# FORMATION LOG

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McNeish, Gralapp etal. #1 Miller
NW/NW/SW, 12-32S-5E
Cowley County, Kansas
Elevation: 1328 derrick floor

Comm: 12-31-52
Comp:
8 5/8" casing - 157'
5 1/2# casing - 3055'

Note: All measurements are from the top of the rotary bushing which is two feet above the derrick floor.
The electric log shows all measurements to be 6 to 8 feet lower than the drilling measurements. We believe the electric log measurements are correct and have listed the electric log tops below. These tops should be used as the corrected tops. However, the drilling measurements have been used in this log.

Electric log tops:

| | |
|---|---|
| Lansing | 1877 |
| Stalnaker | 1910 - 2001 |
| Layton Sand Zone | 2341 - 2434 |
| Kansas City Limestone | 2468 - 2595 |
| Big Lime | 2689 - 2721 |
| Oswego | 2749 - 2820 |
| Prue Sand | 2841 - 2860 |
| Bartlesville Zone | 2973 - 3068 |
| Good Sand | 3049 - 3068 |
| Top Mississippi | 3075 |
| Total Depth | 3078 |
| 5½" casing | 3061 |

| Depth | Formation Description | Remarks |
|---|---|---|
| 0 - 138 | Limestone and shale | Drillers log 0 - 1738 |
| 138 - 152 | Limestone | |
| 152 - 580 | Limestone and shale | |
| 580 - 810 | Shale and shells | |
| 810 - 1225 | Shale and limestone | |
| 1225 - 1485 | Limestone and shale | |
| 1485 - 1630 | Shale and limestone | |
| 1630 - 1665 | Shale and limestone streaks | |
| 1665 - 1738 | Limestone and shale | |
| 1738 - 1751 | Limestone, gray and brown mottled, sub-crystalline. | Sample log 1738 to T.D. |
| 1751 - 1768 | Shale, gray, green-gray & brown. | |
| 1768 - 1779 | Sand, white, medium angular, clean, calcareous, non-micaceous, porous. | No show |
| 1779 - 1871 | Shale, gray, some green-gray and brown | |
| 1871 - 1879 | Limestone, brown, crystalline, dolomitic. | Lansing |
| 1879 - 1902 | Shale, gray, micaceous, silty. | |
| 1902 - 1914 | Sand, tan to buff, coarse, angular, micaceous, calcareous. | Top Stalnaker; no show |
| 1914 - 1936 | Shale, gray and brown | |
| 1936 - 1951 | Sand, white, medium to sub-medium, silty, micaceous, tight. | No show |
| 1951 - 1956 | Shale, gray | |
| 1956 - 1964 | Sand, as above, coarser, possible trace porosity | No show |
| 1964 - 1974 | Shale, gray | |
| 1974 - 1995 | Sand, white coarse, angular, some pink spots, some porosity | No show; Base Stalnaker |

(2) Formation log; McNeish - Gralapp #1 Miller

| Depth | Formation Description | Remarks |
|---|---|---|
| 1995 - 2070 | Shale, gray and brown | |
| 2070 - 2084 | Limestone, light tan to brown, mottled, black inclusions, finely sandy. | |
| 2084 - 2154 | Shale, gray, micaceous | |
| 2154 - 2189 | Shaly limestone, dark dirty gray | |
| 2189 - 2195 | Shaly limestone as above, with streaks dark gray shale | |
| 2195 - 2237 | Shale, gray with some brown | |
| 2237 - 2240 | Sand, light gray sub-medium | |
| 2240 - 2289 | Shale, gray, micaceous | |
| 2289 - 2290 | Limestone, dark gray brown, sub-crystalline, blocky resinous. | |
| 2290 - 2295 | Shale, gray | |
| 2295 - 2335 | Shale, brown, trace gray, streaks brown fossiliferous limestone and red-brown shaly sand. | |
| 2335 - 2341 | Sand, coarse, quartzitic, angular, calcareous, white to brown, no porosity. | Top Layton; no show |
| 2341 - 2346 | Shale, gray | |
| 2346 - 2348 | Sand, white to gray, poorly sorted, angular, calcareous, brown inclusions, tight. | No show |
| 2348 - 2360 | Sand, white, fine, angular, slightly micaceous, porous | Trace light stain. |
| 2360 - 2368 | Shale, gray and brown, trace limestone brown dense. | |
| 2368 - 2393 | Sand, white to gray, poorly sorted, angular, micaceous, good porosity. | No show |
| 2393 - 2406 | Sand, as above, hard tight, some coarse calcareous sand | No show |
| 2406 - 2428 | Shale, gray and brown, some fine gray sand, tight micaceous. | Base Layton 2428 |
| 2428 - 2462 | Shale, gray, some brown | |
| 2462 - 2469 | Limestone, dark gray-brown, dense to sub-crystalline. | Top Kansas City limestone |
| 2469 - 2474 | Limestone, dark gray-brown crystalline, very fossiliferous. | |
| 2474 - 2479 | Shale, dark gray to black | |
| 2479 - 2492 | Limestone, gray to brown, sub-crystalline | |
| 2492 - 2507 | Limestone, light tan, finely crystalline, chert, light gray-brown, opaque, fossiliferous. Possibly some porosity in limestone. | No show |
| 2507 - 2532 | Limestone, dark brown, dense | |
| 2532 - 2537 | Shale, black to dark gray | |
| 2537 - 2564 | Limestone, tan to gray, sub-crystalline, to finely crystalline, fossiliferous. | |
| 2564 - 2583 | Limestone, light tan to light buff, finely crystalline to crystalline, calcitic, very little, if any, porosity. | No show |
| 2583 - 2585 | Shale, gray | |
| 2585 - 2589 | Limestone, dark brown dense. | Base Kansas City |
| 2589 - 2611 | Shale, dark gray and black | |
| 2611 - 2614 | Limestone, light tan to light brown, crystalline oolitic or fossiliferous. | |

