



2012 GWPC Annual Forum Handbook

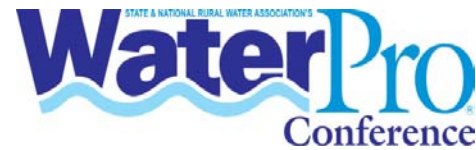
- *GWPC Annual Forum Agenda*
- *GWPC Presenter Bios*

Two National Water Events... ONE GREAT LOCATION!

Ground Water Protection Council



National Rural Water Association



Gaylord Opryland -- September 23-26, 2012 -- Nashville, Tennessee

ANNUAL FORUM



2012 GWPC Annual Forum Agenda

Sunday, September 23		
12:00-6:00 Registration & Morning Reception -- <i>Canal Foyer</i>		
1:00-6:00 GWPC Fall Board of Director's Meeting -- <i>Canal B</i>		
Monday, September 24		
7:00-8:00 Registration & Morning Reception -- <i>Canal Foyer</i>		
8:00-9:40		<i>Canal E</i>
GWPC Annual Forum Opening Session		
- Welcome to 2012 GWPC Annual Forum-- Mike Paque , GWPC Executive Director and Stan Belieu , NE O&G, GWPC President		
Groundwater Use and Protection Planning – Moderator: Jamie Crawford , MS DEQ and GWPC Vice-President		
- Groundwater – A Critical Component of Integrated Water Resource Planning – Pete Goodmann , KY Division of Water		
- U.S. Groundwater Withdrawals in 2005 – Michael Bradley , USGS		
- Developing a Technically Sound Aquifer Testing Plan that Meets the Requirements of the Susquehanna River Basin Commission (SRBC) Brooks Abeln , SRBC		
- Climate, Drought, & Water Management: Federal Initiatives - National Integrated Drought Information System – Robert Webb , National Oceanic & Atmospheric Administration		
- Planning on Monitoring? Do a Monitoring Plan! – Derek Smithee , Chief, Water Protection Division, Oklahoma Water Resources Board		
20 min. Break -- <i>Canal Foyer</i>		
10:00-11:50	<p><i>Water Well 101:</i> <i>Canal C</i></p> <p style="text-align: center;">The Process of Developing a Public Supply Groundwater Source</p> <p>Don Harvard, National Ground Water Association</p> <ul style="list-style-type: none"> - Establishing a need - Selecting a location - Drilling, testing, and evaluating a test boring/well - Well types and designs - Drilling, testing, and evaluating the finished well - Establishing the quantity and quality - Permitting the source - Selection on pumping equipment 	<i>Canal E</i>
		<p style="text-align: center;">Deep Groundwater Discussion Session</p> <p>Moderator - Kevin Frederick, WY DEQ; Groundwater Expert Panel: Joe Tiago, USEPA OGWDW; W. Kirk Martin, CDM Smith; Mike Wireman, USEPA Region 8; Fred Bloetscher, Florida Atlantic University; and Andrew Manning, USGS</p> <p>Use of deep groundwater as a drinking water source</p> <ul style="list-style-type: none"> - What are the current trends in obtaining and using deep groundwater as a source of drinking water; how are changes in total population, population distribution and/or land use changing freshwater demand? - Are drinking water systems using deep ground water as a drinking water source, if so, under what circumstances? - What are the challenges of using deep ground water sources, and what are the advantages? <p>Advances in understanding deep ground water hydrology</p> <ul style="list-style-type: none"> - What methods/tools are in use to assess ground water flow and what are their limitations? - What current research regarding deep ground water flow is underway? - What should be done to improve knowledge on deep ground water? - What are the alternatives for accurately characterizing deep round water flow? - Discuss the hydraulics and geochemistry of the various deep groundwater flow systems. - Discuss the behavior of deep groundwater as a transport medium for dissolved contaminants in the various reservoirs & rock types. - Research on regional – scale basin modeling.
70 min. Lunch Break – on your own		

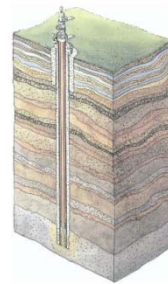
Monday, September 24			
1:00-2:40	<p><i>Groundwater 101: Canal C</i></p> <p>Basic Principles of Hydrogeology & Contaminant Transport</p> <p>Mike Wireman- USEPA Region 8</p> <p>Basic Principles of Hydrogeology</p> <ul style="list-style-type: none"> - What is groundwater? - Hydrologic cycle - Geology and groundwater - Groundwater Hydrology - Groundwater / surface water interaction - Groundwater quality 	<p>Practical Guidelines for the Investigation and Understanding of Potential Stray Gas Impacts Canal E</p> <p>Moderators: Paul Jehn, GWPC</p> <p>Federal Partner Initiatives:</p> <ul style="list-style-type: none"> • Kelly Rose, NETL - NETL's Energy Data Exchange (EDX) - Supporting Science-Based Decision Making for Safe & Environmentally Prudent Energy Resource Development <p>Stray Gas Incidence & Response</p> <ul style="list-style-type: none"> • A Review of GWPC's Stray Gas Incidence & Response Forum - John Veil, Veil Environmental <p>Technical Seminar:</p> <p>Practical Guidelines for the Investigation and Understanding of Potential Stray Gas Impacts</p> <ol style="list-style-type: none"> 1. Stray gas: sources, migration mechanism – Lisa Molofsky, GSI Environmental, Inc. <ol style="list-style-type: none"> a. Natural sources (e.g., shallow natural gas deposits, swamp gas, etc.) b. Non-natural sources & mechanisms for methane migration in the environment (e.g., casing leaks, blowouts, pipeline ruptures, etc.) c. Types of methane: biogenic (via CO₂ reduction and acetate fermentation) and thermogenic (immature & mature sources in the subsurface) 	<p><i>Canal B</i></p> <p>State Groundwater Regulatory Roundtable</p> <p>(State Regulatory Agency Persons Only, Please)</p> <p>Moderators: John Barndt, DE NREC</p>
20 min. Break -- <i>Canal Foyer</i>			
3:00-4:50	<p><i>Groundwater 101 (cont.) Canal C</i></p> <p>Transport and Fate of Contaminants in Groundwater</p> <p>Mike Wireman- USEPA Region 8</p> <ul style="list-style-type: none"> - Controls on fate and transport - Fate and transport processes - Partitioning - Retardation - Contaminant degradation - Contaminant Plumes 	<p>...Stray Gas Session (continued) Canal E</p> <ol style="list-style-type: none"> 2. Pre- and Post-drill sampling of water wells – Scott Haas, SAIL Energy, Environment & Infrastructure, LLC <ol style="list-style-type: none"> a. Current state regulations & guidance documents regarding pre-drill sampling <ol style="list-style-type: none"> i. Overview: which states have issued regulations/ recommendations (variability of sources) ii. Radius & timeframe of sampling iii. Sampling methodology (current procedures) iv. Analytical suite (current recommended suites and considerations during selection of parameters) b. Natural temporal variability (short-term vs. long-term variability) c. Overview of how states currently handle charges in groundwater quality for pre-drill to post-drill sampling 3. Pre-drill GW Quality – Elizabeth Perry & Rikka Bothum, AECOM <ol style="list-style-type: none"> a. Methane detections, correlations b. Water type c. Valleys vs. uplands d. Findings & conclusions 4. Lines-of-evidence approach to investigation of potential stray gas impacts – Lisa Molofsky, GSI Environmental, Inc. <ol style="list-style-type: none"> a. Historical context b. Geology / hydrogeology c. Regional water quality (including natural variability) d. Well construction details e. Geochemical data 5. Application of isotope and molecular composition of gases to assess stray gas origin – Julie Sueker, Arcadis Inc. <ol style="list-style-type: none"> a. Fundamentals of isotopic and molecular composition for distinguishing gas origin b. Case Studies applying geochemical and isotopic fingerprinting <p>Session Wrap-up: A State Approach to Stray Gas Prevention and Incident Response: Scott Kell, Geologist</p>	<p><i>Canal B</i></p> <p>Class VI Primacy & Class VI Permits</p> <p>Moderators: Bruce Kobelski & Lisa McWhirter, USEPA OGWDW</p> <ul style="list-style-type: none"> - Status and update on GS Permits - Status and update on GS Guidance Documents - Status and update on GS Primacy
10 min. Break <i>Canal Foyer</i>			
5:00-6:45	<p>JOINT- GWPC Groundwater Quality / <i>Canal D</i></p> <p>GWPC Groundwater Availability & Sustainability Division Meeting</p>	<p>GWPC Water Energy Division Meeting</p>	<p><i>Canal B</i></p>

