15-019-26837 SE NW NE NW 4950 FSL 3430 FEL 36-34-10 E

# Jones & Buck Development

**P.O. Box 68**
**Sedan, Kansas 67361**
**(620)725-3636**

## Geological Report

| | |
|---|---|
| **Date:** | January 23, 2008 |
| **Operator:** | Jones & Buck Development, P.O. Box 68, Sedan, Kansas 67361<br>(Kansas Corporation Commission License #31302) |
| **Reference well:** | Jordan #17 (API#: 15-019-26,837-0000) |
| **Spot Location:** | Approx. NW NE NW Section 36 - Township 34 South - Range 10 East<br>(4950' FSL, 3430' FEL - NW/4) Chautauqua County, Kansas |
| **Ground Elevation:** | 890' (Estimated) |
| **Topography/Vegetation:** | Flat to sloped, rocky/sandy location and ingress |
| **Drilling Contractor:** | MOKAT Drilling, Caney, Kansas |
| **Wellsite Geologist:** | Thomas H. Oast, Sedan, Kansas on location from 700' |
| **Drilling Rig Model:** | Schramm Rotadrill T685H<br>1000 CFM/350PSI (main compressor)<br>900 CFM/350PSI (auxiliary compressor)<br>with Booster |
| **Drilling Fluid:** | Compressed air with injected water |
| **Drilling Commenced:** | January 14, 2008 Set surface casing only |
| **Drilling Completed:** | January 16, 2008 |
| **Hole/Casing Data:** | 11" Borehole drilled to 40'<br>40' of 8.625" Surface Casing installed/cemented with 8 sacks Portland Type 1 cement by drilling rig crew<br>6.75" Borehole drilled to 1,006'<br>990.5' of new 4.5"x 10.5# Production Casing installed/cemented with --- sacks cement w/additives by Consolidated Industrial Services, Bartlesville, Oklahoma. Ticket # ------ on January --, 2008 |
| **Total Depth:** | 1006' |
| **Electric Log Program:** | Gamma-Ray / Neutron / Cement Bond Log (Green Country Wireline) |
| **Canister Test/Data:** | None taken |

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This geological report concludes wellsite supervision and sample examination on the above referenced test well. The well was drilled to a total depth (TD) of 1,006' to allow for hydrocarbon analysis through the Layton Sandstone which exhibited an excellent oil show. Based on this show, it is recommend to install/cement production casing to allow for further testing of this intervals.

Significant geologic marker zones and hydrocarbon shows are described in the following lithology report. The estimated ground elevation is 890' from which all measurements were made. This report has been correlated with the cased hole electric log provided by Green Country Wireline of Bartlesville, Oklahoma.

| DEPTH (feet) | LITHOLOGY |
|---|---|
| 000 - 600 | No samples observed/examined. |
| 698 - 623 | Limestone |
| 895 - 897<br>(-5) | **Iola limestone** - Oolitic |
| 897 - 983<br>(-7) | **Layton Sandstone** - Clear to light gray, very fine grained, good porosity, slight to fair odor, scattered to poor fluorescence, no free oil from 897 - 899'. Sandstone as above, slight odor, poor (30%) fluorescence from 899 - 901'. Sandstone as above, good (80%) dull fluorescence, slight odor from 901 - 908'. Sandstone as above, strong odor, good free oil, good fluorescence (90%), some free oil on pit from 908 - 916'. Shale from 916 - 919'. Sandstone as before, silty to shaley, no shows from 919 - 927'. Shale form 927 - 931'. Sandstone as before, no shows balance of formation, locally silty to shaley. |
| 983 - 1006<br>(-93) | **Drum Limestone** |
| 1006 | Drillers' total depth |

Please feel free to contact this office if you have any questions concerning this report.

Sincerely,

Thomas H. Oast
Geological Consultant

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15-125-30748

Well No.: Barton #130
Operator: Peak Energy LLC
Driller: Jearld and Tootie Smith
Started: May 16, 2005
Completed: May 18, 2005
Location: 3410' FSL; 520' FEL of Sec. 26, T34S – R13E, Montgomery Co., KS
Elevation: 803 +- 2 s.l.e. (topog.) SE SW SE NE
Total Depth: 1890'
Surface Csg: 22ft. of 8 5/8"
Prod'n Csg: None.

0 – 460 No cuttings available. Refer to Driller's log.
0 -2 Overburden
2 -37 Gray Sand.
37 – 60 Shale
60 – 63 Lime
63 – 81 Sand
81 –181 Sand and sandy Shale
181 –196 Sand
196 –283 Sandy Shale
283 –296 Sand, some Water
296 –314 Sandy Shale
314 –329 Sand
329 –418 Sandy Shale
418 –432 Sand, some Water
432 –464 Sandy Shale

26 - 34 - 13E

Detailed description of cuttings:

NOTE: No wireline logs are available to correlate the footages above or below to true depths.

From 460-1570 ft., samples were collected at 10 ft. intervals.

