

Alarming find



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University of Texas at Arlington biochemist Zacariah Hildenbrand takes a water sample from a well at a home on Amyx Ranch Drive near Ponder recently.



Study shows potentially unhealthy levels of arsenic in water wells across area

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University of Texas at Arlington researchers have unveiled a study that found potentially unhealthy levels of arsenic in water wells scattered throughout North Texas.

The study, conducted last year, involved 100 water wells across the Barnett Shale, 10 of them in Denton County. An 11-member team of UTA scientists found that 30 percent of wells within 1.8 miles of active natural gas drilling showed an increase in heavy metals, including arsenic.

“To find that high of arsenic concentrations was alarming,” said Dr. Zacariah Hildenbrand, a UTA biochemist. “This is

indirect evidence that drilling does affect the water.”

Researchers compared their results with previous water tests conducted in the same area before the Barnett Shale gas boom exploded across the region 10 years ago. They believe the vibration from drilling or hydraulic fracturing operations shakes the pipes in nearby wells, causing arsenic-contaminated rust to fall into fresh water. The scientists referred to those vibrations as “pressure waves from drilling activity.”

Alex Mills, the head of an oil and gas industry trade association, said he doubts the study’s findings.

“If they’re talking about drills shaking it free, that’s a little farfetched,” said Mills, president of Texas Alliance of Energy Producers in Wichita Falls.

Mills, who has 30 years in the oil and gas industry, said natural gas wells are drilled so deep that vibrations could never make it to much shallower water wells. Even if homes are located within 500 or 600 feet of the drilling site, they wouldn’t feel the vibration of the hydraulic fracturing because of the gas well’s depth, he said.

“I’ve never heard or even came close to hearing that hydraulic fracturing is so vicious, so earth-shattering to shake loose rust from water wells,” he said.

Researchers acknowledged that other factors might have caused the water well contamination, including “hydrogeochemical changes from lowering of the water table or industrial accidents such as faulty gas well casings.”

According to the UTA study, which was published in *Environmental Science & Technology* journal, “The maximum concentration of arsenic detected in a sample from an active [gas well] extraction area was almost 18 times higher than both the maximum concentration among the nonactive/reference area samples and historical levels from this region.”

Currently, the Environmental Protection Agency’s maximum contaminant limit for arsenic is 10 parts per billion. Anything over that is considered unsafe. The UTA team found that 29 out of 90 water wells exceeded the EPA standard. Methanol and ethanol, two chemicals used in hydraulic fracturing, were also detected in 29 percent of water samples, according to the study.

Epidemiologists say arsenic, a heavy metal, can threaten people’s health and lead to death.

“Gastrointestinal effects, reno-cardio effects, neurological effects — we could talk for hours about the harmful effects of arsenic,” said Juan Rodriquez, chief epidemiologist at Denton County Health Department.

The federal Centers for Disease Control and Prevention warns that ingesting low levels of arsenic can cause nausea and vomiting, decrease in red and white blood cells, abnormal heart rhythm, damage to blood vessels and a sensation of “pins and needles” in the feet.

Arsenic is also a known human carcinogen, according to the Department of Health and Human Services and the EPA.

In 2011, the Texas Railroad Commission reported that 93,000 gas wells have been drilled in Texas since the hydraulic fracturing booms began. More than 15,300 of them are located in the Barnett Shale, which covers Denton, Johnson, Montague, Tarrant and Wise counties. The *Wall Street Journal* reported in 2013 that more than 15 million Americans live within a mile of an oil or gas well.

The UT-Arlington researchers plan more studies to understand the effects of natural gas drilling on water quality.

“It was our very first crack at groundwater in the area,” said Hildenbrand, a research associate at UTA.

Now they’re gathering a larger sample of 500 private water wells, 130 of them in Denton County.

“It’s a polarizing issue,” Hildenbrand said. “Nobody really understands what’s going on.”

Waiting and worrying

Jeffrey and Tracey Schmitt’s water well has been tested as part of the next UTA study. They have been waiting weeks for the test results and worrying about the fate of their well water.

When they built their home in Amyx Ranch, a residential community a few miles outside of Ponder, they never imagined the possibility that their water could be contaminated.

“I don’t know what we’ll do if it comes back positive,” said Tracey Schmitt, who purchased the five acres with her husband.

They built the home as an investment and plan to sell it after their children finish high school. But now all of that could change. If high levels of arsenic are found in their well water, the property might become impossible to sell.

“I’d hate to have to cook with bottled water,” she said.

The Schmitts said they’ve had problems with their water well since drilling it nearly 10 years ago. They reached water at 450 feet, but it tasted bad and discharged a layer of fine sand. They couldn’t afford to drill deeper to reach the next water table, so they bought bottled water to drink and used well water for cooking and showering.

“My husband thought it was because of fracking,” Tracey Schmitt said.

Across the highway from Amyx Ranch, roads lead to Devon Energy Corporation gas well sites. Company signs line the roadway between Denton and Ponder. Devon operates more than 40 wells located in Ponder. The company is one of the biggest operators for extracting gas in the region.

Company spokesman Chip Minty declined to comment on the UTA study because he had not read it.

At Amyx Ranch, the Schmitts are awaiting results of their well test, which researchers say could be a few more weeks.

“I’m so praying the test doesn’t come back positive because we don’t want to retire here,” Tracey Schmitt said.