

Formation Log

H.L. Moore #2 Mowbray
NW NE SW; 29-26S-13W
Pratt County, Kansas
Elevation: 1947 derrick floor

8 5/8" Surface Casing 499
5 1/2" Casing 4465
Comm: 7-12-54
Comp:

Note: All measurements are from the top of the rotary bushing which is 3' above the derrick floor.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
0 - 180	Sand and shale	Drillers log 0-3600'
180 - 844	Red bed and shells	
843 - 863	Anhydrite	Stone Corral - Electric log top
863 - 1000	Red bed and shale	
1000 - 1485	Red bed, shale and shells	
1485 - 1900	Shale and shells	
1900 - 2640	Limestone and shale	
2640 - 3075	Shale and limestone	
3075 - 3200	Shale	
3200 - 3415	Limestone and shale	
3415 - 3600	Limestone	
3600 - 03	Limestone, blue-gray, sub-crystalline	Sample log 3600' to T.D.
3603 - 19	Limestone, tan to brown, finely sucrose, dolomitic; fair vugular porosity	No show
3619 - 25	Limestone, as above, no porosity	
3625 - 35	Shale, gray-black, fissile; streaks limestone	
3635 - 45	Limestone, dolomitic, as above	
3645 - 54	Shale, brown-black to dark brown, Heebner fissile, micaceous	
3654 - 57	Limestone, light gray-blue, sub-crystalline	Leavenworth
3657 - 76	Shale, gray to gray-black to brown-black	
3676 - 83	Limestone, brown, dense	
3683 - 3730	Shale, gray to gray-black	
3730 - 42	Limestone, dirty brown-gray to chocolate brown, dense to medium crystalline; fair vugular porosity 3733-35	No show
3742 - 44	Shale, as above	
3744 - 52	Limestone, brown to tan, finely crystalline, oolitic; spotted fine vugular porosity 3745-52	No show
3752 - 55	Limestone, brown, dense, some oolitic	
3755 - 72	Shale, black to brown-black, carbonaceous; streaks fine gray, silty sand	
3772 - 78	Limestone, tan to brown, sub-crystalline to dense	

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<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3778 - 83	Shale, as above	
3783 - 88	Limestone, brown to chocolate brown, dense	Top Brown Lime 3783
3788 - 3801	Shale, gray, soft	
3801 - 07	Limestone, as above, lighter brown	
3807 - 11	Shale, gray	
3811 - 26	Limestone, gray to light tan, subcrystalline, fossiliferous; streaks dark gray shale	Top Lansing 3811
3826 - 29	Shale, gray to dark gray	
3829 - 40	Limestone, tan to brown, finely crystalline, fossiliferous; some white, opaque chert with brown oolites	
3840 - 47	Limestone, light gray, subcrystalline, fossiliferous; good spotted vugular porosity	Trace stain
3847 - 66	Limestone, gray to tan, fossiliferous, finely crystalline; streaks gray and gray-black shale	
3866 - 77	Limestone, white, chalky, oolitic; spotted vugular porosity	Spotted stain
3877 - 3911	Much gray to gray-black shale; streaks tan to brown, dense limestone	
3911 - 18	Limestone, tan, subcrystalline, oolitic, fair vugular porosity	Good dark black stain
3918 - 27	Limestone, brown, dense; chert, gray, opaque; streaks dark gray shale	
3927 - 36	Limestone, gray, finely crystalline; poor vugular porosity, chert, white to tan to gray, opaque	No show
3936 - 41	Shale, gray; streaks limestone	
3941 - 48	Limestone, gray, finely crystalline, chalky; spotted pinpoint porosity; much chert, as above	No show
3948 - 59	Limestone and shale streaks	
3959 - 64	Limestone, brown, sucrose, oolitic; good oolitic porosity	Some dark brown stain, some gilsonite
3964 - 91	Limestone, tan to cream, subcrystalline; some gray, opaque chert; streaks gray to olive shale	
3991 - 93	Limestone, dull brown, subcrystalline to dense; fair vugular and oolitic porosity	Slight to good stain
3993 - 4013	Limestone, tan to buff, subcrystalline, oolitic; brown shale near bottom	
4013 - 18	Limestone, gray, subcrystalline, oolitic; good oolitic porosity	No show
4018 - 27	Limestone, tan to gray, dense	

