



July 8, 2010

Subject: Hydraulic Fracturing Hearing, July 8, 2010, Fort Worth, Texas

We want to thank the Environmental Protection Agency for the opportunity to speak on this important issue. The League of Women Voters involvement in the environmental impacts of gas drilling began at the grass roots level when local Leagues in communities throughout the nation most impacted by gas drilling, including the League of Women Voters of Tarrant county, initiated local studies. This grass root effort culminated in the unanimous passage of a resolution at the LWV-US June 2010 convention calling for support of safe drilling and mining for energy resources.

We commend you on your plans to conduct a study to determine the potential impact of hydraulic fracturing on ground water. Our major concerns are as follows:

Timing

Preliminary results from the proposed study need to be available as soon as possible, because drilling and fracturing of shale gas have already impacted some water supplies, and may impact others if the initial study results are delayed.

Water Usage

Water usage is an issue in the Barnett Shale, because our water supply experts say we will have a shortfall of 1.5 million acre feet (ground and surface supplies) by 2060. There are nearly 14,000 gas wells already in place in the Barnett Shale and over 3,000 in process. Each well uses an estimated 3.5 million gallons of water--more if the well is fractured additional times. The wells in place and in process have or will use at least 185,000 acre feet of water, water that, unlike the water consumed by residential and even most industrial users, is permanently lost to the water cycle. The gas well water usage estimate equals 12 percent of the region's current estimated water shortage, or the estimated annual water usage of over 826,000 persons.

Flow-back and Produced Water

When fracturing water returns to the surface, it is a toxic mix that must be treated onsite for later well reuse, evaporated into the air, transported by truck to a disposal site, or transported via a pipeline. Only a very small amount of the gas waste water is currently treated for reuse, because this is more expensive for gas producers, and no level of government provides any subsidy for this activity. If the polluted water is transported by truck, the diesel engines pollute the air, and the likelihood of spills and accidents increases. Transport via pipelines puts the highly corrosive water in pipelines that can be easily ruptured in urban areas by errant backhoes or other incidents. Small leaks in these

pipelines can go undetected until the water migrates to creeks or streams, with potentially disastrous results to the water supplies of the urban centers of the Barnett Shale region, which are dependent upon surface water. In the City of Fort Worth, drill pad sites now line the Trinity River system, the very river system that provides not only a major portion of Tarrant County's water, but water for communities all the way to the Gulf of Mexico, making spillage or well accidents a threat.

In Tarrant County, it is our understanding that most of the waste water (flow-back and produced) is disposed of through water injection wells, rather than fracing waste pits, as is typical in some rural areas. The Texas Railroad Commission recommends that these water injection wells be drilled into the Ellenberger formation below the Barnett Shale; however, permits have been granted for wells in formations above the Barnett Shale.

According to a December 27, 2009, article in the *Fort Worth Star Telegram*, a disposal well operated by CES in Eastern Parker County had been sited twice in the past 18 months by the Texas Railroad Commission. Pools of oily waste had been spilled on the lot, and trucks tracked mud onto surrounding roads. The article goes on to say that similar problems have occurred at water injection wells near Chico and Boyd in Wise County. Drilling waste flowed to the surface near the Chico well. In 2008, a steel pipeline leading from a gas well to a disposal well sprang several leaks that cost Cole's Nursery hundreds of trees on land near their business. The Cole family settled a lawsuit with XTO Energy and its subsidiary.

In the rural parts of the Barnett Shale, as well as in other parts of the state where gas-bearing shale is thought to be profitable, such as South Texas, Central Texas, and perhaps West Texas, the problem becomes not only surface waters, but the dwindling well drinking water sources.

The study must include "cumulative impacts" over the region studied, and the study must analyze the impact of ALL of the chemicals that natural gas (NG) drilling adds to our waters, not just those usually monitored in the fluids and propellants, muds, flowback water, produced water, fracing water left in the ground, etc.

Air Emission Impacts on Surface Water

The air quality pathways must be included: Since we are finding in North Texas that the natural gas storage tanks leak constantly into the air, this added air pollution falls onto the lake surfaces, increasing the pollution in our main drinking water supplies. While we are aware that Congress has limited the subject study to water pollution, and not air, it seems reasonable to include the contamination of water surfaces from gas well pollutants in this study. This inclusion is especially vital where there are openly vented wells.

Case Studies

We concur with the Science Advisory Board's (SAB's) recommendation that the study include at least five (5) case studies of hydraulic fracturing in various shale formations. We highly recommend that the Barnett Shale formation be one of the case studies, given its high population density--1.8 million in Tarrant County alone.

Industry Involvement

We are concerned about SAB's recommendation that the EPA partner with industries which would develop and operate well sites while EPA conducts research at the sites. The gas industry here in the Barnett Shale area has not been forthcoming with residents or local government entities. Land men and industry spokespersons have minimized and/or misrepresented the inherent risks of gas drilling. The industry has been unwilling to use the most environmentally friendly drilling production methods, especially in rural areas where fracing pits and land farming is employed.

Other Issues

Should the West Texas shale deposits be proposed for drilling, there should be great attention paid to impact on the proposed nuclear waste storage facilities in various sites near the Ogallala aquifers, so that that extremely limited water source is protected from pollution.

Sources:

1. Water supply contamination - *Split Estate* and *Gasland*; new suit in Johnson County by
2. Water usage - TWDB, Region C draft 2011 Initially Prepared Water Plan". Fracing water required per well- numerous sources.
3. Condition of flow-back and produced water from Chesapeake Energy and Devon Energy staff.
4. Waste water pipeline issues from Fort Worth City staff
5. SMU study quoted in March 11, 2010, *Star Telegram* article;
6. Air emissions impact from Dr. Al Armendariz's *Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements*, February 2009.
7. Tarrant County population estimate July 1, 2009, U.S. Census Bureau.
8. Industry minimization of problems - Berkley Neighborhood Meeting, Barnett Shale Expo; *Split Estate*
9. Channel 11 Report on lawsuit filed by Jim and Linda Scoma in rural Johnson County who claim their water well has been contaminated by hydraulic fracturing.