DANIEL T. JOHNSON

Consulting Geologist 19749 121st Road, Winfield, Kansas 67156 Cell 620-229-3258, Daniel.johnson3258@gmail.com

Geologic Report

American Warrior, Inc. Houk B #1 610 FSL, 2878 FWL 6-T34S-R3E Cowley County, Kansas

The Houk B#1 was drilled to a Rotary Total Depth of 3800'(-2698). Arbuckle Ls was the deepest formation encountered at 3762'(-2660). Production casing was set to further test for commercial hydrocarbon production from the following intervals. Intervals are listed in ascending order and do not reflect an order of quality or importance.

Recommended perforations:

<u>Mississippian Ls. 3500'-3540'</u> Ls, dark brown- grey, fine- medium crystalline, slightly dolomitic, some packstone, fossil fragments in matrix, trace edge fluorescence, good halo residual fluorescence, no odor observed, no free oil in sample. E logs indicate fracturing, 250 ohms deep resisitivity, 4-6% neutron-density porosity, permeability indicated by microlog crossover. This interval is a recently discovered reservoir in the area. Stimulation will be required.

<u>Mississippian Chert 3366'-3670'</u> Chert, white-It brown stain, mostly weathered, good porosity, bright edge fluorescence, show of oil along fractured edges, light brown stain in weathered portion, faint- fair odor. E logs indicate 26-40% water saturations in the upper portion. Mudcake and Spontaneous Potential deflection and Microlog crossover indicate reservoir permeability. DST #2 results contradict these observations. Obviously, the formation will have to be stimulated to produce a sufficient volume to be commercial.

Bartlesville Ss 3628'-3640' Sandstone, light tan, fine grained, well sorted, poor- fair intergranular porosity, show of free oil, faint odor, bright spotty fluorescence in20% sample, fair streaming cut. DST #1 covered this interval, recovering 121' GIP, 60 WCM(see attached DST report) which would appear to condemn the interval. E log analysis indicates a possibly productive formation.

Other intervals with lesser shows:

Mississippian Ls 3630'-3670', 3556-3600' Both intervals are similar to the recommended interval 3500'-3540', however, with decreased resistivities. If the recommended interval proves commercial, these intervals should be considered to test in this well, or future development.

<u>Cattleman Ss 3244-3248'</u> This interval has contained similar oil shows in the area. Good initial tests have all depleted rapidly, indicating lack of permeability, or limited reservoir.

Peru Ss 3155-3164' This interval has been observed to be similar to the Cattleman above.

Summary: The Houk B#1 revealed indications of hydrocarbons sufficient to warrant further testing through pipe. By comparison with previous test wells in the area, the captioned well has the potential to be commercially productive from three separate intervals.

In my opinion, the Mississippian Ls. 3500-3540 has the greatest potential to be commercially productive. Comparison to other wells currently producing from this interval supports this observation. There is much to learn about this reservoir as it is a relatively new producing interval in this area.

In addition to the above, the Bartlesville Sandstone appears to have good potential to produce. The nearest production from this formation came from the McNeish #1 Houk, approximately 1/2 mile south. 509,400mcf and 1194bo are attributed to the Houk lease. Structurally, the Houk B #1 encountered the Bartlesville at (-2226'subsea), 6' low to the Houk #1. If the two wells share a common reservoir, excessive water production would not be expected by this author.

The Mississippian Chert 3366-70'(-2264) appears to be in a reasonable structural position relative to surrounding wells. The nearest productive well is $\frac{1}{2}$ mile away. Based on the sample show and E logs, the formation warrants further testing. The disappointing recovery from DST #2, 6' mud, is typical of the Chert in the area and will require stimulation to produce sufficient fluid quantity.

Overall, the results of drilling operations on the captioned well are encouraging to this author. A successful completion may warrant additional development in the area.

Respectfully submitted,

Daniel T. Johnson Consulting Geologist

Attachments:

, ... Y

B 1 Houk DST1.pdf

B 2 Houk DST2.pdf

B 3 Houk DST3.pdf