BUSINESS ISSUES
40 Improvement through performance measurement / Marc P. Walch, Rishi Immanni, Seth W. Garrison, Jacqueline Torbert
46 How effective is utility leadership? / Richard L. Gerstberger, Karen A. Gromala
56 Linking asset management with sustainability: Views from the Australian sector / David Mariol, David Beale, Stewart Burn
68 Cross-sector emergency planning for water providers and healthcare facilities / Gregory Welter, Steve Bieber, Heidi Bonnaffon, Nicholas DeGuida, Myra Socher
79 Methods for evaluating water distribution network early warning systems / Dan Kroll, Karl King
90 Ozone-contactsor flow visualization and quantification using three-dimensional laser-induced fluorescence / Dooil Kim, Semih Nemlioglu, Philip J.W. Roberts, Jae-Hong Kim

IN EVERY ISSUE
2 Inside Insight
6 Letters to the Editor
8 Executive Summaries
16 Law& Water
36 Customer Service and IMTech Conferences
38 Future AWWA Events
100 People in the News
102 Industry News
104 Product Spotlight
105 Section Meetings
106 Classifieds
107 Buyers'Guide
136 Consultants Directory
140 Advertisers

SPECIAL THIS MONTH ...
20 Optimizing Operations Using Mobile and Wireless Technology
26 Not Because I'm a Girl
28 Alaska Provides Opportunities and Challenges for Young Professionals
33 Going "All In" on All Hazards

ON THE COVER
56 Australian utilities fold social and environmental issues into decision-making
46 Think you're an effective leader? This new study might surprise you
40 CMOM—How this wastewater program can improve water utility ops
68 Emergency hospital water supply: Does your ERP account for this community need?
79 Establishing standard criteria for assessing early warning systems
CONSERVATION
38  High-contact, hands-on outreach program changes customers' water use behavior / Annette Humni Keen, David Keen, Guy E. Francis, Adam Wolff
46  Ensuring a more energy-efficient future by changing the way homes are built / Craig Selover
52  The Portuguese system of certifying and labeling water-efficiency products / Armando Silva-Afonso, Carla Pimentel-Rodrigues
57  New codes are making it easier to be green / Thomas E. Pape
61  WaterSense award winners showcase the way to water savings / Alicia Marrs
64  A new reason to sing in the shower / Stephanie Thornton, Stephanie Tanner
67  Creating an army of green plumbers / Deborah Green
70  Conservation: A way of life in San Diego County / Bill Rose, Sara Katz
74  Evaluating water resource management in the face of a carbon market / Brandy Lellou, Valerie Strassberg
78  The conservation conundrum: How declining demand affects water utilities / Janice A. Beecher

IN EVERY ISSUE
2  Inside Insight
8  People
12  Law & Water
30  Security and Preparedness
36  Future AWWA Events
119  Product Spotlight
120  Section Meetings
121  Official Notice
122  Buyers' Guide
153  Consultants Directory
156  Advertisers

SPECIAL THIS MONTH
18  Manager to Manager
19  Manager to Manager
24  Current Issues
25  Current Issues
28  Young Professionals
34  Sustainable Water Management Conference & Exposition

