

21-26<sup>s</sup>-15<sup>w</sup>

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Geologic report: Tatlock #1 Curtis  
SE/SE/NE, 21-26S-15W  
Pratt County, Kansas  
Elevation: 2050 derrick floor  
2053 rotary bushing  
Contractor: R. W. Rine Drilling Co.

Dear Sir:

The #1 Curtis was spudded March 9, 1953, and was drilled from the surface to the total depth of 4736 with rotary tools. Samples were saved and a time log was kept from 865 to the total depth.

A Schlumberger Gamma Ray-Laterolog-Microlaterolog (Trumpet) survey was made of the #1 Curtis. The variation between the drilling measurements and the electric log measurements does not exceed one foot except at the total depth where the electric log is three feet deeper. In Kansas City zones #8, #10 and #12 measurements differ by as much as three feet but this is probably a difference in the interpretation of porosity rather than a discrepancy in measurements. The drilling measurements have been used throughout this report.

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 log by use of the time log. All measurements are from the top of the rotary bushing and the rotary bushing elevation has been used to compute all distances from sea level.

| <u>Formation Name</u>  | <u>Depth Below<br/>Surface</u> | <u>Distance From<br/>Sea Level</u> | <u>Remarks</u>                                                             |
|------------------------|--------------------------------|------------------------------------|----------------------------------------------------------------------------|
| 8 5/8" surface casing  | 842                            |                                    | 340 sacks cement, 4% gel.<br>63 sacks stratocrete, 100<br>calcium chloride |
| Stone Corral Anhydrite | 1004 - 25                      | ✓1049 to ✓1028                     |                                                                            |
| Wellington             | 1430 - 2175                    | ✓623 to -122                       |                                                                            |
| Salt section           | 152 - 1955                     | ✓533 to ✓98                        |                                                                            |
| Top Chase Group        | 2175                           | -122                               |                                                                            |
| Herington              | 2175 - 957                     | -122 to -142                       | Top Dolomite section                                                       |
| Top Ft. Riley          | 2355                           | -302                               | Top Limestone section                                                      |
| Top Tarkio             | 3120                           | -1067                              | No show                                                                    |
| Severy Section         | 3379 - 3412                    | -1326 to -1359                     | Sandy - no show                                                            |
| Top Topeka             | 3412                           | -1359                              |                                                                            |

| <u>Formation Name</u> | <u>Depth Below</u><br><u>Surface</u> | <u>Distance From</u><br><u>Sea Level</u> | <u>Remarks</u>                                           |
|-----------------------|--------------------------------------|------------------------------------------|----------------------------------------------------------|
| (1) Porous zone       | 3441 - 3500                          |                                          | No show                                                  |
| (2) Porous zone       | 3520 - 33                            |                                          | No show                                                  |
| (3) Porous zone       | 3575 - 83                            |                                          | No show                                                  |
| (4) Porous zone       | 3630 - 39                            |                                          | No show                                                  |
| (5) Porous zone       | 3647 - 3707                          |                                          | No show                                                  |
| (6) Porous zone       | 3716 - 41                            |                                          | No show                                                  |
| Heebner Shale         | 3763 - 69                            | -1710 to -1716                           |                                                          |
| Leavenworth           | 3769 - 73                            | -1716 to -1720                           |                                                          |
| Snyderville           | 3773 - 81                            | -1720 to -1728                           |                                                          |
| Toronto               | 3781 - 3805                          | -1728 to -1752                           |                                                          |
| Base Oread            | 3805                                 | -1752                                    |                                                          |
| Douglas               | 3805 - 3920                          | -1752 to -1867                           |                                                          |
| Sand Section          | 3851 - 59                            | -1798 to -1806                           | Fair porosity, trace brown stain; water on electric log. |
| Top Brown Lansing     | 3920                                 | -1867                                    |                                                          |
| Top Lansing           | 3940                                 | -1887                                    |                                                          |
| (1) Porous zone       | 3947 - 51                            |                                          | Good porosity and good show oil, DST                     |
| (2) Porous zone       | 3954 - 56                            |                                          | Questionable porosity, possible slight oil show, DST     |
| (3) Porous zone       | 3969 - 74                            |                                          | Doubtful porosity, show free oil; some odor.             |
| (4) Porous zone       | 3990 - 96                            |                                          | Good porosity, fair show free oil, no odor, water, DST   |
| (5) Porous zone       | 4018 - 23                            |                                          | Fair porosity, no show                                   |
| (6) Porous zone       | 4032 - 34                            |                                          | Poor porosity, no show                                   |
| (7) Porous zone       | 4047 - 60                            |                                          | Very good porosity, no show                              |
| (8) Porous zone       | 4099 - 4111                          |                                          | Very good porosity, no show                              |
| (9) Porous zone       | 4136 - 28                            |                                          | Questionable porosity, no show                           |
| (10) Porous zone      | 4140 - 45                            |                                          | Good porosity, no show                                   |
| (11) Porous zone      | 4168 - 64                            |                                          | Fair porosity, possible trace oil stain.                 |
| (12) Porous zone      | 4173 - 76                            |                                          | Fair porosity, no show                                   |
| (13) Porous zone      | 4187 - 92                            |                                          | Good porosity, no show                                   |
| (14) Porous zone      | 4232 - 35                            |                                          | Trace porosity, no show                                  |
| (15) Porous zone      | 4256 - 63                            |                                          | Some broken porosity, no show                            |
| Base Kansas City      | 4278                                 | -2225                                    |                                                          |
| Marmaton              | 4278 - 4404                          | -2225 to -2351                           | Possible trace porosity 4362-66. No show                 |
| Mississippian         | 4404 - 4432                          | -2351 to 2379                            | Chert, gas bubbles and good show free oil. No odor. DST  |
| Kinderhook            | 4432 - 4505                          | -2379 to -2452                           | No porosity or oil show                                  |
| Viola                 | 4505 - 4633                          | -2452 to 2580                            |                                                          |
| (1) Porous zone       | 4555 - 70                            |                                          | Streaks porosity, no show                                |
| (2) Porous zone       | 4591 - 4601                          |                                          | Fair porosity, no show                                   |
| Simpson               | 4633 - 92                            | -2580 to -2639                           |                                                          |
| Sand                  | 4653 - 66                            |                                          | Streaks porosity, no show                                |
| Top Arbuckle          | 4692                                 | -2639                                    |                                                          |
| (1) Porous zone       | 4697 - 4701                          |                                          | Fair porosity, no show                                   |
| (2) Porous zone       | 4717 - 20                            |                                          | Streaks porosity, possible slight trace stain.           |
| Total depth           | 4736                                 | -2683                                    | Electric log shows total depth at 4739                   |
| 5½" casing            | 4457                                 | -2404                                    | 200 sacks possmex cement                                 |

