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JUL 22 2003

CONSERVATION DIVISION  
WICHITA, KS

**GEOLOGIC WELLSITE REPORT**

**Whiting Petroleum Company**

**Farr #9-11**

**NWNW Sec 9, T20S, R12E**

**Lyon County, Ks.**

**B Reddick, D Schwantes,**

**L Boucher, Richard Bacon**

**Consulting Geologists**

**For Hampton, Waechter & Associates LLC**

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## WELL SUMMARY

The Farr 9-11 well was drilled primarily to test the gas content of the coals of the Pennsylvanian Cherokee Coal Group. The lower coals and shales of the Marmaton group, such as the Excello, were a secondary objective.

The Farr well spudded on the 17<sup>th</sup> of March 2003 with a 12 1/4" bit. The 9 5/8" surface casing was set at 200' on the 18<sup>th</sup> of March. After drilling to core point of 1667' in the lower Marmaton Group, the first coal (Bevier) was encountered at 1709.9. The end of coring was at 2008' in the Mississippian limestone underlying the Cherokee group. The well was then reamed through the cored interval, and drilled to TD of 2133', which was reached late on the 23<sup>rd</sup> of March.

## GEOLOGICAL SUMMARY

The Farr 9-11 well was drilled primarily to test the gas content of the coals of the Middle Pennsylvanian Cherokee Coal Group. The coals of interest are near shore coals, and frequently have marine fossils, predominately brachiopods, in the shales above or below them. The lower coals tend to be thicker and more productive than the upper coals, and reach their peak in the coals at the base of the Pennsylvanian. An unnamed 11' coal at 1937' did not have the best gas content, but certainly contained a significant volume of coal. The coals with the best gas content were found immediately above this thickest coal. Calcite mineralization is also common with lesser amounts of pyrite mineralization. TD for the Farr well is in Mississippian limestone underlying the Cherokee group, which was significantly deeper than anticipated. It is possible that additional thick coals in this area could be located by a seismic study for topographic lows in the Mississippian paleosurface.

**WELL DATA**

**WELL NAME:** Farr 9-11

**COMPANY REPRESENTATIVE:** Dave Reid

**LOCATION:** Surface hole location: 653' FNL & 733' FWL  
Bottom hole location: Same  
Section 9, T20S, R12E  
Lyon County, Kansas

**API NUMBER:** 15-111-20414-00-00

**FIELD:** Wildcat

**ELEVATION:** 1152' GL, 1154' KB

**SPUD DATE:** 3/18/03

**DATE TD REACHED:** 3/23/03

**CONTRACTOR:** Layne Christenson

**TOOLPUSHER:** Jim Holtom

**HOLE SIZE:** 12 1/4" hole to 200',  
7 7/8" hole 200' - 1667'  
6 1/8" core hole 1667' - 2008'  
7 7/8" hole reamed 1667' - 2008'  
7 7/8" hole 2008' - TD 2133'

**WELLSITE GEOLOGY:** Hampton Waechter & Associates LLC

**GEOLOGISTS:** B Reddick, D Schwantes, L Boucher, R Bacon

**LOGGING COMPANY:** Scientific Data Systems, Inc

**PROGRAM:** Gamma, Dual Induction with sp, caliper

**TOTAL DEPTH:** 2133' Driller 2136' Logger

**BOTTOM HOLE:** Mississippian

**SAMPLE PROGRAM:** 20' samples from 1000' - 1667'  
Continuous wireline coring from 1667' - 2008'  
20' samples from 2008' - 2133'

**WELL STATUS:** Casing set

### DAILY CHRONOLOGY

<u>Date</u>	<u>Midnight depth</u>	<u>24 hr Footage</u>	<u>Activity</u>
3/18/03	200'	200'	Rig up, spud, drill surface 0'-200', TOH, run casing, pump cement, WOC, spot trailer on location
3/19/03	1140'	940'	Rig up generator & gas detection instruments, Drill 200'-1140'
3/20/03	1667'	527'	Drill 1140'-1327', Rig blooie line DIRECTLY to possum belly, Drill 1327'-1667', Circ & condition, TOH, TIH with core barrel
3/21/03	1877'	210'	Core 1667'-1877'
3/22/03	2008'	131'	Core 1877'-2008', TOH, TIH, ream 1667'-1850'
3/23/03	2133'	125'	Ream 1850'-2008', Drill 2008'-2133', TOH
3/24/03	2133'	0'	TOH, rig up e loggers, run e logs, run casing, rig down trailer

