

# Understanding Water Tradeoffs for Hydraulic Fracturing

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Talk of the impacts of hydraulic fracturing (fracing) is nothing new, but some new developments regarding where gas companies are seeking their water requires another conversation. We have **already explained** the quantities of water that are needed to effectively frac a well, but where does all that water come from? The easy answer is anywhere they can get it. In some locations, it is primarily ground water that is often purchased from the surface owner. In other areas, water is purchased from a municipality, which sometimes mean that energy is used to treat the water to drinking water quality standards just to be mixed with chemical and sand before being injected deep underground. A newer trend is the purchase of a city's waste water effluent. Here are some thoughts to consider on a couple of these sources.

## Groundwater

One of the biggest challenges for supplying fracing water occurs in areas with little to no surface water available. Perhaps, the most controversial of these is the **Eagle Ford Shale** in Southeast Texas. To say this **area is booming** is the **understatement** of the year. Each of these wells and all of the people flocking to this area need water. Lots of water. Most of that water is coming from the **Carrizo-Wilcox Aquifer**.

Under Texas law, drillers are allowed to use water owned by the surface for their drilling operations which sometimes causes friction between these two parties, particularly if the surface owner doesn't hold the mineral interests. In other words, the surface owner may be receiving very little benefit for a lot of burden. To bridge this gap, many new surface use agreements include payments for water used, which gives the surface owner a financial interest in the well that may not have previously been present. Unfortunately, many of these contracts obligate the driller to use water only from the landowner's well which discourages or outright prohibits recycling. More importantly, it is literally placing landowners against one another for this precious resource.

Another twist to this story involves another part of the aquifer. Although much of the aquifer **produces fresh water**, other areas are more brackish in quality. While the gas companies pull tremendous amounts of fresh water from the aquifer, the city of San Antonio is launching a project to treat the brackish water and transport it to town for municipal use. This is an extremely expensive project that is part of their new supply portfolio. Why are oil companies adding chemicals to fresh water that will then be permanently stored in a disposal well while the citizens of San Antonio will be paying to clean brackish

water from the same area? Why aren't the gas companies compelled to use the brackish resources or help pay for San Antonio to use it?

To be clear, this is no fault of San Antonio's. The city went after the water that they could acquire and currently, there are no regulations to prevent this from happening and water used for gas production is exempt from groundwater districts' regulations, but the result seems absurd and is not the best use of resources.

### City Effluent

A more recent sought source of frac water is **city sewer effluent**. The city of Bandera recently voted to sell the city's effluent to Alpha Reclaim Technology, who will transport the water from the sewer plant to drilling sites. At first blush, one might think this is a great solution and in some areas it may be. Using sewer effluent is generally better than pumping fresh water needed by other users. So what is the problem? Well, this water used to go down the Medina River and provide flows for the environment as well as for downstream users and now it is being intercepted before that can occur. Again, Bandera isn't prohibited from making this deal and there is no regulation that requires them to continue to put their effluent in the river, but a change in this current practice will definitely have an impact.

### The Future?

Both of these listed practices are legal, but neither may be wise. The problem is that Texas doesn't always consider the big picture of water and how one user can impact another even in an accidental way.

As a recent conference, I was on a panel discussing these issues and a member of the audience asked why gas companies aren't being compelled to build water infrastructure, such as desalination plants, either for their own use or to save the citizens from having to pay for it in the future. It was a reasonable point in my opinion. There is a potential for these companies to make almost unimaginable amounts of money using local resources, such as water and then leave those who remain to pay the price.

It is clear that there are large economic benefits to fracking, both to individuals lucky enough to have mineral rights, but also to communities, but there is also a cost. Unfortunately, we don't know how much or what this cost might entail, but ignoring it will not make it go away. These areas need to start discussions about how to ensure longevity after the boom and how companies can contribute to that vision.

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