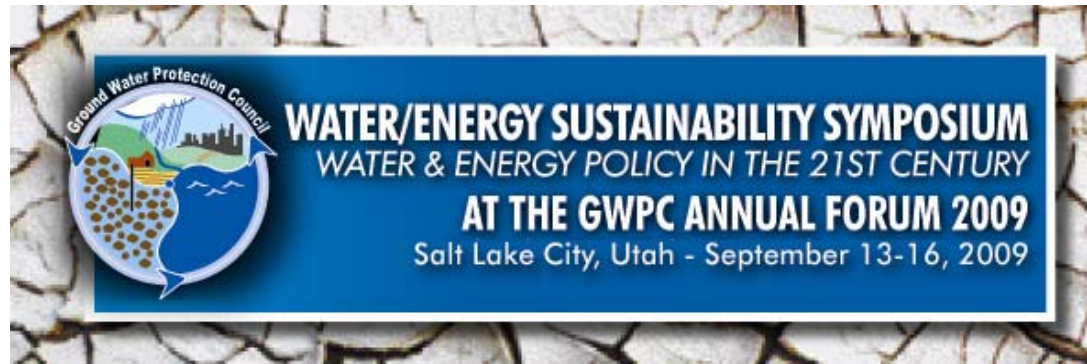


# Proceedings

---

Sponsored by



Co-sponsored by



The Ground Water Protection Council (GWPC) is a national non-profit organization, founded in 1983. The *GWPC Annual Forum* brings together state and Federal agency representatives with the responsibility for ground water/drinking water protection with industry, researchers, and environmental groups in a congenial venue on the latest technology and policy developments. For the last 26 years, the *Annual Forum* has been a major gathering, which brings these groups together to foster discussions on safeguarding the nation's ground water supplies.

---

*The GWPC is a national association of state ground water and underground injection control agencies whose mission is to promote the protection and conservation of ground water resources for all beneficial uses, recognizing ground water as a critical component of the ecosystem.*

*The GWPC provides a forum for stakeholder communication and research in order to improve governments' role in the protection and conservation of ground water.*

To access a presentation, please click on the presenter's name.

To access a full paper, please click on the presentation name.

Monday, September 14

1:15-5:20 Joint Opening Session *Water/Energy Sustainability Symposium/2009 GWPC Annual Forum*

Room: Grand Ballroom C

Session Staff: Dan Yates

1:15-2:40 *The Water-Energy Relationship: Why it is Important (State, Federal, and Local Views)*

Moderator- Joe Lee, Pennsylvania Department of Environmental Protection & GWPC President

Welcome - John Baza, Director, Division of Oil, Gas, & Mining, Utah Department of Natural Resources **Abstract #5**

Deanna Archuleta, Deputy Assistant Secretary for Water and Science, US Department of Interior **Abstract #5**

Tony Willardson, Western States Water Council, Water and Energy in the West – Now and Later **Abstract #6**

Nancy Johnson, Director Environmental Science and Policy Analysis, Office of Oil and Natural Gas, US Department of Energy **Abstract #5**

2:40-3:00 BREAK - in Exhibit Hall Grand Ballroom A&B

Room: Grand Ballroom C

Session Staff: Dan Yates

3:00-5:00 *What are the Water-Energy Interrelationships and Who Is Impacted*

Moderator- Scott Kell, Ohio Division of Natural Resources, Oil & Gas Division & GWPC Past-president

Mike Hightower, Sandia National Laboratories – Water and Energy – Emerging Issues and Challenges **Abstract #7**

Jared Ciferno, NETL's Technology Manager for Existing Plans, Emissions & Capture – The Water energy Interrelationship **Abstract #8**

Jan Dell, CH2M Hill – Relationships in the Energy Production Industry **Abstract #9**

Bob Goldstein, Electric Power Research Institute - Electric Power/Water Sustainability **Abstract #10**

Rick Holmes, Southern Nevada Water Authority – Water-Energy Interrelationships: A Municipal Perspective **Abstract #11**

