

## **GEOLOGICAL REPORT**

**Lawrence West #1**  
660' FSL, 1980' FEL  
Section 1, T23S-R17E  
Anderson Co., Kansas

**Operator:** Quest Energy Service, Inc., P. O. Box 100, Benedict, Kansas 66714

**Drilling Contractor:** Well Refined Drilling, Jeff Kephart, Driller  
Schramm air rotary drill rig with auxiliary compressor

**Wellsite geologist:** Michael L. Ebers – On location from 425' to T.D.

**Date Drilled:** May 1, 2002

**Size Hole:** 6 1/4"

**Total Depth:** 1185'

**Elevation:** 1022' (estimated from topographic map)

**Drilling Fluid:** Compressed air with injected water

**Surface Casing:** 40' of 7" casing cemented to the surface

**Electric Logs Run:** Gamma ray and Neutron Logs

**Rock Color Description:** GSA rock color chart

**Notes:** Samples from 435 to 655' examined at drill site and discarded. Samples from 655' to T.D. examined at drill site and 10' samples collected and examined in the laboratory with a binocular microscope.

### **Wellsite Sample Examination**

#### **Top of Stark Shale at 436' (+586')**

436-444' Shale, dark gray to grayish black, no gas

444-462' Limestone

#### **Top of Hushpuckney Shale at 462' (+560')**

462-467' Shale, dark gray, grayish black in lower 2', 15% flat joint faces

467-486' Limestone

#### **Base of Kansas City at 486' (+536')**

486-544' Shale, gray

544-549' Sandstone, light gray, very fine grained, very silty, poorly sorted, micaceous, very poor porosity, tight, no show, no fluorescence

- 549-648' Shale, gray, locally greenish gray and silty
- 648-652' Shale, dark gray

Microscopic Sample Examination

- 652-696' Limestone, tan, fine grained, shale break at 658-660'
- 696-724' Sandstone, fine grained, very silty, poorly sorted, tight, no show, no fluorescence, local shale breaks
- 724-748' Shale, medium light gray
- 748-750' Limestone, dark brownish gray, fine grained, fossiliferous, trace coal at base
- 750-756' Shale, medium dark gray
- 756-764' Limestone, light grayish brown, fine to medium grained, very fossiliferous & pelletal
- 764-779' Shale, silty, medium light gray
- 779-782' Limestone, tan, fine grained
- 782-786' Shale, dark gray & grayish black
- 786-801' Shale, clayey, soft, light gray and shale, medium dark gray
- 801-803' Limestone, tan, fine grained
- 803-818' Shale, light greenish gray, medium gray, and medium dark gray in lower 8'

Top of Oswego Lime at 818' (+204')

- 818-826' Limestone, grayish brown, fine grained, massive

Top of Summit Shale at 826' (+196')

**GAS CHECK @ 823' - no gas**

- 826-833' Shale, dark gray, platy, trace flat joint faces, no flat bedding planes
- 833-836' Limestone, tan, fossiliferous

**GAS CHECK @ 833' - no gas**

Top of Mucky Coal and Shale at 836' (+186')

- 836-839' Shale, dark gray
- 839-841' Shale, dark gray and grayish black, scattered flat joint faces (<5%)
- 841-842' Coal, massive with irregular to conchoidal surfaces, few cleat faces, vitreous
- 842-843' Shale

**GAS CHECK @ 843' - no gas**

Top of Squirrel Sand at 843' (+179')

- 843-850' Sandstone, light greenish gray, fine grained, very silty, poorly sorted, poor porosity (6-8% max.), no show, no odor, no fluorescence
- 850-911' Shale, medium gray, limestone at 871-872'
- 911-913' Bevier Coal, vitreous, semi-blocky, scattered good cleat faces, locally calcite filled fractures and cleats
- 913-922' Shale, medium gray
- 922-923' Limestone, grayish brown, fine grained

**GAS CHECK @ 923' - no gas**

- 923-924' Croweburg Coal, massive and blocky, very vitreous/glassy, locally cleat faces
- 924-954' Shale, gray
- 954-955' Coal
- 955-968' Shale, light gray, minor limestone, olive gray
- 968-969' Coal, vitreous, semi blocky
- 969-994' Siltstone, shaly, laminated, light gray to medium gray
- 994-995' Coal
- 995-1010' Shale, dark gray
- 1010-1011' Shale, grayish black with trace of coal (Weir Coal)
- 1011-1045' Shale, gray
- 1045-1060' Shale, dark gray
- 1060-1070' Shale, gray and greenish gray, locally silty

Top of Lower Bartlesville Sand at 1070' (-48')

- 1070-1079' Sandstone, very fine grained, light gray, very silty, poor porosity, no show, no odor, no fluorescence
- 1079-1100' Shale, medium gray, locally silty
- 1100-1130' Sandstone, light gray, silty, poorly sorted, poor porosity, laminated with shale, no show, no fluorescence
- 1130-1150' Sandstone, medium grained, light gray, locally tan, subrounded, mostly very silty, locally clean sand, poor to excellent porosity, overall fair porosity (10-12%), 30% gray shale, no show or odor, no fluorescence, 30 to 40 gpm water at 1135'

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1150-1160' Siltstone, medium to medium dark gray, streak of coal at 1150', very faint odor at 1153'

1160-1166' Shale, medium gray

Top of Tucker Sand at 1166' (-144')

1166-1185' Sandstone, medium grained, very light gray, subrounded, fairly well sorted, minor silt, excellent porosity (18-20%+), no oil show or odor, no fluorescence, hit 50+ gpm additional water

@1185' Watered out, well making ~100 gpm. Unable to continue drilling with air hammer

1185' Total Depth