(3) Formation log; McNeish-Gralapp #1 Miller

| Depth | Formation Description | Remarks |
|---|---|---|
| 2614 - 2652 | Streaks shale, gray; and sandy, light gray silty sub-medium angular, micaceous | |
| 2652 - 2658 | Shale, gray | |
| 2658 - 2667 | Streaks, shale, gray silty micaceous, limestone, gray-brown dense | |
| 2667 - 2683 | Shale gray | |
| 2683 - 2688 | Limestone, light tan to cream, platy, finely crystalline to dense fossiliferous, | Top Big Lime |
| 2688 - 2697 | Limestone, as above, fair vugular porosity | No show |
| 2697 - 2700 | Limestone, as above, no porosity. | |
| 2700 - 2708 | Streaks black shale and limestone, dark, gray to black, dense, very fossiliferous. | |
| 2708 - 2714 | Limestone, gray and brown, mottled, crystalline. | Base Big Lime |
| 2714 - 2743 | Shale, dark gray, calcareous, gritty micaceous, many siderite nodules, possibly sandy. | |
| 2743 - 2753 | Limestone, dark gray to black dense | Top Oswego |
| 2753 - 2759 | Limestone, light tan to light buff, platy, sub-crystalline, possibly some porosity. | No show |
| 2759 - 2763 | Limestone, as above, no porosity | |
| 2763 - 2765 | Shale black | |
| 2765 - 2775 | Limestone, light brown, finely crystalline to dense | |
| 2775 - 2783 | Shale, gray | |
| 2783 - 2799 | Limestone as above | |
| 2799 - 2800 | Shale gray | |
| 2800 - 2 04 | Limestone, gray platy sub-crystalline to finely crystalline | |
| 2804 - 2809 | Shale, black, coaly | |
| 2809 - 2814 | Limestone blue-gray, finely crystalline to dense | Base Oswego |
| 2814 - 2834 | Shale, gray, with streaks tan and gray limestone | |
| 2834 - 2840 | Sand gray, fine to sub-medium, angular, silty, micaceous | Prue 2834 - 54 |
| 2840 - 2842 | Shale gray | |
| 2842 - 2854 | Sand, as above | |
| 2854 - 2877 | Shale, gray | |
| 2877 - 2903 | Shale, gray, streaks limestone, dirty dark gray, finely crystalline, fossiliferous | |
| 2903 - 2910 | Sand, gray, fine silty, trace tan to brown limestone, some shale, gray, green and black | Cattleman sand, slight odor |
| 2910 - 2967 | Shale, silver gray, silty, micaceous, streaks sandy shale, streaks brown to gray dense to granular limestone. | |
| 2967 - 3006 | Sand, very fine, green gray shaly micaceous, some sandy shale. | Top Bartlesville zone |
| 3006 - 3017 | Sand, fine, green-gray, silty micaceous, angular, very little if any porosity. | Top Bartlesville sand, no odor or stain. |
| 3017 - 3026 | Shale, gray, slightly sandy | |

(4) Formation log; McNeish-Gralapp #1 Miller

| Depth | Formation Description | Remarks |
|---|---|---|
| 3026 - 3041 | Silty sand as above | Slight odor and stain |
| 3041 - 3051 | Sand, fine to medium, gray, silty, micaceous | Some odor, streaks of stain |
| 3051 - 3053 | Shale gray | |
| 3053 - 3060 | Sand, as above, coarser | Good odor, fair stain |
| 3060 - 3069 | Shale, light green, to green-gray, some maroon slightly sandy | Base Bartlesville 3060 |
| 3069 - 3072 | Limestone, white to brown crystalline, chert, white, opaque to translucent. | Top Mississippi |
| 3072 | Total Depth | |

Ran electric log - did not take any drill stem tests.

Diamond Cores:

(1) 3030-61; recovered 22'
Top 11½' sand, fine, gray, micaceous silty, some odor and streaks stain.
Bottom 10½' sand as above, coarser, less silty. Very good odor, fair stain

(2) 3061-67; recovered 8' (3 feet from first core and 5 feet from this core)
Three feet from first core like sand in bottom 10½'
Top three feet from second core - shale, soft fissile, light green, with some maroon streaks, some dark gray inclusions
Bottom two feet - shale, hard, gray-green sandy, some shaly sand. trace brown shale, many black inclusions.

Completion Data:

Cleaned out to 3065 (3071 electric log measurements)
Plugged back to 3062 (3068 e.l. measurement); no show; let hole stand 18 hours, had 700' water in hole with scum of oil.
Plugged back to 3052 (3058 e.l. measurement)
Perforated 48 holes 3044-52 (3050-58 e.l. measurement) no fluid of any kind in hole
Let hole stand overnight - no fluid
Sand-fract - 6000# sand; 320 barrels oil and fuel oil
Flowed and swabbed back load
Hole filled up with oil and water (about half and half) to 800' from top.
Put on pump
Pumped 70 B.O. and 30B.W. first day

(Samples ran and log compiled by Wendell S. Johns)