

Southwest The Complete Hydrologic Resource  
**HYDROLOGY**

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**Arsenic In  
Drinking Water**

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# Southwest HYDROLOGY

A bimonthly trade magazine for hydrologists, water managers, and other professionals working with water issues.



From the  
Editor

Welcome to the premier issue of **Southwest Hydrology**. This magazine evolved from our hypothesis that water professionals in the Southwest are interested in, and would benefit from, a forum for sharing information. We are providing the “clearing house” for receiving and distributing information about projects, research, technologies, regulations, and innovations that are unique to our semi-arid region, and you, the water community, provide that news. If you support this type of publication, please let us know by sending us your news, ideas or advertisements. As we continually grow and modify the magazine, we hope to use your input to help us develop a resource that is useful to you and your colleagues, clients, and contractors.

By design, many people contributed material to this inaugural issue, and we would like to recognize and thank all of them (see “Contributors”, opposite page). The invited authors who contributed to this issue’s feature topic about the revised drinking water standard for arsenic (beginning on page 12) deserve special recognition.

**Southwest Hydrology’s** sole financial support is advertisers. We are especially appreciative of our first-issue advertisers who supported us sight-unseen. The magazine is distributed free of charge in order to reach as many readers as possible.

While **Southwest Hydrology** is a paper publication, our web site is up and available for posting time-sensitive announcements and job openings. In addition, the site contains information for contributors and advertisers, and links to our supporters and water-related organizations. Be sure to visit [www.swhydro.com](http://www.swhydro.com).

We thank you for looking through this magazine, and look forward to your comments.

A handwritten signature in black ink that reads "Betsy Woodhouse". The signature is fluid and cursive.

Betsy Woodhouse  
Editor



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## Arsenic In Drinking Water

The EPA's reduction of the Maximum Contaminant Level for arsenic in drinking water to 10 parts per billion (ppb) has caused a storm among those charged with providing safe drinking water. System managers are faced with treating water they previously thought to be of good quality, or perhaps shutting off wells altogether. Consultants and engineers are largely unprepared to offer cost-effective remedial solutions to either small or large providers. Agencies are just beginning to talk about strategies to implement and monitor the strict new rule. States have not determined where the money for these changes will come from, or even if it is available. We present six articles to review the current state of affairs.

### 12 Arsenic Removal Strategies for a New, More Stringent Standard

*Dr. Zaid Chowdhury, P.E.*

About 3,000 of the Nation's 54,000 community water systems will require some level of treatment to comply with the 10 ppb standard.

### 14 Natural occurrence of arsenic in Southwest ground water

*Jon Spencer, Ph.D.*

Although much remains to be understood, high arsenic concentrations in groundwater are known to occur primarily in four geologic environments: lacustrine sediments, volcanic terranes, geothermal springs, and areas of gold- or uranium-enriched mineralization.

### 16 The History of Arsenic Regulation

Controversy over the arsenic standard is not new. This roller-coaster ride began in 1974 with the passage of the Safe Drinking Water Act.

### 17 Arsenic in Drinking Water: How Much is Too Much?

*A. Myrick Freeman III, Ph.D.*

Substantial evidence exists that drinking water containing high concentrations of arsenic puts us at risk of cancer and other diseases. What is not known is whether a threshold exists, below which there is essentially no risk.

### 18 States Move Forward to Meet New Arsenic Standard

How are the States preparing for the new rule?

### 20 Assessing Arsenic Removal Technologies

*James Farrell, Ph.D.*

Several commercially-available and emerging technologies will remove arsenic from drinking water to concentrations below 10 ppb.

### Features in upcoming issues:

- > drought and water resources planning
- > tracking ancient waters
- > mining reclamation
- > watershed restoration

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