

**FORMATION LOG**

WENZEL S. JOHNS

Deep Rock #6 Strait  
 NW/37/W4; 33-26<sup>0</sup>-13<sup>00</sup>  
 Pratt County, Kansas  
 Elevation: 1962 Derrick floor

8 5/8" surface casing 875'; 350 sacks cement  
 62 sacks stratacrete  
 48 gal.  
 1 sack c.e.  
 5 1/2" casing 4464; 250 sacks cement

- Note:** (1) All measurements are taken from the top of the rotary bushing which is 2 feet above the derrick floor.  
 (2) The drill pipe was strapped at 3923' and a 14' measurement error was found, after which the tally board was checked and a 13' error was found in these figures. The kelly was drilled down and a 13' correction was made, i.e. 3963 = 3976. This entire log has been adjusted for this measurement correction.  
 (3) There is a difference in measurements between the electric log and the drilling measurements which is outlined as follows: From 3500-3800 there is a difference of 5', i.e. 3580 electric log = 3505 drlg.; from 3700-3800 there is a difference of 3', i.e. 3700 electric log = 3703 drlg.; from 3800-3940 there is a 2' difference, i.e. 3800 electric log = 3802 drlg. From 3940 to 3980 there is very little correlation between the electric log & the time log. The drilling measurements in this part of the section have been used throughout this report. From 3980 to 4240 there is no difference between the electric log and the drilling measurements; from 4240 to the rotary total depth there is a 1' difference, i.e. 4240 electric log = 4241 drlg.

The drilling measurements have been used throughout this formation log.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
0 - 80	Sand & clay	Drillers log 0-3500
80 - 170	Sand	
170 - 830	Red bed	
830 - 855	Anhydrite	Stone Corral
855 - 875	Shale	
875 - 1320	Shale & red bed	
1320 - 1835	Shale, shells & salt	
1835 - 1940	Limestone & shale	
1940 - 2120	Shale & limestone	
2120 - 2350	Limestone & shale	
2350 - 2585	Shale & limestone	
2585 - 2820	Limestone & shale	
2820 - 3000	Sandy limestone & shale	
3000 - 3521	Limestone & shale	
3521 - 3539	Limestone, buff to tan, finely crystalline to dense, oolitic; some good vugular & oolitic porosity; some gray, opaque chert.	Samples start @3500 No show
3539 - 3562	Limestone, as above; Limestone, tan, very finely sucrose, trace pinpoint porosity	Trace stain
3562 - 3566	Limestone, finely sucrose, as above	No porosity or show

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3566 - 3584	Limestone, gray to white, dense; Some good vugular porosity	Trace stain
3584 - 3609	Limestone, as above, spatted porosity; shale, gray - green & gray - black	No show
3609 - 3614	Shale, brown, black, brown streak	Heetner
3614 - 3619	Limestone, brown - gray, dense	Leavenworth
3619 - 3628	Shale, gray to dull gray - green	Snyderville
3628 - 3653	Limestone, cream to light gray, sub- crystalline to finely crystalline; streak shale 3637 - 40.	Toronto
3653 - 3672	Shale, gray & gray - green, some gray, silty, micaceous shale & gray siltstone	Douglas 3653 - 3770
3672 - 3718	Sand, light gray to light green, sub- medium, angular to sub-angular, micaceous; some glauconitic	
3718 - 3770	Shale, brown & gray; streaks sand, as above.	
3770 - 3776	Limestone, dark brown to gray - brown dense	Brown Lansing
3776 - 3796	Shale, gray & brown; streaks limestone, as above.	
3796 - 3821	Limestone, white to light brown, sub-crystalline to finely crystalline, oolitic.	Lansing
3821 - 3836	Limestone, light to medium gray, finely crystalline to dense; some vugular porosity	Slight odor, very slight show free oil, trace stain D.S.T.
3836 - 3845	Limestone, gray to tan, mottled, sub- crystalline to dense; streak brown shale.	
3845 - 3857	Limestone, tan to gray, very finely sucrose to sub-crystalline, fair vugular porosity	Fair stain
3857 - 3873	Limestone, gray to gray - brown, dense; streak shale, gray - brown; trace chert, gray, opaque, earthy.	
3873 - 3881	Limestone, brown, finely crystalline to sub-crystalline, fossiliferous.	Possibly porous on electric leg.
3881 - 3896	Limestone, as above, streak porosity 3887 - 90; streaks gray & brown shale	No show
3896 - 3904	Limestone, tan to gray, finely sucrose, trace vugular porosity.	Spatted stain
3904 - 3907	Mostly shale, gray - green; some gray to brown, dense, blocky limestone.	
3907 - 3913	Limestone, as above, porous, as above	Spatted stain
3913 - 3919	Limestone, dense & shale, as above	
3919 - 3925	Limestone, gray - brown, dense mottled; chert, gray, opaque, figured; trace fine vugular porosity.	Slight stain
3925 - 3928	Mostly shale, as above	
3928 - 3934	Limestone, gray - brown, sub-crystalline. trace fracture porosity.	No show
3934 - 3945	Limestone, gray to brown, dense to sub- crystalline; chert, as above; streaks brown & gray - green shale.	

