

# Aquifer Storage Recovery II:

Treatment, Risk Assessment, Public Perception, Future Outcomes

*co-sponsored by*

*American Institute of Hydrology  
American Water Works Association, Florida Section  
Florida Ground Water Association  
Florida Water Environment Association  
International Association of Hydrogeologists (US Chapter)  
South Florida Water Management District  
South West Florida Water Management District  
St. Johns River Water Management District  
U. S. Geological Survey*

**Monday, January 7, 2002**

**Renaissance Orlando Resort at Sea World  
6677 Sea Harbor Drive, Orlando, Florida 32821**

## **PROGRAM SCHEDULE BIOGRAPHICAL INFORMATION ABOUT THE PRESENTERS**

### **Morning Program**

**7:00 – 8:00      REGISTRATION - COFFEE and DANISH**

*PBS&J generously provided sponsorship toward refreshments at registration*

**SESSION MODERATOR 8:00 to 10:00  
Andrew Stone, American Ground Water Trust, Concord, New Hampshire**

Andrew Stone is the Executive Director of the American Ground Water Trust. The Trust is a national, non-profit education organization that works with local, state, and national organizations to promote awareness about ground water issues. The Trust's programs and publications provide the public and decision makers with objective ground water information.

Stone's background includes qualifications in education, geography, geology and hydrogeology from London University. For twelve years he was a professor at Rhodes University, South Africa. Prior to joining the Trust he worked as a senior hydrogeologist for a New England ground water consulting company. Since 1990, as adjunct professor, he has taught an annual course on *Ground Water Protection Policy* in the Masters Degree Program at Antioch New England Graduate School.

**8:00 – 8:40      David Pyne, ASR Systems LLC, Gainesville, Florida**

#### ***ASR: Risk Management And The Path Forward***

David Pyne has pioneered the development and application of aquifer storage recovery technology during the past 25 years. He has directed or been substantially involved in the development or expansion of seven of the nine operating ASR systems in Florida, plus a majority of the more than 40 ASR systems operating around the United States, and several others internationally. He is the author of a book published by CRC Press on the subject of ASR, and has served on numerous committees and advisory panels relating to ASR applications and the associated legal and regulatory framework. He is a civil engineer, a registered P.E., and is the president of ASR Systems, a new company based in Gainesville, FL.

**8:40 – 9:20 E. Stallings Howell, US Environmental Protection Agency, Region 4, Atlanta, Georgia**

***Regulatory Perspectives On The Future Of ASR In Florida***

Mr. Stallings Howell has BS and MS degrees in Agricultural Engineering from the University of Georgia. He worked in industry for five years and was an Assistant Professor at the University of Georgia for three years. He undertook additional graduate work at North Carolina State University. Howell has been with the US Environmental Protection Agency for twenty-seven years and has experience in all facets of the Agency's Water Programs. He is presently Chief of the Groundwater/Drinking Water Branch, Region 4, Atlanta.

**9:20 – 10:00 David John, University of South Florida, St. Petersburg, Florida**

***What Laboratory Studies Of Microbes Indicate About The Fate Of Microorganisms In Aquifers***

David John is currently a Ph.D. graduate student working with Dr. Joan Rose at the University of South Florida. He received his bachelor's degree from Northern Arizona University in 1996 and his Masters degree from the University of Arizona in 2000. His research experience has involved monitoring of environmental microbial pollution, water filter testing, groundwater tracer studies, and disinfection of the parasite "microsporidia". Currently, he is performing laboratory studies to evaluate the factors affecting survival of microorganisms in Florida's groundwater.

**10:00 – 10:30 BREAK**

***CAROLLO ENGINEERS generously provided sponsorship toward refreshments at the morning break***

**SESSION MODERATOR 10:30 to 12:00  
Mike Micheau, PBS & J, Tampa, Florida**

Michael Micheau, P.G. has been employed at PBS&J for five years and is an Associate Vice President and the Program Manager for Hydrogeologic Services for PBS&J. He is currently the project manager for on-going ASR projects on the West Coast of Florida and was recently selected by the South Florida Water Management District to execute one of the ASR Pilot Projects as part of the Comprehensive Everglades Restoration Program (CERP). Prior to joining PBS&J, he spent 12 years with a consulting firm (CH2M HILL) as project manager and senior hydrogeologist, focusing on ASR projects, and seven years with Seaburn and Robertson, Inc. focusing on groundwater resources and deep well injection. He holds a Bachelors Degree in Geology from the University of South Florida, Tampa, FL, and is a registered professional geologist in the State of Florida.

