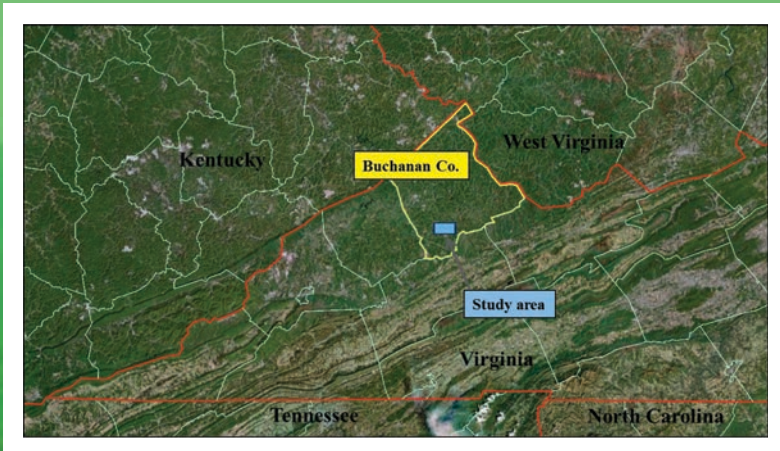


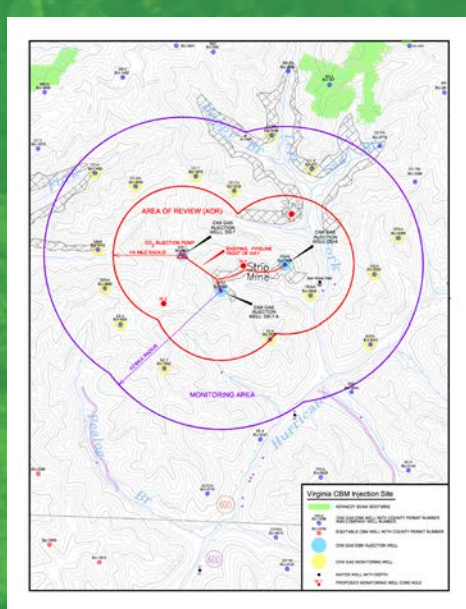
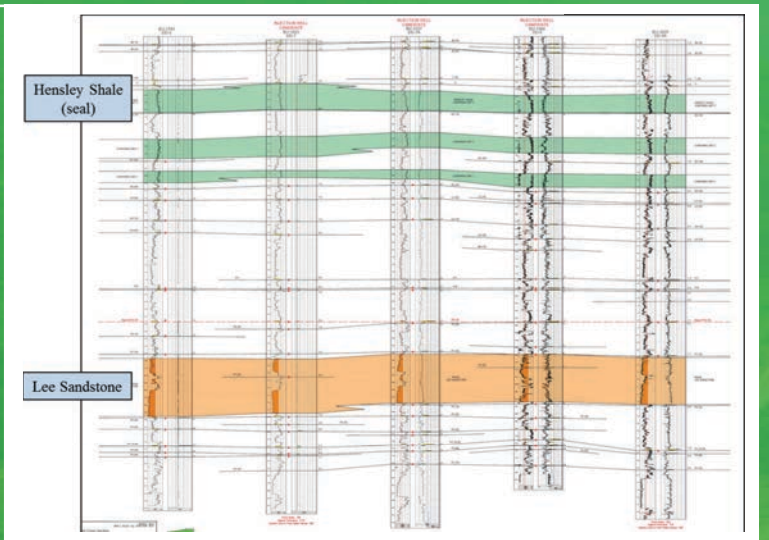
GEOLOGICAL CHARACTERISTICS OF THE POCAHONTAS AND LEE COAL SEAMS

Geological characterization was performed to determine the most suitable location to test CO₂ storage and enhanced coalbed methane recovery. The Pocahontas and Lee Formations were determined to have suitable, stacked coal seams that are favorable to project goals.



The site for the injection of 20,000 tons of CO₂ over a three-year period is in southwest Buchanan County, 7.5 miles northwest of the site of the Russell County injection. The coal reservoir at the Buchanan County site includes 15 to 20 seams which are currently producing gas. Averaging only one foot in thickness, their combined thickness ranges from 15 to 20 feet. The seam depths range from 900 to 2,100 feet.

Local stratigraphy indicates several confining units, or seals, that will prevent any CO₂ from migrating upward. First, the areas in green depict three low-permeability shales, the upper of which, the Hensley shale, overlies the coal seams. The Lee sandstone, in beige, is a thick, low-permeability sandstone underneath the Hensley shale.



This map shows the three injection wells, DD-7, DD-7A, and DD-8, on the Hurricane Creek anticline, which lies in the Oakwood Field, and their location relative to the former Pocahontas No. 3 mine (also called the VP8 mine).



This map shows the topography of the study area, including the three injection wells (DD-7, DD-7A, and DD-8), three monitoring wells (M1, M2, and C1), and several offset wells (in yellow). Modeling indicates that the 1/4 mile radius from the wells, marked in white, will be the extent of the 'plume,' or the maximum area to which the CO₂ will migrate. The red boundary marks the area that will be monitored.