

## **Preparing for and Handling Common Complaints by Private Water Well Owners Related to Coal Bed Methane, Shale Gas and Other Unconventional Development Programs**

Fontana, John V.<sup>\*1</sup>; Seneshen, David<sup>1</sup> (1) VistaGeoScience, Golden, CO.

A major public concern with unconventional oil and gas development occurring today is the potential impact to ground water or private well owners. When development occurs in a populated rural area, it's not long before the operators and regulators are hit with complaints from private water well owners suspecting that their water well is impacted from nearby development activities. While a few complaints can be linked to real issues such as poor cement jobs, leaky pits and other accidents related to development, the vast majority turn out to be due to poor quality water well design, construction and lack of maintenance that can mimic issues cause by oil and gas releases. While the actual releases and spills must be acknowledged along with their true impacts to ground water, public education is required to demonstrate that these are rare and many of the issues with private water wells are related to naturally occurring conditions or other historical activities such as mining exploration, early oil and gas exploration, agricultural impacts or other industrial impacts. Water wells can also become non-productive and the quality of water degraded due to regional draw-down from over use of the aquifer, drought, or just the limited life span wells. Methane in a water well occurs naturally from bacteria present in or introduced into the well, natural gas seeps, or the result of adsorbed methane in the coals or shales present in some aquifers. Even though methane occurs naturally in many ground water aquifers, it is not toxic and therefore not routinely checked for as part of water quality tests in private wells, until gas development occurs in the area when it then becomes "discovered" as a problem. Done prior to development, a proactive baseline testing program can head off these problems with landowners. Some states are have or are currently proposing new regulations to conduct baseline studies before drilling occurs and routinely after. Baseline testing procedures and results are presented that help protect operators from complaints and potential law suits. The authors recently assisted in creating a brochure, website and presentation for Raton Basin water well owners to educate the well owners on the most common water well problems, including methane, how to distinguish these issues from gas development releases or other forms of natural or anthropogenic contamination, and how to resolve the issues with routine testing and maintenance.