**10:30 – 11:10 Bob McCarthy, US Filter Water Technology Center, Timonium, Maryland**

***Filtration Systems - What Are The Current Benefits/ Limitations/ Costs Of Surface Water Treatment Technology?***

Bob McCarthy is vice president of sales for US Filter's municipal drinking water technologies. He has a B.S. in Environmental Resource Management from Pennsylvania State University and has been in the filtration and separations industry for over 20 years. McCarthy has extensive experience in the application of filtration technology in a variety of industries and has been in the municipal drinking water market for 8 years. His primary expertise is in the application of membrane technologies but has extensive experience with, and is responsible for sales of all US Filter products to the municipal drinking water market.

**11:10 – 11:50 John Marrino, PCI - Wedeco Environmental Technologies, West Caldwell, New Jersey**

***Ozone And UV Based Systems - What Are The Current Benefits/ Limitations/ Costs Of Surface Water Treatment Technology?***

John Marrino is President of PCI-WEDECO Environmental Technologies, Inc. as well as WEDECO- Ideal Horizons, Inc. PCI is the North American ozone subsidiary of WEDECO UWT GmbH and WEDECO-Ideal Horizons is the North American ultraviolet product subsidiary of WEDECO AG Water Technology. WEDECO AG is a publicly traded company at the Frankfurt Stock Exchange. John has been President of PCI since 1997 and of WEDECO-Ideal Horizons since Feb. 2000. Before joining PCI he served as Managing Director of WEDECO U.K. in Manchester, England, following several years directing WEDECO's international sales operations out of Herford, Germany. Prior to joining WEDECO in 1989 he was employed by Aquafine Corporation, Valencia, California. John holds a Bachelor's degree in Engineering and Business Administration from Tulane University, New Orleans, Louisiana and is a long-standing member of the IOA, AWWA and WEF organizations.

## Afternoon Program

**SESSION MODERATOR 1:00 to 4:00**

**Henry Dean, Executive Director, South Florida Water Management District, West Palm Beach, Florida**

As head of the state's largest regional water management agency, Henry Dean oversees a staff of nearly 1,800. The District's mission is to manage and protect water resources by balancing and improving water quality, flood control, natural systems and water supply for a 16-county area. A critical effort is the multi-year, multi-billion dollar state and federal partnership to revitalize the Everglades ecosystem and increase water supplies.

Dean brings a wealth of Florida water resources experience and expertise to the position, having served as Executive Director of the St. Johns River Water Management District for the past 17 years. His legal background and his proven effectiveness with the Governor's Office, the Department of Environmental Protection and the state/federal legislative process make him ideally suited for the many challenges facing South Florida, including implementation of the Everglades restoration plan and Lake Okeechobee protection efforts. Before joining the St. Johns District in 1984, he served as General Counsel for the Florida Department of Natural Resources from 1979 to 1984. He was an attorney in private practice from 1978 to 1979.

Dean holds a Bachelor's degree in Business Administration from the University of Iowa and a law degree from Florida State University. He is a member of the Interstate Council on Water Policy, serving as chairman in 1997 and 1998. He is also a member of the American Water Resources Association and the Florida A & M University Center for Water Quality Advisory Council. He served on the Advisory Council for the Florida Conflict Resolution Consortium.

**1:00 – 1:40 Chris Rayburn, Director, Research Management, AWWA Research Foundation, Denver, Colorado**

### ***North American Water Utility Perspective On ASR: - Drivers, Issues And AWWA Research Foundation Work***

Chris Rayburn is a registered professional hydrogeologist with twelve years of experience as a consultant in the areas of groundwater protection, water supply and water treatment. He has managed and served as technical lead for hydrogeologic characterization studies, groundwater resource assessments and development, source water protection, public health risk assessment, development of risk-based cleanup standards, feasibility studies, and water treatment technology selection and implementation. For the past three years, Rayburn has been a project manager for the AWWA Research Foundation in Denver. In addition to managing several of the Foundation's ASR-related projects, his work with AWWARF has focused on groundwater issues, source water protection and management and wastewater re-use. He has recently been appointed as Director of AWWARF's Research Management group, which has overall responsibility for project management and research planning within the Foundation.

