

Lea County, NM
Section 19 T19S R32E

ZIA AGI 2
Devonian AGI
API: 30-025-42207
PERMIT USE ONLY

GEOLEX
INCORPORATED

SHL
1900' FSL
950' FWL

KB: 3570'
GL: 3545'

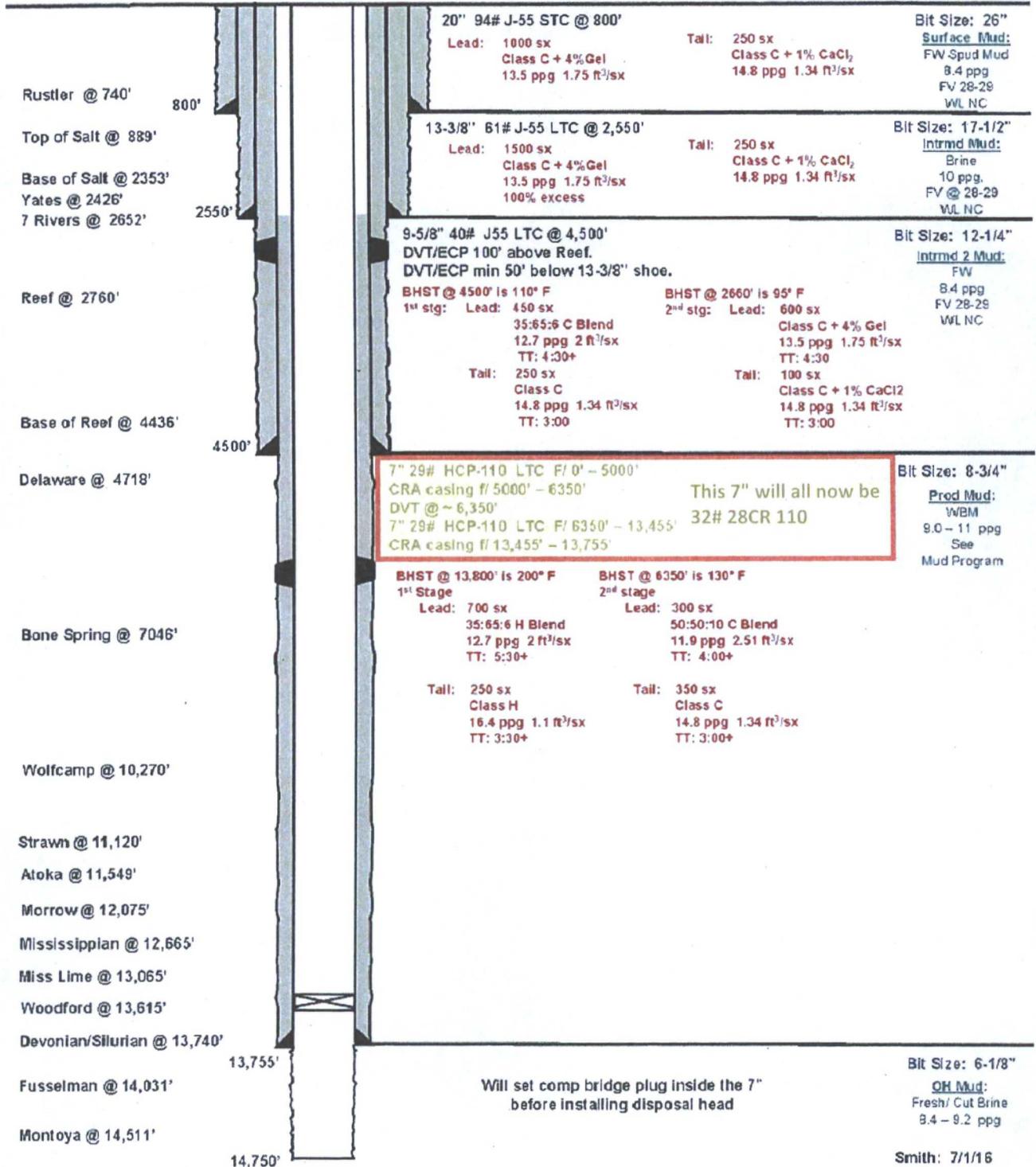