Acknowledgements: *Event Sponsors and Contributors*



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Tuesday, September 25			
7:00-8:00 Morning Reception <i>Canal Foyer</i>			
8:00-10:00	<p><i>Groundwater Monitoring Session</i> <i>Canal C</i></p> <p>National Ground Water Monitoring Data Network Moderator, Bob Schreiber, SOGW/CDM-Smith</p> <p>Bob Schreiber, SOGW/CDM-Smith What is the National Ground Water Monitoring Network?</p> <p>Mike Wireman, USEPA Region 8 Framework Document and Pilot Results</p> <p>Daryll Pope, USGS One Pilot's Experience Outreach, Network Portal Demonstration-- Network additions, Network portal improvements</p> <p>Kevin McCray, NGWA What is the potential for funding? Congressional Activity</p> <p>Bob Schreiber, SOGW/CDM-Smith -- Next Steps</p>	<p>Groundwater and Oil & Gas Session <i>Canal E</i></p> <p>Moderator, Mike Nickolaus, GWPC</p> <p>Protection of Drinking Water Resources in Oil and Gas Development - Adam Carpenter, American Water Works Association</p> <p>Hydraulic Fracturing Research Needs for the Water Community, Shonnie Cline, Water Research Foundation</p> <p>Design Process for Sustainable Long-Term Wellbore Integrity - Glen Benge, Deepak Khatri, and Brian Lockwich, Baker Hughes</p> <p>Risk Management Best Practices for Oil & Gas Operations Using Hydraulic Fracturing, Robert Puls, Director, Oklahoma Water Survey</p> <p>Environmental Lessons Learned and Application of Best Practices to Both New and Existing Shale Plays, David Alleman, ALL Consulting</p>	
20 min. Break <i>Canal Foyer</i>			
10:20-11:20	<p><i>Groundwater Monitoring Session (cont.)</i> <i>Canal C</i></p> <p>Other Data Portals and Quality Monitoring Efforts Moderator: Marty Link, NE DEQ</p> <p>RBDMS Water - Potential Partner with the NGWMN, Paul Jehn, GWPC</p> <p>EPA's UIC Database Completion Initiative: Ron Bergman, & Michael Plastino, USEPA</p>	<p>Groundwater and Oil & Gas Session (continued) <i>Canal E</i></p> <p>Evaluating and Mitigating the Impacts of Shale Gas Extraction on Landscape Fragmentation and Erosion Potential - Chi Ho Sham, Ph.D., Salvatore DeCarli, and Brian Caccavale, the Cadmus Group, Inc.</p> <p>Control and Treatment of Flowback and Produced Waters from Hydraulic Fracturing, Edwin Pinero, Veolia Water North America</p> <p>Managing Oil and Natural Gas Development on U.S. Federal Lands and Federal Mineral Estates - Michael Nedd, Bureau of Land Management</p>	
80 min. Lunch Break – on your own			
12:40-1:40	<p><i>Groundwater Monitoring Session (cont.)</i> <i>Canal C</i></p> <p>Groundwater Monitoring Efforts Moderator: Marty Link, NE DEQ</p> <p>Real-Time Monitoring system for Evaluation Long-Term Variability in Methane in Domestic Water Wells in Northeast Pennsylvania - Charles Whisman, GES</p> <p>Managing Ground Water Data – Just as Important as Gathering It – Marty Link, NE DEQ</p>	<p>Shale School <i>Offered by Chesapeake Energy</i> <i>Canal E</i></p> <p>Presenter: John Satterfield - Director of Environmental & Regulatory Affairs, Chesapeake Energy</p> <p><i>Ever wonder what details are involved in North American shale gas development from the perspective of an industry producer? GWPC will offer this special session that will provide insight regarding the steps necessary for environmentally prudent shale gas development. This session, developed by Chesapeake Energy is open to all attendees of the NRWA WaterPro Conference & GWPC Annual Forum. Chesapeake Energy is one the most active companies in the shale gas development industry.</i></p>	<p><i>Canal B</i></p> <p>State Oil & Gas Regulatory Roundtable (State Regulatory Agency Persons Only, Please) Moderators: Hal Fitch, MI O&G & Mark Bohrer, ND O&G</p>