**1:40 – 2:20 Alan W. Aikens, CH2M Hill, Orlando, Florida**

### ***Central Florida Recharge Well Demonstration Project: Measuring Aquifer Water Quality Changes from Stormwater Recharge***

Al Aikens is a senior hydrogeologist and project manager at CH2M HILL in Orlando, Florida. He has 19 years of experience in the field of water resources. His responsibilities include leading in the firm's activities on water resources in Central Florida. Current water resource projects that he participates in are Central Florida Artificial Recharge Demonstration Program: Artificial Recharge Well Demonstration Project for the St. Johns River Water Management District (SJRWMD); Operational Testing of New ASR Wells for the City of Cocoa; Water/Wastewater/Reclaimed Water Master Plan for Orange County Utilities; and Integrated Water Resource Plan Development for the Orlando Utilities Commission, City of Orlando, and SJRWMD. He began his professional career with the SJRWMD inventorying abandoned free-flowing wells and ranking them for plugging. Aikens earned a B.A. in geology from Thiel College in 1980 and a M.S. in Hydrology and Water Resources from the University of Arizona in 1986.

**2:20 – 2:40 BREAK**

***OSMONICS, INC. generously provided sponsorship toward refreshments at the afternoon break***

**2:40 – 3:20 Pat Gleason, Camp, Dresser & McKee, West Palm Beach, Florida**

***The Importance Of ASR As A Management Strategy For The Everglades Restoration Program And For Meeting Florida's Urban Water Supply Needs***

Patrick J. Gleason, Ph.D., P.G., is a Vice-President of CDM, a national and international environmental engineering firm. He is also a gubernatorial appointment to the Governing Board of the South Florida Water Management District. He received his BS in Geology from the University of Notre Dame and his Ph.D. in Geology from the Pennsylvania State University. Gleason is the author of numerous publications and is the editor and contributing author to the volume, "Environments of South Florida, Present and Past." He is very active in his support of environmental education and is President of two not-for-profit organizations, the Friends of the Environmental Academy at Forest Hill Community High School, and Grassy Waters Preserve, a 20 square mile area of pristine Everglades and nature center in Palm Beach County.

**3:20 – 4:00 Richard Pettigrew, Chairman of the Board for Florida Audubon and Chairman of the Governor's Commission for Sustainable South Florida, Coral Gables, Florida**

***An Environmental Perspective On ASR For Florida***

Richard Pettigrew serves as Chairman of the board for Audubon of Florida. In 1994, he was appointed Chair of the Commission for a Sustainable South Florida by then-Governor Lawton Childers. Over the ensuing five-year period the Commission developed recommendations concerning Everglades Restoration. This included consensus recommendations for the Conceptual Plan for the C&SF Project Restudy the US Army Corps of Engineers followed in developing its Comprehensive Everglades Restoration Plan (CERP), which with minimal changes was adopted by Congress in 2000.

Pettigrew is a former Speaker of the Florida House of Representatives, a State Senator and an environmental lawyer, mediator and arbitrator. A University of Florida Graduate who has practiced law for more than forty years, Pettigrew was formerly a partner with the law firm of Morgan Lewis & Bockius and is now sole proprietor of his own firm.

**4:00 – 4:30 OPEN DISCUSSION - ALL SPEAKERS, MODERATORS AND AUDIENCE**  
Chaired by Andrew Stone, American Ground Water Trust

**Has the Conference answered the questions:**

- How will pre-treatment affect the economics of ASR?
- Is there any feasible alternative to ASR?
- When will we see the results of ASR pilot projects?
- How do environmental organizations view ASR as a management tool?

**What other questions need to be answered?**

**4:30 ADJOURN**

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The American Ground Water Trust is a national not-for-profit organization. The educational mission of the Trust is to:

- Protect groundwater and promote resource sustainability
- Communicate the environmental and economic value of groundwater
- Showcase groundwater science and technology solutions
- Increase citizen, community and decision-maker awareness, and
- Facilitate stakeholder participation in water resources decisions.

The Trust's education programs are typically undertaken in partnership with other organizations, agencies and companies. The participation of speakers at this conference from specific private sector companies does not imply that the Trust is endorsing or recommending particular companies, products or commercial applications of technology.