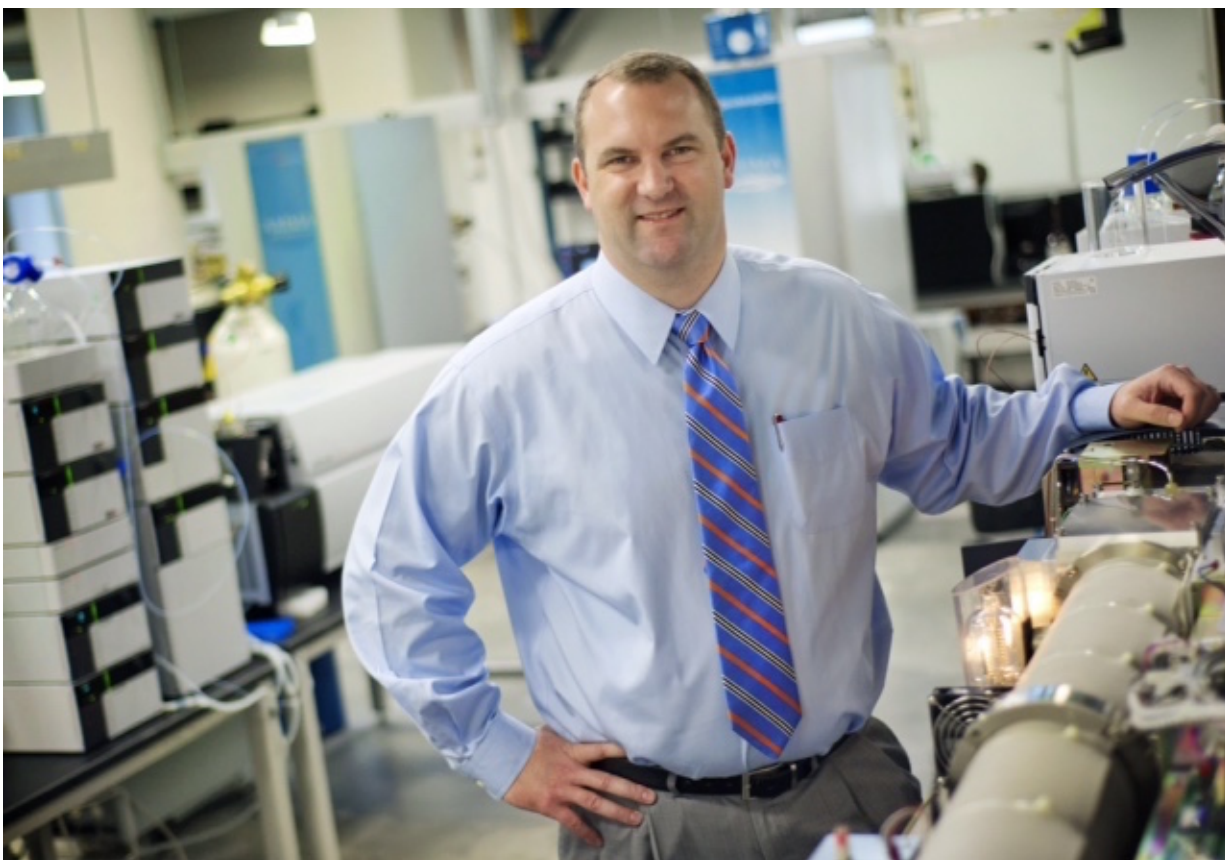


New study of Barnett Shale area well water finds elevated levels of water contaminants

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Kevin Schug, UT Arlington's Shimadzu Distinguished Professor of Analytical Chemistry, has published a study investigating potential groundwater contamination in areas of unconventional oil and gas drilling.

A team led by Kevin Schug, UT Arlington's Shimadzu Distinguished

Professor of Analytical Chemistry, has published a comprehensive study of potential groundwater contamination in areas of unconventional oil and gas drilling.

The peer-reviewed study, "A Comprehensive Analysis of Groundwater Quality in the Barnett Shale Region," was published in the American Chemical Society journal *Environmental Science & Technology*.

The Barnett Shale lies below the Trinity and Woodbine aquifers and is home to more than 20,000 unconventional drilling wells, where a method called hydraulic fracturing, or fracking, has been used to extract trapped oil or gas. Since the natural gas boom in the Dallas-Fort Worth area began almost a decade ago, some have questioned whether potentially harmful chemicals used during various phases of gas extraction and related activities would make their way into the area's aquifers.

The UT Arlington team tested 550 water samples collected from public and private water wells in North Texas' Barnett Shale region over the past three years. It found elevated levels of 10 different metals as well as the presence of 19 different chemicals compounds including so-called BTEX (benzene, toluene, ethyl benzene and xylenes) compounds associated with hydraulic fracturing. The study also found elevated levels of methanol and ethanol.

The authors noted in the paper: "These data do not necessarily identify UOG (unconventional oil and gas) activities as the source of contamination; however, they do provide a strong impetus for further monitoring and analysis of groundwater quality in this region as many of the compounds we detected are known to be associated with UOG techniques."

Lead authors on the new paper are Zacariah Hildenbrand, Brian E. Fontenot and Doug D. Carlton and Jesse M. Meik. Hildenbrand is the

owner of Inform Environmental, LLC, the private company that helped coordinate the study and conducted the sample collection. Fontenot, Carlton and Meik each earned their doctoral degrees from UT Arlington; Carlton also is the project manager for UT Arlington's Collaborative Laboratories for Environmental Analysis and Remediation, or CLEAR.

Paper co-authors from UT Arlington are Jonathan Thacker, Stephanie Korlie, C. Phillip Shelor, Drew Henderson, Akinde Kadjo and Corey Roelke. Other co-authors include researchers from the University of North Texas, University of Houston, and Tarleton State University.

The newly published work is a follow up to a study the team published in 2013 that showed elevated levels of potential contaminants such as arsenic and selenium in groundwater near natural gas extraction sites in the Barnett Shale.

Schug said, "I hope our data can serve as a springboard for studies that use detailed chemical signatures to pinpoint the impact of various aspects of unconventional drilling processes on ground water quality." That way, he said, changes in drilling processes can be made if they are needed.

More information: "A Comprehensive Analysis of Groundwater Quality in The Barnett Shale Region." *Environ. Sci. Technol.*, [DOI: 10.1021/acs.est.5b01526](https://doi.org/10.1021/acs.est.5b01526)

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