Tuesday, September 25			
1:40-2:40	<p style="text-align: right;"><i>Canal C</i></p> <p>USEPA Permitting Guidance for Oil & Gas Hydraulic Fracturing Activities Using Diesel</p> <p>Presentation by: Ron Bergman & Bruce Kobelski, USEPA OGWDW</p> <ul style="list-style-type: none"> - Specification - Implementation (State, Industry, ...) 	<p style="text-align: right;"><i>Canal E</i></p> <p>Shale School (continued)</p> <p>Presenter: John Satterfield, <i>Chesapeake Energy</i></p> <ul style="list-style-type: none"> - Exploration - Site Selection - Permitting - Road and Pad Construction - Drilling 	<p style="text-align: right;"><i>Canal D</i></p> <p>Nutrients & Ground Water Roundtable</p> <p>Moderator: Audrey Eldridge, OR DEQ</p>
20 min. Break -- <i>Canal Foyer</i>			
3:00-5:30	<p>State/EPA Roundtable Discussion (State & EPA Regulatory Agency Officials Only) <i>Canal B</i></p> <p>Panel: Ann Codrington & Ron Bergman, EPA; Kurt Hildebrandt, EPA-7; Andrews Tolman, ME Drinking Water; Leslie Savage, TX RRC; & Marty Link, NE DEQ</p> <ul style="list-style-type: none"> - Aquifer Exemption - Compressed Air Storage - Aquifer Storage & Recovery - Hydraulic Fracturing (use of alternative fluid) - Nutrients and Groundwater - CWA – SDWA integration - Other topics... 	<p style="text-align: right;"><i>Canal E</i></p> <p>Shale School (continued)</p> <p>Presenter: John Satterfield, <i>Chesapeake Energy</i></p> <ul style="list-style-type: none"> - Completion - Production - Pipelines - Compressor Stations - Plugging/Abandoning 	
Wednesday, September 26			
7:00-8:30 Morning Reception -- <i>Canal Foyer</i>			
8:30-9:40	<p>Joint GWPC/NRWA Educational Session <i>Delta A</i></p> <p>EPA Water Priorities for 2013: Facilitator: David Baird, Delaware Rural Water</p> <p>Panel: Ann Codrington, (USEPA), Mike Keegan (NRWA), Jim Taft (ASDWA), and Mike Paque (GWPC)</p>	8:00-9:40	<p style="text-align: right;"><i>Canal E</i></p> <p>Legislation & Regulations Governing Use of Hydraulic Fracturing:</p> <p>Moderator: Stan Belieu-NE Panel: Tom Richmond-MT; Tom Tomastik-OH; Joe Lee-PA; John Baza-UT; Tim Kustic-CA</p>
20 min. Break -- <i>Canal Foyer</i>			
10:00-11:30	<p>Joint GWPC/NRWA Educational Session: <i>Bayou D</i></p> <p>Source Water Protection and Agriculture a Win/Win Partnership</p> <p>Agriculture BMPs and Source Water Protection and Sowing the Seeds of Success: A Drinking Water - Aaron Meyer, Source Water Specialist, Minnesota Rural Water Association</p> <p>Sowing the Seeds of Success: A Drinking Water Protection Partnership in the Salmon Falls Watershed - Kira Jacobs, Drinking Water Protection Program, EPA Region 1</p>	<p style="text-align: right;"><i>Canal E</i></p> <p>FracFocus Version 2.0 Operator Training</p> <p>Presented by: Mike Nickolaus, GWPC & Mark Layne, ALL</p> <ul style="list-style-type: none"> - Registration (Operator, Service Company, Agent, Agency) - Management of Personnel - Operator Management of Service Companies & Agents - XML Data Development and Submissions - Validation Edit Checks - Work Queue Disclosure Form - Submission of Disclosure to FracFocus Public Site 	<p style="text-align: right;"><i>Canal B</i></p> <p>GWPC Groundwater Report Work Session</p> <p>Moderators: Dan Yates, GWPC, & Mary Musick, Musick Groundwater Consulting</p>
75 min.	Lunch – on your own		
12:45-3:45	<p>Source Water Protection Session <i>Canal D</i></p> <ul style="list-style-type: none"> - The Salmon Falls Watershed Collaboration – Andrews Tolman, Maine Drinking Water Program - County Driven Approaches to Source Water Protection Implementation, Matt Genchur, and Nate Merkel – Pennsylvania Rural Water Association - Source Water Protection in Mississippi: Just Plugging Away – Jamie Crawford, Mississippi DEQ and Matthew Payne, Mississippi Rural Water Association <p>Source Water Roundtable</p>		

PRESENTER BIOS BY SESSION

Groundwater Use and Protection Planning

Jamie Crawford, MS DEQ and GWPC Vice-President. Mr. Crawford, a registered PG, has worked as a hydrogeologist at the Mississippi DEQ for the past 27 years. During that period, he has been involved in a host of different programs and areas involving the protection and management of groundwater resources in Mississippi.

Pete Goodmann, Assistant Director, Kentucky Division of Water: Mr. Goodmann has worked for Department for Environmental Protection since 1993, including 13 years as a manager of the Division of Water's Groundwater and Watershed programs prior to being appointed Assistant Director in 2008. He is responsible for overseeing Kentucky's water regulatory programs, including the Clean Water Act and Safe Drinking Water Act programs and other programs, including the Dam Safety program, Stream Construction/Floodplain permitting, NFIP, and the Risk Map program, and the Agriculture Water Quality Act. Peter earned his B.S. in Geology from the University of Iowa (1984), his M.A. in Geology from Temple University (1986), and conducted other post-graduate work at the University of Kentucky, where he was a Chevron fellow.

Michael W. Bradley, Assistant Director for Ground-Water Investigations and Research, Tennessee Water Science Center USGS: Michael Bradley graduated with a BS in geology from Austin Peay State University, has worked as a geologist and ground-water researcher for the USGS since June 1980, and is a registered Professional Geologist. During the time with the USGS, Michael has directed ground-water projects on the development of ground-water supplies in Middle Tennessee and East Tennessee and ground-water contamination and contaminant transport at landfill and Superfund sites in Middle and West Tennessee. Michael has also conducted water-quality and geochemical studies utilizing environmental isotopes and age-dating to evaluate ground water flow in Tennessee, Alabama, and South Dakota. Michael has authored or coauthored more than 30 publications on geology and ground water.

