

Brady's struggle with lowering radium levels

Krista Johnson, San Angelo Published 11:25 a.m. CT Jan. 20, 2018



Ron Ruiz, then-superintendent of City of San Angelo Water Quality, writes down the readings of pressure and flow from the columns of water being filtered from a Hickory Aquifer pilot project in 2010.(Photo: Standard-Times file)

Naturally-occurring radium in the drinking water of several West and Central Texas communities has concerned environmentalists and residents for years, but some towns have found solutions faster than others.

A recently published report by the Environmental Working Group brought scrutiny to the town of Brady once again, as data gathered between 2010-15 showed the city's drinking water still was not in compliance with EPA radium limits.

Thirty-seven other Texas cities face the same problem.

Communities like Brady, which pull drinking water from the Hickory Aquifer, have made significant investments to reduce radium levels. San Angelo, for example, had rights to Hickory water since the 1970s, but only began using its water in 2015. It first had to build a 60-mile pipeline to the aquifer, and construct a water treatment plant that could remove the radium.

Another city in the study, Eden, has since corrected its radium levels, and Mason will be doing so shortly, already having received funding. Brady hasn't yet secured the funding to address the issue.

Like San Angelo and Eden, Brady hopes to implement a process using a media that the radium particles will attach to, removing it from the water before it is sent out to residents.

The system is expensive because the filters that remove the radium can only be removed by an out-of-state company, Water Remediation Technology, which owns the permit for the system.



Water filtration tanks wait to be placed in the groundwater treatment plant in San Angelo in 2014. Brady will use a similar filtration system to San Angelo's to help reduce the amount of radium in water from the Hickory Aquifer. (Photo: Standard-Times file)

Depending on where in the Hickory formation the water is pulled from, radium levels can range from less than 5 picocuries per liter, to more than 80, according to Tymn Combest, San Angelo's Plant Operations Manager. The EPA safety limit is 5 picocuries per liter.

The study found Brady's water to have 9.249 picocuries of radium per liter. Unlike San Angelo, which pulls nearly all of its water from the radium-free surface water of O.H Ivie Reservoir, Brady relies heavily on the Hickory Aquifer, and Eden relies solely on it.

Eden was able to fund its \$4.675 million project thanks to an Economically Distressed Areas Program grant that covered 75 percent of the project, and the city borrowed \$1 million. The funding was received in 2011, and a new plant was constructed, along with drilling a new well. The plant came online in 2015.

Brady, with a population of 5,500 compared to Eden's 2,766, will have to spend significantly more for several reasons.

Among them, Eden's system does not first remove iron before removing the radium. Like San Angelo, Brady's system will first inject oxygen into the water, oxidizing the iron, then filtering it out before moving to the radium removal phase.

The EPA limit for iron is 3 milligrams per liter, but Combest said this is a secondary standard that is not enforced.

Because the iron causes water to take on a reddish tint, it can stain toilets, plumbing and sometimes clothes. But the EPA limit is not "because iron is dangerous to health over that number, it is because it is aesthetically not pleasing," he said.

Additionally, Brady will need to run a new pipeline from its surface plant, and add two elevated storage tanks.



Brady will use filtration tanks similar to the ones at San Angelo's water treatment plant. (Photo: Standard-Times file)

The plant, completed near Brady Lake in 2009, was designed with processes to treat surface water from a local reservoir. The city quickly ran into issues because of the 2010-11 drought, said Brady Mayor Tony Groves. The new pipeline will carry the groundwater containing radium from the Hickory, and the plant will be updated to treat both surface and ground water.

“This will give us the capability to operate on groundwater-treatment only, surface water-treatment only, or a combination of both systems,” Groves said, adding that the lake water treatment is cheaper but is dependent on water levels.

Designs for Brady's project are near completion. They cost \$1.8 million, funded through an Economically Distressed Areas Program grant.

The program, created in 1989 by the Texas Water Development Board, grants fund to communities that have median-household incomes lower than a certain threshold.

Brady's hope, Grove said, is to receive another EDAP grant in 2019 that will fund 85 percent of the \$22-\$24 million project. The state has approved \$52 million for the statewide program, but Groves said this will be the program's last allocation.

Utility rates have already begun to rise in Brady to cover expenses not funded through the grant. In 2016, a residential customer using 5,000 gallons of water in one month would pay \$35. The base charge and rates will rise by 10 percent each year until 2021, when 5,000-gallon monthly usage will cost the same customer \$56.38.



San Angelo's water treatment plant reduces the amount of radium in water from the Hickory Aquifer. Brady is trying to secure funding to do the same. (Photo: Standard-Times file)

With or without receiving the EDAP grant, the project is a “very difficult problem for us,” Groves said, noting that if it weren't for the EPA and Texas Commission on Environmental Quality mandating radium-level reduction, the project would not be pursued.

Although studies show that radium causes cancer, Groves said he drinks the water from the tap.

According to the Texas Commission on Environmental Quality, consumption of a half-gallon of radiated water above that EPA limit every day for 70 years increases the cancer rate in two of every 10,000 cases.

“The bottom line is if we did not violate the TCEQ, there would be no problem to fix,” Groves said. “But we do violate the standard, so we are fixing it, because we are required to do that.”