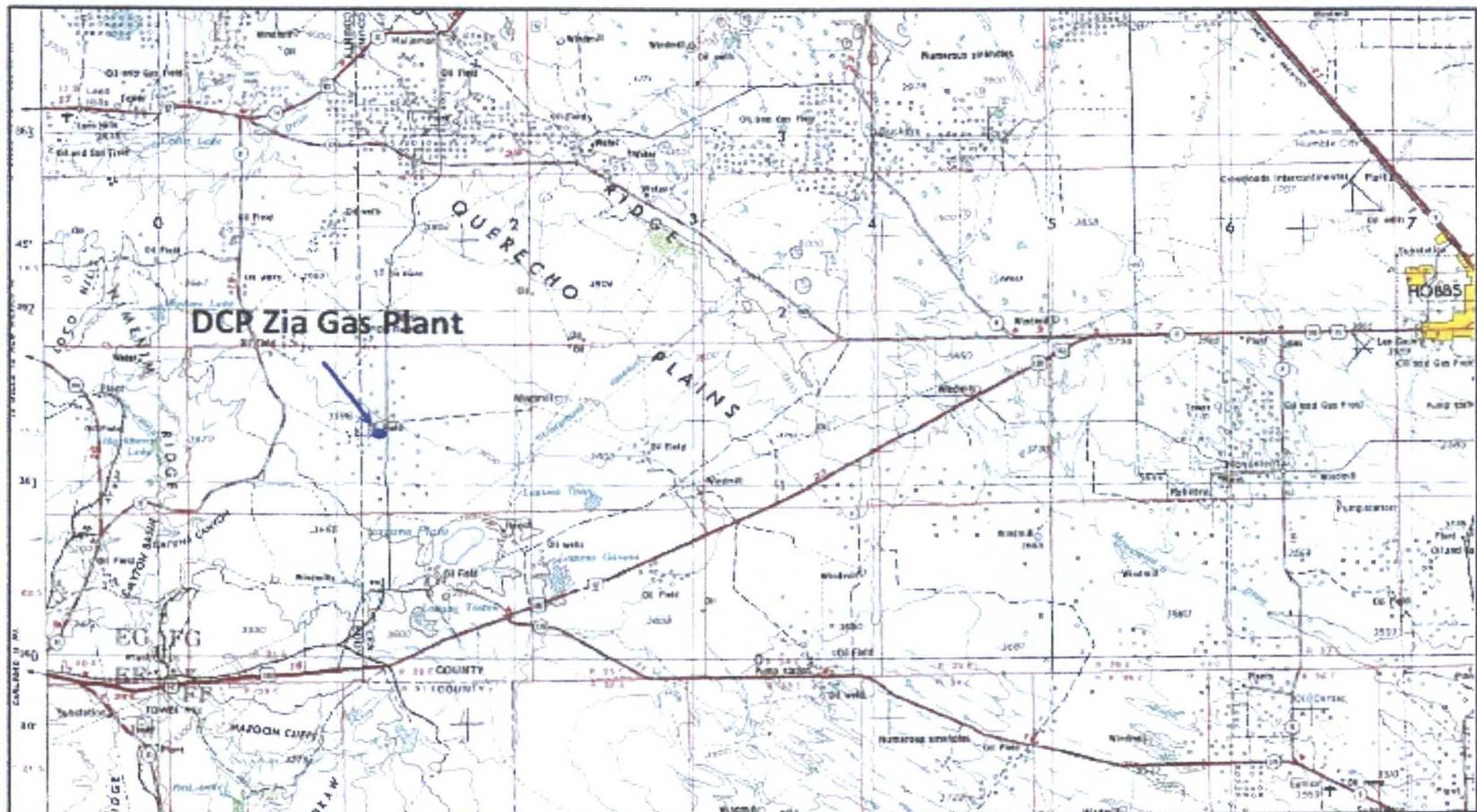
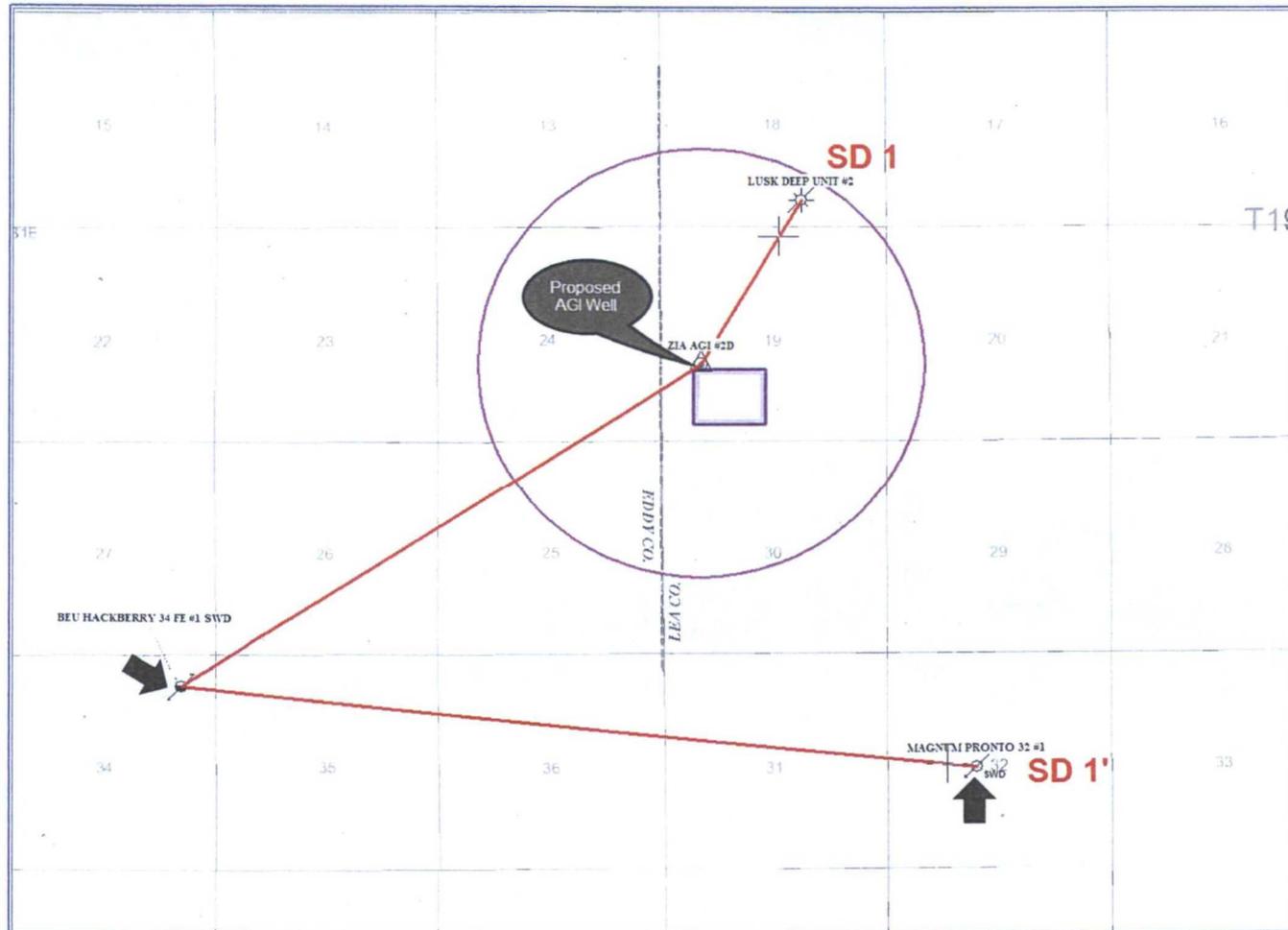


