

Computer Inventoried

## FORMATION LOG

WENDELL S. JOHNS

Pyramid #1 Fortner  
NW NW NE; 28-24S-12W  
Stafford County, Kansas  
Elevation: 1884 Derrick Floor

8-5/8" surface casing 310', 200 sacks  
Commenced: 4-23-50  
Completed: 5-14-50

Note: All measurements are from the top of the rotary bushing which is two feet above the derrick floor.

| Depth                           | Formation Description                                                              | Remarks                                                                          |
|---------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 0 - 180                         | Shale & sand                                                                       | Drillers log - 0-3200'                                                           |
| 180 - 220                       | Sand & shale                                                                       |                                                                                  |
| 220 - 315                       | Red bed                                                                            |                                                                                  |
| 315 - 698                       | Sand & shale                                                                       |                                                                                  |
| 698 - ?                         | Anhydrite                                                                          | Stone Corral                                                                     |
| ? - 1325                        | Red bed                                                                            | Base Anhydrite & top red bed unknown.                                            |
| 1325 - 1575                     | Soft shale                                                                         |                                                                                  |
| 1575 - 1753                     | Shale & shells                                                                     |                                                                                  |
| 1753 - 2250                     | Limestone                                                                          |                                                                                  |
| 2250 - 2370                     | Limestone & shale                                                                  |                                                                                  |
| 2370 - 2455                     | Shale & shells                                                                     |                                                                                  |
| 2455 - 2485                     | Limestone                                                                          |                                                                                  |
| 2485 - 2825                     | Limestone & shale                                                                  |                                                                                  |
| 2825 - 2859                     | Shale                                                                              |                                                                                  |
| 2859 - 2879                     | Limestone, broken                                                                  |                                                                                  |
| 2879 - 2985                     | Shale & broken limestone                                                           |                                                                                  |
| 2985 - 3105                     | Shale & shells                                                                     |                                                                                  |
| 3105 - 3174                     | Limestone, broken                                                                  |                                                                                  |
| 3174 - 3200                     | Limestone                                                                          |                                                                                  |
| Sample log 3200' to Total Depth |                                                                                    | Log 3200-3600' by Don Smith.<br>All shows & tops checked<br>by Wendell S. Johns. |
| 3200 - 3211                     | Limestone, cream, finely crystalline to chalky; trace light gray, opaque chert     | Trace vugular porosity.                                                          |
| 3211 - 3215                     | Streaks gray and red shale                                                         |                                                                                  |
| 3215 - 3220                     | Limestone as above                                                                 |                                                                                  |
| 3220 - 3225                     | Trace medium grained, shaly sand                                                   |                                                                                  |
| 3225 - 3238                     | Limestone, light gray to tan, finely crystalline, trace oolites, chalky            | Very slight trace stain.                                                         |
| 3238 - 3240                     | Brown shale                                                                        |                                                                                  |
| 3240 - 3270                     | Limestone, light gray to white, finely crystalline. Trace light gray, opaque chert |                                                                                  |
| 3270 - 3280                     | Limestone, as above                                                                | Trace light dead stain;<br>no porosity.                                          |
| 3280 - 3300                     | Limestone, cream to white, finely crystalline. Trace gray, opaque chert.           |                                                                                  |
| 3300 - 3303                     | Shale, dark gray                                                                   |                                                                                  |
| 3303 - 3308                     | Limestone, buff to tan, finely crystalline.                                        |                                                                                  |
| 3308 - 3326                     | Limestone, gray to white, finely crystalline                                       |                                                                                  |
| 3326 - 3337                     | Limestone, cream to tan & brown dense;<br>Light gray, devitrified chert.           |                                                                                  |