460 - 570 Shale, gray, becoming darker below 520 ft..
570 - 580 Shale, darker gray; Limestone, gray brown, fossiliferous, sandy, muddy. No fluorescence.
580 - 590 Sand, gray, shaly. No fluor.
590 - 710 Shale, gray, becoming darker gray below 700'. A little dark brown Limestone occurs somewhere between 670-680.
710 - 720 Shale, black.
720 - 740 Shale, gray.
740 - 750 Limestone, gray tan, coarse grained, w/ little green matrix. Shale, green, some gray. Streaky, dull gold fluor. 50%. Driller: **"Top of Lenapah Limestone @ 746'.**
750 - 760 Limestone, tan, microcrystalline. Shale, dark gray, little green. Very

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| | dull gold fluor. in limestone. |
| 760 - 790 | Sandstone, gray green, lighter with depth, little glauconitic, fine grained, porous. No fluorescence. |
| 790 - 820 | Shale, gray, mostly silty. |
| 820 - 870 | Limestone, tan, dense, microcrystalline, becoming rich brown below 860'. A little gray, silty Shale ( "between 839-841": Driller ). No fluorescence. Driller: **"Top of Altamont Limestone @ 826'."** |
| 870 - 956 | Shale, gray, some silty. |
| 956 - 980 | Limestone, dark brown to tan to rich brown, fossiliferous at upper few ft., then mostly dense. No fluor. in upper part, but up to 20% in lower few ft.. **(Driller: "Top of Pawnee Limestone @ 961'.")** |
| 980 - 990 | Shale, black, dark gray. |
| 990 -1050 | Shale, gray, silty in part, especially in last 20ft. or so. |
| 1050-1070 | Sandstone, gray, fine grained, some silty and shaly. |
| 1070-1080 | Shale, gray. Limestone, dark brown, very fine grained, dense. A little Calcite. **(Driller: "Top of Oswego @ 1080'.")** |
| 1080-1110 | Limestone, mostly brown, dense, with up to 15% mostly dull fluor. in lower part. The uppermost part of limestone is fossiliferous with an odor and 5% bright yellow fluor.. |
| 1110-1120 | Limestone, brown, fine grained, weak porosity, w/ dull yellow gold fluor.. Shale, black 50% of spl. (Driller: "Shale @ 1102-1115'."). **SUMMIT SHALE.** CBM #1 canister w/ cuttings from 1108-1115'. |
| 1120-1140 | Limestone, tan to rich brown in lower part, mostly dense, w/ dull gold fluor. Driller: "Lime from 1115-1135'." |
| 1140-1150 | Shale, black. Driller: "Shale @ 1135-1140'." **MULKY SHALE.** CBM canister #2 w/ cuttings from 1135-1140'. |
| 1150-1160 | Limestone, rich light brown, weak porosity; traces Calcite. 15-20% light yellow fluor.. GAS TEST @ 1160 ft. : Nil gas. |
| 1160-1170 | Shale, dark green-gray. Heavy traces Coal. |
| 1170-1180 | Sand, brownish gray, fine grained, grading to dark gray Shale. No fluor.. |
| 1180-1190 | Shale, gray and black. Coal 10%. |
| 1190-1200 | Shale, gray, silty to fine sandy. Shale, black. Some Coal fragments. |
| 1200-1210 | Shale, gray, silty; some black shale. Limestone, brown, 10%. |
| 1210-1240 | Shale, gray , dark gray, some silty. A little brown Limestone. |
| 1240-1250 | Shale, gray, some silty. Shale, black. Some brown Limestone. **(Verdigris Limestone?).** |
| 1250-1260 | Shale, gray, little black. |
| 1260-1270 | Sand, very fine grained to silty, weak porosity. No fluor.. Some black Shale. |
| 1270-1290 | Shale, gray, some siltstone. |
| 1290-1320 | Sandstone, light gray, very fine grained, weak/medium porosity. Some gray Shale. |
| 1320-1340 | Shale, gray, some light gray and black. Little light gray fine grained Sandstone. GAS TEST @ 1340: ½ psi on ¼ " orifice. |
| 1340-1350 | Siltstone to very fine grained Sandstone, light gray. Rare dull orange gold fluor.. Some black Shale and brown Limestone. |

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1856-1860 Dolomite, rich brown, very fine grained. Nil fluor.

Below 1860 ft. samples were collected @ 5 ft. intervals.

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|---|---|
| 1860-1865 | Dolomite, gray brown, very fine grained, dense. No fluor.. |
| 1865-1870 | Dolomite, gray and graybrown, very fine grained, some fine crystalline, some fine vugs. Spotty, very dull light yellow fluor.. |
| 1870-1880 | Dolomite, gray brown, very fine grained, dense. Nil fluor.. |
| 1880-1885 | Ditto Dolomite. Spotty, very dull light yellow fluor. 50%. |
| 1885-1890 | Ditto Dolomite, some fine vugginess. Very dull fluor. |
| 1890 ft. | Total depth. |

Water inflow while drilling was not a problem.

Note: See separate report for results of canister tests for "coal bed methane".

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