ON THE COVER
38  Customer outreach changes behavior
52  Portugal’s approach to conserving stressed supplies
57  Sorry, Kermit, but it is easy being green
70  San Diego makes conservation a way of life
78  Demand and revenues dropping? How to survive the conservation conundrum
81  Humor helps customers take conservation seriously
84  Installation of this device can cut hot water "warmup" waste by 25%
REGULATORY UPDATE
44 Treatment alternatives for compliance with the Stage 2 D/DBPR: An economic update / Alan J. Roy
52 Water conditioning for LCR compliance and control of metals release in San Francisco's water system / Andrzej Wilczak, David R. Hokanson, R. Rhodes Trussell, Manouchehr Boozarpour, Andrew DeGraca
65 Is E. coli an appropriate surrogate for Cryptosporidium occurrence in water? / Eva Nieminski, Gary C. Durrani, Monica B. Hoyt, Marie E. Owens, Leon Peterson, Scott Peterson, Windy D. Tanner, Jeffrey Rosen, Jennifer L. Clancy
79 A high-volume sampling method for total coliform and E. coli / Thomas M. Hargy, Jeffrey Rosen, Mark LeChevallier, Melinda Friedman, Jennifer L. Clancy
87 Participate arsenic release in a drinking water distribution system / Darren A. Lytle, Thomas J. Sorg, Christy Muhlen, Lili Wang
99 TBAA reduction in reactors simulating distribution system pipes / William A. Arnold, Raymond M. Hozalski, Carrie R. Pearson, Kirsten Moore
107 Permeation of BTEX compounds through HOPE pipes under simulated field conditions / Feng Mao, James A. Gaunt, Chu-Lin Cheng, Say Kee Ong

IN EVERY ISSUE
2 Inside Insight
10 People in the News
14 Executive Summaries
28 Security and Preparedness
39 Future AWWA Events
40 Industry News
124 Media Pulse
126 Product Spotlight
128 Section Meetings
129 Official Notice
129 Classifieds
133 Buyers'Guide
161 Consultants Directory
164 Advertisers

SPECIAL THIS MONTH...
22 DC Beat. Drinking Water Issues Bubbling to the Surface
30 Tech Talk. Innovative Process Saves Energy, Results in Elimination of Sludge
33 Tech Talk. Pipeline Flash Reactor Technology Selected for Castaic Lake Water Agency Expansion
36 Water Worldwide. Building Utility Partnerships and Capacity
38 International Symposium on Waterborne Pathogens
122 Eco®Logic. Recent Advances in Water-conserving Plumbing Products
NR 4

INFRASTRUCTURE
74 A game plan for aging water infrastructure / Gregory M. Baird
83 Effect of nitrification on corrosion of galvanized iron, copper, and concrete / Van Zhang, Allain Griffin, Marc Edwards
94 Application of the microbial decay factor to maintain chloramine in large tanks / Arnmugam Sathasivan, Ian Fisher, George Kastl
104 Effective management of large-diameter pressure pipes / David Marlow, Dhammika DeSilva, David Beale, Donovan Marney
113 Control of zebra mussels using sparker pressure pulses / Raymond Schaefer, Renata Claudi, Michael Grapperhaus

IN EVERY ISSUE
2 Inside Insight
6 People in the News
14 Executive Summaries
30 Security and Preparedness
71 Future AWWA Events
124 Erratum
125 Industry News
129 Media Pulse
131 Product Spotlight
132 Section Meetings
133 Official Notice
133 Classifieds
134 Buyers' Guide
165 Consultants Directory
168 Advertisers

SPECIAL THIS MONTH...
18 EPA Communiqué
Water Infrastructure: Opportunities and Challenges for a New Decade
24 Market Outlook
Historical Water Price Trends
34 Perspectives
Thinking Outside the Waterworks: Transitioning to a Decentralized Water System Model
36 Committee Connection
Continuous Improvement: Detroit's Key to Sustainability
38 Field Report
Using Neural Networks to Predict Treatment Process Performance
45 ACE 10 Coverage
WATER AROUND THE WORLD
88  Seismic vulnerability assessment and design of pipelines / Donald Ballantyne
98  Performance of ductile-iron pipe in earthquake/seismic zones / Michael S. Tucker
104 A look at the challenges—and opportunities—in the world water market / Steve Maxwell
117 A conversation with water utility managers / Jim Ginley, Sandra Ralston
123 Apparent losses caused by water meter inaccuracies at ultralow flows / Gregory L. Richards, Michael C. Johnson, Steven L. Barfuss
133 Vulnerability of drinking water supply wells to VOCs / Barbara L. Rowe, Curtis V. Price, John S. Zogorski, Michael J. Moran
144 Chlorine fate and transport in distribution systems: Experimental and modeling studies / Robert M. Clark, Y Jeffrey Yang, Christopher A. Impellitteri, Roy C. Haught, Donald A. Schupp, Srinivas Panguluri, E. Radha Krishnan

