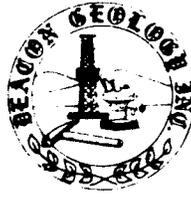


Computer inventoried

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GEOLOGISTS REPORT

for

Wagner "A" #1

API No. 15-103-21184

SW, SW, NE, Sec. 3, T9S, R20E

Leavenworth County, Kansas

March 1990

by

George E. Petersen C.P.G.

DEACON GEOLOGY INC.



*professional geologists*

GEOLOGISTS REPORT

Wagner "A" #1

March 12, 1990: Called to wellsite @ 11:10am drlg @ 1020'. On location @ 2:15 am, drlg @ 1170 feet. Left location at 2AM March 13. Recalled to location @ 10am March 14, released from location upon completion of logging @ 4:30pm.

ELEVATION: 984.8 GL (All measurements from G.L.)

FORMATION TOPS	LOG DEPTH	DATUM	THICKNESS
Base KC	688	+297	225'
Cherokee	913	+72	499'
"Coal Marker"	1,325	-340	3'±
"U.McLouth Sd."	1,376	-371	9'
"M. McLouth Sd."	1,385	-400	10'
"L. McLouth Sd."	1,395	-410	12'±
Mississippian Lm.	1,412	-427	--
RTD	1,451		
LTD	1,450		

Sample returns were examined microscopically from a drilled depth of 1100 feet 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 evidence, either in the samples or on the logs, that hydrocarbons were present above the "McLouth Sands" in this well.

CHEROKEE GROUP:

All of the sand intervals encountered above the "McLouth Sands" were water saturated and are considered non productive in this well.

Although the "McLouth Sands" have been divided into an upper (1376-85), middle (1385-95) and lower (1395-1407) unit for mapping purposes; only the interval between 1392 and 1407 is considered as a productive interval. The interval between 1376 and 1392 is a shaly white to tan to clear, medium to coarse

quartz sand or sandy shale. There was no evidence that hydrocarbons were present in commercial quantities in this interval.

The sand found between 1392 and 1407 was a medium to coarse grained subrounded quartz sand. There was a very good to excellent show of medium brown free oil in both the samples and on the pit. There was a strong odor present and the application of trichlorethane yielded a bright yellow streaming fluorescence.

Log calculations were prepared on location utilizing values from the Dual Induction Log. Further calculations were prepared later utilizing resistivity valued obtained from the RAG Log. The following constants were used in these calculations;  $M=1.8$  and  $R_w = .2$ .

Interval	$\phi$	Rt(DIL)	Rt(RAG)	Sw%(DIL)	Sw%(RAG)
1392-94	14	8	30	91	47
94-96	16	14	18	60	53
96-98	15	12	30	70	43
98-1400	16	13	20	62	50
1400-02	16	15	18	59	53
02-04	18	17	20	49	45
04-06	16	16	60	57	28

The shale content of this interval accounts for some of the higher Sw values. Much of this water is permanently bonded to the clay platelets in the shale and is non moveable. This calculalted interval should produce commercial quantities of oil with minimal water. There may also be some gas present in the interval.

#### Mississippian Lime:

The Mississippian Lime was reached at a log depth of 1412 feet. Sample returns consisted of a medium to dark tan, semi-

lithographic to very finely crystallizing limestones. There was some Oöllitic limestone present and some development of vugs. There was a good show of medium brown free oil and a strong odor. The application of trichlorethane yielded bright yellow streaming cuts. The samples also contained a tan to glauconitic argillaceous limestone of the Spergen Group. The hole reached TD in a medium tan very coarsely crystalline to fragmental limestone of the Warsaw Group.

Log calculations for the upper Mississippian, were prepared by Mr. Glenn Schmeidler of Log Tech Inc. utilizing the following constants:  $M= 2.0$  and  $Rw=.2$ .

Interval	$\emptyset$	Rt	Sw%
1412-14	7	20	100
14-16	12	26	72
16-18	16	18	64
18-20	10	12	100
20-22	7	10	100
22-24	8	10	100

There is a probability that the interval between 1414 and 1418 will produce some oil and may also have some gas present. It is not possible to predict whether this interval will produce commercial quantities of hydrocarbons without testing it thru pipe.

#### CONCLUSIONS AND RECOMMENDATIONS:

The primary interval of interest in this well lies in the middle and lower "McLouth Sands" between 1392 and 1406. The oil show from this interval was very, very good. This sand should produce commercial quantities of oil along with possibly some gas and a small amount of water.

A second possible zone of production lies in the upper Mississippian and should be tested and evaluated before eventual abandonment of the well. The porosity is favorable compared to wells in the surrounding area.

Should additional information be required, please contact me.

Respectfully submitted,

George E. Petersen C.P.G.

DEACON GEOLOGY INC.

mp/GEP