### INDIVIDUAL SAMPLE DESCRIPTIONS

- 1000-1020 Limestone off white to tan, occasional mottled, predominant clean, occasional oolitic, very fine crystalline to crypto-crystalline, occasional fine crystalline, trace yellow mineral fluorescence
- 1020-1040 Limestone tan to buff to transparent, very fine to crypto-crystalline, occasional fine to coarse crystalline, clean, hard, dense, good trace bright yellow mineral fluorescence
- 1040-1060 Limestone white to tan very fine to crypto-crystalline, clean, hard, dense, poor trace yellow mineral fluorescence
- 1060-1080 Limestone white to buff, very fine to crypto-crystalline, hard, dense, clean, rare shale laminated
- 1080-1100 Limestone white to tan to buff, very fine to crypto-crystalline, occasional fine to coarse crystalline, occasional transparent, hard, clean, dense, good trace bright yellow mineral fluorescence
- 1100-1120 Limestone tan to buff, very fine to crypto-crystalline, occasional chalky, occasional fine to medium crystalline, hard to firm, clean to slightly argillaceous, dense, trace mineral fluorescence
- 1120-1140 Limestone white to buff, micro to crypto-crystalline, hard, blocky, clean, dense, occasional finely crystalline, trace yellow mineral fluorescence
- 1140-1160 Limestone off white to tan, occasional light brown, hard, clean, slightly argillaceous in part, dense, micro to fine crystalline, occasional coarse crystalline, good trace bright yellow mineral fluorescence
- 1160-1180 Limestone brown to tan, sub blocky to platy, hard, clean to argillaceous, occasional grading to calcareous shale in part, continued trace bright yellow mineral fluorescence
- 1180-1200 Limestone a/a good trace red brown silty shale
- 1200-1220 Limestone off white to tan to brown, sub blocky to blocky, hard to firm, grading to shale in part, good trace interbed shale, red brown to gray, platy, silty, firm, calcareous
- 1220-1240 Limestone light gray to tan, micro to crypto-crystalline, occasional fine crystalline, good trace interbed gray shale, fair trace yellow mineral fluorescence
- 1240-1260 Limestone white to tan, predominant clean, occasional slightly argillaceous, micro to crypto-crystalline, occasional fine to coarse crystalline, hard, dense, blocky to platy, good trace bright yellow mineral fluorescence
- 1260-1280 Limestone off white to tan, sub blocky to blocky, hard, clean, trace bright yellow mineral fluorescence, good trace light to dark gray shale
- 1280-1300 Limestone off white to tan, clean, blocky, hard, dense, microcrystalline to fine crystalline, trace yellow mineral fluorescence

**FORMATION TOPS**

**Measured from a KB elevation of 1152'**

<u>FORMATION</u>	<u>Sample Top MD</u>	<u>E-log top</u>
Bevier	1709.9'	1707.5'
Gravel lag derived from Mississippian	2004.5'	2003'
Mississippian	2007.4'	2005.4'
TD	2168'	2136'