IN EVERY ISSUE
2   Inside Insight
6   People in the News
12  Future AWWA Events
14  Executive Summaries
36  Security and Preparedness
58  Industry News
61  Media Pulse
63  ACE 10 Coverage
157 Product Spotlight
159 Official Notice
159 Classifieds
160 Section Meetings
162 Buyers'Guide
193 Consultants Directory
196 Advertisers

SPECIAL THIS MONTH...
20  DC Beat
   Water Infrastructure: D.C.'s Hot Topic of the Day
26  Current Issues
   WaterPyramids: Innovative Design Provides Sustainable Water Delivery
30  EcoSLogic
   A National Assessment of Water Availability and Use
42  Committee Connection
   AWWA's International Council Sees Multiple Opportunities for Global Expansion
46  Field Report
   A "Utility for the 21st Century"— Creating a Path Toward Sustainability
54  Workforce Diversity
   Establishing a Legacy: Growing a Minority-owned Environmental Engineering Consulting Firm To Be Competitive for Years to Come
ENVIRONMENTAL ISSUES
50 Energy optimization for water systems / William H. Biehl, Julie A. Inman
56 Impacts of climate change on infrastructure planning and design: Past practices and future needs / Edward G. Means III, Maryline C. Laugier, Jennifer A. Daw, Douglas M. Owen
66 Appropriate design and evaluation of water use and conservation metrics and benchmarks / Benedykt Dziegielewski, Jack C. Kiefer
81 Committee Report: AWWA takes a leadership role on sustainability
100 Effect of UV treatment on DBF formation / David A. Reckhotv, Karl G. Linden, Junsung Kim, Hilla Shemer, Gladys Makdissy

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
10 Letters to the Editor
16 Executive Summaries
34 Security and Preparedness
115 People in the News
117 Future AWWA Events
119 Product Spotlight
120 Section Meetings
121 Official Notice
121 Classifieds
122 Buyers' Guide
153 Consultants Directory
156 Advertisers

SPECIAL THIS MONTH ...
20 Current Issues
26 Money Matters
38 Young Professionals
40 Field Report
46 Perspectives
DISTRIBUTION SYSTEMS
56 Nutrients and metals effects on nitrification in drinking water systems / Yan Zhang, Marc Edwards
67 Modeling HAA biodegradation in biofilters and distribution systems / Alina S. Grigorescu, Raymond M. Hozalski
81 The results of simulations presented in this article indicate that biomass density is an important parameter controlling haloacetic acid removal in both distribution systems and filters.
81 Condition assessment modeling for distribution systems using shared frailty analysis / Robert M. Clark, John Carson, Robert C. Thurnau, Radha Krishnan, Srinivas Panguluri
92 Comparison of ANN models for predicting water quality in distribution systems / Celia D. D'Souza, M.S. Mohan Kumar
107 Behavior of trace inorganic contaminants in drinking water distribution systems / Andrew S. Hill, Melinda J. Friedman, Steve H. Reiber, Gregory V. Korshin, Richard L. Valentine
119 Algae removal efficiencies of AS/PDMAAAC coagulants / Xiaolei Zhao, Yuejun Zhang, Xiaoxiao Li, Cheng Liu, Lingling Zhu

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
8 People in the News
20 Executive Summaries
34 Security and Preparedness
38 Money Matters
129 Industry News
134 Product Spotlight
136 Section Meetings
137 Future AWWA Events
137 Official Notice
137 Classifieds
138 Buyers’Guide
169 Consultants Directory
172 Advertisers

