

# Process could clean up water used in natural gas drilling

March 12 2010, by Janet Frye

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(PhysOrg.com) -- Texas A&M Engineering is playing a role in a technological breakthrough that could clean up the contaminated water recovered from drilling natural gas wells in shale deposits through the process of "hydraulic fracturing."

David Burnett of Texas A&M's Global Petroleum Research Institute -- in partnership with the Texas Engineering Extension Service (TEEX) and Carl Vavra of the TEES Food Protein R&D Center Separation Sciences Laboratory, developed the membrane filtration technology -- which has been licensed to a major oil field service company for commercialization.

Burnett and his partners have developed a lab protocol and analytical methodology for technicians who will be field-testing and analyzing the "frac" [water](#) after it has been recaptured and processed to determine if it is clean enough to reuse or recycle. A pilot class was recently conducted at TEEX's Water and Environmental Training Laboratory on the Texas A&M Riverside Campus.

"The [natural gas](#) resources in shale are ubiquitous and the oil and gas industry has learned how to tap into these," Burnett said. "There is 10 times more gas in shale deposits, but it takes a lot of wells and uses a lot of water. Each well can use a three-month supply of water for a city of 4,000 people. A lot of the water comes back contaminated and the companies have to dispose of it.

“Water is at the center of the problem,” he added. “We have to find a way to treat and re-use this water. If the water is to be used for purposes other than reinjection into the oil or gas field, then we need to purify the contaminated water, and we need credible proof that the filtered water doesn’t have environmental contaminants and meets the EPA standard for fresh water.”

That’s where TEEEX comes in.

During a 32-hour customized Intermediate Water Laboratory course recently, TEEEX’s Keith McLeroy and a cadre of other water experts trained 10 technicians in the analytical techniques needed to verify the purity of the water. They got hands-on experience and demonstrations of various instrumentation, said McLeroy, associate training specialist with TEEEX’s Infrastructure Training & Safety Institute.

Recycling and treating the frac water would not only eliminate the expense of hauling the wastewater away for disposal, but it would reduce the total water consumption since the water could be reused again and again in the frac drilling process, Burnett said.

Pilot studies have shown that proper pretreatment of water used to fracture new gas wells could save an average of \$40,000 per well, according to a report by the U.S. Department of Energy’s Office of Fossil Energy.

Provided by Texas A&M University

Citation: Process could clean up water used in natural gas drilling (2010, March 12) retrieved 25 April 2024 from <https://phys.org/news/2010-03-natural-gas-drilling.html>

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