Jeff Niermeyer, Salt Lake City Public Utility Department –Energy Water Nexus: Water and Wastewater View **Abstract #12**

5:00-5:20 Special Guest Presentation

Don Johnson, Actor – *WaterFix: Merging Commercial and Humanitarian Solutions for Water in the 21<sup>st</sup> Century*

Room: Alpine Ballroom

Session Staff: Dan Yates

5:30-7:30

Joint *Water/Energy Sustainability Symposium & 2009 GWPC Annual Forum*

Welcome/Networking Reception

Special Presentations by:

Manna Energy – "Inspired from Space: Sustainable Global Clean Water Solutions-- the Energy Water Nexus"

Wellness through water... empowering people globally, Camille DowBaker, Centre for Affordable Water and Sanitation Technology

Reception Sponsored by: Chesapeake Energy Corporation

Tuesday, September 15

7:55-10:00

Morning Sessions

*Water/Energy Sustainability Symposium Tracks*

*GWPC Annual Forum Tracks*

Room: Grand Ballroom C Session Staff: Mike Nickolaus

Room: Alpine West Session Staff: Steve Musick

Room: Alpine East Session Staff: Mary Musick

**Water for Energy**

**Water Availability & Sustainability**

**Water Quality**

**Water Management Tools**

**Potential Ground Water Impacts:**

Moderator- Mike Parker, ExxonMobil

Moderator- Chris Carlson, USDA Forest Service

Moderator- Audrey Eldridge, OR DEQ

8:00-8:20 Abstract #13

Water Use Efficiency of Energy Production and Power Generation Technologies – [Tamim Younos](#), Virginia Polytechnic Institute and State University.

8:00-8:20 Abstract #19

A Framework for Estimating the Water Needs for Groundwater Dependent Ecosystems on National Forest System Lands - [Joseph Gurrieri](#), USDA Forest Service

8:00-8:20 Abstract #25

**Wastewater disposal and ground water**

How to Meet the 10 mg/l Nitrate MCL in Treated Effluent – [Paul Krauth](#), Utah DWQ

8:20-8:40 Abstract #14

Simulating the Impacts of Energy Production, Climate Variability, and Climate Change on Water Resources in the Upper Colorado River Basin with the WARMF Model – [Daniel Levitt](#), LANL

8:20-8:40 Abstract #20

Regional Water Assessment for the Powder River Basin – [Bobbie Coughlin](#), ALL Consulting

8:20-8:40 Abstract #26

**Water quality impact from uranium production**

Assessment of Potential Uranium Emissions from a Uranium Mill on Water, Sediments, and Plants Located near Ute Mountain Ute Reservation, Utah – [Ryan Rowland](#), USGS

8:40-9:00 Abstract #15

Trends in Thermoelectric Power Water use in the United States – [Susan S. Hutson](#), USGS

8:40-9:00 Abstract #21

Development of a Statewide Water Level Monitoring Network for New Hampshire – [Stephen Roy](#), NHDES

8:40-9:00 Abstract #27

**On-site septic disposal**

On-Site Systems - a Sustainable Option for Wastewater Treatment - [Judith L. Sims](#), Utah Water Research Lab.

9:00-9:20 Abstract #16

An Analysis of the Effects of Drought Conditions on Electric Power Generation in the Western United States - [Leslie Poch](#), Argonne, National Laboratory

9:00-9:20 Abstract #22

Has the Rule of Capture Become an Endangered Species? - [Brad L. Cross](#), LBG-Guyton Associates

9:00-9:20 Abstract #28

**Oil & Gas production**

Natural Gas Development Impacts to Shallow Aquifers – Is there a monitoring silver bullet - [Gregory Oberley](#), USEPA Region 8

9:20-9:40 Abstract #17

Optimization of Water Usage in Petroleum Refineries – [Ross M. Ostenberg](#), Petroleum and Petrochemicals Group at Guernsey