Brooks G. Abeln, P.G., Hydrogeologist, Susquehanna River Basin Commission. As a Hydrogeologist with the Susquehanna River Basin Commission (SRBC), Brooks has been involved in many facets of water resource management. Serving in that capacity since 2007, he has evaluated numerous aquifer testing plans and groundwater withdrawal applications submitted for various commercial and industrial water uses including: public water supply, power generation, and natural gas development. Brooks is responsible for evaluating these complex hydrologic projects for the beneficial development, environmental protection, and the long-term sustainable utilization of the basin's shared water resources. Brooks has also been involved with the development of policies and guidance related to the review and approval of groundwater projects within the regulatory and planning framework of the SRBC. Prior to joining SRBC, Brooks worked for ten years as an environmental consultant in the private sector. Brooks received his B.S. in Geology from Bloomsburg University in 1999, and has been a licensed Professional Geologist in Pennsylvania since 2006.

Robert Webb, National Oceanic & Atmospheric Administration. Robert is the Climate Analysis Branch Chief in the Physical Sciences Division of the NOAA Earth System Research Laboratory. The branch strives to advance national capabilities to interpret the causes of observed climate variations, to apply this knowledge to improve climate models and forecasts, and to develop climate products that better serve the needs of the public. He is a member of the National Integrated Drought Information System (NIDIS) Implementation Team and NIDIS Program Office coordinator of the four pilot Drought Early Warning Information System activities in California. Webb is the NOAA lead on the federal interagency Climate Change and Water Working Group (CCAWWG) focused on advancing scientific collaborations in support of water management as climate changes. Webb is a member of the National Climate Assessment Indicators Work Group. His research focuses improving the use and usability of climate information to support improved policy, planning and decision making.

Derek Smithee, Oklahoma Water Resources Board. Derek is Chief of the Water Quality Programs Division for the Oklahoma Water Resources Board. In that capacity he oversees Oklahoma's Water Quality Standards (WQS) and Standards Implementation rules, lake's work including diagnostic and feasibility studies and restorations, and much of Oklahoma's surface and groundwater monitoring programs. Specific widely recognized programs include the Beneficial Use Monitoring Program (BUMP), Use Support Assessment Protocol Rules and the WQS Implementation Advisory Council established to assure that Oklahoma's environmental agencies are compliant with state law. He serves on and chairs numerous state and federal workgroups and was instrumental in the development of numerous state and federal regulations including WQS Implementation Rules, Anti-degradation requirements, numerical aquatic life and human health criteria, and Use Support Assessment Protocols. He has/is serving on the Board of Directors for the Association of Clean Water Administrators (formerly ASIWPCA) including Chairing ACWA's Monitoring, Standards and Assessment Task Force since 1990 and is on the Board of the Groundwater Protection Council. He is also a member of the National WQS Managers Association and the National WQS Communication Forum.

Water Well 101: The Process of Developing a Public Supply Groundwater Source

Don Harvard, National Ground Water Association: Don is currently the Public Groundwater Systems Coordinator for NGWA, with an emphasis on groundwater systems technical training, education, and professional development. He also assists in membership recruitment, publications, sales and marketing. Don has been involved in the public groundwater supply industry for 30+ years as a groundwater contractor, past President of the Alabama Ground Water Association, and served on the NGWA Board of Directors.

Groundwater 101: Basic Principles of Hydrogeology & Contaminant Transport

Michael Wireman is a hydrogeologist with the US EPA in Denver, CO, where he serves as a National Ground-Water Expert. He has a Master's degree in hydrogeology from Western Michigan University, post MS work at the Colorado School of Mines and 30 years of experience in ground-water investigations in the Rocky Mountain west. In his current position he provides scientific support to several EPA programs, other Federal agencies, International programs and State ground-water programs. Mike manages research projects related to mine-site hydrology / geochemistry, isotope hydrology, ground-water / surface water interaction and aquifer characterization. He has significant experience in the legal, scientific and programmatic aspects of ground-water resource management. He also has extensive experience in ground-water related work in the Baltic countries, Ukraine, Romania and Georgia. He has served as an adjunct professor at Metropolitan State College in Denver where he taught a class on Contaminant. He is a member of the Colorado Ground- Water Association, the National Ground Water Association, the Geological Society of America, and is the current President of the US Chapter of the International Association of Hydrogeologists.

Deep Groundwater Discussion Session

Kevin Frederick manages the Groundwater Section for the Wyoming Department of Environmental Quality's Water Quality Division in Cheyenne, Wyoming. Since joining the DEQ he has been involved with the design and development of several of Wyoming's ground water protection initiatives, including Wellhead Protection and Source Water Assessment, Aquifer Sensitivity Mapping, and Aquifer Prioritization. In his current position he oversees the day-to-day permitting, compliance, inspection, and monitoring activities involving the Underground Injection Control Program, the Groundwater Pollution Control Program, the Federal Facilities Corrective Action Program, and Wyoming's statewide ambient groundwater monitoring program. He is a registered professional geologist, serves on the Board of Directors for the Ground Water Protection Council and is a past board member of Wyoming's Well Drillers Board of Registration and Licensing. In 2007 Kevin received the US EPA Region 8 "Environmental Achievement Award" for leadership in ground water management.

Dr. **Andrew Manning** is a Research Geologist in the U.S. Geological Survey's Central Mineral and Environmental Resources Science Center in Denver, Colorado. His research is focused mainly on groundwater flow in mountainous terrain and fractured rock, crustal-scale fluid flow systems involved in the formation of mineral deposits, and the environmental impacts of mineral deposits. He received a Ph.D. in geology from the University of Utah in 2003. Prior to his Ph.D. work, he obtained an M.S. in structural geology, worked as an environmental consultant, and worked for the U.S. Army Corps of Engineers managing environmental restoration projects. Dr. Manning regularly publishes papers on hydrogeology and geochemistry in peer-reviewed journals, and has served on several USGS projects performed cooperatively with other state and federal agencies.

W. Kirk Martin has 30 years experience as a practicing hydrogeologist specializing in water supply planning and development, water resource characterization, and the application of a wide range of analytical methods in developing innovative solutions to complex water resource challenges. Mr. Martin's experience includes development of large capacity water supply and aquifer recharge projects for state and municipal governments, agricultural enterprises, and industrial applications. He commonly serves in a technical advisory capacity to state, regional, and local governing councils and legislative bodies on water resource issues. Mr. Martin is a Vice President with CDM Smith where he currently serves as a water resource lead practitioner and groundwater modeling technical director.