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3945 - 3950	Limestone, gray to tan, oolitic, finely sucrose to dense; some vugular porosity	Slight show free oil, trace odor
3950 - 3960	Limestone, gray, dense; shale streaks	
3960 - 3966	Limestone, gray, sub-crystalline oolitic, fair vugular & oolitic porosity	Fair show free oil, slight odor
3966 - 3979	Limestone, gray, dense; streaks gray - black to brown shale.	
3979 - 3984	Limestone, tan to gray, sub-crystalline, oolitic; trace vugular porosity,	Trace spatted stain
3984 - 3989	Limestone, dense, as above; Chert, gray to tan, opaque.	
3989 - 3997	Limestone, gray to brown, sub-crystalline to dense, very finely oolitic; fair vugular & oolitic porosity.	Fair to good stain.
3997 - 4007	Limestone, gray to brown, dense, lithographic, blacky.	
4007 - 4010	Limestone, gray, very finely sucrose, fair vugular & oolitic porosity	Spatted stain
4010 - 4032	Limestone, dense, as above; streaks gray - green & brown shale.	
4032 - 4036	Limestone, gray - brown, dense, resinous, oolitic; spatted vugular porosity	Fair spatted stain
4036-4110	Limestone, gray to tan to brown, dense, lithographic, scattered streaks porosity; Chert, gray, opaque, figured; Shale gray - green & brown.	Base Kansas City 4110
4110- 4115	Shale, gray, gray - green & brown	Marmaton 4110
4115 - 4128	Limestone, gray to tan, sub-crystalline to dense, mottled.	Porous on electric log
4128 - 4194	Mostly shale & limestone, as above; Chert gray to tan to amber, opaque to translucent.	
4194 - 4229	Chert, cream to tan, sub-vitreous to opaque, some dull yellow; some chert, semi-devitrified, brown to light gray, porous; much white, vitreous, porous chert, probable streaks gray - green & brown shale.	Mississippi Brown stain, no free oil
4229 - 4247	Shale, silver - gray, green - gray & brown; streaks limestone, gray - brown, resinous, micaceous, finely crystalline to sub-crystalline.	Kinderhook
4247 - 4265	Chert, brown to white to amber, vitreous, opaque; chert, light gray to tan, opaque to translucent, vitreous to devitrified, porous.	Viola Fair stain, no odor or free oil
4265 - 4302	Shale, mostly gray - green to pale green & brown; streaks gray - green to green - brown limestone, sub-crystalline to dense.	

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4302 - 4339	Chert, white, opaque, China, spatted porosity; chert, brown to tan, vitreous to devitrified, porous; much white to light gray to amber, sub vitreous, opaque chert.	Lower Viola Chert Slight show free oil
4339 - 4345	Limestone, light gray, coarsely crystalline to finely crystalline, some sandy.	
4345 - 4349	Shale, bright green, sandy	Simpson
4349 - 4367	Sand, brown to green, sub-medium, glassy, poorly sorted, argillaceous; streaks interfingering green sandy shale; some dolomitic sand.	Spatted porosity & saturation
4367 - 4373	Dolomite, brown, finely crystalline, sandy, spatted vugular porosity.	Spatted stain
4373 - 4381	Mostly sand, green to brown, as above, shale streaks, as above	Spatted saturation
4381 - 4425	Streaks sand & shale, as above, some dolomite, finely crystalline brown, rhombohedral, sandy.	
4425 - 4430	Dolomite tan, sub-crystalline to finely crystalline, trace pinpoint porosity 4426 - 30.	Arbuckle Trace spatted stain
4430 - 4446	Dolomite, as above, no porosity Shale, gray - green (4441 - 4444)	
4446 - 4451	Dolomite, tan, sub-crystalline, fine pinpoint porosity	Slight to fair show free oil, spatted stain.
4451 - 4454	Dolomite, as above, no porosity	
4454 - 4465	Dolomite, tan to brown, sub-crystalline to finely crystalline, very oolitic, fair to good vugular & oolitic porosity.	Good show freeoil, good odor
4465	Rotary Total Depth	

The following drill stem tests were run on the #6 Strait.