Figure 7: Schematic of Proposed Zia AGI #2D Well Design
(Casing and Cement Details May be Modified per BLM Review)

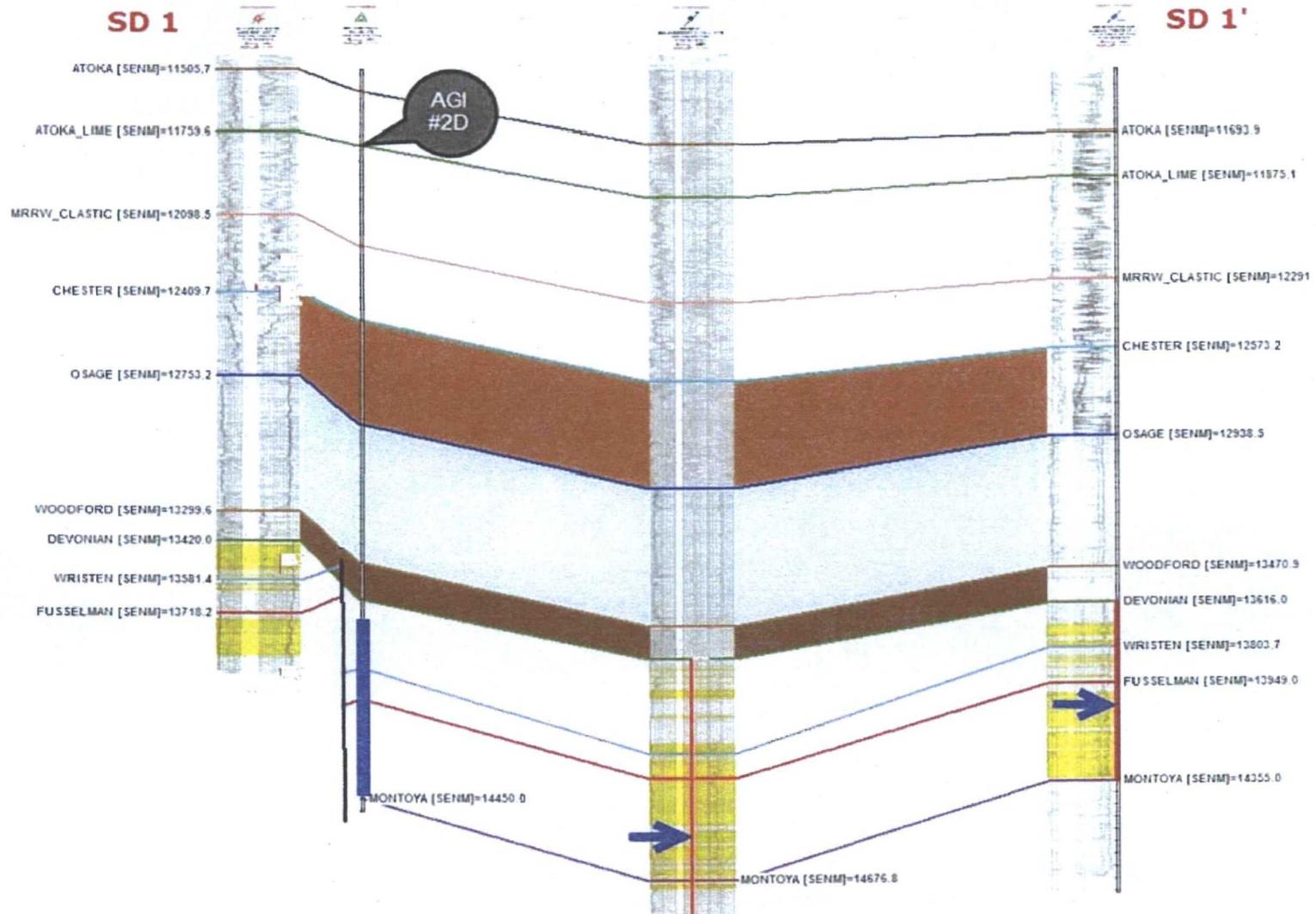


**Figure 1: Location of the DCP Zia Gas Plant and Proposed AGI Well #2D
(USGS 1:250,000)**



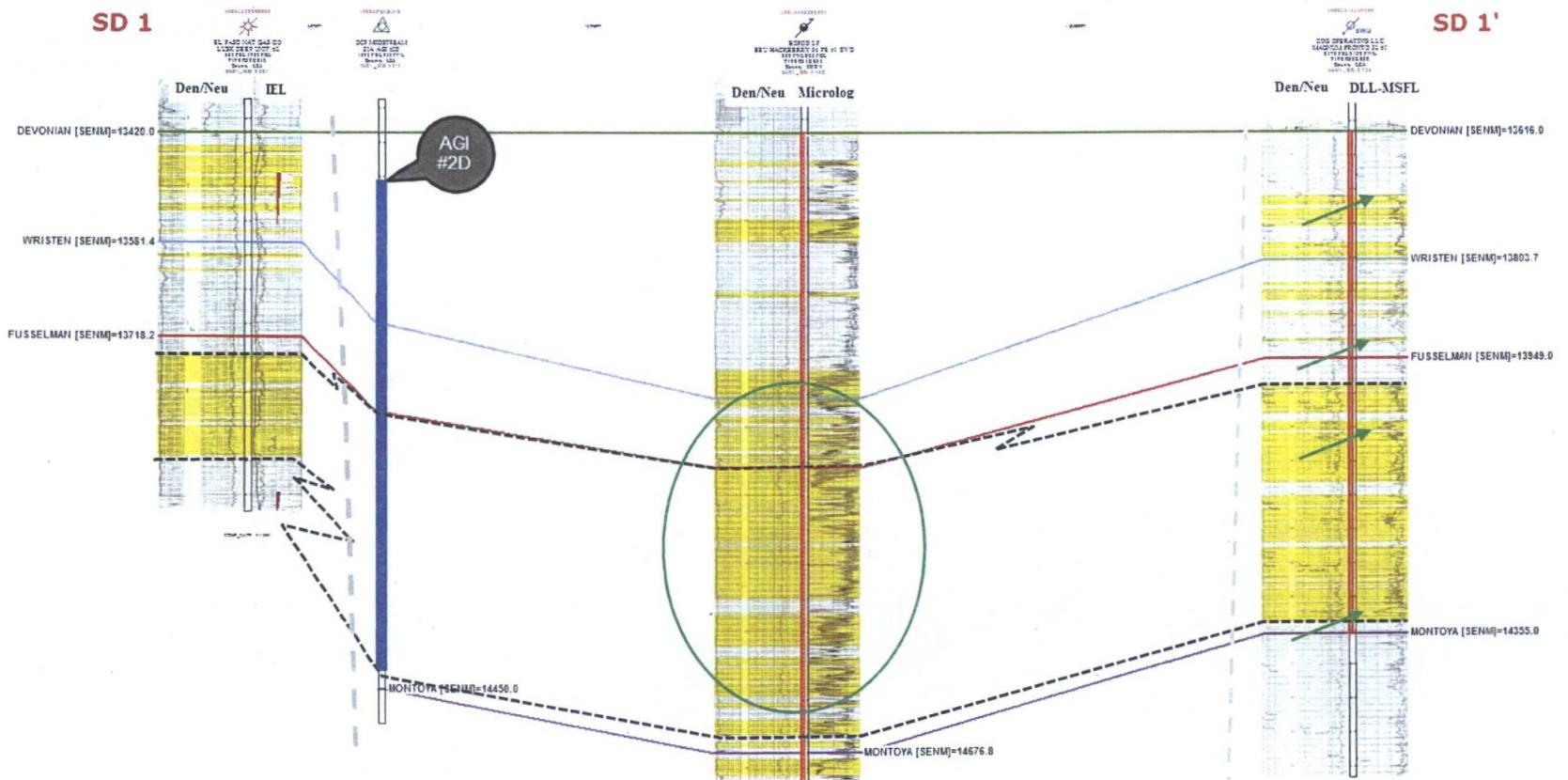
Other wells that penetrate through the proposed injection zone are found outside the 1-mile radius of investigation. Two of the wells on the cross-section are being used as salt water disposal wells (arrows), injecting into the Siluro-Devonian interval. Both injection wells have modern log suites with which to evaluate formation porosity.

Figure 4: Location of Deep Cross-Section SD 1- SD 1'



Yellow shading denotes porosity in the Siluro-Devonian section of 3% or greater. Porosity is present in thin to thickly-bedded sequences that are separated by tight carbonates. The proposed injection interval (blue bar) would be the same interval used for salt water disposal in other wells in the area (arrows). The Siluro-Devonian interval is approximately 1,000 feet below the closest producing formation (Morrow) in the area, and is separated from it vertically by tight Woodford and Chester shales (brown), and 550 feet of tight Osage limestones (light blue).

Figure 5: Cross-Section Through the Deeper Horizons Across the Zia Plant Site



Yellow shading shows porosity of 3% or greater through the proposed injection interval. The primary injection zone is expected to be the Fusselman (dashed outline), but additional injection capacity could come from other porosity development in the Devonian and Wristen. The proposed AGI #2D will be on the downthrown side of the seismically-defined fault (dashed gray traces), where both the Devonian and Fusselman may be more porous than in the Lusk Deep Unit #2 (far left). The Magnum Pronto 32 #1 (far right) appears to be on the upthrown side of the same fault that trends towards that well. Both water disposal wells shown on this section were completed open-hole across the entire Siluro-Devonian interval, and both are injecting at volumes and pressures that suggest high permeability across the interval. Very thick-bedded and untested porosity is present in the Lusk Deep #2 (far left) in the upper Fusselman, with sonic porosities in that well up to 14% in both the Fusselman and the Devonian. The presence of fractures and solution-enlarged vugs and cavities is indicated on the micrologs of each of the other two disposal wells (green outline and arrows), more prevalent in the Hackberry 34 SWDW #1 (center).