SPECIAL THIS MONTH
26 DC Beat
USEPA’s New Regulatory Strategy
30 Perspectives
Keeping the Well From Running Dry: The Future of US Water Infrastructure
36 Current Issues
Recent USPS Standard Means Implementing Stricter Mailing Requirements
42 Water Worldwide
World Workforce Management as a Global Issue
46 Eco@Logic
The Forest-Drinking Water Connection: Making Woodlands Work for People and for Nature
Distribution Systems
Symposium & Water Security Congress
Field Report
A Nontreatment Arsenic Action Plan
WORKFORCE ISSUES
32 What drives tomorrow's water leaders / Sharon Phillips
36 Young professionals pave their own path to development / Jeannie Edwards
44 Rapid microbial methods can improve public health protection / Martin J. Allen, Pierre Payment, Jennifer L. Clancy
52 Determining vulnerability and occurrence of residential backflow / Orren D. Schneider, David M. Hughes, Zia Bukhari, Mark LeChevallier, Paul Schwartz, Patrick Sylvester, J.J. Lee
64 Adsorptive contactors for removal of soluble manganese during drinking water treatment / William R. Knocke, Lauren Zuravnsky, John C. Little, John E. Tobiason

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
8 People in the News
14 Executive Summaries
20 Security and Preparedness
24 Money Matters
28 Future AWWA Events
84 Industry News
87 Media Pulse
89 Product Spotlight
90 Section Meetings
91 Official Notice
91 Classifieds
93 Buyers' Guide
125 Consultants Directory
128 Advertisers

SPECIAL THIS MONTH
18 Perspectives
   Trenchless Technologies: Ensuring the Most Value for Municipal Assets
30 EPA Communique
   The Water Sector Professional—A System's Most Vital Asset
76 New Product Technology Showcase
   Products With Real-world Applications
SOURCE WATER
62 Integration of water and wastewater utilities / Tapio S. Katko, Vuokko O. Kurki, Petri S. Juuti, Riikka P. Rajala, Osmo T. Seppala
71 Characterization of filter and media MnO$_x$ surfaces and Mn removal capability / Anjuman A. Islam, Joseph E. Goodwill, Ryan Bouchard (deceased), John E. Tobiasen, William R. Knocke
84 Developing system head curves for closed systems / Thomas Walski, Wayne Hartell, Zheng Wu
90 Lossless network skeletonization / Timothy D. Hirrel

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
8 People in the News
14 Executive Summaries
26 Security and Preparedness
32 Money Matters
115 Future AWWA Events
119 Industry News
124 Media Pulse
126 Product Spotlight
127 Section Meetings
128 Official Notice
128 Classifieds
129 Buyers’Guide
161 Consultants Directory
164 Advertisers

SPECIAL THIS MONTH
18 DC Beat
   Building an Improved Total Coliform Rule
24 Perspectives
   Solar Makes Sense for Water Utilities
36 Current Issues
   Source Water Protection Cost-Benefit Tool
40 Eco vLogic
   Global Water Certification: An Important New Tool for Water Management
42 Workforce Diversity
   Domestic Partner Benefits: Where Does Your Workplace Stand?
46 Water Quality Technology Conference
50 A. P. Black Research Award
56 2010 AWWA Awards Recipients
97 Special Section: Trends in Water and Wastewater
117 Field Report
   Phosphorus: A Resource in Decline
44  State of the Industry Report 2010: How water professionals are meeting ongoing challenges and economic uncertainty / John Mann, Jon Runge
55  A new regulatory strategy for implementing the SDWA / Joseph A. Cotruvo

DISINFECTION
61  Using 3D LIF to investigate and improve performance of a multichamber ozone contactor / Dooil Kim, Michael Elovitz, Philip J. W. Roberts, Jae-Hong Kim
71  Biodestruction of blended residual oxidant streams / Jess Brown, Rick Wheadon, Edwin Hansen
82  Does an unknown mechanism accelerate chemical chloramine decay in nitrifying waters? / K.C. Bal Krishna, Arumugam Sathasivan
91  Lead removal from tap water using POU devices / Elise Deshommes, Yan Zhang, Karine Gendron, Sebastien Suave, Marc Edwards, Shokoufeh Nour, Michele Prevost