Ran electric log as noted in paragraph #2 of this report 3/25/53

### Core Record:

No cores were taken in the #1 Curtis.

### Drill Stem Tests:

The following drill stem tests were taken in the #1 Curtis.

(1) 3945 - 68; open 1 hour (Lansing zones #1 & #2)

Very good blow which decreased to intermittent fair to poor blow by end of test.

Recovered 1710' gas

1620' gassy oil with a little mud at the top

Bottom hole pressure 600# (20 min.)

Initial flowing pressure 440#

Final flowing pressure 550#

(2) 3980 - 4000; open 1 hour (Lansing zone #4)

Strong blow which decreased to fair blow by end of test

Recovered 1390' salt water, no oil or gas

Bottom hole pressure 1315# (20 Min.)

(3) 4404 - 15; open 1 hour (Mississippian)

Weak blow which quit in 15 min.

Recovered 15' mud with a very slight trace of oil

Bottom hole pressure zero (20min.)

### Completion Data:

After 5½" casing was set the #1 Curtis was cleaned out to 4428 and a Lane-Wells Gamma Ray-Neutron log was run. The following sections were then perforated:

17 holes - 3950-56; dry

18 holes - 3944-50; some gas and some fill up

Reperforated 3944-50 with 18 holes

-Estimated fill up of 1000' fluid in 15 minutes; strong blow gas  
Swabbed hole dry - made 20 barrels oil and then went to water and rotary mud.

Final swab test before acidizing - made 1½ barrels water per hour with a show of oil

Acidized with 1000 gallons - used radioactive material in acid.

This material indicated that all the acid went into the perforations from 3944-50.

Swabbed 5 barrels water per hour with a trace of oil

Squeezed all perforations with 250 sacks possmex cement (191 sacks went into formation)

Standing pressure 3200# per square inch

Cleaned out hole

Perforated Mississippi chert

66 holes - 4406-17

Recovered 2 gallons rotary mud and water per hour with a few specks of oil.

Acid frac through perforation from 4406-17; used 1500 gallons. 5% gel acid and 1900# of sand.

Formation took fluid at 3300# before acid.

Formation took gel acid between 1800 and 2000# per square inch.

After treatment pressure dropped from 1700# to 1250# in first hour; dropped from 1250# to 1150# in next 1½ hr.