Figure 6: Stratigraphic Section, Hung at the Top of the Devonian, Showing Detail Through the Proposed Injection Interval (blue bar) in the AGI #2D.

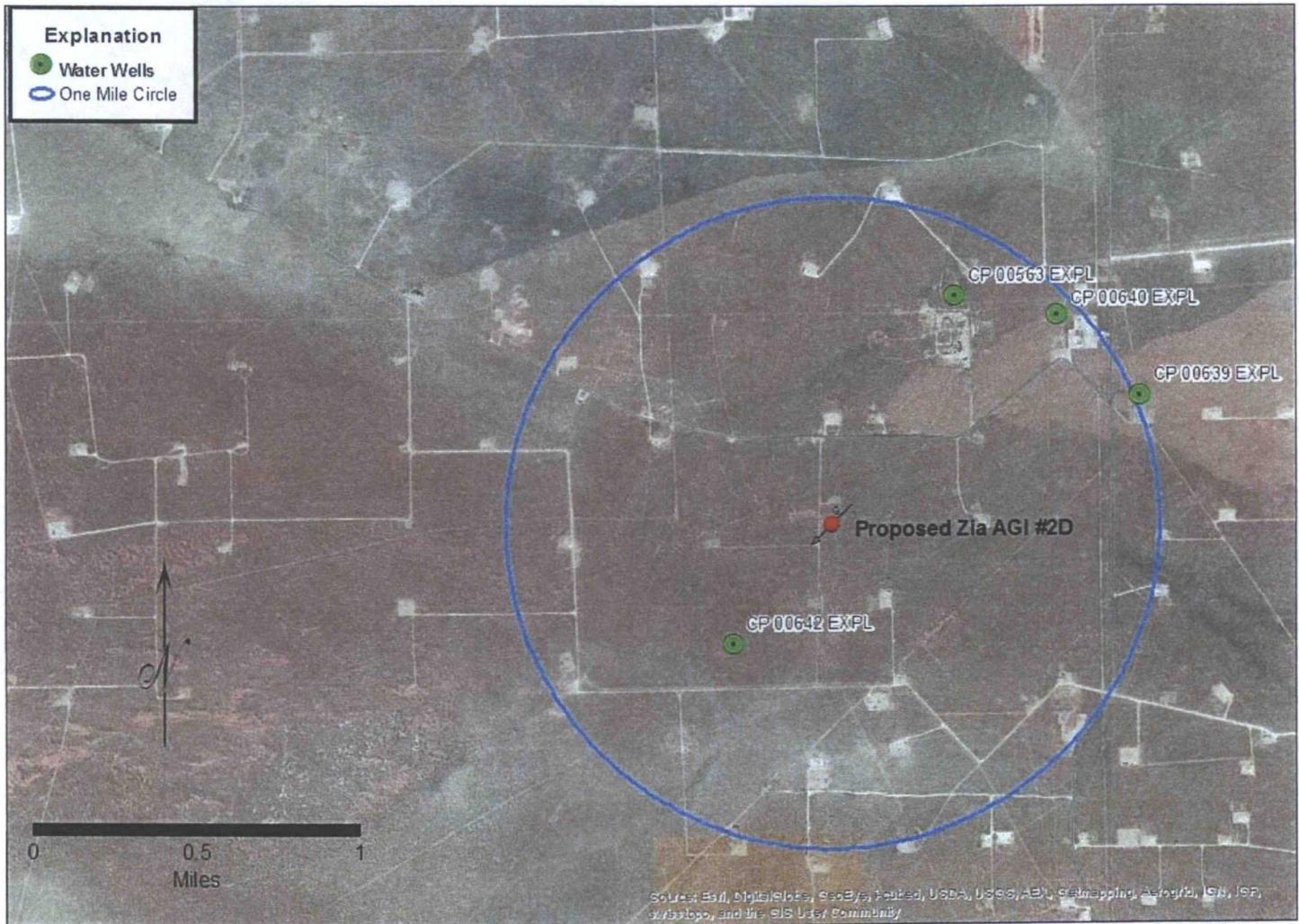


Figure 7: Water Wells Within One Mile of Proposed Zia AGI #2D

