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GEOLOGISTS REPORT

for

Johnson #1-85

C, SE, SE, Sec. 35, T9S, R19E

Jefferson County, Kansas

June 1985

by

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

DEACON GEOLOGY INC.



professional geologists

GEOLOGISTS REPORT

Johnson #1-85

June 17, 1985: On location @ 2:30 PM. Rig broken down at 1015'.

June 18, 1985: Released from location @ 8:30PM.

Elevation: 1095 GL (Topo)

Formation Tops	Log Depth	Datum	Thickness
Hushpuckney Sh.	836	+259	
Marmaton Gp.	978	+117	96'
Cherokee Gp.	1,074	+21	
"U. McLouth Sd."	1,520	-425	16'
"L. McLouth Sd."	1,540	-445	42'
Mississippian Lm.	1,585	-490	
LTD	1,622		
RTD	1,639		

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 sample returns, drilling time log, and the Neutron-Density Porosity Log. There was no visible evidence of the presence of hydrocarbons in any of the geologic units above the "McLouth Sands"; however, the logs indicate the possible presence of gas in the sand between 1310 and 1322 and the other sand intervals should also be evaluated.

CHEROKEE GROUP:

The unnamed sand located between 1310 and 1322 appears to show some gas effect on the Neutron-Density Porosity Log. The lack of cross-over may be the result of the LCM being added between 1450 and 1500 and thus there could be significant formation damage. The invasion of drilling fluids is shown by the build up of wall cake on the Caliper Log. Calculations were prepared for this interval using the following values: $M=1.8$, $R_w=.2$.

Interval	ϕ	Rt	Sw
1310-12	8	6	100
12-14	16	9	87
14-16	15	11	100
16-18	15	10	100
18-20	15	8	100
20-22	13	7	100

Calculations were prepared for a second unnamed Cherokee Sand located at a log depth of 1452. There were no visible indications of oil in the samples from this interval but as in the upper sand there is the possibility of gas. Invasion of drilling fluid into this sand is indicated by the wall cake shown on the Caliper Log. The following values were used; $M=1.8$, $R_w=.2$

Interval	ϕ	Rt	Sw
1452-54	16	9	75
54-56	14	10	82
56-58	14	11	80
58-1460	13	11	85

The "McLouth Sands" were topped at a log depth of 1520 feet (-425) where the "Upper McLouth" was found. This sand was a medium to coarse grained, tan to brown sand that had some free oil towards the bottom portion of this unit. The oil yielded streaming cuts and bright fluorescence when trichlorethane was applied to the samples. There was a slight odor thru this interval. This sand had a thickness of 16 feet and was separated from the lower sand by 4 feet of shale.

Calculations for this interval were prepared on location by Mr. Greg Rush of Great Guns Inc. using the following values; $M=1.8$, $R_w=.2$.

Interval	ϕ	Rt	Sw
1520-22	2	90	100
22-24	9	9	100
24-26	10	8	100
26-28	16	7	86

Interval	ϕ	Rt	Sw
1528-30	17	7	81
30-32	18	8	75
32-34	8	15	54
34-36	8	7	79

The "Lower McLouth Sand" was found from a log depth of 1540 (-445) to 1582 (-487). This sand is a tan, medium to coarse grained, subangular quartz sand containing a good show of brown free oil and a strong odor. Samples from the 1550-60 interval contained some tar like residue along with the oil. The lower portion of the sand is a clean clear quartz sand with a dark brown to black oil. The lower 5 to 10 feet of the sand appeared to be a clear to white quartz sand.

Streaming cuts and bright fluorescence were obtained by the application of trichlorethane.

Log calculations for this interval were also prepared by Great Guns personnel using the following values; $M=1.8$, $R_w=.2$.

Interval	ϕ	Rt	Sw
1540-42	13	20	63
42-44	16	14	60
44-46	20	25	38
46-48	26	30	27
48-50	26	25	31
50-52	25	21	34
52-54	26	20	35
54-56	27	15	38
56-58	22	20	40
58-60	19	16	50
60-62	16	14	60
62-64	18	9	70
64-66	20	8	78
66-68	22	5	79
68-70	20	5	85
70-72	22	5	80
72-74	24	4	81
74-76	24	4	81
76-78	23	4	89
78-80	23	4	89
80-82	22	6	75
82-1584	8	10	66

A strong cross-over was observed on the log between 1545 and 1556 log depth.

The "McLouth Sand" should produce good quantities of gas and possibly some oil.

MISSISSIPPIAN LIME:

The top of the Mississippian was called at a log depth of 1585 (-490) where a tan to brown very coarsely crystalline limestone was found. Sample returns consisted of many fragmental and fossiliferous pieces which may indicate a reworked zone. Shale was also found in the interval indicating a possible "cave deposit". The logging tools did not get deep enough to clearly show the nature of the Mississippian interval that was penetrated. This was caused by caving or settling material filling approximately 22 feet of the drilled interval.

No evidence of hydrocarbons were observed in the drilled interval and there appears to be no potential for the production of oil or gas from the upper Mississippian in this well.

CONCLUSIONS AND RECOMMENDATIONS:

The "McLouth Sands" have good thickness and favorable Sw values in this well, as well as a good cross-over in the lower "McLouth". This should be one of the better producers drilled to date.

No fill was noted on the short trip but approximately 22 feet was lost before logging due to fillup. This had not been a problem to date and it is hoped that it will not occur again. Should it begin to be a problem then changes in the mud program

and in circulation time may be required.

Should additional information be required please contact me.

Respectfully submitted,

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DEACON GEOLOGY INC.

mrp/GEP