ABSTRACT

Coal seams that are not attractive mining targets can be utilized for cushion gas (CGM) production and CO₂ sequestration. Eastern Kansas is underlain by several shallower (<160 ft depth and thin to 4 ft) Pennsylvania coal seams, which range in rank from high volatile C to low volatile C. These coal beds can serve as sinks for large point-source emitters of CO₂, because the number of beds at a given locality can vary by several feet and thickness of several feet. These coal seams have the potential to produce CGM, and thermodynamically they can sequester approximately 85% to 95% of the CO₂. Gas content of the coals can be as great as 375 wcf (per acre, and the composite thickness of several coal beds can improve economics for enhanced coal bed methane (ECBM) projects.

A study area underlying a metropolitan landfill in eastern Kansas investigated the CGM and ECM potential for several underlying coal beds. Two cores tested cores for gas potential and geomechanical characteristics. Longwall mining and bottom coal injection have resulted in significant gas drainage in the areas analyzed. The longwall mining left a significant gas deposit in the subbituminous coal at Sand Creek, KS. Significant gas production from the longwall mining occurred. Two cores were drilled for this study, and gas flow tests and geomechanical logging were performed. Results indicate that gas production from the study area is feasible.

Key words: Coal Bed Methane, Coal Bed Gas, CO₂ Sequestration, Enhanced Coal Bed Methane, Geomechanical Logging, Gas Flow Testing, Longwall Mining, Sand Creek, KS.