9:20-9:40 Abstract #23

Texas Development of General Permit for Desalination Concentrate and Drinking Water Treatment Residual – [Ben Knape](#), TCEQ

9:20-9:40 Abstract #29

**Pharmaceuticals**

Impact of EDCs on Trout in an Effluent Dominated Stream [Michael Luers](#), Snyderille Basin Water Reclamation District

9:40-10:00 Abstract #18

Quantifying Water Needs for Electricity Generation: Additional Sources of Consumption - [Katherine Young](#), National Renewable Energy Laboratory

9:40-10:00 Abstract #24

National Smart Water Grid - [Ronald Beaulieu](#), Lawrence Livermore National Laboratories

9:40-10:00 Abstract #30

**Rock blasting**

Development of BMPs for Rock Blasting Activities to Protect Water Resources – [Brandon Kernen](#), NHDES

Posters will be displayed Monday –Tuesday in the Exhibit Hall (presenters will be available during breaks and lunches as noted)

Understanding the Birds Nest Aquifer in Uintah County, Utah: A Potential Source for Large-Scale Saline Water Disposal - [Michael D. Vanden Berg](#), Utah Geological Survey Abstract #31a

Remediation of Methane in Ground Water, Huerfano County, Colorado - [Dan Jackson](#), USEPA Region 8 Abstract #31b

Tuesday, September 15

10:20-12:10

Mid-Morning Sessions

Room: Grand Ballroom C      Session Staff: Mike Nickolaus  
**Energy for Water**

Moderator- Michael Webber, University of Texas

10:20-10:40      Abstract #32  
Coping With an Increase in Energy Usage at Drinking Water Facilities – [Cynthia Lane](#), American Water Works Association.

10:40-11:00      Abstract #33  
Potential Impacts of Climate Change on California's Water-Energy Relationship – [Shahid Chaudhry](#), California Energy Commission

11:00-11:20      Abstract #34  
Reducing Electric Power Consumption in Small Water Systems - [John Regnier](#), National Rural Water Association

11:20-11:40      Abstract #35  
Energy Demand and Associated Issues for Wastewater Utilities – [Cynthia Finley](#), National Association of Clean Water Agencies

11:40-12:00      Abstract #36  
Minimizing Energy Cost Impact of Jordanian Water Allocation Policy - [Richard Peralta](#), Utah State University

12:00-12:10      Abstract #37  
Summary Remarks – [Michael Webber](#), University of Texas

Room: Alpine West      Session Staff: Mary Musick  
**Joint Water Availability & Sustainability/Water Quality Session**  
National Initiatives

Moderator- Chris Reimer, NGWA

10:20-10:40      Abstract #38  
Walk Before You Run – Piloting and Partnering Toward a National Groundwater Monitoring Network - [Robert Schreiber](#), CDM

10:40-11:00      Abstract #39  
Source water protection and climate change mitigation: An ecosystem services view - [Chi Ho Sham](#), The Cadmus Group, Inc.

11:00- 12:10  
**Panel: The Nexus Between Water Quality & Quantity – A National and State Perspective – Led by David Terry, MA DEP. Panelist: [Deirdre Mason](#), Association of Drinking Water Agencies; [James Martin](#), UT DNR, Division of Drinking Water; & [Brandon Kernen](#), NH DES**

Room: Alpine East      Session Staff: Paul Jehn  
**National UIC Database**  
End to End Electronic Flow of UIC Data: State Success Stories & Opportunities

Moderator- Kurt Hildebrandt, USEPA 7

10:20-12:10      Abstract #40  
[Kurt Hildebrandt](#), EPA Region 7; EPA Co-chair, DMSC DI: Class 5 program experience

[Jim Halvorson](#), Montana Oil and Gas Commission: Class 2 Program      Experience (using RBDMS)

[Kevin Frederick](#), Wyoming DEQ: Class 1, 3, 5 Experience

[Carl Reeverts](#), EPA OGWDW: Opportunities to build end to end E-capability through sharing tools, data, and experiences