Dr. **Frederick Bloetscher** holds a Ph.D. in Civil & Environmental Engineering from the University of Miami, a Master of Public Administration from the University of North Carolina at Chapel Hill, and a B.S. in Civil Engineering from the University of Cincinnati. He is an Associate Professor at Florida Atlantic University. His areas of expertise includes water resource management issues and utility management. Major areas of research in the past five years have included adaptation strategies for sea level rise on water, wastewater, stormwater and transportation infrastructure, water supply challenges for water limited areas, water quality solutions for water supply challenges, and public health impacts of emerging water contaminants. His past experience includes 11 years as Director or Deputy Director of large water and sewer utility systems in south Florida and managing two municipalities North Carolina. He has written over 200 papers, 16 peer reviewed, concerning utility management and practice, most of which have been published in Florida or concerned south Florida issues. He has authored five books on water issues, two of which relate to utility management issues, including the AWWA best seller – Basics for

Decision-makers. He is past-Chair for the Board of Trustees for AWWA's Water Resource Division, past Chair of AWWA's education committee, Chair of the FSAWWA conference program committee served for three years as chair of the South Florida Water Management District's Utility Advisory Committee Chair.

Michael Wireman is a hydrogeologist with the US EPA in Denver, CO, where he serves as a National Ground-Water Expert. He has a Master's degree in hydrogeology from Western Michigan University, post MS work at the Colorado School of Mines and 30 years of experience in ground-water investigations in the Rocky Mountain west. In his current position he provides scientific support to several EPA programs, other Federal agencies, International programs and State ground-water programs. Mike manages research projects related to mine-site hydrology / geochemistry, isotope hydrology, ground-water / surface water interaction and aquifer characterization. He has significant experience in the legal, scientific and programmatic aspects of ground-water resource management. He also has extensive experience in ground-water related work in the Baltic countries, Ukraine, Romania and Georgia. He has served as an adjunct professor at Metropolitan State College in Denver where he taught a class on Contaminant. He is a member of the Colorado Ground- Water Association, the National Ground Water Association, the Geological Society of America, and is the current President of the US Chapter of the International Association of Hydrogeologists.

Joe Tiago, USEPA Office of Groundwater & Drinking Water: Mr. Tiago holds a Bachelor's degree in Chemistry, Master of Science in Material Chemistry, and a Master of Public Health degree in Epidemiology and Environmental Health. Mr. Tiago spent seven years working as a chemist with the Texas Department of Health and the Texas Commission on Environmental Quality where he analyzed drinking water, air and other environmental samples. In 2008 he joined the US Environmental Protection Agency Headquarters in Washington, DC. He currently works in the Underground Injection Control Program where he assists in developing regulations for ground water. He worked on various drinking water issues associated with Geologic Sequestration, Hydraulic Fracturing, Class V mine backfill wells, mountaintop mining, and Aquifer Exemptions.

Practical Guidelines for the investigation and Understanding of Potential Stray Gas Impacts

Kelly Rose, National Energy Technology Laboratory: Kelly Rose is a geologist with the National Energy Technology Laboratory's (NETL), Office of Research & Development. Rose works within NETL-ORD conducting geologic and geospatial research in support of energy and climate related programs. Rose has >13 years experience as a geologist and > 6 years research management experience in both the public and private sectors. Since 2006 Rose has participated in studies worldwide focusing on constraining spatial geologic controls on hydrocarbon and geothermal systems. Prior to joining NETL she worked as an exploration geologist with Marathon Oil Company. She holds a B.S. and M.S. in Geology and is currently pursuing a PhD in Geology at Oregon State University.

John Veil founded Veil Environmental, LLC, a consulting practice specializing in water issues affecting the energy industries, upon his retirement from Argonne National Laboratory in January 2011. Veil spent more than 20 years managing the Water Policy Program for Argonne. Before that, he managed Maryland's regulatory programs for industrial wastewater discharge and injection and served as a faculty member of the University of Maryland. Veil has degrees in Earth and Planetary Science, Zoology, and Civil Engineering. He has published many articles and reports and is frequently invited to make presentations on environmental and energy issues.

Lisa Molofsky is a geologist at GSI Environmental Inc., where she has conducted research on effective analytical approaches to the characterization and investigation of stray gas incidents, water resource management issues associated with hydraulic fracturing, the nature, occurrence, and cost of oilfield remediation projects, and the identification and quantification of sources of variability in groundwater monitoring. Before joining GSI in 2009, she received an M.S. in Geochemistry from the University of Arizona.

Scott Haas is the Quality Assurance / Quality Control Manager for SAIC's Water, Environment, and Transportation Operation. This operation includes the Commercial Environmental Services Division responsible for pre/post-drill water well sampling and data analysis. He holds a Bachelor of Science in Chemical Engineering from the University of Oklahoma and has extensive experience in environmental sampling and laboratory operation. Mr. Haas joined SAIC in 2008 after 19 years in the environmental laboratory business as both an analyst and laboratory manager. He has spent the last two years heavily involved in the development and oversight of SAIC's role in Chesapeake's baseline program.

Elizabeth Perry, Ms. Perry is a hydrogeologist at AECOM with over 26 years experience. She is a registered professional geologist in Pennsylvania and Indiana and holds a MS in Engineering Geology from Drexel University and a BA in Mathematics/Geology from Hamilton College. Ms. **Rikka Bothun** is a senior data analysis specialist and geologist with AECOM with over 13 years experience. She holds a BS in Geology from Colorado State University and is a MEng Civil Engineering/GIS candidate at the University of Colorado at Denver. Mr. Smith is a Senior Hydrogeologist with Chesapeake Energy. Mr. Hollingsworth is an Environmental Manager at Chesapeake Energy with over 15 years of environmental experience. He holds a BS in Chemistry from David Lipscomb University in Nashville, TN.

Dr. **Julie Sueker** is a hydrologist with 21 years of professional experience in geochemistry, environmental forensics, physical hydrology, isotope hydrology, isotope geochemistry, and hydrogeology. She has considerable experience in designing, managing, and conducting environmental forensic investigations and is skilled in applying physical, chemical, isotopic, and statistical approaches to evaluate sources and fate of constituents of interest in soil, surface water, and groundwater. Dr. Sueker leads the Applied Isotope Geochemistry technical team for ARCADIS and is authoring a book on isotope applications in environmental investigations.