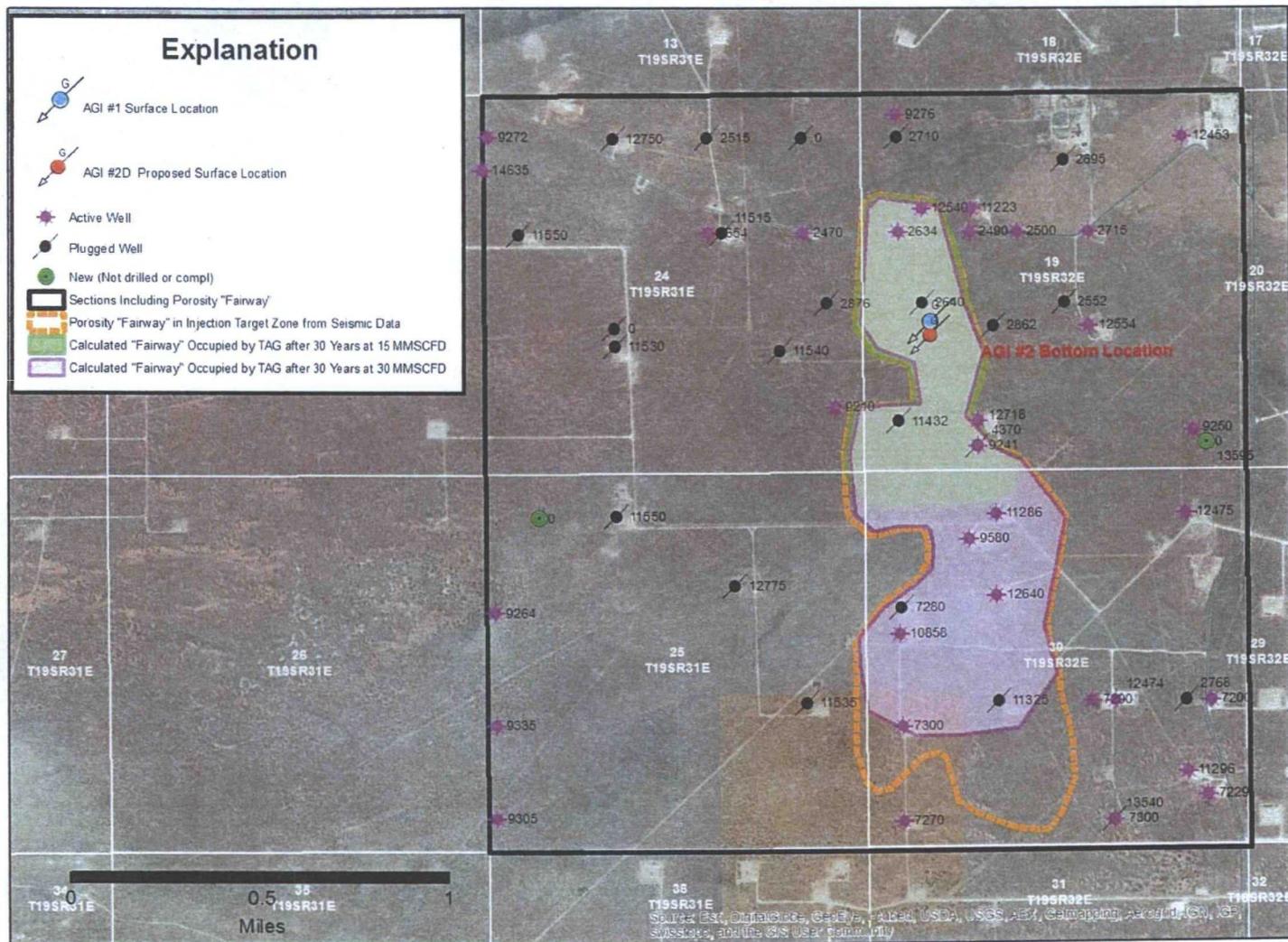


Figure 11: Calculated Areas of Injection in the Porosity Fairway after 30 Years of Operation at Anticipated Maximum of 15 MMSCFD and with 100% Safety Factor at 30 MMSCFD