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We are scientists, problem solvers, implementers. People who love what we do. Clear Creek Associates are a group of people whose collective expertise in groundwater-related projects in Arizona is unmatched. We’re dedicated to offering quality-focused, very responsive hydrologic services to clients throughout the Southwest.

We’ve built our reputation on a foundation of strong professional capabilities, finely honed project coordination and communication skills, and extensive statewide experience.

With each addition to our staff over the past six years, the value of our service has grown. You can find out more about our newest staff members, and other matters of interest, at our Web site, www.clearcreekassociates.com.

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**Groundwater Modeling** — technical abilities combined with interpretive skill acquired through five decades of collective team experience in creating and interpreting models

**Hydrogeologic Investigations** — focused application of hydrogeological analyses to resolve groundwater issues, address regulatory concerns and water rights issues, or support water resources planning

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Happy New Year! This issue begins Volume 5 of Southwest Hydrology. The survival rate for magazines beyond the first year or two is discouragingly low, so we are grateful for the enthusiastic response and support we have received from our audience and advertisers – and the National Science Foundation – that has enabled us to reach our fifth year of publication with still-expanding readership.

We’re starting the year with a feature on constructed wetlands, which are capable of removing a variety of contaminants from water, in many cases while simultaneously offering ecosystem, educational, and recreational benefits. Our feature articles discuss the use of constructed wetlands to treat municipal, industrial, agricultural, and landfill runoff, as well as acid mine drainage. And we didn’t forget about mosquitoes: they like wetlands too, but there are ways to manage their numbers.

Upcoming issues will feature aging water infrastructure (March/April 2006); basic data, including its collection, collectors, distribution, funding, integration, and quality control (May/June 2006); and decision-support systems (July/August 2006). We welcome ideas and suggestions regarding coverage of these topics.

Our thanks to all the contributors to this issue, as well as to all our advertisers. We look forward to your feedback and ideas.

Betty Woodhouse  
Publisher
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- Tetra Tech to support EPA water efforts
- Pirnie to develop treatment database
- CAS buys Transwest Geochem
- CH2M Hill opens Tucson office

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James J. Gusek
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A nitrate-contaminated Superfund site in southern Arizona has been transformed into a 4.3-acre wildlife oasis after many challenges were overcome and the right chemical balance was found.

26 Subsurface-Flow Constructed Wetlands for Water Treatment
Stephen Lyon
Subsurface-flow constructed wetlands remove water contaminants, require little maintenance, and minimize problems of mosquito and odor control. Demonstration projects for treating dairy wastewater and high-flow surface water have shown the concept to be sound and effective.

Constructed Wetlands

The concept of using constructed wetlands for water treatment arose from observations of natural wetlands’ ability to remove contaminants from the watershed. In both systems, biological, physical, and chemical processes that reduce contaminants occur—including settling, microbial oxidation, anaerobic decomposition, denitrification, adsorption, and precipitation. This issue’s feature articles describe a broad range of contaminants being treated by constructed wetlands, the suitability of different types of wetlands for different situations, and, importantly for both public relations and public health, how to keep the mosquitoes at bay.

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Robert A. Gearheart
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20 Approaches to Mosquito Management in the Southwest
Elizabeth Willott
Surface-flow wetlands are ideal breeding grounds for mosquitoes. However, drainage monitoring, vegetation management, use of bacterial larvicides, introduction of fish, and continued vigilance can keep the problem under control.

24 Leachate Treatment
Ronald W. Crites and Bryan Plude
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29 Small Community Wetland Offers Large Benefits
Joan Gable and Marilyn Ethelbah
EPA Clean Water Act funds helped create a half-acre wetland to treat water impacted from agricultural and storm waters in a central Arizona Indian community. Not only has water quality improved, but salt cedar has been eradicated.

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