences and emergency management in emergency planning & response, hazard mitigation, risk assessment, loss estimation, geo-hazard analysis and resources assessment. During the last four years, he has coordinated a research program to assess the resource potential of shale gas from Mesozoic basins of North Carolina.

11:30 – 12:00 **THE ENVIRONMENTAL FOOTPRINT OF SHALE-GAS OPERATIONS**
Robert Jackson, School of the Environment, Duke University, Durham, NC

Robert Jackson is the Nicholas Chair of Global Environmental Change at the Nicholas School of the Environment. His research examines how people affect the earth, including studies of the global carbon and water cycles, biosphere/atmosphere interactions, energy use, and global change. He received his Ph.D. in Ecology at Utah State University. He was a Department of Energy Distinguished Postdoctoral Fellow for Global Change at Stanford University and an assistant professor at the University of Texas before joining the Duke faculty. He directs the National Institute for Climate Change Research for the southeastern U.S.

12:00 – 12:30 Keynote Presentation

PAST, PRESENT AND FUTURE TIME-LINE FOR THE DEVELOPMENT OF NC SHALE-GAS REGULATIONS
Robin Smith, Assistant Secretary for the Environment, NC DNR, Raleigh, NC



Robin oversees development of major policy initiatives for programs having such diverse responsibilities as the permitting of discharges to surface waters; issuance of air emissions permits; implementation of major grant programs for wastewater and drinking water projects; remediation of contaminated soil and groundwater; permitting of coastal development; and regulation of animal operations.

Before being appointed to DENR in September 1999, Robin Smith served in the attorney general's office for 12 years. During that time, she provided legal representation and guidance to DENR on a variety of environmental issues and served as legal counsel to the state's Coastal Resources Commission and the Clean Water Management Trust Fund. She also served as legal counsel to the state's mining, sedimentation and radiation protection commissions.

Robin is a graduate of the University of North Carolina at Chapel Hill School of Law.

12:30 – 1:30 LUNCH

1:45 – 3:00 **Session 2** *litigation in other states – North Carolina legal & legislative issues*

1:45 – 2:15 **SHALE GAS AND LITIGATION: WHO IS SUING WHOM AND FOR WHAT REASON?**
Julia Adams, Attorney, Sedgwick LLP, Houston, TX

Julia Adams leads Sedgwick's Hydraulic Fracturing Task Force. Sedgwick formed the interdisciplinary, cross-practice Task Force to support clients in the insurance, energy and real estate industries respond to issues arising from hydraulic fracking. The fracking process has become much scrutinized in the press and is a target of plaintiffs' attorneys nationwide. Julia's expertise and twenty seven years of experience includes litigation and coverage review of claims arising from onshore and offshore drilling, down-hole losses, environmental losses, property claims and business interruption.

2:15 – 2:45 **WATER LAW RELATED TO SHALE GAS DEVELOPMENT IN NORTH CAROLINA**
Frank Sheffield, Attorney, Ward & Smith PA., New Bern, NC

Frank H. Sheffield, Jr. is leader of the Environmental Practice Group. Mr. Sheffield's professional career includes state and local government, environmental consulting, and private law practice. His law practice encompasses federal and state environmental law and regulation, air quality and water quality permitting, compliance counseling, and contaminated property issues. Mr. Sheffield advises clients on shale gas development and other alternative energy sources. Mr. Sheffield is the former mayor of Hillsborough, North Carolina, and a former chair of the Environmental Law Section of the North Carolina Bar Association.

2:45 – 3:15 **LEGISLATIVE AND POLICY ISSUES FOR SHALE GAS DEVELOPMENT IN NORTH CAROLINA**
Stanford D. Baird, Attorney, K&L Gates LLP, Raleigh, NC

Mr. Baird is a partner in the Raleigh office and focuses his practice on environmental matters, including litigation and regulatory matters, and environmental aspects of real estate and business transactions. Mr. Baird regularly advises manufacturing clients regarding environmental regulatory matters. He routinely negotiates with state and federal environmental agencies on behalf of private parties, handles administrative appeals and permitting matters, and oversees environmental due diligence and cleanup activities. Mr. Baird also counsels stakeholders regarding the development of shale gas resources.

