

# FRUITLAND COAL BED METHANE SEEPAGE MODELING STUDY AND FRUITLAND COAL AQUIFER RECHARGE

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## Biographical Sketch of Authors

All three authors are employed by Questa Engineering Corporation in Golden, Colorado. Dave Cox and Paul Onsager are reservoir engineers with 20 years of experience in the major CBM basins of the United States. Russell Schucker is a reservoir engineer with 16 years of experience in conventional and CBM basins of the Rocky Mountains. All three authors have recently completed modeling studies in the San Juan Basin Fruitland coal.

## Abstract

Development of coalbed methane (CBM) in the Fruitland Formation of the northern San Juan Basin, Colorado has been the world's premier producing CBM play. Experience has shown that methane seepage rates along the Fruitland outcrop on the northern portion of the basin have increased with increasing CBM development. This development also appears to capture groundwater discharge to local rivers as the coal bed aquifer is dewatered. The level of development in the basin is anticipated to increase as the industry has received approval for increased drilling density to 160-acres per well.

Regional reservoir simulations have shown the following:

1. Methane recovery is significantly higher with 160 acre spacing vs. 320 acre spacing
2. Methane losses at the outcrop resulting from CBM development are expected to occur at similar levels and locations for various well spacing and /or drilling patterns
3. Some portions of the coalbed aquifer within a few miles of the outcrop can be expected to recharge within 200 years after cessation of CBM activities. Other areas, either near the outcrop or deeper in the basin, may take substantially longer periods of time.

This talk discusses the use of reservoir simulation analysis and actual field data to examine the effect of increased well density on methane seepage and the ability of the Fruitland aquifer to recharge after CBM production ceases.