[Kurt Hildebrandt](#), EPA Region 7: Functions and projects of the EPA/State UIC Data Management Steering Committee – Opportunities to steer the UIC data base in the future

Posters will be displayed Monday –Tuesday in the Exhibit Hall (presenters will be available during breaks and lunches as noted)

BLM Utah Ground Water Protection Associated with Oil & Gas Exploration and Development - [Mike McKinley](#), BLM Utah State Office Abstract #41

Tuesday, September 15

1:20-3:20

Afternoon Sessions

*Water/Energy Sustainability Symposium Tracks*

*GWPC Annual Forum Tracks*

Room: Grand Ballroom C  
Session Staff: Paul Jehn  
**Water Needs for  
Unconventional Oil & Gas**  
Moderator- Art Hartstein, TMS, Inc.

Room: Canyon  
Session Staff: Dan Yates  
**Green Building and Green Cities**  
Moderator- Jeff Moeller, Water  
Environment Research Foundation

Room: Alpine West  
Session Staff: Steve Musick  
**Water Availability & Sustainability  
Water Rights, Laws and Policy:**  
Moderator- Bill Bryson, Kansas  
Geological Survey

Room: Alpine East  
Session Staff: Mike Nickolaus  
**Water Quality  
Ground Water Quality and CO2  
Geosequestration:**  
Moderator- Scott Anderson,  
Environmental Defense Fund

1:20-1:40 Abstract #42  
Water Needs and Issues for Oil Shale in  
the Western United States - [Glenn Vawter](#),  
National Oil Shale Association

1:20-1:40 Abstract #47  
Baltimore Charter for Sustainable Water  
Systems - [Jeff Moeller](#), Water Environment  
Research Foundation

1:20-1:40 Abstract #52  
Groundwater & Surface Water Conflicts  
in Colorado – An Alarming Trend -  
[Tom Cech](#), Central Colorado Water  
Conservancy District

1:20-1:40 Abstract # 56  
Carbon Sequestration and Water: A  
Department of Energy Perspective – [Andrea  
McNemar](#), DOE Office of Fossil Energy

1:40-2:00 Abstract #43  
System Dynamics Model of Water  
Consumption for Oil Shale Development –  
[Earl D. Mattson](#), Idaho National Laboratory

1:40-2:00 Abstract #48  
Integrated Resource Management: Dockside  
Green, Victoria - [Patrick Lucey](#), Aqua-tex,

1:40-2:00 Abstract #53  
Groundwater Investigation of Potential  
Quarry Dewatering and Depressurization  
Impacts on Kelleys Island, Erie County,  
Ohio – [Tom Tomastik](#), Ohio DNR

1:40-2:00 Abstract #57  
Evaluation of Groundwater Quality Changes  
in Response to CO2 Leakage from Deep  
Geological Storage – [Liang Zheng](#),  
Lawrence Berkeley National Laboratory

2:00-2:20 Abstract #44  
Chemical and Biological Treatment of  
Produced – [Matt Mantell](#), Chesapeake  
Energy

2:00-2:20 Abstract #49  
The Energy Related Promise of Integrated  
Watershed Management, Green Infrastructure  
/ Low Impact Development (LID) and  
Sustainable Design Water Resource Designs  
- [Robert Goo](#), U.S. EPA

2:00-2:20 Abstract #54  
Groundwater Availability: Texas Style -  
[Robert Mace](#), Texas Water Development  
Board

2:00-2:20 Abstract #58  
Possible Impacts of Carbon Sequestration  
and Storage Enhancement Techniques on  
Ground Water Resources - [D.L. Marrin](#),  
Water Sciences & Insights

2:20-2:40 Abstract #45  
Chemical and biological treatment of  
produced water for sustainable operation of  
oil shales and similar operations - [Liang Li](#),  
University of Utah

2:20-2:40 Abstract #50  
Water Efficiency: How to Make Green  
Building More Blue – [Mary Ann Dickinson](#),  
Alliance for Water Efficiency

2:20-2:40 Abstract #55  
Balancing the Books: Kansas' Water Past,  
Present, and Future – [David Barfield](#),  
Kansas Department of Agriculture, Division  
of Water Resources.

