George E. Petersen, c.p.g.s.
consulting geologist

Computer Inventoried

3223 Mc Clure Rd.
Topeka, Kansas 66614 913-272-4383

GEOLOGISTS REPORT

for

Shepard #1-84

660' FEL, 330' FSL, SE4, Sec. 24, T9S, R19E

Jefferson County, Kansas

December 1984

by

George E. Petersen C.P.G.S.

DEACON GEOLOGY INC.

professional geologists

GEOLOGISTS REPORT

Shepard #1-84

December 3, 1984: Called to well @ 8 PM.
December 4, 1984: Released from location 10:45 PM.

Elevation: 1130 G.L. (Topo) All measurements from G.L.

Formation Tops:	Log Depth(GL)	Datum	Thickness
*Base K.C. Gp.	857	+273	---
Marmaton Gp.	998	+132	97'
Cherokee Sh.	1,095	+35	497'
"McLouth Sand"	1,546	-416	26'
Mississippian Lm.	1,592	-462	---
RTD	1,644		
LTD	1,648		

*The Hushpuckney Shale has been the unit used for the base of the Kansas City Group in all of the wells that have been drilled in the present program due to its ease of recognition.

Sample returns were examined from a drilled depth of 800' to TD for the presence of visible hydrocarbons. Formation tops and intervals for this report were picked from the drilling time log, sample returns, and the Neutron-Density Porosity Log. There was no visible evidence of the presence of hydrocarbons in any of the geologic units above the Cherokee Group.

CHEROKEE GROUP:

There were several sands in the Cherokee Group that may show some evidence of a gas effect on the Neutron-Density Porosity cross-plot. These sands were found at 1226, 1305 & 1374. All of the sands within the Cherokee warrant careful study to determine if gas is present.

A clean coarse grained sand was found at a log depth of 1532 feet (-402). This sand had a thickness of slightly more than two feet and gave strong evidence on the logs of containing gas. There were also traces of oil staining in the samples.

Sw calculations for this interval are presented along with those for the McLouth Sand.

The "McLouth Sand" was topped at a log depth of 1546 feet (-416). The sand is a typical "McLouth Sand" composed of clean, medium to coarse grained, clear quartz fragments. The visible porosity appears very good and this fact is confirmed by porosity values obtained on the logs. The samples contained a moderate amount of free oil which is black and heavy in nature. There was no apparent odor and faint fluorescence. Application of trichlorethane yielded streaming cuts and bright fluorescence. Upon drying the samples became heavily oil stained.

Log calculations for the un-named sand and the McLouth Sand were prepared on location by Great Guns Personnel using the following values: Rw= .2, M=1.8.

Interval	Ø	Rt	Sw
1532-34	18	20	47
1548-50	17	9	77
50-52	13	8	100
52-54	18	8	73
54-56	23	10	52
56-58	19	9	65
58-60	14	10	83
60-62	19	17	45
62-64	17	8	81
64-66	14	10	83
66-68	12	10	92
68-70	12	12	86
70-1572	12	12	86

The log calcualtions in this well as in other wells in this program all seem to indicate a high Sw value. The presence of clay in these sands, as can be seen on the log, can make the Sw value come out too high and the hydrocarbon saturation too low. This is caused by the conduction of the ions on the

clay surfaces which gives a lower Rt value than that which would be found in a clean sand which in turn makes the Sw seem too high. All zones which appear wet should be tested before eventual abandonment of the well.

Although the Neutron curves did not cross-over in these intervals a definite gas effect can be observed. There is a good indication of substantial wall cake build up in those intervals and there has undoubtably been some formation damage which would mask some of the gas effect.

The "Mclouth Sand" may produce some oil initally and will undoubtly produce some water.

MISSISSIPPIAN LIME:

The Mississippian was topped at a log depth of 1592 feet (-462) where a tan semi-lithographic limestone was encountered. No evidence of hydrocarbons were observed in any of the sample returns thru this interval; however, sample returns were minimal due to pump problems which have since been corrected.

It seems probable that a Karst Type feature was encountered at a log depth of 1605. Samples from this depth contained bright green shale, salmon colored arkosic material, abundant pyrite, abundant black shale and other unidentified material not found in a normal sequence of Mississippian sediments. These Karst features, sink holes, or cave deposits have been described in The Kansas Geological Survey Bulletin No.53 by Lee and Payne.

Further evaluation of the logs for the interval from 1600-1608 is strongly recommended due to a possible gas effect on the

cross-plot.

CONCLUSIONS AND RECOMMENDATIONS:

The "McLouth Sand" and the sand from 1532-34 appear to be the intervals with the greatest potential for the production of gas; however, other sands within the Cherokee section do have some potential and should be tested before eventual abandonment of the well.

A comparison of the nearby wells to this well is given in the following table.

Well Name	B KC*	Marm.	Chero.	U Mc.	L Mc.	Miss.
R. Scott #1-84	+266	+129	+28	-436	-476	-491
R. Scott #2-84	+273	+130	+39	-422	-459	-471
S.Bracksick#1-84	+290	+128	+32	-435	-462	-480
G. Kelly #1-84	+274	+130	+31	-433	-471	-523
**Shepard #1-84	+273	+132	+35	-416	---	-462

* Hushpuckney Sh.
** This well.

Although the cost of the mud program for these wells has been very low, it may warrent a re-evaluation of the mud program to try to lessen formation damage caused by high mud weight and fluid loss into the porous sand bodies. The invasion of drilling fluids will adversly affect the log results and may cause erroneous decisions to be made on the potential of these zones.

Should additional information be required, please contact me.

Respectfully submitted,

George E. Petersen C.P.G.S.

DEACON GEOLOGY INC.