## Jones, William V., EMNRD

**From:** Jones, William V., EMNRD
**Sent:** Monday, March 26, 2007 8:26 AM
**To:** Williams, Chris, EMNRD; Kautz, Paul, EMNRD
**Cc:** Price, Wayne, EMNRD; Sanchez, Daniel J., EMNRD; Chavez, Carl J, EMNRD; Ezeanyim, Richard, EMNRD; Brooks, David K., EMNRD
**Subject:** Acid Gas Well Design: Targa's Well Design

**Tracking:**

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| Williams, Chris, EMNRD | |
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Hello Chris and/or Paul:
Please read this and maybe we can all talk about it?

The issue is Targa's well design and the cement and casing strings to use and the presence of some brine wells or LPG wells in this area. I am working on an injection permit after this was presented at hearing (Case 13865) on 2/1/2007. The hearing was un-opposed.

Targa wants to drill another well on its South Eunice Plant property at location:
2580 FSL and 1000 FWL Section 27, T22S, R37E, Lea County

This well will be a replacement for the existing disposal well (SWD-29) located 2580 FSL and 1200 FWL of Section 27
The existing well is API No. 30-025-21497 and only is permitted to dispose of plant waters.
The new well will dispose of these same plant waters AND CO2 and H2S, all blended together.

The existing well was drilled to 4140 feet and 7inch ran and cemented with 1750 sacks (circulated but no record of DV tool used)
This well was then drilled out to 4550 feet, the open hole acidized, and injection began in 1961.

The Salt in this area is from 1200 to 2400 feet, the Penrose at 3490, the GBG at 3632, the SA at 3990, the Glorieta at 5049, the Tubb at 6041. The surrounding well files show the San Andres and the lower Drinkard are loss circulation zones and operators have had trouble cementing through those. The existing SWD well with casing set at 4140 in 1961 did not report trouble circulating cement after pumping 1750 sacks - maybe because it was not drilled into the high porosity interval of the SA, and maybe because reports are sketchy.

Targa wants to drill the new disposal well to 4900 or more and cement 7 inch casing and perforate the casing for injection at depths up to 5000 feet.

Hazards to avoid and things to consider:
1) The Environmental Bureau here told me about some brine wells in this area that should be avoided. (Can you confirm?)
2) The well file on the existing well shows a plat with three LPG wells located in an E-W line directly north of the existing SWD well. (Can you confirm).
3) The high porosity interval in the SA - allow for adequate cement to cover.
4) The fresh water sands near the surface (design for 2 casings and 2 cement sheaths to protect).
5) Corrosive injection (CO2 and H2S and Water).
6) Years of injection into the SA may have added some pressure to the formation - but maybe not?
7) The Langlie Mattix Penrose Sand Unit wells are within 1/2 mile - so cement should protect this Penrose interval.
8) Targa is not an experienced downhole operator or well designers - they operate gas plants.

In its injection permit, Targa proposes a 9-5/8 inch casing at 530 feet circulated, then 7 inch at 4900 feet with only 600 sacks of cement.

My recommendation on the well design is for Hobbs District to require Targa to drill the well to 200 feet deeper than it intends to inject - Targa says 4500 to 5000 feet for injection maximum depths, run modern logs, run 7 inch casing with (2) DV tools, the first at 4000 feet and the second at 1200 feet. Adequate cement be used to circulate all three stages of cement - so the entire wellbore is covered with cement (the injection interval is covered, the Penrose and Salt are covered, and the red beds and Ogallala are covered. Or have Targa run an intermediate casing string to the top of the salt and use only one DV tool in the production pipe.

I will wait on Targa to work something out with Hobbs and a clear casing design is proposed and reviewed prior to issuing this injection permit. Any permit issued will have conditions to meet - such as running an injection survey on the existing well prior to plugging it.

Maybe we should all talk about this?

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