Bled well off - swabbed hole down; then swabbed ¾ barrels water with trace of oil per hour for 12 hours.

Fluid output remained unchanged after 18 hours of swabbing.

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(4) Geologic report: Ta ck #1 Curtis

After testing the Mississippi a hole was found in the pipe at about 3772. Rotary mud was coming through this hole into the casing at the rate of 200' per hour. It was then decided to pull the casing and abandon the well. Halliburton shows the top of the cement behind the pipe to be at 3120'. Considerable difficulty was experienced in pulling the 5 $\frac{1}{2}$ " casing. However, 3003' was finally recovered and the well was plugged on May 5, 1953.

Structural Position:

On the top of the Lansing the #1 Curtis is 94' lower than the Stanolind #1 Curtis in the se/se/ne, 10-26-15W and 72' lower than the Lion Oil Company dry hole in the se/ne/sw 11-26-15W. Both of these wells are approximately 2 $\frac{1}{2}$  miles to the northeast. The Curtis is also 34' lower than the Rine #1 Leonard, se/se/se 13-26-15W, a dry hole 3 miles east and  $\frac{1}{2}$  mile north; 7' lower than the Metropolitan #1 Randle, se/se/nw 30-26-14W, a dry hole approximately 3 $\frac{1}{2}$  miles southeast; 63' lower than a dry hole in the sw/sw/nw, 7-26-15W, about 3 $\frac{1}{2}$  miles northwest and 59' higher than a dry hole about 7 miles southwest in the sw/sw/sw 19-27S-15W.

On top of the Arbuckle the #1 Curtis is 172' lower than the Stanolind #1 Curtis, 97' lower than the Lion dry hole in 11-26-15W; 51' lower than the Rine #1 Leonard; 47' lower than the Metropolitan #1 Randle; 3' higher than the dry hole in 7-26-15W and 128' higher than the dry hole in 19-27S-15W.

You will note that the thickness of the section from the top of the Lansing to the top of the Arbuckle is normal (i.e. thicker in the #1 Curtis than in all of the wells higher than it is and thinner in the Curtis than in the lower well to the southwest) in all of the wells mentioned except in the dry hole in 7-26S-15W. This hole has an abnormally long section from the top of the Lansing to the top of the Arbuckle. This may be a regional condition or may be due to faulty tops.

Since the #1 Curtis is at least 2 $\frac{1}{2}$  miles from the nearest well, it is impossible to say just what its actual local structural position is. However, I believe it is lower than its regional position would warrant, which means that it is structurally low from a local standpoint. The fact that it did have good shows of oil at the top of the Lansing and in the Mississippian would indicate that it may be relatively higher than the Rine #1 Leonard well which was barren throughout.

Assuming that I am correct in believing that the Curtis is locally off structure, the question immediately arises as to the direction one should go to find a more desirable structural position. I do not have sufficient information to make more than a logical guess on this subject. My guess is that the structure lies to the south and southeast. In lieu of more adequate information, I recommend that your next test in this area be located in this direction from the #1 Curtis.

Notes on Stratigraphy:

The stratigraphic units named in this report down to and including the top of the Topeka (excepting the Stone Corral Anhydrite) are based on rather long range correlations and therefore are subject to possible future revisions. However, I do not believe such revision will be very great.

Both the Mississippi-Kinderhook contact and the Kinderhook-Viola contact are subject to debate. However, I am quite sure that the tope listed in this report conform to those generally being used in the Chance pool area at present.

General Discussion:

The #1 Curtis contained a very good show of oil in Lansing zone #1 (3947-51) and a drill stem test of this zone had a nice recovery of oil. However, subsequent testing proved this section to be water bearing. Apparently, the well tapped a small pocket of oil which was trapped here in spite of the wells low structural position. Zone #1 is either a stray or it is a new zone coming in from the west, because there is no sign of it in wells to the north and east. If it is a stray it is probably of little importance. If it is a new zone showing up, it will be very prospective in any test located higher on structure.

The only other zone which appeared to have any chance to produce was the Mississippi Chert (4404-32). This section carried a very good show of oil but failed to produce after perforating and fracturing. The section of Chert encountered in the #1 Curtis apparently has no permeability. It shows no formation pressure which is probably a direct result of lack of permeability. This condition could change in one location and this formation would then become very prospective.

While no other oil shows worth noting were encountered in this test, many good porous zones were found. These occurred in the Topeka, Douglas sand, Lansing-Kansas City, Viola, Simpson and Arbuckle. Any or all of these porous sections would become prospective if a high structural position could be located.

Very truly yours,

/s/ WENDELL S. JOHNS  
Wendell S. Johns.