

## Drilling Lessons from Fort Worth, TX

*From zero to 1,675 gas wells in 10 years*

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On Thursday, May 20, Sarah Fullenwider shared some of the lessons the City of Fort Worth has learned from drilling in the Barnett Shale. Fullenwider, a senior assistant attorney for the city, shared her insights in a Penn State webinar titled, “If We Knew Then What We Know Now...A Decade of Lessons Learned from Urban Drilling in Fort Worth”.

Fort Worth is located in north Texas, about 35 miles west of Dallas. It's the fifth largest city in the state, covering close to 350 square miles, and has an estimated population of 721,000. Ten years ago there were no gas wells in town, Fullenwider said, but now there are 1,675 shale-gas wells within the city limits and over 100 brine disposal wells in the area.

The Texas Railroad Commission regulates drilling and safety issues, Fullenwider said, adding that towns and cities regulate quality of life issues such as noise levels and fences. Counties, she explained, have no regulatory authority.

“In hindsight we should have had more citizen awareness,” Fullenwider said. Fort Worth citizens only got involved when drilling increased in the urban area. Drilling began in the rural areas first, Fullenwider explained. Then, in 2004, there was a sharp increase in the number of wells drilled, and drilling operations began moving into more populated areas.

Fullenwider stated that people were happy to receive \$25,000/acre, but by 2008 those bonuses fell to a tenth of that: \$2,500 – \$5,000/acre. In addition, the public grew increasingly dissatisfied with noise, dust, traffic, lights, water usage and other environmental concerns that the city had neither predicted nor planned for.

Fullenwider authored Fort Worth's initial gas-drilling ordinance in 2001 and since then, as drilling has increased, she has chaired several drilling task forces charged with revising the municipal drilling ordinance. “We learned a lot,” Fullenwider said. “Most important, you can't educate your citizens too much.” Fullenwider wishes the town had taken a more pro-active role in getting information to residents.

“We should have created a proactive website,” Fullenwider admitted. “We should have saturated the public with information.” She wishes the town had held more public meetings that brought together citizens, the industry and the regulatory agencies.

“I wish we had required landmen to register with the city,” Fullenwider added. Residents who wanted to see the economic benefit of drilling became frustrated by the inequalities in leasing bonuses and royalties offered to different landowners.

Residents are frustrated by their inability to control, through their municipal government, the location of wells. “We really need to deal with current and future land use,” Fullenwider explained. The town government needed to get a better handle on industry's need for compressor stations, disposal wells, pipelines and other infrastructure, and integrate those needs with their town planning.

Fullenwider listed the issues the town was able to deal with by using a permit ordinance: noise, lights, water use, truck traffic, setbacks, frack pits, landscaping issues, delivery times (of chemicals and equipment), and fences. Fort Worth established a 600-foot setback provision in its ordinance for protected-use areas such as hospitals, churches, schools and residences – all areas which are also subject to additional controls on noise, operating hours and lighting. The town’s ordinance also specifies that no gas well can be within 200 feet of a fresh water well.

“We could have required greater setbacks,” Fullenwider said. “And we could have established the ambient noise level.”

Truck traffic and the resultant road impacts have turned out to be the biggest issue for Fort Worth. In addition to wear and tear on the roads, they felt a huge impact on traffic flow. Now the city requires drivers to follow commercial truck routes.

Fort Worth requires a bond before drilling. “But a better solution would have been to implement a road repair fee to recoup the cost of repairs,” Fullenwider said.

“The two areas we missed early on were pipelines and compressor stations,” Fullenwider said. Now, pipelines are causing havoc in both the urban and rural areas around Fort Worth. “Pipelines are placed in front yards in residential neighborhoods,” Fullenwider explained. “One resident had so many pipelines he couldn’t sell his home.”

The problem, Fullenwider noted, is that companies don’t share their pipelines. Furthermore, the pipeline company has power of eminent domain. And compressor stations, too, as they are considered part of the pipeline.

Compressor stations are industrial facilities, Fullenwider emphasized. Towns need to establish setbacks for them, establish maximum noise levels, and establish containments such as fencing. “You need to establish ordinances because, while drilling is over in 40 days, the compressor stations are there for the long haul.”

With so many wells, disposal becomes an issue. Fullenwider noted that most of their disposal wells are in the rural area outside city limits. Traffic is a big issue, she admitted, and the city has been looking at alternatives. One would be to have the drilling waste fluid (brines, etc) pumped through pipelines to the underground injection wells.

“A better solution is to have a centralized production location for compressors, disposal wells, and the gas and saltwater pipelines,” Fullenwider said. She stressed the importance for towns to develop a master plan for drilling and pipelines, as the 30 – 50 years of production will have an impact on the town’s growth.

Industrialized drilling in Barnett shale has had an impact on air quality, Fullenwider said. She urged towns to require “green completions” that minimize emissions from wells, compressors and pipelines. “Establish your air quality baseline early in the process,” she said, “and require routine inspections of all equipment.”

Fullenwider suggested similar requirements to preserve soil and water quality: require pre- and post-testing for drinking water; prohibit storage of chemicals on sites in residential areas; and require immediate clean-up after any spill, regardless of how small it may seem. Most of all, Fullenwider said, require an Environmental Impact Statement for each well.

Fullenwider's presentation, "If We Knew Then What We Know Now...A Decade of Lessons Learned from Urban Drilling in Fort Worth" will eventually be archived at <http://naturalgas.extension.psu.edu/webinars.htm>.