

Fontana, J., Gorody, A.W., Stearns, W., Taillac, G., and Seneshe, D., 2009, Customized geographic information systems to acquire baseline and monitoring data to protect unconventional resource assets and comply with the new Colorado Oil and Gas Conservation Commission rules, *in* AAPG Annual Convention and Exhibition, Denver, Colorado, June 7-10, 2009, American Association Petroleum Geologists, Denver, CO.

Abstract

The new Colorado Oil and Gas Conservation Commission (COGCC) rules require baseline assessments and monitoring. The rules also recommend operators create a Comprehensive Drilling Plan for larger projects. Under COGCC Rule 608, CBM wells or projects now have special requirements for baseline assessment and monitoring. Risk associated with nearby conventional or plugged and abandoned wells must be assessed and includes: soil gas surveys, domestic water well sampling and testing both prior to drilling and post drilling monitoring. Where the CBM bearing formations outcrop within 2 miles of a well, natural gas seeps must be investigated and monitored at the outcrop. COGCC Rule 216 requests operators “initiate and enter into a Comprehensive Drilling Plan...” on a voluntary basis. This Comprehensive Drilling Plan will include infrastructure, geographic, wildlife and environmental data in the project area. It would address specific issues normally included in the Form 2A, Oil and Gas Location Assessment, and can exempt the operator from filing Form 2A for each well. Baseline assessments plans would be included where needed or required.

The authors have been collecting and assembling baseline data in the Rocky Mountain region similar to what is now required by the new rules for Colorado. Data is collected to evaluate environmental baseline conditions prior to development of CBM and other unconventional resources. Recently, a new field data acquisition system was developed using customized GIS software. Field data is collected by entering parameters directly into the geodatabase on a field PDA/GPS unit. The system eliminates many errors associated with previous manual field data collection and data entry and increases field efficiencies. The combined geodatabase can include many features such as interpreted air photo anomalies, topography maps, natural gas seep locations and extent, stressed vegetation, springs, water wells, laboratory data, surface water features, existing oil/gas infrastructure, encountered leaks, ambient air methane readings, other infrastructure and disturbances. The data can be readily integrated into other GIS systems that the operator already has in place. Conducting these surveys prior to development protects operators from later accusations of conditions that were pre-existing. The monitoring program helps locate issues as soon as possible enabling quicker and less expensive solutions and repairs.