Scott Kell is a consulting geologist focused on national energy and groundwater protection policy. Mr. Kell served thirty years as a geologist and administrator with the Ohio Department of Natural Resources, Oil and Gas Division. Prior to retirement from management in 2010, Mr. Kell served ten years on the Board of Directors of the Ground Water Protection Council, including two years as President. Mr. Kell earned a B.S. in Geology from Mount Union College and a M.S. in Geology from Kent State University.

Class VI Primacy & Class VI Permits

Bruce Kobelski, Office of Ground Water and Drinking Water, US Environmental Protection Agency. Bruce has been with EPA's Underground Injection Control (UIC) program in Washington, DC Headquarters since 1986 and currently serves as the Team Leader for Geologic Sequestration in the Drinking Water Protection Division. He has co-authored several technical reports including the 2001 Report to Congress on Class I Hazardous Wells, the 2004 Study on Coalbed Methane Hydraulic Fracturing, and recent studies assessing research needs for Geologic Sequestration. His past work experience included the oil and gas industry, and the Department of Interior. He received his M.S. in Geology from Penn State University, and his B.A. in Geology, from Rutgers University.

Lisa M. McWhirter, Office of Ground Water and Drinking Water, US Environmental Protection Agency. Ms. McWhirter holds a BA in Environmental Science from the University of Virginia, MS in Engineering Management from George Washington University, and a JD from Pace Law School. She joined EPA in 2009, where she primarily works on Class VI Primacy and Implementation.

Groundwater Monitoring Session: National Ground Water Monitoring Data Network

Bob Schreiber is a registered professional engineer with over 36 years of experience in water resource planning and computerized engineering analysis. He graduated from MIT's Civil Engineering Department where he focused on groundwater hydrology and water resource systems analysis. He is a senior technical leader specializing in modeling of groundwater flow and contaminant fate and transport, and serves as a company-wide resource at CDM Smith. He is currently ASCE's representative to the Federal Advisory Committee on Water Information, and is co-chair of its Subcommittee on Ground Water, focusing on implementation of a National Ground Water Monitoring Network.

Michael Wireman is a hydrogeologist with the US EPA in Denver, CO, where he serves as a National Ground-Water Expert. He has a Master's degree in hydrogeology from Western Michigan University, post MS work at the Colorado School of Mines and 30 years of experience in ground-water investigations in the Rocky Mountain west. In his current position he provides scientific support to several EPA programs, other Federal agencies, International programs and State ground-water programs. Mike manages research projects related to mine-site hydrology / geochemistry, isotope hydrology, ground-water / surface water interaction and aquifer characterization. He has significant experience in the legal, scientific and programmatic aspects of ground-water resource management. He also has extensive experience in ground-water related work in the Baltic countries, Ukraine, Romania and Georgia. He has served as an adjunct professor at Metropolitan State College in Denver where he taught a class on Contaminant. He is a member of the Colorado Ground- Water Association, the National Ground Water Association, the Geological Society of America, and is the current President of the US Chapter of the International Association of Hydrogeologists.

Daryll Pope is a hydrologist with the U.S. Geological Survey in the New Jersey Water Science Center where he serves as the center Groundwater Specialist. He has a B.S. in Watershed Science from Colorado State University and a Masters in Contaminant Hydrology from Oregon Graduate Institute. He has been involved in groundwater availability studies for many years. He also helps manage the Groundwater-Level Monitoring network in New Jersey.

Kevin McCray, CAE, is the executive director of the National Ground Water Association (NGWA). In addition to executive director of NGWA, McCray is the chief executive of the National Ground Water Research and Educational Foundation. McCray has served on a number of water-related advisory groups, including the U.S. Water Resources Export Council, Water Systems Council, U.S. Department of Commerce mission to Australia and New Zealand, U.S. EPA/AWWA Comprehensive Integrated Resource Cooperative Blue

Ribbon Panel, Kellogg Foundation Ground Water Education Consortium, the Great Lakes Commission Ground Water Education Roundtable, The American Ground Water Trust and the Ground Water Remediation Technology Analysis Center Advisory Board.

At the National Ground Water Association he has led initiatives to develop industry standards, best suggested practices, and significant upgrades to the voluntary certification program. He led an award-winning effort to develop computer-based business management tools for water well drilling and pump installation contractors.

Groundwater Monitoring Session: Other Data Portals & Quality Monitoring Efforts

Paul Jehn, Ground Water Protection Council has over 30 years of experience in ground water and drinking water protection and remediation. Paul received his B.S. in geology from the University of Dayton, a M.S. in sedimentary geochemistry from Louisiana and worked on his Ph.D. in geochemistry at Texas Tech University. Paul is currently the project manager for the RBDMS Data Management System.

Ron Bergman has served as the Branch Chief of the Prevention Branch in EPA's Drinking Water Protection Division since January 2012. Prior to his current position, Mr. Bergman served as acting Deputy Director of the Office of Ground Water and Drinking Water. Mr. Bergman served for the past 7 years as the Chief of the Protection Branch in DWPD and has been an invaluable resource in OGWDW and EPA for two decades. He has served as special assistant to the director of OGWDW and as a legislative liaison in the Office of Congressional and Intergovernmental Relations. Prior to his EPA experience, Ron worked as a legislative assistant in the US House of Representatives and in the Delaware legislature.

Michael Plastino has been the Associate Chief of the EPA Drinking Water Protection Division's Infrastructure Branch since 2010. In this capacity, Michael is responsible for Drinking Water Information Systems, including the Safe Drinking Water Information System, the Underground Injection Control Database, the Aircraft Reporting and Compliance System, and the Safe Drinking Water Accession and Review System. Michael's previous EPA experience at EPA includes leading the Clean Watersheds Needs Survey Team and leading information systems integration efforts for the Office of Water. Michael has a B.S. in Environmental Resources Engineering (Water Resources emphasis) from Humboldt State University and an M.S. in Environmental Resources Engineering (GIS emphasis) from SUNY Syracuse.

Groundwater Monitoring Session: Groundwater Monitoring Efforts

Charles Whisman, P.E. is GES' Chief Technical Officer and has 17 years of industry experience. He leads GES' business strategy, engineering, and technology initiatives. He holds a BS in civil engineering and a certificate in environmental engineering from the University of Pittsburgh.

-Debby McElreath is a Senior Corporate Environmental Specialist at Chesapeake Energy Corporation.

-Bert Smith, P.G. is a Hydrogeologist and Regulatory Specialist at Chesapeake Energy Corporation.

-Charles Olmsted, P.G. is the Supervisor of Regulatory Compliance at Chesapeake Energy Corporation.