IN EVERY ISSUE
2   Inside Insight
6   Open Channel
8   Letters to the Editor
12  Executive Summaries
16  Money Matters
34  Security and Preparedness
36  Future AWWA Events
38  Industry News
111 People in the News
115 Media Pulse
116 Product Spotlight
118 Section Meetings
119 Official Notice
119 Classifieds
121 Buyers' Guide
153 Consultants Directory
156 Advertisers

SPECIAL THIS MONTH
22  Manager to Manager
   Everything's Big in Texas, and Ozone Systems Are No Exception
28  Young Professionals.
   Navajo Nation: 30% Without Access to Regulated Drinking Water
30  Field Report.
   Indianapolis Expands Its Multifaceted Approach to Public Health Protection
106 Current Issues.
   Evaluating the Impact of Disinfectants on PE Pipe
EMERGING ISSUES
36 Improving resilience against climate change / Frederick Bloetscher, Daniel E. Meeroff, Barry N. Heimlich, A. Randolph Brown, Donald Bayler, Maria Loucraft
47 Assessing the carbon footprint of water supply and distribution systems / Paul E Boulos and Christopher M. Bros
55 Estrogenic activity of US drinking waters: A relative exposure comparison / Benjamin D. Stanford, Shane A. Snyder, Rebecca A. Trenholm, Janie C. Holady, Brett J. Vanderford
66 Lead-contaminated water from brass plumbing devices in new buildings / Carolyn Elfland, Paolo Scardina, Marc Edwards
77 Bromate reduction in simulated gastric juice / Joseph A. Cotruvo, Jason D. Keith, Richard]. Bull, Gilbert E. Pacey, Gilbert Gordon

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
8 Letters to the Editor
12 Executive Summaries
22 Money Matters
30 Security and Preparedness
88 Industry News
90 People
92 Product Spotlight
94 Section Meetings
95 Statement of Ownership
96 Official Notice
96 Classifieds
96 Future AWWA Events
97 Buyers’ Guide
129 Consultants Directory
132 Advertisers

SPECIAL THIS MONTH
16 DC Beat
   How USEPA Is Looking at Regulating Groups
20 Eco©Logic
   Emerging Opportunities for Public-Private Water Partnerships
26 Water Worldwide
   Oslo Consumers Willing to Pay More for Improved Services
34 Tech Talk
   Using Gravity—A New Green Technology
42 A framework for selecting POU/POE systems / Mohamed A. Hamouda, William B. Anderson, Peter M. Huck

FILTRATION
57 Labortatory – simulated RBF particle removal processes / Stephen A. Hubbs
67 Review of biologically active filters in drinking water applications / Ivan X. Zhu, Tom Getting, Dan Bruce
78 Effect of clining protocol on membrane permeability recovery: A sensitivity analysis / Nicandro Porcelli, Simon Judd

IN EVERY ISSUE
2 Inside Insight
6 Open Channel
8 Letters to the Editor
12 Executive Summaries
16 Money Matters
36 Security and Preparedness
41 Future AWWA Events
91 People
93 Media Pulse
94 Product Spotlight
95 Section Meetings
96 Errata
97 Classifieds
98 2010 Subject Index
109 2010 Author Index
111 2010 Peer Review Editorial Board
112 2010 Reviewers
113 Buyers’ Guide
145 Consultants Directory
148 Advertisers

SPECIAL THIS MONTH...
24 EPA Communiqué
Water Security e-Tools: Greater Preparedness and Resiliency From Your Desktop
28 Committee Connection
Can You Afford Not to Use Coaching as a Business Strategy?
30 Field Report
Divers Go Deep for Denver Water Dam Upgrades
32 Current Issues
Partnership Offers New Distribution System Optimization Program
40 Utility Management Conference
The Event for Effective Utility Management
88 Market Outlook
The Concept of Virtual Water: Understanding Our Real Water Use

Oprac. BPK