## (2) Formation log; Pyramid #1 Fortner

| <u>Depth</u> | <u>Formation Description</u>                                                                                          | <u>Remarks</u>                                                                     |
|--------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 3337 - 3342  | Shale, black, fissile, carbonaceous                                                                                   | Heebner                                                                            |
| 3342 - 3352  | Limestone, medium dark gray, dense, gray opaque chert                                                                 | Leavenworth                                                                        |
| 3352 - 3366  | Streaks limestone, gray to tan & dark gray & maroon shale, some green shale                                           |                                                                                    |
| 3366 - 3371  | Shale, dark gray                                                                                                      |                                                                                    |
| 3371 - 3381  | Light gray to white, limestone, finely crystalline                                                                    | Dodge                                                                              |
| 3381 - 3394  | Limestone, cream to tan, trace gray, opaque chert                                                                     | Base Oread 3394'                                                                   |
| 3394 - 34500 | Shale, gray, brown, red & green, trace fine, tight sand streaks                                                       |                                                                                    |
| 3450 - 3464  | Streaks limestone, cream, tan & light gray, finely crystalline                                                        |                                                                                    |
| 3464 - 3497  | Shale, medium dark gray & shale, as above; trace fine, gray sand                                                      |                                                                                    |
| 3497 - 3504  | Limestone, dark gray & brown, dense, mottled trace gray-white finely crystalline limestone                            | Brown Lansing                                                                      |
| 3404 - 3506  | Shale, gray & brown                                                                                                   |                                                                                    |
| 3506 - 3510  | Limestone, gray, oolitic; some brown dense                                                                            |                                                                                    |
| 3510 - 3521  | Shale, red, light brown & gray; trace fine, red brown sand                                                            |                                                                                    |
| 3521 - 3546  | Limestone, cream to tan, crinoidal, oolitic.                                                                          | Lansing. Possible very slight trace stain.                                         |
| 3546 - 3548  | Limestone, light gray, finely crystalline.                                                                            | Slight vugular porosity; slight show free oil.                                     |
| 3548 - 3551  | Limestone; as above                                                                                                   | No show                                                                            |
| 3551 - 3559  | Limestone, cream to light gray, medium crystalline                                                                    | Few pieces with slightly vugular porosity, slight show free oil; fair odor.        |
| 3559 - 3568  | Limestone, brown, sub-crystalline, slightly oolitic.                                                                  |                                                                                    |
| 3568 - 3575  | Limestone, cream-buff, finely crystalline                                                                             | Slightly porous; fair show free oil                                                |
| 3575 - 3596  | Limestone, tan, sub-crystalline to dark brown, dense, mottled; chert, gray-brown, opaque.                             |                                                                                    |
| 3596 - 3598  | Limestone, dark brown, fossiliferous                                                                                  | Fair vugular porosity. Very slight show free oil.                                  |
| 3598 - 3603  | Limestone, as above, dense                                                                                            |                                                                                    |
| 3603 - 3607  | Limestone, tan, crystalline, oolitic                                                                                  | Fair vug lar porosity; trace free oil.                                             |
| 3607 - 3619  | Limestone, tan to brown, dense, some gray sub-crystalline to finely crystalline. Much chert, blue-gray to tan, opaque |                                                                                    |
| 3619 - 3621  | Streaks gray shale                                                                                                    |                                                                                    |
| 3621 - 3627  | Limestone, tan crystalline, trace oolites, some cream devitrified chert.                                              | Slightly porous, slight trace stain                                                |
| 3627 - 3656  | Limestone, gray to light brown, sub-crystalline to dense, chert, gray, opaque                                         |                                                                                    |
| 3656 - 3660  | Streaks green-gray shale                                                                                              |                                                                                    |
| 3660 - 3663  | Limestone, brown dense                                                                                                |                                                                                    |
| 3663 - 3666  | Limestone, tan to light brown, very oolitic and oolitic.                                                              | Very porous, poor permeability, fair show free oil & much black, nearly dead, oil. |

| <u>Depth</u> | <u>Formation Description</u>                                                                                                                                                                                           | <u>Remarks</u>                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 3666 - 3675  | Limestone, tan dense, some with large irregular oolites                                                                                                                                                                |                                                         |
| 3675 - 3681  | Limestone, light tan, finely crystalline, some oolites; possible trace gray shale                                                                                                                                      |                                                         |
| 3681 - 3692  | Limestone, light tan, oolitic, some oolite casts & vugs; some gray, opaque chert                                                                                                                                       | Black dead stain.                                       |
| 3692 - 3694  | Limestone, as above                                                                                                                                                                                                    | Good oolitic porosity, much black stain, some free oil. |
| 3694 - 3701  | Limestone, tan, dense                                                                                                                                                                                                  |                                                         |
| 3701 - 3710  | Limestone, light tan, very oolitic, small oolites.                                                                                                                                                                     | Good porosity poor permeability, no odor or stain.      |
| 3710 - 3723  | Limestone, gray to gray-brown, dense trace oolitic limestone                                                                                                                                                           | Trace spotted stain.                                    |
| 3723 - 3729  | Increase in oolitic limestone, trace oolitic & fracture porosity, probably some gray shale                                                                                                                             | Trace free oil.                                         |
| 3729 - 3734  | Limestone, gray to gray-brown, dense                                                                                                                                                                                   |                                                         |
| 3734 - 3744  | Limestone, white to cream, crystalline to chalky, oolitic & oolitic                                                                                                                                                    | Fair porosity, no permeability, no odor or stain.       |
| 3744 - 3759  | Limestone, brown, lithographic; trace blue-gray, opaque chert                                                                                                                                                          |                                                         |
| 3759 - 3766  | Limestone, tan to brown, crystalline, coarsely oolitic.                                                                                                                                                                |                                                         |
| 3766 - 3767  | Shale, black                                                                                                                                                                                                           |                                                         |
| 3767 - 3770  | Limestone, lithographic, as above                                                                                                                                                                                      |                                                         |
| 3770 - 3777  | Limestone, tan to brown, crystalline, coarsely oolitic, some dark gray porous limestone                                                                                                                                | Good porosity & good show free oil, trace odor.         |
| 3777 - 3780  | Limestone, gray, finely crystalline to crystalline, slight trace oolites                                                                                                                                               |                                                         |
| 3780 - 3785  | Gray shale, trace brown                                                                                                                                                                                                |                                                         |
| 3785 - 3791  | Limestone, gray to brown, dense to finely crystalline                                                                                                                                                                  |                                                         |
| 3791 - 3798  | Shale, gray, trace brown                                                                                                                                                                                               |                                                         |
| 3798 - 3807  | Limestone, gray to dark gray, crystalline some large irregular oolites, trace chert                                                                                                                                    | Base Kansas City 3807'.                                 |
| 3807 - 3810  | Dark gray shale                                                                                                                                                                                                        | Marmaton                                                |
| 3810 - 3820  | Streaks gray & green shale & green & brown limestone, dense to crystalline                                                                                                                                             |                                                         |
| 3820 - 3829  | Limestone, gray, brown, green & red, dense to finely crystalline                                                                                                                                                       |                                                         |
| 3829 - 3861  | Some chert, orange to light gray; chert white, light gray, tan, orange, amber, opaque to translucent, vitreous to semi-devitrified; some green shale; some green-gray silicified limestone, some glauconitic limestone | Conglomerate                                            |
| 3861 - 3946  | Shale, gray-green to brown                                                                                                                                                                                             | Kinderhook                                              |
| 3946 - 3954  | Limestone, cream to white, crystalline, pink mottling, much chert, gray opaque, some white devitrified, some gray opaque with brown specks & mottling                                                                  | Viola                                                   |

