Barnett water usage figures released

Hudson Oaks asks State Legislature to remove GCD oil, gas exemption

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Feb. 2, 2007

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A long-awaited, state-sponsored assessment of just how much groundwater is needed to develop current and future Barnett Shale gas wells has produced a wide range of regional estimates and offered few county-specific projections.

The January report was commissioned by the Texas Water Development Board (TWDB), which selected engineering firms R.W. Harding and Associates Inc. and Freeze and Nichols Inc. to conduct research. The University of Texas at Austin Bureau of Economic Geology also provided input and data.

Many of the 20 Barnett Shale counties examined in the TWDB report were also included in a Texas Commission on Environmental Quality groundwater availability model, which recomended the formation of a 13-county regional groundwater conservation district (GCD) in North Texas.

Though the report's authors chose to produce low, high and median future gas-related groundwater consumption estimates, county specific projections were left out, presumably making it more difficult for lawmakers to craft locally-tailored conservation districts.

In 2005, the report estimated approximately 4,320 acre-feet of groundwater were used for Barnett Shale drilling operations in the 20-county Barnett Shale study area, about 3 percent of the study area's total groundwater use. One acre-foot of water is equal to about 325,000 gallons.

On the low end, the report suggested 29,000 acre-feet of groundwater would supply the Barnett gas industry through 2025. The report indicated such a low estimate would represent, "a clear retreat from current annual rate of water use by the industry, corresponding to a large drop in gas price."

In 2000, the 20-county study area used a estimated total of 142,000 acre-feet of groundwater. The high scenario calls for the gas industry to use a total of 417,000 acre-feet of groundwater between 2007 and 2025.

The report's authors said the high scenario, "corresponds to sustained high gas prices allowing operators to expand to all economically viable areas and produce most of the accessible resources."

In crafting the different usage scenarios, the assessment's authors took into account a number of unknowns, in particular the price of natural gas. According to a March article in Oil and Gas Journal, there seems to be some agreement that the gas price needs to stay above $4/Mcf for the Barnett play to stay viable in the long term.

During 2004 and 2005, data from Texas Department of Licensing and Regulation driller's report records indicate 875 new domestic water wells were drilled in Parker County, more than any other county in the study area. Tarrant County came in a distant second with 481 new domestic wells.

Throughout the study area, 83 percent of new wells drilled during those two years were for municipal use, with 9 percent reported for irrigation, and 3 percent for drilling rig supply.

The study did not offer the specific amount of groundwater used to supply drilling operations in Parker County, nor did it specify the number of new wells drilled for that purpose.

The study's authors also noted that well records from 2004 and 2005 only capture wells whose reports include an oil operator name and do not include wells drilled by landowners to provide water to operators.

In an effort to enact some type of groundwater conservation district before the state interveens, State Rep. Phil King is currently meeting with local government in Parker and Wise Counties, and state representatives from other counties in the region.

Because Texas water code exempts water wells used to supply oil and gas operations from the restrictive authority granted to conservation districts, the relative amount of water being consumed by Barnett Shale drilling operations has become an important figure.

After reviewing the TWDB report, King guessed the drilling industry is responsible for about 7 or 8 percent of the groundwater usage in the Barnett Shale.

"I think it's not as much as everybody conjectured it might be," he said. "Our aquifer is really in pretty good shape. What you run into more are hot spots. There are place where you can drill a commercial [water] well and it will have no impact at all. There are other areas where a commercial well will have a dramatic impact on the people that are around it."

The City of Hudson Oaks voted last week in favor of a policy statement requesting lawmakers to remove the oil and gas exemption from the Texas Water Code.

"Whether they are or are not, there is a public perception that natural gas drillers are causing our shortage and it just seems disingenuous to regulate the homeowners and the small businesses but not regulate the people who use the majority of the water for their wells," said Hudson Oaks City Administrator Robert Hanna.

King very clearly stated that he too wants the oil and gas exemption to be removed from the water code.

"I think if a conservation district is going to manage commercial wells, it ought to have the freedom to manage all commercial wells," he said.

But even if King is not successful in removing the exemption, he suggested the empirical data produced by a conservation district could help provide a solution.

"Let's say they are going to drill a commercial well, and the conservation district says, 'If you drill it there, it's going to have an adverse impact on the surrounding houses.' They're not going to drill it there because they're going to get sued - I mean give me that one as a lawyer because they drilled there knowing that it was going to create problems and that's just asking for a lawsuit and a large one," King said. "On the other hand, if they're told a conservation district's empirical data says the company can drill a well there, then that's a safe harbor for them. What I'm hearing form the good production companies is, 'a water conservation district helps us too.'"

According to the TWDB report, "Within the Barnett Shale formation, there are currently more than 5,600 producing wells and it is likely many thousands more will be constructed within the next couple of decades." The report found that fracturing the average horizontal well requires about 3.5 million gallons of water.

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