2:20-2:40 Abstract #59  
Basin-Scale Hydrological Impact of Geologic  
Carbon Sequestration in the Illinois Basin: A  
Full-Scale Deployment Scenario - [Quanlin  
Zhou](#), Lawrence Berkeley National Laboratory

2:40-3:00 Abstract #46  
Model Shale Gas Development in the  
United States: Water Issues – [David  
Alleman](#), ALL Consulting

2:40-3:00 Abstract #51  
The Bottom Line of Blue is Black - A  
Southeastern Case Study on Making  
Sustainable Building Pay - [Margo  
Farnsworth](#), Cumberland River Compact

2:40-  
**Open Discussion**

2:40-3:00 Abstract #60  
Update on EPA Rulemaking for Geologic  
Sequestration Wells: EPA Seeks Comments  
on New Information about Geologic  
Sequestration CO<sub>2</sub> – [Bruce Kobelski](#), EPA

Tuesday, September 15

3:40-5:40

Afternoon Sessions

*Water/Energy Sustainability Symposium Tracks*

*GWPC Annual Forum Tracks*

Room: Grand Ballroom C  
Session Staff: Steve Musick  
**Water & Power Generation**  
Moderator- Steven Pratt, USEPA R-8

Room: Canyon  
Session Staff: Dan Yates  
**Water Needs for Wind, Hydro, Solar, and Nuclear**  
Moderator – Shonnie Cline, Water Research Foundation

Room: Alpine West  
Session Staff: Mary Musick  
**Joint Water Availability & Sustainability/Water Quality Session**  
**Supplemental Water Supplies:**  
Moderator- John Taylor, USEPA R-5

Room: Alpine East  
Session Staff: Mike Nickoalus  
**Hydraulic Fracturing and CO2 Geosequestration Needs Assessment**  
Moderator: Stan Belieu, NOGCC

3:40-4:00 Abstract #61  
Department of Energy, National Energy Technology Laboratory, Energy-Water Research and Development Program - [Jared Ciferno](#), DOE-NETL

3:40-4:00 Abstract #67  
Windpower-Water Equivalency for the Western US Region – [G. L. Toole](#), Los Alamos National Laboratory

3:40-4:00 Abstract #72  
Challenges of Implementing Municipal Reclamation and Recharge Projects in Arizona: Reuse It our Lose It – [Floyd L. Marsh](#), LAN, Inc.

3:40-5:00  
In this session, states will initiate the needs assessment for Hydraulic Fracturing and CO<sub>2</sub> Geosequestration. Discussion will focus on what states need to adequately regulate these programs. Input from industry will also be solicited regarding technical and financial limitations and types of data available. Discussion topics include.

4:00-4:20 Abstract #62  
Produced Water Resources in the Illinois Basin as a Supplemental Source of Water for Coal-Based Power Plants - [Seyed A. Dastgheib](#), University of Illinois

4:00-4:20 Abstract #68  
Hydro and Wind Generation - Integration Challenges and Opportunities- [Karl Wirkus](#), Bureau of Reclamation

4:00-4:20 Abstract #73  
Opportunities & Challenges for Supplementing Water Supplies in California – a Local Approach - [Tim Parker](#), Parker Groundwater

- Cost of program Implementation
- Sources of funding
- Staffing needs
- Technical Capacity
- Public outreach
- Statutory authority
- Types of data to be collected
- How the data is managed
- Data availability and reporting

4:20-4:40 Abstract #63  
Water Conservation through Demand Side Management, lessons from the electric utilities – [John Morris](#), Fluid Market Strategies

4:20-4:40 Abstract #69  
Water Use, Electric Power, and Nuclear Energy: A Holistic Approach to Environmental Stewardship – [William Skaff](#), Nuclear Energy Institute

4:20-4:40 Abstract #74  
Dispersal or Reuse – [Rodney Ruskin](#), Geoflow, Inc.