-Denise Good, P.E. is a Principal Engineer at GES.

-Richard Wardrop, P.G. is a Principal Hydrogeologist at GES.

Marty Link has worked for the Nebraska Department of Environmental Quality since 1988. Her duties there have been in most aspects of both ground and surface water, budgeting, and working with EPA. She is currently Acting Water Quality Division Administrator. Ms. Link received her geology MS degree from UN-L in 1989, BS in geology from University of Kansas in 1982, and a BA in science education from University of Iowa in 1979. She is a licensed professional geologist in Nebraska.

Groundwater and Oil & Gas Session

Adam Carpenter works in AWWA's DC Government Affairs Office, and serves as an expert on a diverse set of drinking water issues including climate change, hydraulic fracturing, consumer confidence reports, carbon capture and storage, the Energy-Water nexus, and other environmental issues. Along with his colleagues, he works to further AWWA's mission of supporting clean, affordable drinking water through sound application of science into policy, source water protection, sensible regulation, public awareness, and building stakeholder consensus. He holds a bachelor's degree from George Washington University in Biology, a master's degree from Johns Hopkins in Environmental Sciences and Policy, and is pursuing a Ph.D. in Environmental Policy from George Mason University.

Shonnie Cline has over ten years of experience working with water, wastewater and stormwater utilities. She joined the Water Research Foundation in June 2007 where she holds the position of Senior Account Manager, serving as the liaison between the Foundation and drinking water utilities in the southwestern US. Prior to coming to the Foundation, she worked for a Colorado municipality as an Environmental Manager overseeing stormwater infrastructure, industrial pretreatment, backflow prevention and discharge permits for stormwater and a reverse osmosis water treatment plant. Shonnie holds a Bachelor's degree in Biology, a Bachelor's degree in Business Management and a Masters degree in Organizational Leadership.

Glen Benge retired from ExxonMobil where he spent over 24 years working as a technical advisor in drilling where he oversaw the cementing and wellbore isolation technologies for the global drilling operations. He has 35 years of experience associated with all aspects of oilfield cementing and has authored numerous papers on all aspects of cementing design and application. He is past Chairman of API Subcommittee 10 on Cementing, and has been an active member of API SC10 for over 30 years. He is a technical editor for SPE Drilling and Completion Journal and has served on the steering committee for the SPE Forum on Advanced Drilling Techniques.

Dr. **Robert Puls** is Director of the Oklahoma Water Survey and Associate Professor at the University of Oklahoma. Dr. Puls was employed by the U.S. Environmental Protection Agency (USEPA) in Ada, Oklahoma for almost 25 years. While there, he held positions as Senior Research Scientist, Branch Chief, Director of Research and Laboratory Director. He was the Technical Lead for the ongoing USEPA Study on Hydraulic Fracturing and Drinking Water Resources prior to his retirement in early 2012. He has authored more than 150 publications on ground-water sampling, ground water remediation and hydraulic fracturing and drinking water resources. He has a Ph.D. from the University of Arizona as well as degrees from the University of Washington and the University of Wisconsin.

Deepak Khatri is the Director for onshore Cementing for Baker Hughes in Houston, Texas. He has a total of sixteen years of industry experience, spread across the Middle East, Europe, Africa and North America. He has worked primarily in oil well cementing and has specialized in the areas of Technical support, design, execution, evaluation of cementing jobs including business and training in relation to cementing. He holds a BS in Mechanical Engineering from Bombay University and a Masters in Business Administration from Oklahoma State University. To his credit, he has co-authored SPE papers and has published oil well cementing related articles for trade shows.

Brian Lockwich is an Area Engineer for Baker Hughes Pressure Pumping in Canonsburg, Pennsylvania. He has over six and a half years of service with BJ Services/Baker Hughes in the Mid-Continent and Northeast regions. He has spent the last four years focusing on oil well cementing in various Shale plays (Fayetteville, Haynesville, Marcellus and Utica). He is a member of the local SPE chapter and is active in SPE YP events. He has a BS in Chemical Engineering from the University of Pittsburgh.

David Alleman is a Senior Environmental Manager with ALL Consulting (www.all-llc.com). Mr. Alleman earned his Bachelor's degree in Wildlife Ecology and his Masters degree in Plant Ecology from Oklahoma State University. He has a long history of environmental research related to energy production in the United States. Mr. Alleman's energy and environmental experience includes conventional oil and gas production, both on-shore and off-shore, as well as coal bed natural gas, shale gas, oil shale, processing, and coal. He has been involved in many of the significant technical and regulatory environmental issues affecting the oil and gas industry over the last 20 years, and is currently heavily involved in environmental issues pertaining to unconventional resource development.

Chi Ho Sham, Ph.D., Senior Vice President, The Cadmus Group, Inc., 100 Fifth Ave., Waltham, MA 02451 USA, Phone: 617-673-7156, Fax: 617-673-7356, Email: ChiHo.Sham@cadmusgroup.com; Salvatore DeCarli, Environmental Planner, North Central Conservation District, 24 Hyde Ave, Vernon, CT 06066 USA, Phone: 860-230 6846, Email: decarli@snet.net; Brian Caccavale, Associate Environmental Scientist, Groundwater & Environmental Services, Inc., 364 Littleton Road, Westford, MA 01886 USA, Phone: 800-221-6119, Fax: 978-392-8583, Email: BCaccavale@gesonline.com

Edwin Pinero is the Chief Sustainability Officer for Veolia Water North America (VWNA). He works to support programs at company operations, facilitate relations with key stakeholders in regard to sustainability, as well as develop and implement sustainable programs and services for Veolia Water's clients. VWNA works closely with Veolia Water Solutions and Technologies on oil and gas industry water treatment. Over his 31 year career, he has worked in the private sector, including as a consultant to many clients on sustainability, environment, and energy. He began his career in the oil and gas industry with Mobil Oil as an exploration and production geologist. He has also served in the public sector at the state and Federal level addressing sustainability issues; including serving as the White House Federal Environmental Executive where he focused on developing and implementing Federal sustainability policy and practices. Mr. Piñero served in the Pennsylvania state government in sustainability and energy. He has a B.S. in Geology from SUNY-Brockport and an M.S. in Geology from Texas A&M University.

