

F O R M A T I O N L O G

WENDELL S. JOHNS

Deep Rock #1 Early
 SW/SW/SE; 32-9S-21W
 Graham County, Kansas
 Elevation: 2300 derrick floor

10 3/4" surface casing 280'; 200 sacks
 7" casing 3858 1/2'; 175 sacks

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

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
0 - 280	Clay & shale	Drillers log 0 - 3000'
280 - 1560	Shale & sand	
1560 - 1770	Shale	
1770 - 1815	Trace white gypsum, mostly gray shale; some gray, crystalline anhydrite	Stone corral
1815 - 2165	Shale & shells	
2165 - 2350	Shale & limestone	
2350 - 2500	Shale & shells	
2500 - 2630	Limestone, shale & shells	
2630 - 2755	Shale & limestone	
2755 - 2975	Limestone & shale	
2975 - 3000	Shale	
<u>Sample log starts 3000'</u>		
3000 - 3068	Shale, red, gray & green-gray; streaks limestone, light tan to gray, finely crystalline.	
3068 - 3088	Shale, as above; streaks fine dirty gray sand.	
3088 - 3138	Shale & sand, as above	
3138 - 3143	Limestone, light gray, sub-crystalline	
3143 - 3158	Shale, as above	
3158 - 3184	Streaks limestone, light tan, finely crystalline.	
3184 - 3200	Shale, gray & brown	
3200 - 3223	Shale, as above; some gray, finely crystalline to sub-crystalline limestone.	
3223 - 3250	Limestone, light tan to brown, finely crystalline; probable shale streaks.	
3250 - 3256	Shale, streak, green & gray	
3256 - 3275	Limestone, dark gray, mottled, finely crystalline.	
3275 - 3330	Limestone, light tan to brown, dense.	Topeka
3330 - 3338	Limestone, tan to brown sucrose; trace white opaque chert.	Slightly porous, fair stain
3338 - 3350	Limestone, light cream, fossiliferous, crystalline, chert, as above.	Fair porosity; no show
3350 - 3408	Limestone, as above; some gray shale streaks; much chert.	
3408 - 3415	Shale, gray	
3415 - 3428	Limestone, as above; brown shale streaks.	
3428 - 3448	Limestone tan to gray; sub-crystalline to finely crystalline; chert, blue-gray, translucent to transparent.	
3448 - 3455	Limestone, white, sub-crystalline, cherty.	Pin-point porosity, fair show heavy free oil; no odor.

(a) Formation log; Deep Rock #1 Early

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3455 - 3457	Limestone, tan to gray, as above	
3457 - 3462	Limestone, white, as above	Some porosity & free oil, trace odor.
3462 - 3480	Limestone, as above; much chert, green and brown.	
3480 - 3484	Shale, brown-black	Heebner
3484 - 3489	Limestone, blue-gray to brown dense.	Leavenworth
3489 - 3502	Shale, gray & green; trace fine gray sand	
3502 - 3504	Limestone, white crystalline to finely crystalline; chert, white, oolitic and fossiliferous chert, partly devitrified.	Dodge
3504 - 3512	Limestone, as above	Some porosity, possible trace stain.
3512 - 3520	Shale, brown & green-gray; some sand	
3520 - 3549	Limestone, tan to gray, dense to sub-crystalline; much chert, gray & white vitreous, opaque to translucent.	Lansing
3549 - 3558	Streaks gray-green & brown shale	
3558 - 3563	Limestone, white to light tan, finely crystalline, trace oolites & oolcasts.	Fair vugular porosity & odor; some free oil; light stain in dry sample.
3563 - 3570	Limestone, as above	No porosity or stain.
3570 - 3576	Green & brown shale; some limestone, as above.	
3576 - 3584	Increase in limestone, as above	
3584 - 3590	Much shale, as above	
3590 - 3600	Increase in limestone, as above; much tan to brown chert, opaque to translucent, spicular	
3600 - 3604	Shale, as above	
3604 - 3612	Limestone, white to light brown, finely crystalline, some oolites & oolcasts.	Fair pin-point porosity, fair odor & show free oil, good stain, some dead oil.
3612 - 3614	Limestone, as above	No porosity
3614 - 3616	Gray & brown shale	
3616 - 3642	Limestone, white, dense	Possible streak porosity & stain
3642 - 3644	Gray & brown shale	
3648 - 3654	Limestone & shale, as above	
3654 - 3660	Limestone, white to tan dense	Possibly porous
3660 - 3664	Limestone, as above; some gray & brown shale.	No porosity
3664 - 3666	Limestone, as above	No porosity
3666 - 3668	Gray and brown shale	
3668 - 3670	Limestone, as above	No porosity
3670 - 3675	Gray and brown shale	
3675 - 3678	Limestone, as above	Possibly porous
3678 - 3684	Limestone & shale, as above	No porosity
3684 - 3688	Limestone, as above	
3688 - 3692	Gray and brown shale	
3692 - 3696	Limestone, as above	Possibly porous
3696 - 3700	Limestone, as above	
3700 - 3706	Limestone & shale, as above	
3706 - 3713	Shale, gray, green & brown	
3713 - 3716	Limestone, white to light brown, sub-crystalline to dense	
3716 - 3720	Limestone, white to light brown, sub-crystalline.	Some pin-point porosity, no odor, fair stain, slight trace free oil.