[Mark Layne](#) Hydraulic Fracturing  
[Mark Layne](#) CO2

4:40-5:00 Abstract #64  
Fuel Cells: New Ideas for Carbon Capture and Water Conservation - [Wayne A. Surdoval](#), National Energy Tech. Lab.

4:40-5:00 Abstract #70  
Concentrating Solar Power Water Needs and the Impacts of Alternative Cooling Methods – [Mark Lausten](#), SENTHCH, Inc.

4:40-5:00 Abstract #75  
Non-Traditional Sources of Water for Coal-Fired Power Plants – [David Alleman](#), ALL Consulting

5:00-5:20 Abstract #65  
Water Supply & Power Generation in NE New Jersey: Year 2001 Combined Cycle Turbine Power vs. Pumped Water Storage - [Paul Schorr](#), NJ DEP

5:00-5:20 Abstract #71  
Opportunities to Reduce Energy Consumption and Save Water in California – [Abby Schneider](#), Association of California Water Agencies

Room: Seminar Theater  
5:00-6:00

Session Staff: Ben Grunewald

**GWPC Water Quality Division Meeting Abstract #76**  
Division Chair- Jon Craig, OK DEQ

- Division Overview
- ASR Issues Roundtable
- Stormwater / Green Projects Issues Roundtable
- Open Discussion & Actions

5:20-5:40 Abstract #66  
Water Requirements for Fossil-Based Electricity Plants with and without Carbon Capture - [Erik P. Shuster](#), DOE NETL

5:20-5:40  
**Discussion Session**

Wednesday, September 16

7:55-10:00

Morning Sessions

Room: Grand Ballroom C  
Session Staff: Paul Jehn  
*Treatment of Energy Water for Reuse*  
Moderator- Rebecca Thingelstad, Anadarko Petroleum

Room: Canyon  
Session Staff: Mary Musick  
*Water, Energy and Agriculture*  
Moderator- Bruce Olsen, MN Department of Health

7:55-9:00  
Room: Alpine West  
Session Staff: Steve Musick  
**Joint Water Availability & Sustainability/Water Quality Session**  
*Water Management Planning Efforts*  
Moderator- Marty Link, Nebraska DEQ

8:00-8:20 Abstract #77  
Viable Treatment Technologies for Promoting Beneficial Use of Produced Water – Pei Xu, Colorado School of Mines

8:00-8:20 Abstract #83  
The Impact of Biofuels on Projected Water Consumption for Energy Production and Other Use – Deborah Elcock, Argonne National Laboratory

8:00-8:20 Abstract #89  
Groundwater Management and Aquifer Storage in the Atlantic Coastal Plain States - Cat Shrier, Watercat Consulting LLC and Aquifer Storage Issues LLC

8:20-8:40 Abstract #78  
Beneficial Re-Use of Brackish Water by Desalination with Direct Contact Membrane Distillation Technology – Lucy Mar Camacho, New Mexico State University

8:20-8:40 Abstract #84  
Analysis of Water Consumption in the Major Life Cycle Stages of Bioethanol – May Wu, Argonne, National Laboratory

8:20-8:40 Abstract #90  
Enhanced Management for NW Kansas – Wayne Bossert, Northwestern Kansas Groundwater Management District 4

8:40-9:00 Abstract #79  
New Ozonation Process for Water Treatment Toward Sustainable Energy Development – Andy Hong, University of Utah

8:40-9:00 Abstract #85  
Partnerships Between Municipal Water Providers and Agriculture for Alternative Energy - Martha Davis, Inland Empire Utilities Agency

8:40-9:00 Abstract #91  
Planning Combined Municipal Use of Groundwater and Surface Water: Technical and General Results from a Case Study - Robert Gailey, Consulting Hydrogeologist

9:00-9:20 Abstract #80  
A Look at Future High Recovery Produced Water Treatment - Ken Klinko, CDM, Inc.