Lansing:

3808 - 27: open 1 hour  
Recovered 65' gas & 25' slightly oil & gas cut mud.  
Bottom hole pressure 0 (15 minutes)

3923 - 55 (3941-68, corrected): open 1 hour  
Recovered 25' gas cut mud  
Bottom hole pressure 0 (15 minutes)

Mississippi:

4191 - 4225: open 45 minutes - very strong blow, gas to surface in 19 minutes.  
Recovered 250' slightly oil & gas cut mud.  
Bottom hole pressure 1300# (15 min.)

Viola:

4311 - 30: open 45 minutes - very strong blow, gas to surface in 31 minutes.  
Recovered 2380' clean, gassy oil  
Bottom hole pressure 1250# (15 minutes)

Artuckle:

4431 - 50: open 30 minutes - weak blow which died in 3 minutes.

Recovered 15' gasay mud; trace oil

Bottom hole pressure 170 (15 minutes)

4450 - 65: open 1 hour; weak blow throughout test.

Recovered 150' gas & 30' mud with trace oil

Bottom hole pressure 0 (15 minutes)

Core Record:

The following core was taken on the #6 Strait.

Core 4346 - 63; Recovered 15'.

Top 6" green sandy shale

4' shale, green, very sandy; sand, brown, medium, sub-rounded to sub-angular, argillaceous, trace odor.

3'6" Sand, brown, sub-rounded, medium, saturated.

3' Sand, as above; streaks interfingered green, shale; sand, as above green, spotted saturation

4'6" Sandy shale & shaly sand, as above; some dolomitic sand, as above, spotted saturation.

(Samples examined & log compiled by Willis Jack Magathan)

TIME LOG

WENDELL S. JOHNS

Deep Rock #6 Strait  
 N<sup>o</sup>/S<sup>e</sup>/W<sup>o</sup>; 33-26<sup>o</sup>-13<sup>o</sup>  
 Pratt County, Kansas  
 Elevation: 1962 Derrick floor

Note: All measurements are taken from the top of the rotary bushing which is 2 feet above the derrick floor

Depth	Time	Remarks
3500 - 10	2-2-2-2-2-2-2-2-2-2	
20	2-2-2-2-3-2-2-2-3-3	
30	3-2-2-1-2-3-2-2-1-2	
40	2-2-2-2-2-2-2-1-1-2	
50	1-1-2-2-2-2-1-2-2-4	
60	3-2-2-2-2-1-2-2-2-2	
70	1-1-1-1-1-1-1-1-1-1	
80	1-1-2-2-2-3-3-2-2-2	
90	1-4-3-4-3-3-3-3-2-2	
3590 - 3600	3-4-4-5-5-4-2-1-2-1	
3600 - 10	1-1-6-5-4-3-2-2-2-2	Heebner 3609
20	1-2-3-4-5-4-4-4-4-4	
30	4-4-4-4-3-2-3-4-4-6	
40	6-5-6-4-7-5-6-6-6-3	
50	2-3-3-3-3-3-3-4-4-5	
60	6-4-4-5-3-3-2-3-4-3	
70	1-3-2-2-1-1-2-3-1-1	
80	1-1-2-1-2-1-2-2-1-2	
90	1-1-3-4-1-2-1-2-1-2	
3690 - 3700	3-2-3-2-2-2-2-2-2-2	
3700 - 10	2-3-3-2-5-6-4-4-4-4	
20	4-5-6-5-4-4-4-4-4-4	
30	4-5-6-2-2-2-2-1-1-2	
3700 - 40	2-1-1-2-1-3-2-1-1-2	
50	1-2-2-2-2-1-1-1-1-2	
60	2-3-3-2-2-2-2-2-2-2	
70	2-5-3-2-3-2-3-2-2-3	Brown Lansing 3770
80	2-3-3-3-3-3-3-3-3-2	
90	3-3-2-3-2-2-2-2-3-3	
3790 - 3800	3-3-3-5-3-4-5-5-4-3	Lansing 3796
3800 - 10	6-6-6-6-4-5-4-9-7-5	
20	6-5-5-5-5-4-5-4-5-6	
30	5-5-6-6-7-5-7-3-3-4	
40	4-6-3-2-1-1-1-2-4-3	Circ. 1 1/2 hr. 3840 New bit 3840

