JOHNS AND MAGATHAN
CONSULTING GEOLOGISTS
501 BITTING BUILDING
WICHITA 2, KANSAS

WENDELL S. JOHNS
WILLIS JACK MAGATHAN

TELEPHONE 3-1540

March 25, 1954

Mr. L. A. Gilles
101 Wagstaff Building
Abilene, Texas

Re: Geological Report; A. G. Hill #1 Dodson
SW/SE/NW; 21-26S-13W
Pratt County, Kansas
Elevation: 1938 derrick floor
1941 rotary bushing
Contractor: Reserve Drilling Co.

Dear Sir:

The #1 Dodson was spudded February 5, 1954, and was drilled from the surface to the total depth of 4560' with rotary tools. Samples were saved and a time log was kept from 3500' to the total depth.

A Schlumberger Gamma Ray-Laterolog-Microlaterolog combination was run on this well. The drilling measurements are from two to three feet deeper than electric log measurements from 3500' to the total depth.

The following is a list of formation tops and other data of interest. Unless otherwise noted, all information is from my sample log, which has been corrected for sample lag by use of the time log. All measurements are from the top of the rotary bushing which is three feet above the derrick floor. The rotary bushing elevation has been used to compute all distances from sea level.

| Formation Name | Depth Below Surface | Distance From Sea Level | Remarks |
|---|---|---|---|
| 8 5/8" surface casing | 420 | | 250 sacks cement + 2% gel. and 250# Flocele |
| Heebner Shale | 3607 - 15 | -1666 to -1674 | |
| Toronto Limestone | 3628-42 | -1687 to -1701 | |
| (1) Porous zone | 3628 - 35 | | Fair stain |
| Top Douglas | 3642 | -1701 | |
| (1) Sand zone | 3670 - 3714 | | Some fair oil stain |
| Top Brown Lansing | 3777 | -1836 | |
| Top Lansing | 3806 | -1865 | |
| (1) Porous zone | 3840 - 48 | | Trace light stain; DST |
| (2) Porous zone | 3858 - 72 | | Slight trace stain |
| (3) Porous zone | 3909 - 34 | | Trace dark brown stain |
| (4) Porous zone | 3937 - 47 | | Trace stain |

(2) Geological report; A. G. Hill #1 Dodson

| Formation Name | Depth Below Surface | Distance From Sea Level | Remarks |
|---|---|---|---|
| (5) Porous zone | 3958 - 62 | | Trace free oil; faint odor; DST |
| (6) Porous zone | 3995 - 97 | | Trace stain |
| (7) Porous zone | 4008 - 16 | | Slight trace odor, trace spotted stain, no free oil. |
| (8) Porous zone | 4027 - 31 | | Trace stain, no free oil |
| Base Kansas City | 4120 | -2179 | |
| Top Marmaton | 4120 | -2179 | |
| Top Conglomerate | 4247 | -2306 | |
| (1) Porous zone | 4247 - 60 | | Good brown stain, no odor or free oil. |
| Top Mississippi | 4282 | -2341 | |
| (1) Porous zone | 4282 - 4300 | | Light stain, no odor or free oil. |
| Top Kinderhook | 4300 | -2359 | |
| Top Viola | 4327 | -2386 | |
| (1) Porous zone | 4327 - 39 | | No show |
| (2) Porous zone | 4384 - 92 | | No show |
| Top Simpson | 4414 | -2473 | |
| (1) Sand zone | 4421 - 34 | | Good odor, very slight show free oil. |
| (2) Sand zone | 4436 - 40 | | Good odor, slight show free oil. |
| (3) Sand zone | 4453 - 56 | | Fair odor, slight showfree oil |
| (4) Shaly sand zone | 4456 - 70 | | Very shaly; spotted porosity and spotted staining. |
| Top Arbuckle | 4511 | -2570 | |
| (1) Porous zone | 4513 - 16 | | No show |
| (2) Porous zone | 4526 - 30 | | No show |
| (3) Porous zone | 4539 - 41 | | No show |
| (4) Porous zone | 4554 - 58 | | No show |
| Rotary total depth | 4560 | -2619 | |
| 5½" casing | 4500 | -2559 | 250 sacks cement. |

Drill Stem Test Data:
The following drill stem tests were run on the #1 Dodson:

Lansing-Kansas City:

DST #1: 3832-50; open 1 hour - good blow which decreased to small blow in 16 min. and died before end of test.
Recovered 150' gas cut and very slightly oil cut mud
180' salt water with trace oil at top
Shut in pressure 1380# (20 min.)