9:00-9:20 Abstract #86  
Challenges and Opportunities in Permitting Hydropower Projects on Existing Irrigation Facilities - Kent Holsinger, Holsinger Law

Room: Seminar Theater  
9:00-10:00  
Session Staff: Steve Musick

**GWPC Water Availability & Sustainability Division Meeting**

Abstract #92

Division Chair- Jamie Crawford, MS DEQ

- Division Overview
- ASR Presentation
- Selection of Topics
- Open Discussion
- Actions

9:20-9:40 Abstract #81  
Low Temperature Desalination: An Option of Sustainability and Energy Savings – Veera Gnaneswar Gude, New Mexico State University

9:20-9:40 Abstract #87  
Collaborative, Stakeholder-Driven Water, Energy and Food Systems Modeling and Roadmapping - Howard Passell, Sandia National Laboratories

9:40-10:00 Abstract #82  
Advances in Capacitive Deionization Using Reticule Carbon - Carl Nesbitt, University of Nevada, Reno.

9:40-10:00 Abstract #88  
Sound Use of Water for Biomass Energy Production – Tom O'Connor, National Biodiesel Board

Wednesday, September 16

10:20- 12:00

Mid-Morning Sessions

<p>Room: Grand Ballroom C Session Staff: Mike Nickolaus <b>Applications of Energy Water for Water Supply</b> Moderator- Natenna Dobson, DOE</p>	<p>Room: Canyon Session Staff: Steve Musick <b>Water &amp; Energy Underground</b> Moderator- Kevin McCray, NGWA</p>	<p>Room: Alpine West Session Staff: Paul Jehn <b>Water Availability &amp; Sustainability</b> Water Resource and Demand Characterization: Moderator- Elaine Lai, USEPA R-8</p>	<p>Room: Alpine East Session Staff: Mary Musick <b>Water Quality</b> Ground Water Quality &amp; Stormwater: Moderator- Bob Smith, US EPA</p>
<p>10:20-10:40 Abstract #93 Evaluating the Impact of Subsurface Drip Irrigation with Coalbed Methane Produced Water on Crop Yield, Soil Properties, and Groundwater Quality - <a href="#">Richard Hammack</a>, DOE, National Energy Technology Lab</p>	<p>10:20-10:40 Abstract #98 Water Use and Large-Scale Geothermal Energy Production - <a href="#">Corrie Clark</a>, Argonne National Lab</p>	<p>10:20-10:40 Abstract #103 Ground Water Quality Classification Mapping for the Basin-fill Aquifers in Beaver and Cedar Valleys, Southwestern Utah - <a href="#">Janae Wallace</a>, and <a href="#">Mike Lowe</a>, Utah Geological Survey</p>	<p>10:20-10:40 Abstract #106 Integrated Stormwater Management in Utah - <a href="#">Candace Cady</a>, UT Department of Environmental Quality</p>
<p>10:40-11:40 Abstract #94 Coalbed Methane Produced Water Quality Variations across the Rocky Mountain Region Emphasis on the Potential for Beneficial Use - <a href="#">Katharine Dahm</a>, Colorado School of Mines</p>	<p>10:40-11:00 Abstract #99 Reconciling Geothermal Resource Extraction with Western Water Law - <a href="#">Matthew Jensen</a>, Smith Hartvigen</p>	<p>10:40-11:00 Abstract #104 On the Front Lines of the Water/Energy Nexus: A Contractor's Perspective of the Real World of Regulatory Oversight of Geothermal Heat Pump System Installation - <a href="#">John Henrich</a>, Bergerson-Caswell, Inc, &amp; NGWA president</p>	<p>10:40-11:00 Abstract #107 A Comparison of State Requirements of Stormwater Infiltration BMPs in New England- <a href="#">Ted Lavery</a>, USEPA R1</p>
<p>11:00-11:20 Abstract #95 Flue-Gas Water as a Resource for Carbon-Capturing Power-Plants - <a href="#">Danylo Oryshchyn</a>, NETL</p>	<p>11:00-11:20 Abstract #100 Considerations for the Development of Thermal Energy Storage Systems in Abandoned Mine Workings - <a href="#">Fred Michel</a>, Carleton University</p>	<p>11:00-11:20 Abstract #105 The Impact of Unsustainable Groundwater - <a href="#">Fred Bloetscher</a>, Florida Atlantic University</p>	<p>11:00-11:20 Abstract #108 Stormwater Updates from EPA's Underground Injection Control and Source Water Programs - <a href="#">Jeff Jollie</a>, USEPA</p>
<p>11:20-11:40 Abstract #96 Using Produced Water as a New Water Resource - <a href="#">David Stewart</a>, Stewart Environmental Consultants</p>	<p>11:20-11:40 Abstract #101 Direct Exchange: What is it? What's its Relationship to Ground Water? - <a href="#">John Kelly</a>, Geothermal Heat Pump Consortium</p>	<p>Open Discussion</p>	<p>11:20-11:40 Abstract #109 Protecting the Edwards Aquifer through Stormwater Management-<a href="#">Cary Betz</a>, Texas Commission on Environmental Quality</p>
<p>11:40-12:00 Abstract #97 Produced Water Treatment Catalog and Decision Tool - <a href="#">David Alleman</a>, ALL Consulting</p>	<p>11:40-12:00 Abstract #102 Ground Source Heat Pump Systems: Assisting Energy Savings While Protecting Groundwater - <a href="#">Kevin McCray</a>, National Ground Water Association</p>		<p>11:40-12:00 <b>Tom Ward</b> P.E. Deputy Director, Department of Public Utilities will present an overview of the Development of a Stream Riparian Corridor Overlay Protection Zone.</p>