3:15 – 3:30 **BREAK**

3:30 – 5:00 **Session 3** *groundwater – citizen concerns – risk assessment*

3:30 – 4:00 **GROUNDWATER RESOURCES: WHAT TO EXPECT WHEN YOU ARE EXPECTING SHALE-GAS DEVELOPMENT IN YOUR AREA**
Hughbert Collier, CPG, Hydrogeologist, Collier Consulting, Inc., Stephenville, TX

Dr. Collier has over twenty-five years experience in consulting, research, technical support for litigation, and lecturing. He has taught short courses for the National Ground Water Association and undergraduate and graduate hydrogeology courses at Tarleton State University. He has Ph.D. in Geosciences from the University of Texas at Dallas. Recent projects have included groundwater contamination investigations, hydrogeologic and engineering services for groundwater development, characterization of subsurface contaminant migration, and hydrogeology investigations in areas of shale-gas development in Texas.

4:00 – 4:30 **SIERRA CLUB PERSPECTIVE ON POTENTIAL SHALE GAS DEVELOPMENT IN NORTH CAROLINA**
Will Morgan, Director of Government Affairs, Sierra Club, Raleigh, NC

Established in 1970, the North Carolina Chapter of the Sierra Club has the goal of making sure that the state's environment remains protected and to promote sound, science-based environmental legislation. Will holds a law degree from Wake Forest, and a BA in Political Science and Environmental Studies from the University of NC at Chapel Hill. He is a member of the NC State Bar. At the Sierra Club Will advocates for strong environmental laws and regulations at the state level. During law school Will worked at the Southern Environmental Law Center and the Environmental Division of the NC Department of Justice.

4:30 – 5:00 **ENVIRONMENTAL RISK ASSESSMENT FOR SHALE GAS DEVELOPMENT**
Daniel J. Soeder, U.S. Department of Energy, National Energy Technology Laboratory, Morgantown, WV

The U.S. Department of Energy is seeking a better understanding of the engineering risks of shale gas production. Researchers are collecting detailed scientific data on the possible effects of drilling and hydraulic fracturing on water resources, air quality, landscapes and ecosystems, and assessing the potential for induced seismicity. Prior to joining DOE, Mr. Soeder was a hydrologist with the USGS and prior to that a researcher at the Institute of Gas Technology in Chicago on unconventional natural gas resources. Mr. Soeder has MS in geology from Bowling Green State University, OH.

5:00 – 6:30 **Reception (cash bar)** *5:45 to 6:00 - Remarks during reception by invited guests from NC Legislature*

DAY TWO PROGRAM - FRIDAY, AUGUST 10TH, 2012

[Go to www.agwt.org for more presenter details]

8:00 – 10:00 **Session 4** *role of local government – socio-economic impacts - gas diagnostics – microseismic revelations*

8:00 – 8:30 **THE ROLE OF LOCAL GOVERNMENT IN OIL & GAS PRODUCTION**
Ted Feitshans, Extension Associate Professor, NC State University, Raleigh, NC

The role of local government in oil and gas production is defined by state law. Exploration, production, transport, and processing may be regulated by a different mix of state and local regulations. This presentation will include a discussion of current litigation and legislative efforts involving local control. Ted Feitshans received an M.S. in Agricultural and Applied Economics from the University of Minnesota, and his J.D. from Georgetown University Law Center. He is admitted to practice in North Carolina and New York. He teaches courses in agricultural law and environmental law at NC State University.

8:30 – 9:00 **SOCIO-ECONOMIC IMPACTS OF THE SHALE GAS INDUSTRY ON THE LOCAL ECONOMY**
Jim Womack, County Commissioner, Lee County, Sanford, NC

James Womack is a retired Army Lieutenant Colonel. He attended the U.S. Military Academy at West Point, NY and graduated with an MS in Engineering in 1977. He also has a Masters Degree in Business Management and a Masters Degree in Operations, Plans and Training. As a Le County Commissioner he is responsible for reviewing and approving financial, operational, programmatic and administrative matters for Lee County, NC. He also serves on the Board of Directors for the Sanford Chamber of Commerce, the Lee County Economic Development Corporation, and the BRAC (Ft. Bragg) Regional Task Force.

