# *GEOLOGISTS REPORT*

***for***

***TERRY #1***

***2217' FEL, 3476' FSL sec***
***sec 12, T9S, R19E***
***JEFERSON COUNTY, KANSAS***

***February,1996***

***by***

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

**GEOLOGISTS REPORT**
**TERRY #1**
**2217' FEL, 3476' FSL, Sec 12, T9S, R19E , Jefferson Co. Ks**

**February 21,1996: Arrived on loc. @ 9:10 AM. Drlg at 1165'. Left loc. @ 4AM February 22,1996 upon completion of logging.**

**ELEVATION: 1098.8 GL ( all measurements from 1099 GL)**

| FORMATION TOPS | SAMPLE DEPTH | LOG DEPTH | DATUM | THICKNESS |
|---|---|---|---|---|
| Base KC | 836 | 836 | +263 | |
| Marmaton | 976 | 974 | +125 | 92' |
| Cherokee | | 1066 | + 33 | 487' |
| Coal Marker | 1490 | 1490 | -391 | 3' |
| L. McLouth | 1554 | 1553 | -454 | 31' |
| Miss. Lm. | 1583 | 1584 | -485 | |
| RTD | 1622 | | | |
| LTD | 1624 | | | |

Sample returns were examined microscopically from a drilled depth of 800 feet to TD for the presence of visible hydrocarbons. Formation tops and thicknesses were picked from the drilling time log , sample returns and the Neutron Density/Porosity Log. There were no zones of interest above the 1300' depth in this well and therefore , only the lower portion of the Cherokee section will be discussed in detail in this report.

**CHEROKEE GROUP:**

The unnamed sands found between 1326 and 1332, 1362 and 1370, 1482 and 1486, and 1506 to 1508 all exhibited a gas effect on th Neutron Density /Porosity log. There was some wall cake build up over these intervals indicating some moderate permeability in the zones. These intervals warrent further study and possible testing before eventual abandonment of the well.

The Mclouth Sand interval was reached at a logged depth of 1553 feet. The sand body was called the lower Mclouth Sand at the well site: however , further comparison of the log with those from surrounding wells suggest that the entire upper, middle and lower Mclouth Sand may be present in the interval between 1553 and 1584. If it is to be divided for mapping purposes, it would appear that the upper lies between 1553 and 1562, the middle from 1562 to 1573 and the lower between 1573 and the base of the sand at 1584. There appear to be no shale partings separating the three sands . The description will treat this as one unit for this report.

The McLouth sands are a clean , medium to coarse grained, clear, quartz sand that had good visible porosity. There was a fair to moderate show of medium brown free oil . There was a moderate odor present in the fresh samples that rapidly decreased in strength with time of exposure to the atmosphere. The caliper log showed a build up of wall cake over the sand indicating moderate permeability. The application of trichlorethane yielded bright streaming fluorescent cuts. There was a moderate amount of pyrite present in the sample returns. Although there was no gas observed in the samples or on the pits , it is probable that this well will only produce gas.

The samples from the lower portion of the sand body had a slight show of very heavy tar like material in the pore spaces. This has been noted in other wells in the area and does not appear to affect production of gas from the upper perforated interval.

Log calculations were prepared on location by Mr. Legleiter of Log Tech Inc. using the following values; M=1.8, Rw =.2.

| INTERVAL | POROSITY | Rt | Sw% |
|---|---|---|---|
| 1554-56 | 26 | 90 | 16 |
| 1556-58 | 25 | 100 | 16 |
| 1558-60 | 26 | 80 | 17 |
| 1560-62 | 22 | 60 | 23 |
| 1562-64 | 25 | 40 | 25 |
| 1564-66 | 24 | 25 | 32 |
| 1566-68 | 25 | 13 | 43 |
| 1568-70 | 27 | 13 | 40 |
| 1570-72 | 27 | 17 | 35 |
| 1572-74 | 23 | 30 | 31 |
| 1574-76 | 25 | 18 | 37 |
| 1576-78 | 23 | 18 | 40 |
| 1578-80 | 25 | 13 | 43 |
| 1580-82 | 22 | 13 | 48 |
| 1582-84 | 24 | 15 | 42 |

The Sw values calculated in the Mclouth in this well are very similar to the King and Fanghor wells located to the SW in the 10-45 field. There was no water produced from those wells.

**MISSISSIPPI LIME:**

The top of the lime was reached at a logged depth of 1584 feet. Sample returns consisted of a light to medium tan , very coarsely crystalline to fragmental limestone along with white chert. There were no shows of hydrocarbons present in the sample returns from this interval. This portion of the Mississippi is considered nonproductive in this well.

**CONCLUSIONS AND RECOMMENDATIONS;**

The Mclouth Sands appear to have the potential to produce good quantities of commercial gas and no water from this well. The very clean uniform nature of the entire sand section shown on the logs needs to be compared to those logs from

the heart of the 10-45 pool to the S and SW. This appears to be a significant well in this field.

DISCLOSURE:

Services rendered on the Terry #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 Petorleum Geologist and not an employee of the referenced company. I will not receive any financial benefit from the positive completion of this well.

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

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

Should additional information be required, please contact me.

Respectfully submitted,

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