| <u>Depth</u> | <u>Formation Description</u>                                                                                     | <u>Remarks</u>                              |
|--------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 3954 - 3961  | White coarsely crystalline limestone, pink spots, less chert; trace green-white dolomite                         | Fair porosity, fair show free oil           |
| 3961 - 3968  | Limestone as above                                                                                               |                                             |
| 3968 - 3980  | Dolomite, white to gray crystalline, much chert, white opaque, devitrified & non-vitreous                        |                                             |
| 3980 - 3990  | Much chert, as above, also much white, opaque vitreous chert; Limestone, white crystalline to finely crystalline |                                             |
| 3990 - 4008  | Mostly chert, white, opaque chert, vitreous to devitrified; Limestone, white coarsely crystalline, dolomitic.    |                                             |
| 4008 - 4018  | Limestone, dolomitic, light gray, crystalline; Very much chert; some gray crystalline dolomite                   |                                             |
| 4018 - 4043  | Limestone, gray, finely crystalline, mostly silicified; chert as above                                           |                                             |
| 4043 - 4053  | Limestone & chert, as above; green shale                                                                         |                                             |
| 4053 - 4062  | Limestone, white coarsely crystalline, decline in chert.                                                         |                                             |
| 4062 - 4067  | Limestone, as above; increase in bright green shale; large sand grains in limestone                              |                                             |
| 4067 - 4074  | Limestone, as above                                                                                              |                                             |
| 4074 - 4077  | Limestone, gray sandy                                                                                            |                                             |
| 4077 - 4086  | Sand, gray, medium, very calcareous, sub-angular to sub-rounded; some dark green shale                           | Simpson                                     |
| 4086 - 4099  | Dark green shale; some streaks calcareous sand                                                                   |                                             |
| 4099 - 4104  | Streaks green-gray to black sand, medium to coarse, rounded to angular                                           |                                             |
| 4104 - 4124  | Mostly green shale, a few streaks sand, as above                                                                 |                                             |
| 4124 - 4127  | Sand, white, light gray to black, some clean, some shaly, medium to sub-rounded                                  |                                             |
| 4127 - 4133  | Dark green shale; probable streaks sand, as above                                                                |                                             |
| 4133 - 4138  | Dolomite, light tan to cream, finely crystalline to sucrose                                                      | Arbuckle, no porosity.                      |
| 4138 - 4144  | Dolomite, light brown, finely crystalline to crystalline                                                         | Trace vugular porosity.                     |
| 4144 - 4149  | Dolomite, as above                                                                                               | Fair oolitic, vugular porosity              |
| 4149 - 4152  | Dolomite, gray to brown, coarsely crystalline, rhombohedral, trace tripolitic cement                             |                                             |
| 4152 - 4158  | Dolomite, gray to tan, coarsely crystalline                                                                      | Some oolitic and inter-crystalline porosity |
| 4158         | Total Depth                                                                                                      |                                             |

Samples examined and log compiled by W. S. Johns