9:00 – 9:30 **GAS ORIGINS: DIAGNOSTIC ENVIRONMENTAL PARAMETERS USED IN SHALE-GAS/ GROUNDWATER STUDIES**
John Oneacre, President, Ground Water Solutions Ltd. Houston, TX

Mr. Oneacre provides hydrogeological consulting services to private industry with emphasis on environmental studies and litigation support work. Industry clients include solid waste, petrochemical, chemical, insurance, waste-to-energy and oil & gas. Mr. Oneacre provides both technical litigation support and expert witness testimony. He has 33 years of professional experience in hydrogeology, engineering geology, and environmental geology. Mr. Oneacre has provided technical expertise on geochemical analyses of ground water to several law firms engaged in litigation cases.

9:30 – 10:00 **UNDERSTANDING HYDRAULIC FRACTURING STIMULATION THROUGH MICROSEISMIC MONITORING AND MAPPING**
John A. Ughetta, VP Worldwide Sales MicroSeismic Inc., Houston, TX

MicroSeismic's core business is hydraulic fracture stimulation monitoring and mapping using standard geophysical acquisition systems and unique processing that provides insight into stimulation effectiveness. The techniques can demonstrate if hydraulic fracture is impacting the environment or causing earthquakes. Ughetta has worked 25+ years in the energy industry. Previous employment has been with Halliburton Reservoir Services, Landmark Graphics, (a geophysical and geologic interpretation software company) and Epoch Well Services. He has a BS in Geology from Denison University, OH

10:00 – 10:30 **BREAK**

Session 5 *protection strategies - watershed concerns – economic dimensions*

10:30 – 11:00 **EFFECTIVE GROUNDWATER PROTECTION STRATEGIES IN THE MARCELLUS SHALE**
Ryan Turner, P.G., Groundwater Protection Team Lead, Marcellus Delivery Unit, Talisman Energy USA, Warrendale, PA

The Groundwater Protection Team manages groundwater investigations in response to homeowner concerns. The team helps minimize groundwater impact by evaluating hydrogeologic factors and surface conditions when choosing well locations, conducting baseline assessments, evaluating the occurrence and origin of naturally occurring methane in groundwater, and designing new cement blends and drilling best practices to improve well quality and achieve effective zonal isolation. Ryan has over 24 years of experience managing hydrogeologic site characterization, remedial investigations, feasibility studies, and corrective actions

11:00 – 11:30 **RIVERKEEPER PERSPECTIVE ON POTENTIAL ENVIRONMENTAL RISKS TO WATERSHEDS FROM SHALE-GAS DEVELOPMENT**
Elaine Chiosso, Haw Riverkeeper, Executive Director of Haw River Assembly, Bynum, NC

The Haw River Assembly is a non-profit organization founded in 1982 to restore the Haw River and to protect Jordan Lake. Elaine has taken a lead role in collaborating with other organizations and communities on pollution and environmental justice issues. She has served on many committees and councils of state, including two terms on the NC Sediment Control Commission. She has also worked in science and environmental education, and with public policy issues. She currently is leading the "Frack-Free Waters" campaign for Waterkeepers Carolina (the alliance of the ten Riverkeepers in NC).

11:30 -12:00 **Keynote Presentation**

ECONOMIC DIMENSIONS FOR SHALE-GAS DEVELOPMENT IN NORTH CAROLINA
Jon Williams, Assistant Secretary for Energy, N.C. Department of Commerce



Jonathan Williams is the Assistant Secretary for Energy and oversees the N.C. Energy Office, the state's weatherization program and the state's Energy Policy Council. Prior to his appointment in 2011, Williams chaired the state Alcoholic Beverage Control Commission. As head of the ABC Commission, Williams played a critical role in creating the comprehensive 2010 ABC reform legislation. Under his oversight the state ABC Commission also has focused on issues related to public health, public safety and fair commercial regulation. Prior to leading the ABC Commission, Williams was deputy secretary of the N.C. Department of Crime Control & Public Safety. He was executive director of the Governor's Crime Commission, a member of the N.C. Sentencing and Policy Advisory Commission and the Governor's Advisory Council on Hispanic/Latino Affairs. Prior to that, Williams was a lawyer in private practice in Goldsboro.