- 1300-1320 Limestone off white to tan, clean, blocky, hard, dense, microcrystalline to fine crystalline, slightly trace carbonaceous shale, trace yellow mineral fluorescence
- 1320-1340 Sandstone gray, translucent in part, moderately cemented, very fine to fine grained, moderately to well sorted, slightly to non calcareous, abundant pyrite, argillaceous in part
- 1340-1360 Sandstone gray, translucent in part, moderately cemented, very fine to fine grained, moderately to well sorted, slightly to non calcareous, argillaceous in part, abundant pyrite, slight trace yellow mineral fluorescence
- 1360-1380 Sandstone gray, moderate to poorly cemented, very fine to fine grained, moderately to well sorted, slightly to non calcareous, argillaceous in part, trace pyrite, grading to siltstone, trace yellow mineral fluorescence
- 1380-1400 Sandstone gray, moderate to poorly cemented, very fine to fine grained, moderately to well sorted, slightly to non calcareous, argillaceous in part, trace pyrite, grading to siltstone, trace yellow mineral fluorescence
- 1400-1420 Siltstone gray to dark gray, shaley in part, soft to firm, slightly to non calcareous, trace yellow mineral fluorescence
- 1420-1440 Claystone light green, soft occasional silty, interbed with siltstone light gray, soft, clay rich
- 1440-1460 Claystone light grain, soft, occasional slightly silty interbed with siltstone a/a with medium gray, some dark inclusions shale light to medium gray, soft silty occasional stringer limestone white, light brown, crypto-crystalline, soft to firm, dense, mottled in part
- 1460-1480 Siltstone red brown, soft to firm, very argillaceous in part claystone light grain, soft, slightly silty in part
- 1480-1500 Shale black, black brown, firm, blocky, splintery, silty in part, micro micaceous, carbonaceous, non calcareous interbed with limestone light to medium brown, crypto crystalline to finely crystalline, firm, mottled, chalky in part, grainy to silty
- 1500-1510 Sandstone white, clear, light gray, very fine to fine grained, predominant sub round, m cement, calcareous, some dark minerals, occasional glauconite, moderate to well sorted, no to very poor visible porosity, no staining fluorescence odor or cut
- 1510-1520 Sandstone white, clear, light gray, very fine to fine grained, predominant sub round, m cement, calcareous, some dark minerals, occasional glauconite, moderate to well sorted, no to very poor visible porosity, no staining fluorescence odor or cut
- 1520-1540 Limestone tan, buff, cream, crypto crystalline to finely crystalline, firm to moderately hard, dense, chalky in part, slightly mottled, arenaceous with occasional siltstone stringers, no visible porosity, yellow mineral fluorescence, no cut
- 1540-1560 Limestone predominant tan, buff, cream, crypto crystalline to finely crystalline, firm to moderately hard, dense, chalky in part, slightly mottled, arenaceous to sucrosic, free pyrite, no to very poor visible porosity, no mineral fluorescence, no cut

- 1560-1570 Limestone predominant tan, buff, cream, medium brown, crypto crystalline to finely crystalline, firm to moderately hard, dense, chalky in part, slightly mottled, arenaceous to sucrosic, free pyrite, no to very poor visible porosity, no mineral fluorescence, no cut
- 1570-1580 Shale light to medium gray, occasional red brown, firm, blocky, splintery, silty in part, occasional pyrite
- 1580-1590 Shale light to medium gray, occasional red brown, firm, blocky, splintery, silty in part, occasional pyrite
- 1590-1600 Limestone predominant tan, buff, cream, medium brown, crypto crystalline to finely crystalline, firm to moderately hard, dense, chalky in part, slightly mottled, arenaceous to sucrosic, free pyrite, no to very poor visible porosity, no mineral fluorescence, no cut
- 1610-1620 Sandstone white, light gray, clear, very fine to fine grained, predominant sub round, m cement, slightly calcareous, silica in part, dark minerals, occasional free pyrite, moderately to occasional well sorted, no to very poor visible porosity, no staining fluorescence odor or cut
- 1620-1640 Siltstone dark gray, dark brown, firm to moderately hard, dark inclusions, very arenaceous in part grading to sandstone stringers
- 1640-1667.5 Shale medium gray, medium brown, blocky, splintery, firm to moderately hard, very silty in part, calcareous, stringers of limestone light brown, occasional medium brown, crypto crystalline to finely crystalline, firm to moderately hard, grainy in part, no visible porosity, no staining fluorescence odor or cut
- 1667.5-1668.6 Shale dark gray, carbonaceous, good trace brachiopod, rare gastropod, trace coal laminated upper to 1.5 cm, rare visibly degassing
- 1668.6-1677 Shale medium gray to gray brown, trace fossil fragments, occasional sandy laminated
- 1677-1681 Shale and sandstone interlaminated, occasional ripple laminated, rubble in part, light to dark gray
- 1681-1687 Shale medium gray, firm, platy to thin bedded, smooth, grading to siltstone at top
- 1687-1699 Shale dark gray, laminated, silty, occasional siltstone laminated, rare burrows
- 1699-1707 Shale dark gray, occasional tan argillaceous limestone beds, fissile, platy, good trace brachiopod fossil and fragments, occasional pyrite
- 1707-1709.9 Shale dark gray, laminated, rare burrows, good trace brachiopod fossil fragments, occasional pyrite, occasional carbonaceous shale lams
- 1709.9-1710.8 Coal black, poor cleat, argillaceous at base, visibly degassing
- 1710.8-1712 Shale dark gray, firm, occasional carbonaceous shale lams, calcareous at base
- 1712-1722 Claystone medium green, soft to firm, flaky when dry
- 1722.4-1723.1 Coal black, some visibly degassing, very well cleated
- 1723.1-1724.2 Shale black, blocky, firm, very carbonaceous with coal lams, degassing