Michael D. (Mike) Nedd is the Assistant Director for the Bureau of Land Management's (BLM) Minerals & Realty Management. He provides the vision and leadership for developing and implementing programmatic policies, guidance, oversight, human and fiscal resources for renewable energy, fluid and solid minerals, the lands, realty and

cadastral survey program. The BLM manages almost 258 million acres of land – about one-eighth of the land in the United States – and 700 million acres of subsurface mineral estate. Mike has held numerous positions within BLM, including State Director and Deputy Chief Information Officer (CIO). Prior to joining BLM, Mike worked for the National Park Service, the State of South Carolina and several private organizations. He also spent more than eight years on active duty in the military as an officer and enlisted soldier, in several highly specialized units. Mike holds a Master's Degree in Information and Systems Management from Strayer University.

Shale School by Chesapeake Energy

John Satterfield is the Director of Environmental and Regulatory Affairs for Chesapeake Energy. He is responsible for interacting with federal regulatory agencies and stakeholder groups, assisting in the implementation of environmental policies and strategies and managing environmental research projects. He has worked for Chesapeake for over 6 years and was previously the Corporate Manager of Environmental Programs. Prior to coming to Chesapeake, Mr. Satterfield was an environmental consultant for 12 years. During that time, he assisted various clients, addressed multimedia environmental permitting and compliance issues, conducted environmental studies and developed impact mitigation approaches for projects across the United States. He holds a Bachelors of Science in Environmental Science from East Central University located in Ada, OK.

USEPA Permitting Guidance for Oil & Gas Hydraulic Fracturing Activities Using Diesel

Ron Bergman has served as the Branch Chief of the Prevention Branch in EPA's Drinking Water Protection Division since January 2012. Prior to his current position, Mr. Bergman served as acting Deputy Director of the Office of Ground Water and Drinking Water. Mr. Bergman served for the past 7 years as the Chief of the Protection Branch in DWPD and has been an invaluable resource in OGWDW and EPA for two decades. He has served as special assistant to the director of OGWDW and as a legislative liaison in the Office of Congressional and Intergovernmental Relations. Prior to his EPA experience, Ron worked as a legislative assistant in the US House of Representatives and in the Delaware legislature.

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FracFocus Version 2.0 Operator Training

Mike Nickolaus, Ground Water Protection Council received his Bachelor's degree in Geology from Indiana University and has been a Licensed Professional Geologist since 1986. He is also a member of the Society of Petroleum Engineers. Mike has worked as the Special Projects Director for the GWPC since May, 2005. In this capacity he is responsible for development and management of projects related to water/ energy issues and underground injection control.

Prior to joining GWPC, Mike worked for the Indiana Division of Oil and Gas for nearly 20 years in program enforcement, permitting, and underground injection control. In his final two years with the division, Mike served as the state Director of Oil and Gas.

Dr. **Mark Layne** is a registered professional engineer specializing in reservoir engineering, hydraulic fracturing, underground injection, petroleum engineering, Area of Review (AoR) determinations on injection wells, and modeling on wells and reservoirs. He has over 18 years of experience that includes work in industry, government and consulting. Dr. Layne is one of the founding partners of ALL Consulting where he is the VP of Reservoir Engineering. Beginning in 2010, Dr. Layne became the lead design and developer of the chemical disclosure and reporting portions for the FracFocus.org website, providing a transparent means of reporting hydraulic fracturing job chemicals to the public. In addition he provides consulting services to state oil and gas regulatory agencies for the management of oil and gas data and the delivery of that data to the public.

Source Water Protection Session

Andrews L. Tolman, C.G., Assistant Director, Maine Drinking Water Program, has been practicing hydrogeology since 1975. His work has included a variety of public and private sector assignments involving water resource assessment, development, and management. Most of his current time and energy are going towards developing implementation strategies for long term protection and sustainability of water resources and public water systems, and working with water systems and groups with related interests. Andy has a BS from Bates College and two MS's from the University of Wisconsin in Geology and Water Resources Management. He is a Maine Licensed Class IV Water Treatment and

Distribution System Operator, and is a member of the Groundwater Protection Council's Board.

Matt Genchur is currently the manager of the Source Water Protection program for the Pennsylvania Rural Water Association. He has been employed there since 2004 and has served in his current capacity since 2010. During this time, Mr. Genchur has assisted several hundred public water systems in their efforts to protect their sources of drinking water. Mr. Genchur's many experiences with systems range from on-site visits and conversations through drafting full source water protection plans and directly assisting with implementation of those plans. Mr. Genchur is also involved in many statewide and regional water resource planning efforts in Pennsylvania.

Nathan Merkel is a Source Water Protection Specialist working for the Pennsylvania Rural Water Association. Mr. Merkel works very closely with Community Water Suppliers and the Pennsylvania Department of Environmental Protection in developing Source Water Protection plans along with educating residents from different communities on the proper practices of source water protection. Mr. Merkel is also very active in several county source water protection coalition projects across Pennsylvania. He attended Shippensburg University in Shippensburg, Pennsylvania where he majored in Geo-Environmental Science. Mr. Merkel graduated in 2010 with a Bachelor of Science Degree in the Environmental Sciences.

Jamie Crawford, MS DEQ and GWPC Vice-President. Mr. Crawford, a registered PG, has worked as a hydrogeologist at the Mississippi DEQ for the past 27 years. During that period, he has been involved in a host of different programs and areas involving the protection and management of groundwater resources in Mississippi.

Matthew Payne, an engineer certified in water and wastewater, has worked for Mississippi Rural Water Association for the past three years in Source Water Protection, Training, and GPS Mapping. His current program is funded by the Mississippi State Department of Health to manage a grant program assisting systems with proper well abandonment of their inactive wells.



2013 Underground Injection Control Conference

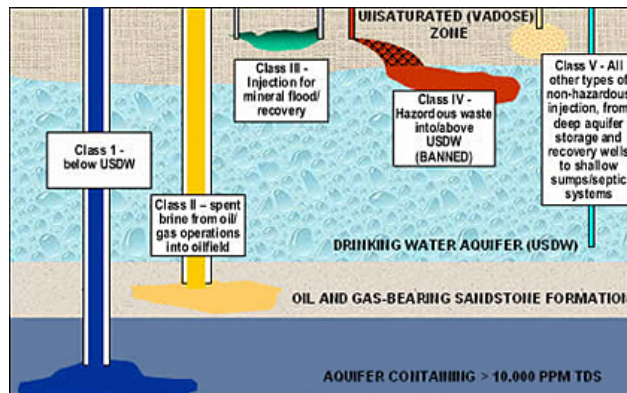
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- JANUARY 22-24, 2013
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Hotel and conference registration available soon at www.gwpc.org/events

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