



# Preliminary results from coal-bed methane drilling in Ouachita Parish, Louisiana

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only, and does not imply endorsement by the U.S. Geological Survey.

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## Introduction

In March, 2003, the U.S. Geological Survey, the Geological Survey of Louisiana, and EnerVest Management Partners, LTD., through a Cooperative Research and Development Agreement (CRADA), drilled and cored a coal-bed methane test well in northeastern Ouachita Parish, Louisiana (fig. 1). The purpose of this report is to provide a summary of the preliminary results from the test well. Because much of the analytical work on samples collected (such as coal petrography and biostratigraphy) is still underway, a detailed data compilation will be released at a later date.

## Preliminary results

**Hole name:** Fairbanks Real Estate F-359

**API number:** 17073223900000

**Louisiana serial number:** 227884

**Operator:** EnerVest Operating, LLC

**Latitude:** 32° 39'24.770" N

**Longitude:** 91° 57'23.609" W

**Township, Range, Section:** 19N, 5E, 4 (340' north & 340' west of SE/corner of SW/4 of SE/4 of section 4)

**Total depth of hole:** 1,628 ft

**Non-cored coal intervals:** The intervals were selected based on a predominance of coal chips in cuttings: 420-440 ft, 540-560 ft, 650-660 ft, 720-730 ft, all in Sparta Sand (Eocene)

**Cored intervals:** 1,317-1,363 ft, 1498-1593 ft, all in Wilcox Group (Paleocene-Eocene)

**Total coal recovered:** A total of 12.75 ft of coal was recovered by coring four coal zones: zone 1: 1,329-1,334.8 ft; zone 2: 1,498-1,498.9 ft (includes carbonaceous shale); zone 3: 1,515.25-1,515.5 ft, 1,516-1,516.9 ft; zone 4: 1,574.00-1,574.90, 1,575.80-1,577.80, 1,579.20-1,581.20

**Moisture contents of coal:** The moisture content of the coal samples ranges from 18.2 % to 30.63 % on an equilibrium moisture basis. Equilibrium moisture values are used because as-received values may be influenced by canister water.

**Ash contents of coal:** Ash yield of the coal samples ranges from 6.24% to 44.54 % on an equilibrium moisture basis. Equilibrium moisture values are used because as-received values may be influenced by canister water.

**Estimated coal rank:** Estimated ranks using the Parr Formula (ASTM, 2003, standard D 388) for the coal samples range from subbituminous C to subituminous B.

**Gas contents of coal:** As determined by canister desorption (see Barker and others, 2002), gas content ranges from 18.94 standard cubic ft/ton (scf/ton) to 41.08 scf/ton on a raw coal basis, or 40.98 scf/ton to 69.01 scf/ton on a dry, ash-free basis. The gas content of the coal samples increases with depth.

**Adsorption isotherm data:** Multiple adsorption isotherms run on both individual and composite samples indicate that the coal is undersaturated in gas content.

**Gas isotopic data:** Coal gas isotopic data indicates  $\delta^{13}\text{C}_1$  values range from -65.57 ‰ to -63.75 ‰ relative to the Pee Dee Belemnite (PDB), and  $\delta\text{D}_{\text{CH}_4}$  values range from -194.4 ‰ to -190.8 ‰ relative to Standard Mean Ocean Water (SMOW). Using the Whiticar et al. (1986)  $\delta^{13}\text{C}_1$ - $\delta\text{D}_{\text{CH}_4}$  diagram to interpret the origin of natural gases, the origin of the coal gas was determined to be by the reduction of  $\text{CO}_2$ .

**Produced water quality:** Initial produced water from the Fairbanks Real Estate F-359 well indicates pH ranges from 6.98 to 7.65, salinity ranges from 7.3 to 17.3 parts per thousand, and total dissolved solids ranges from 7,200 to 16,000 mg/l.

**Coal permeability:** A pump test run on the lower 4 ft coal zone indicates a range of 2 to 18 milidarcies permeability.

## Acknowledgements

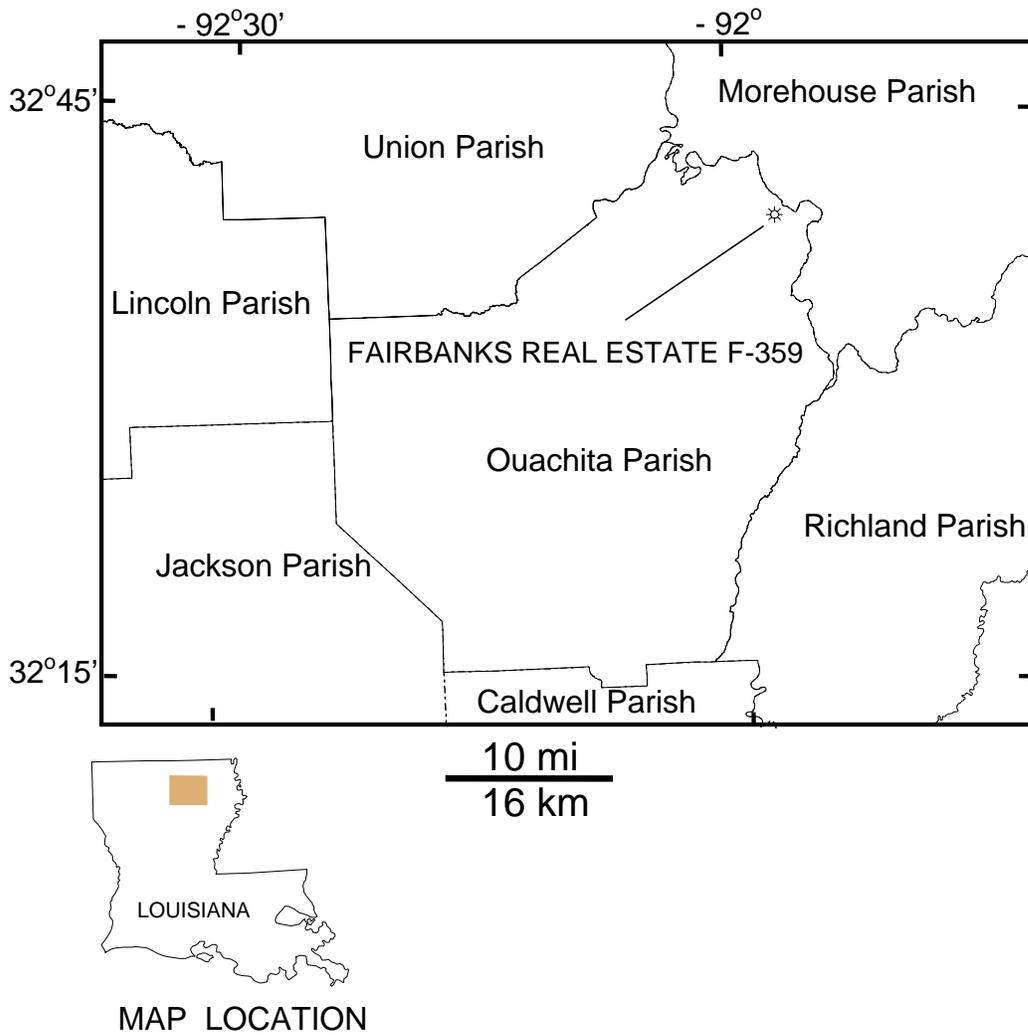
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**Fig. 1.** Location of the Fairbanks Real Estate F-359 test well.