

"CHALLENGES WITH SALT WATER DISPOSAL IN THE HAYNESVILLE SHALE PLAY"

by

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Abstract

In the four-Parish area where the Haynesville Shale play is most actively drilled (Caddo, De Soto, Red River and Sabine), there are 769 currently active injection wells (as of 9/2018). Ten of these wells are high-volume commercial facilities that inject “produced” water, or non-potable formation water, back into the deep subsurface formations. As hydraulic fracturing of the Haynesville and other zones continues and even increases, so does the need for more injection capacity.

Unlike the thick sands with ample porosity and permeability found across most of Louisiana, the potential injection zones in the Haynesville Shale area are sparse, and over time pressure increases as the formations are filled with produced water. Injection wells in Louisiana are typically permitted to inject into sandstone or limestone formations that are geologically isolated from drinking water aquifers. Unfortunately, the geology of northwestern Louisiana includes few sandstone formations – some bearing intermittent sands and other formations that are deeper and thus more expensive to utilize.

Louisiana permits a maximum injection pressure for each salt water disposal well that is based on a percentage of the pressure needed to fracture the injection formation. Due to differing maximum injection pressures between Louisiana and Texas, many Louisiana operators truck produced water over the state line to inject at the higher pressures allowed by the state of Texas. In 2017, increased pressures were noted within injection zones commonly used in both Texas and Louisiana with most located in areas where no active injection is occurring.

Ultimately, Louisiana faces the challenges of diminishing injection zone availability, increased volumes of wastewater, and pressure within injection formations potentially migrating eastward from our neighbor to the west. With compromise solutions between regulators and operators tough to find, new regulations and possibly understandings between neighboring states is likely.