(3) Formation log; Deep Rock #1 Early

<u>Depth</u>	<u>Formation description</u>	<u>Remarks</u>
3720 - 3726	Limestone, white, dense; brown and green shale streaks.	
3726 - 3730	Limestone, as above	
3730 - 3736	Gray and brown shale	
3736 - 3740	Limestone, as above	Possibly porous
3740 - 3746	Limestone & shale, as above	
3746 - 3748	Limestone, white, sub-crystalline, colitic	Base Kansas City 3748
3748 - 3764	Shale, green brown & gray; trace red limestone	Marathon
3764 - 3770	Limestone, white to yellow, sub-crystalline to finely crystalline	
3770 - 3779	Shale, as above; streaks red limestone	
3779 - 3780	Limestone, red	
3780 - 3788	Shale, and limestone, as above	
3788 - 3790	Limestone, as above	
3790 - 3795	Shale, as above	
3795 - 3798	Limestone, as above	
3798 - 3803	Shale, as above	
3803 - 3806	Limestone, as above	
3806 - 3810	Shale, as above	
3810 - 3817	Chert, red to orange, trace white, opaque to translucent	Conglomerate
3817 - 3827	Brown & white devitrified, dark maroon shale	
3827 - 3840	Chert, red, opaque vitreous, some partly devitrified red & white chert.	
3840 - 3848	Chert, as above; some black vitreous chert, opaque to translucent	
3848 - 3856	Shale, bright green & brown; trace fine sand glassy.	Simpson
3856 - 3860	Dolomite, gray to tan, finely crystalline to crystalline.	Arbuckle; fair porosity, free oil, possible trace odor
3860	Rotary Total Depth.	

6/23/50:

6/24/50:

Drilled plug, made no new hole. Filled up 1200' / 4 hours; no water.
Filled up 2250' oil / 10 hours; no water; swab 1000' off bottom.
8 B.O.P.H. for 3 hours.

Drill Stem Tests:

- (1) 3447-56: Open 40 min./slight blow which stopped in 20 minutes. Recovered 30' slightly oil cut mud, no water. Bottom hole pressure 860#
- (2) 3457-73: Open 40 min./recovered 20' slightly oil cut mud; no water. Bottom hole pressure 620#
- (3) 3553-70: Open 30 min./very good blow; gas at surface in 40 minutes; Recovered 1290' clean oil and 180' oily mud & muddy oil; no water; Bottom hole pressure 900#; Flow pressure 370#
- (4) 3708-25: Open 30 min./slight blow; packer washed out; recovered rotary mud; Reconditioned hole; Tried to D.S.T. from 3711 - 25; packer would not hole.

Samples examined and log compiled by Wendell S. Johns.