12:00 – 12:15 **WRAP-UP AND ADJOURN**

HOTEL INFORMATION

DoubleTree by Hilton Hotel Raleigh, Brownstone – University, 1707 Hillsborough Street, Raleigh, NC 27605
Call (919) 828-0811 for sleeping room reservations. Group rate \$94 available. Book before 7/18 to guarantee rate

CONTINUING EDUCATION



Continuing education credit approvals for geologists, engineers and attorneys have been applied for
Details will be posted on the AGWT and NC AEG web-sites when approval is confirmed
Certificates of attendance will be mailed post event as documentation for professional or licensing requirements.



**Association of Environmental
& Engineering Geologists, Carolinas Section**

- Building public appreciation for how environmental and engineering geology contribute to public safety and the protection of property
- Offering information on environmental and engineering geology useful to practitioners, scientists, students, and the public.

American Ground Water Trust

- Communicating the environmental and economic value of groundwater
- Showcasing ground water science and technology solutions
- Increasing citizen, community and decision-maker awareness
- Facilitating stakeholder participation in water resource decisions

North Carolina: Get Ready for Hydraulic Fracturing



Two-day conference program Raleigh, NC
Thurs. August 9th and Fri. August 10th, 2012
Hotel: DoubleTree by Hilton Brownstone University
1707 Hillsborough Street, Raleigh, NC 27605



SHALE-GAS DEVELOPMENT IN NORTH CAROLINA: A REVIEW OF ECONOMIC AND ENVIRONMENTAL ISSUES



American Ground Water Trust

Association of Environmental &
Engineering Geologists
Carolinas Section



- ◆ WATER SUPPLY ◆ ENVIRONMENT ◆ REGIONAL IMPACTS
- ◆ SCIENCE ◆ TECHNOLOGY ◆ EXPERIENCE IN OTHER STATES
- ◆ IMPACTS ◆ REGULATIONS ◆ LITIGATION ◆ LEGISLATION
- ◆ EMPLOYMENT ◆ EXIT STRATEGY ◆ ALTERNATIVES
- ◆ SOURCE PROTECTION ◆ BEST PRACTICES
- ◆ ENERGY POLICY ◆ CARBON FOOTPRINT
- ◆ LEASE DEALS ◆ SECONDARY IMPACTS
- ◆ INFORMATION EXCHANGE ◆
- ◆ JUST THE FACTS! ◆

REGISTRATION – SHALE-GAS CONFERENCE – RALEIGH - Go to www.agwt.org for more program details

Registration includes: access to exhibits,
networking reception, handouts, breaks and lunch on day 1

YOU MUST CHECK ONE: →

- General Conference Registration
- AGWT and AEG Member
- Government Employee (Municipal, County, State, Federal)
- Full-Time Student (ID required at Registration)
- CD - (Presentation information from speakers mailed post-event)
- Exhibit Table (You must also register to attend.)

	Two Day Aug 9 & 10	One Day Aug 9 or Aug 10
	<input type="checkbox"/>	<input type="checkbox"/> or <input type="checkbox"/>
	<input type="checkbox"/> \$275	<input type="checkbox"/> \$165
	<input type="checkbox"/> \$235	<input type="checkbox"/> \$145
	<input type="checkbox"/> \$235	<input type="checkbox"/> \$145
	<input type="checkbox"/> \$100	<input type="checkbox"/> \$ 60
	<input type="checkbox"/> \$20	
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REGISTRATION

Mail: AGWT, 50 Pleasant Street, Suite 2
Concord, NH 03301

Fax: (603) 228-6557

Call: (800) 423-7748

Scan: e-mail to trustinfo@agwt.org

On line: <http://www.agwt.org> (Conf / Workshops)

Cancellation policy: see website (www.agwt.org)

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