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**GEOLOGISTS REPORT**

*for*

**ROBERTSON #1**

*approx. SW, NE*

*sec 6, T9S, R20E*

**JEFFERSON COUNTY, KANSAS**

**September, 1996**

*by*

**George E. Petersen C.P.G.**

**Deacon Geology Inc.**

## **GEOLOGISTS REPORT**

### **ROBERTSON # 1**

**approx. SW, NE, sec. 6, T9S, R30E.**

**JEFFERSON COUNTY, KS**

**September 5, 1996: Left for well @ 10 A.M. Drig at 1125.**

**September 5, 1996: Released from location at 11:15 PM**

**ELEVATION : 1096.7 GL ( all measurements from 1097 GL)**

**FORMATION SAMPLE DEPTH LOG DEPTH DATUM THICKNESS**

| <b>FORMATION</b>    | <b>SAMPLE DEPTH</b> | <b>LOG DEPTH</b> | <b>DATUM</b> | <b>THICKNESS</b> |
|---------------------|---------------------|------------------|--------------|------------------|
| <b>Base KC</b>      | <b>842</b>          | <b>842</b>       | <b>+255</b>  |                  |
| <b>Marmaton</b>     | <b>982</b>          | <b>982</b>       | <b>+115</b>  | <b>90'</b>       |
| <b>Cherokee</b>     | <b>1075</b>         | <b>1078</b>      | <b>+ 25</b>  | <b>520'</b>      |
| <b>Coal marker</b>  | <b>1582</b>         | <b>1584</b>      | <b>-387</b>  | <b>4'</b>        |
| <b>U McLouth Sd</b> | <b>1522</b>         | <b>1522</b>      | <b>-425</b>  | <b>7'</b>        |
| <b>M McLouth Sd</b> |                     | <b>1529</b>      | <b>-432</b>  | <b>9'</b>        |
| <b>L McLouth Sd</b> | <b>1550</b>         | <b>1548</b>      | <b>-451</b>  | <b>18'</b>       |
| <b>Miss. Lm</b>     | <b>1588</b>         | <b>1592</b>      | <b>-495</b>  |                  |

**Sample returns were examined microscopically from a drilled depth of 1000 feet to TD for the presence of visible hydrocarbons. Formation tops and thicknesses were picked from the sample returns, the drilling time log and the Neutron-Density / Porosity Log.**

**The primary zone of interest in this well is the McLouth Sand sequence found just above the Mississippian Lime. There was one sand in the middle Cherokee that appeared to have some gas present in it . This sand will be discussed in the following section .**

#### **CHEROKEE GROUP:**

**The un-named sand located between 1471 and 1479 appeared to be carrying some gas. There were gas bubbles observed in the sand samples and there was also a slight gas show on the pit. There appear to be coal seams present both above and below this sand and the gas probably comes from these coal beds. The logs show limited porosity and resistivity values. Calculations using these values indicate that this zone is too wet to try to produce.**

**The McLouth Sands are divided into an upper (1522-29), middle(1529-48) , and lower ( 1548-66) unit for mapping and correlation purposes . The upper and middle units were very shaly units that had low porosity values. Log calculations for these two units indicated 100% water saturation. There was a very slight show of heavy dark brown free oil present in the samples. There was no noticeable odor present . Based on the very shaly nature of these intervals along with the low**

porosity values indicated on the logs, there appears to be no potential to produce hydrocarbons from either the upper or middle sands.

The lower sand found between 1548 and 1566 was a clean, medium to coarse grained, sub-angular to sub-rounded clear quartz sand. There was a strong petroleum odor present in the freshly caught samples along with a slight show of heavy dark brown free oil. There was no visible show of gas either on the pit or in the samples. There was some heavy tar like black petroleum residue also present between the sand grains.

Log calculations were prepared on location by Mr. Glenn Schneidler of Log Tech Inc. using the following values;  $M=1.8$ ;  $R_w = .2$ .

| INTERVAL | POROSITY | Rt | Sw  |
|----------|----------|----|-----|
| 1550-52  | 20%      | 18 | 42% |
| 1552-54  | 20%      | 20 | 40% |
| 1554-56  | 16%      | 50 | 32% |
| 1556-58  | 15%      | 25 | 47% |
| 1558-60  | 12%      | 20 | 68% |

There was no cross-over effect noted on the Neutron-Density / Porosity Log; however, the neutron and density curves did approach each other at 1551 indicating the possible presence of gas. This very limited gas effect along with the relatively higher calculated Sw values suggest that there is no possibility that commercial quantities of gas can be produced from the drilled interval in this well. The Rt values from 18 to 50 were most likely the result of the presence of the very heavy oil in the samples. This oil does not appear to be produceable oil.

#### **MISSISSIPPIAN LIME:**

The top of the Mississippian Lime was reached at a log depth of 1592 feet. The sample returns were a light to medium brown argillaceous to dolomitic lime probably of the Spergen portion of the Mississippian. There were no shows of hydrocarbons present in the samples or on the logs and no production of hydrocarbons are possible from the drilled interval.

#### **CONCLUSIONS AND RECOMMENDATIONS:**

There is no potential for the production of commercial quantities of hydrocarbon from this well and therefore it was plugged and abandoned.

Due to a bust in the survey, the mud was mixed at a shallower depth than normal; however this had no adverse effect on the completion of the well or of the interpretation of the results of the well. A good drilling mud would build a sufficient wall cake to prevent the invasion of fluid into the formation that could mask any gas effect.

#### **DISCLOSURE:**

Services rendered on the Robertson #1 were done without any biasing influence, intentional or unintentional from any official of Horizontal Development and Production Inc. In this report I am an independent Petroleum Geologist and not an employee of the above referenced company. I will not receive any financial benefit from the positive completion of this well nor from the abandonment of the well.

***The enclosed Geologic Log is considered an integral part of this report and is not to be separated from the same.***

***The recommendations made herein shall not be construed as absolute and are made without any assumption of liability and are statements of observations, research, training, and opinion only.***

***Should additional information be required, please contact me.***

***Respectfully submitted,***

***George E. Petersen C.P.G.  
Deacon Geology Inc.***