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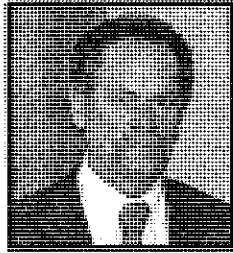
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How well prepared are you to respond to a customer's call about arsenic?

Recently I found myself in such a situation when I got a call from a woman in Wonder Lake in McHenry County. Her water tested out well over the EPA limit of 10 ppb.

After doing research about treatment options, I got to thinking we as professionals have a certain professional obligation to provide informed advice without causing undue alarm.

Get the details about the problem and then do extensive research including consulting with treatment experts. There is a great knowledge pool ready and willing to help.

While arsenic is naturally occurring in groundwater, geologic studies show that arsenic is more likely to appear more frequently and in larger concentrations in aquifers with higher organic matter. Therefore, arsenic can be an issue in areas with glacial aquifers such as in Illinois.

IDPH has a policy for permitting and constructing wells in areas susceptible to excessive arsenic concentrations. However, most calls will come from owners with existing water wells.

Joe Harrison, Technical Advisor at the Water Quality Association in Lisle, IL states that first you need to know what kind of arsenic you are dealing with.

Are you dealing with arsenic III, As(III) or arsenic V, As(V)?

As(V) is easily removed by reverse osmosis or ion exchange. A variety of quality products that utilize this technology and other iron-based media, and designed specifically for water wells are on the market.

The Good News Is Improved Products Have Resulted From The EPA Lower Standard

As(III) on the other hand is harder to remove yet also can be treated by oxidizing the As(III) first with either chlorine, permanganate or hydrogen sulfate as one would do when disinfecting water well.

The good news, Harrison says, is that since EPA lowered the arsenic standard from 50 ppb to 10 ppb, the market place has responded with improved products for arsenic removal. These products are iron based media such as impregnated resins or iron crystals.

Iron absorbs and co-precipitates with arsenic making it easy to remove. Iron feed is sometimes used to remove arsenic in public water supplies.

A Quality Test Specifying Arsenic Type Is Essential

Arsenic is only harmful if ingested and only when done regularly at levels above the standard. It is not harmful for bathing and laundry.

Arsenic removal is a topic well known to Joseph Huemann of Huemann Water Conditioning in Johnsburg, IL. As a water treatment specialist, Huemann Water has designed and installed arsenic treatment systems in north and central Illinois. (con't page 4)

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"A good test is essential and my preference is to only use a 3rd party certified lab. It's expensive, about \$30-50 per test, but professionally well worth it. We need to know whether we are dealing with As(III) or As(V) before we can design an effective yet cost efficient solution.

Next we look at the situation. Is it a residence, school, or commercial setting? How is the water used and by whom? Each situation is unique but generally speaking we install more POU systems in residential applications because of space and cost considerations," states Huemann.

POE applications require more space for equipment so access points for water consumption are a significant factor in selecting a POE system.

"The average cost for a residential POU system in our area is about \$1,000 and a POE system will be about \$5,000—\$6,000 to effectively reduce As(V) levels to acceptable levels.

Once a system is installed, we will set up a monitoring system. Our standard is weekly for two weeks, then monthly for two months, then quarterly for a year and then every six months," states Huemann.

As groundwater professionals it is very important to become as knowledgeable as possible about water conditions in your general service area. The Water Quality Association and the National Ground Water Association are great resources and provide good educational programs to members. Consider joining them. In addition, the IL State Water Survey and the IL State Geological Survey are great resources on information.

- Water Quality Association— Joe Harrison PE, CWS-V, Technical Director www.wqa.org Ph: 630-505-0160
- National Ground Water Association--www.ngwa.org 800-551-7379
- IL State Water Survey-Dr Thomas Holm, Ph: 217-333-2604 offers these maps of arsenic findings www.isws.illinois.edu/gws/arsenic/ arsenic in Tazewell and Champaign counties www.istc.illinois.edu/info/library_docs/RR/RR-107.pdf for Tazewell and Champaign Counties Other reports are available at the following <http://mtac.isws.illinois.edu/finalrep.asp>
- IL State Geological Survey— www.isgs.uiuc.edu/