DST #2: 3958-68; open 30 minutes - slight trace blow
Recovered 240' mud - tried to reopen tool and it failed to close after the packer was unseated. Probably less than 10' mud recovered in actual test
Shut in pressure 0#

(3) Geological report: A. G. Hill #1 Dodson

(Drill stem test data cont'd.)

Simpson:

DST #3 4414-28; open 1½ hours - fair to good blow throughout test. Gas to surface in 1 hour and 25 min.
Recovered 80' heavily oil and gas cut mud
120' muddy oil
175' clean oil
5' filtrate (analysed by Halliburton)
Shut in pressure 1410# (30 min.)
Initial flowing pressure 0#
Final flowing pressure 107#

DST #4 4428-56; open 1½ hours - good blow throughout test.
Gas to surface in 1½ hours
Recovered 65' muddy oil
150' slightly muddy oil
Shut in pressure 1465# (30 min.)
Initial flowing pressure 30#
Final flowing pressure 90#

Completion Data:

Perforated 112 holes 4421-37
Acidized with 250 gal. acid and 250 gal. mud acid
Swab 3 BOPH - no water
Sand - oil Frac. with 2335 gal. oil + 3500# sand
Ran tubing and rods and set pumping equipment

Structural Position:

On top of the Lansing the #1 Dodson is 8' lower than the H. L. Moore #1 Williams, a Simpson producer in SE/SW/NW; 29-26S-13W (approximately 1½ miles southwest) and 9' higher than the Iron #1 Frisbie, a dry hole in SW/SW/SE; 21-26S-13W (approximately ½ mile southeast); on the Simpson, the #1 Dodson is 7' lower than the #1 Williams and 28' higher than the #1 Frisbie.

On the Arbuckle, the #1 Dodson is 1' higher than the #1 Williams and 17' higher than the #1 Frisbie.

Future Prospects - Additional Producing Horizons:

Lansing-Kansas City:
The results of the drill stem test taken in zone #1 (3840-48) indicate that this zone will not make a commercial producer. It is not worthy of further tests.

Zone #5 (3958-62) was also tested and the test failed to reveal any commercial possibilities.

There are however, two zones in the Lansing-Kansas Cith which look fairly prospective on the electric log and which should be watched closely in future wells to be drilled in this area. Both of these zones may be deserving of further testing at some time in this well. They are: the top part (3909-20) of zone #3 and all of zone #7 (4008-16).

Zone #8 (4027-31) appears to be slightly prospective on the electric log but did not look too good in the samples. It should be watched closely in succeeding wells to be drilled in the area and if sufficient shows of oil are found in the wet samples, should be drill stem tested.

The remaining zones in the Lansing-Kansas City which do not appear to be too tight to produce any fluid, almost certainly carry water.

Conglomerate:
This section is not very prospective in the #1 Dodson, but because porosity conditions change rapidly in this type of reservoir it should be watched closely in future wells. There is, at present, no Conglomerate production in this area.

Mississippi:
The Mississippi Chert zone is quite tight in this well and does not warrant further tests.

Viola:
There were no shows of oil in the Viola and although the #1 Zone (4327-39) looks mildly prospective on the electric log, it is doubtful that it would be worth further testing.

Simpson:

The well is now producing from sand zones #1 (4421-34) and #2 (4436-40).

It is possible that the sand and shaly sand (4453-70) may be worth testing after present production from the Simpson is exhausted.

The water saturation figures in the Simpson (see electric log) are probably of little value. In arriving at these figures, I used a Simpson water resistivity value from a well several miles away since water resistivity values on closer wells were not available. The Rw (water resistivity value) in the Simpson is known to change rapidly from county to county and even from one field to another so before an even remotely reliable figure for water saturation in this well can be calculated, we must have the Rw from the #1 Dodson. At some time in the near future I will catch a sample of water from this well and send your company an amended set of water saturation values for the Simpson.

Arbuckle:
There were no shows of oil in the Arbuckle and therefore is not worthy of further tests.

Very truly yours,

Willis Jack Magathan

Willis Jack Magathan.

Wendell G. Johns

WJM:bjm