Wednesday, September 16

12:00-1:30 Grand Ballroom A&B -Lunch Provided

Session Staff: Dan Yates

Speaker:

[Mike Hightower](#), Sandia National Laboratory – USDOE Water-Energy Roadmap Process Overview Abstract #110

1:30-5:15 Joint Closing Session

Room: Grand Ballroom C

Session Staff: Dan Yates

1:30-3:30 ***Moving Forward –Roadmapping Results and Integrated Water-Energy Planning***

Moderator- Mike Hightower, Sandia National Lab

*Bill Horak, Brookhaven Nat. Lab- Water / Energy Planning and Management Issues – New York City Energy-Water Integrated Planning Pilot Study*

Abstract # 111

[Gerald Sehlke](#), Idaho Nat. Lab –Meeting the Energy and Water Needs of the Snake/Columbia River Basin in the 21<sup>st</sup> Century Abstract #112

[John Veil](#), Argonne Nat. Lab –An Evaluation of Water Usage and Related Institutional Influences on Three Electric Generating Capacity Expansion Alternatives for the Western United States Abstract #113

[Dan Birch](#), Colorado River Water Conservation District – Northwest Colorado Energy Development Water Needs Assessment Abstract #114

[Robin Newmark](#), Lawrence Livermore National Laboratory - Data and Modeling Conflation Issues in Energy and Water Systems Abstract #115

Room: Grand Ballroom C

Session Staff: Dan Yates

3:50-5:15 ***Moving Forward – Emerging Energy Water National Legislation Interests and Directions***

Moderator- Art Hartstein, TMS, Inc.

*Josh Johnson, Senate Committee on Energy and Natural Resources* Abstract #116

*Nicole Carter, Natural Resources Policy Analyst, Congressional Research Service, The Library of Congress* Abstract #116

\*\* Water-Energy Symposium Attendee Input Summary “Real-Time Report” \*\*

[Joe Lee](#), US DOE Symposium Wrap-up and Where We Go From Here Abstract #116