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
50	2-2-2-1-4-3-3-4-5-5	
60	5-5-5-6-6-6-6-7-7-8	
70	7-6-4-9-10-10-10-8-10-11	
80	10-9-6-6-9-10-10-11-7-7	
90	7-8-9-7-5-4-5-5-5-5	
3890 - 3900	5-6-6-6-5-5-6-6-6-7	
3900 - 10	10-10-10-10-5-5-7-6-5-6	
20	8-6-11-14-16-9-9-11-6-9	
30	11-13-19-6-9-9-11-11-6-6	Trip 3923
40	6-6-4-5-5-3-3-2-8-7	
50	5-7-5-6-7-6-6-3-4-4	
60	4-6-4-6-7-9-8-8-10-9	
70	6-7-6-x-x-x-x-x-x-x	
80	x-x-x-x-x-x-6-6-6-5	
90	5-6-6-6-8-8-7-8-6-5	
3990 - 4000	4-3-4-3-3-3-4-4-4-6	
4000 - 10	5-7-5-5-5-5-7-6-6-5	
20	4-3-6-4-5-7-7-5-6-6	
30	4-4-7-8-9-6-6-7-5-7	
40	5-6-6-5-6-6-6-5-6-7	
50	7-8-4-6-5-6-6-7-7-7	
60	7-6-6-5-7-8-4-7-7-4	
70	5-6-6-6-6-4-5-6-7-7	
4070 - 80	8-6-6-6-6-6-7-7-8-8	
90	8-8-8-8-9-9-9-7-6-6	
4090 - 4100	6-7-7-7-9-6-9-9-8-9	
4100 - 10	8-8-7-7-11-8-9-9-9-8	
20	7-9-10-9-10-6-8-8-7-5	
30	5-5-5-5-4-4-4-4-5-6	
40	7-8-8-7-8-8-6-5-6-7	
50	9-8-9-9-9-8-7-8-5-4	
60	5-9-9-2-6-5-5-6-6-6	
70	7-7-8-6-6-5-6-6-4-7	
80	8-11-10-8-12-12-9-12-12-12	
90	4-4-5-6-6-6-5-4-7-7	
4190 - 4200	8-7-6-7-6-6-4-4-2-2	
4200 - 10	3-3-2-2-4-2-4-4-5-3	
20	4-4-4-4-4-3-4-3-4-4	
30	4-4-4-4-4-4-3-3-4-7	
40	10-11-8-9-11-12-9-11-10-9	
50	10-8-9-9-10-11-11-7-6-4	
60	3-3-2-2-3-3-3-3-2-3	
70	3-4-4-4-6-6-6-7-13-14	
80	14-15-14-10-11-8-10-11-12-14	
90	12-12-12-12-6-6-6-9-10-6	
4290 - 4300	11-10-9-9-7-11-10-9-8-9	
4300 - 10	10-10-6-4-6-5-4-4-4-4	
20	3-3-4-4-6-4-3-5-5-5	
30	4-5-4-5-4-4-5-4-5-5	
40	2-2-2-2-4-4-4-3-3-4	
50	6-6-10-10-12-10-18-31-12-11	
60	11-10-13-17-15-12-10-12-15-14	
		Circ. 1 1/2 hr. 3952 Circ. 1 1/2 hr. 3968 - New bit Tally Drill Pipe 3763-3776
		Base Kansas City 4110 Trip 4115
		Circ 1 1/2 hr. 4180 Trip 4180
		Mississippi 4194
		Cir. 1 1/2 hr. 4225 Kinderhook 4229
		Viola 4247
		Cir. 1 1/2 hr. 4270 Trip 4273
		Cir. 1 1/2 hr. 4330, Trip 4330
		Simpson 4345 Circ 1 1/2 hr. 4346 Cored 4346-63

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
70	14-17-14-4-5-5-5-7-8-9	Cir. 1½ hr. 4363 Trip 4363
80	10-9-7-3-7-5-4-2-2-4	
90	5-9-8-6-9-8-8-11-8-9	
4390 - 4400	9-9-9-7-9-8-9-9-10-9	
4400 - 10	9-9-8-8-8-9-9-7-8-10	
4410 - 20	7-9-10-8-9-10-10-9-9-11	
30	8-10-7-7-10-7-4-5-6-5	Arbuckle 4425
40	7-6-5-6-5-6-10-8-10-10	Cir. 1½ hr. 4431
50	14-10-5-10-11-12-10-10-10-10	Cir. 1½ hr. 4450: Trip 4450
60	5-4-4-6-6-8-9-6-9-7	
65	6-6-6-6-6	Circ. 1½ hr. 4465 R.T.D. 4465

(Time log condensed by Willis Jack Magathan)