(3) Formation Log: H.L. Moore #2 Mowbray

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4027 - 31	Limestone, cream to buff, finely sucrose, oolitic; good oolitic porosity	Fair stain
4031 - 46	Limestone and gray-black shale	
4046 - 54	Limestone, gray to dark gray, mottled, oolitic, subcrystalline; good oolitic porosity	Fair to good spotted dark stain
4054 - 4125	Limestone, brown to buff, subcrystalline to dense; streaks soft, black, fissile shale	Base Kansas City 4125
4125 - 30	Shale, brown and gray	Top Marmaton 4125
4130 - 67	Much shale, as above; some olive shale with phosphate nodules; streaks gray-brown, resinous, fossiliferous limestone	
4167 - 4213	Limestone, gray, red and brown, subcrystalline; chert, amber to gray, translucent, vitreous, gray and brown, opaque; trace red, oolitic limestone; much gray, subcrystalline, silicified limestone; streak gray-green and brown shale 4184-86	
4213 - 34	Shale, gray, maroon and brown	
4234 - 38	Limestone and chert, as above; some red, jasperoid chert	
4238 - 44	Shale, as above	
4244 - 50	Limestone and chert, as above	
4250 - 56	Shale, as above	
4256 - 77	Chert, cream to white to buff, opaque, vitreous; some white, opaque, devitrified, chert; chert white, vuggy with slight show free oil	Top Mississippi 4256; slight show free oil, no odor; D.S.T.
4277 - 81	Shale, gray to silver-gray, micaceous; some maroon shale	Top Kinderhook 4277
4281 - 92	Limestone, brown to green, subcrystalline, shaly	
4292 - 4313	Chert; tan to cream to white to brown, opaque, vitreous; chert, white to tan, devitrified	No show
4313 - 19	Shale, gray to gray-green to pale green and maroon	
4319 - 27	Limestone, olive-brown, subcrystalline, resinous	
4327 - 31	Shale, as above	
4331 - 41	Limestone, as above, cherty	
4341 - 43	Shale, as above	
4343 - 63	Chert, white, opaque, vitreous to subvitreous; chert, white to cream, translucent, figured, some vuggy with slight show free oil	Top Viola 4343; slight show free oil, slight odor
4363 - 68	Limestone, white, subcrystalline to finely crystalline, chalky	
4368 - 82	Mostly chert, as above; some limestone, as above	Some gilsonite, no free oil
4382 - 99	Chert, as above; much gray, opaque chert; increase in limestone, as above, less chalky	

(4) Formation Log: H.L. Moore #2 Mowbray

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4399 - 4405	Limestone, white to dirty gray, dolomitic, finely sucrose, chalky; spotted vugular porosity	No show
4405 - 27	Limestone, white to tan, dolomitic, finely crystalline; much light tan, dense, limestone; some white, chalky, oolitic limestone; some white, chalky, sandy limestone near bottom	
4427 - 30	Shale, dull, gray-green, sandy	Top Simpson 4427
4430 - 36	Sand, white to light tan, sub-rounded, fairly well sorted	Slight show free oil, slight odor; D.S.T.
4436 - 40	Sand, as above, shaly	
4440 - 53	Sand, white to light tan, poorly sorted, angular to rounded, coarse to submedium	Fair odor, slight show free oil; D.S.T.
4453 - 59	Dolomite, dirty brown, sucrose, slightly sandy	
4459 - 63	Sand, as above, coarse, dolomitic, shaly	
4463 - 70	Sand, white, fine to medium-coarse, well to poorly sorted	Slight show free oil; D.S.T.
4470	Rotary Total Depth	

Drill Stem Test Data:

Mississippi:

- (1) 4253-82; Open 1 hour - fair blow throughout test.
Recovered 30' mud.
Bottom Hole Pressure: 85# (20 min.).

Simpson:

- (2) 4420-43; Open 1 hour and 45 minutes - weak intermittent blow for 15 minutes. Flushed tool at 15 minutes, good blow immediately after flushing, remained good throughout rest of test.
Recovered 2420' gas
150' heavily oil and gas cut mud.
Bottom Hole Pressure: 275# (30 min.) still building up rapidly.
Chart showed tool was plugged during first 15 minutes of test.
- (3) 4444-70; Open 1½ hrs. - weak blow for 15 minutes. Flushed tool at 15 minutes and had fair blow which decreased to weak intermittent blow at end of test.
Recovered 120' thin drilling fluid.
Bottom Hole Pressure: 1000# (30 min.).

Samples examined and log compiled by Willis Jack Magathan

Time Log

WENDELL S. JOHNS

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 Pratt County, Kansas
 Elevation: 1947 derrick floor

Note: All measurements are from the top of the rotary bushing which is 3' above the derrick floor.

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
3600 - 10	7-4-5-4-3-2-3-2-2-3	
20	3-4-3-2-2-3-3-4-3-5	
30	4-4-5-5-8-4-4-5-5-7	
40	8-6-4-5-8-8-6-4-5-5	
50	6-6-7-7-9-6-5-6-5-5	Top Heebner 3645
60	5-4-4-5-8-8-8-6-5-5	
70	5-6-4-4-5-4-5-5-6-5	
80	6-6-5-6-5-5-6-6-6-6	
90	7-7-7-5-5-5-5-6-5-6	Trip @ 3683
3690 - 3700	6-7-5-6-5-5-6-5-6-6	
3700 - 10	6-7-7-9-8-6-5-5-5-7	
20	6-6-6-5-4-4-4-4-3-4	
30	4-5-5-5-5-4-6-4-4-4	
40	8-5-5-4-9-10-6-5-6-4	
50	9-9-8-9-7-6-4-4-2-3	
60	3-4-8-8-8-4-6-4-6-8	
70	6-5-4-4-4-5-3-3-4-3	
80	4-8-10-7-5-7-8-4-4-4	
90	4-3-7-9-9-8-10-5-5-6	Top Brown Line 3783
3790 - 3800	5-5-5-5-5-5-4-4-4-4	
3800 - 10	3-6-7-8-9-8-6-5-4-5	
20	5-8-9-10-6-7-8-8-7-9	Top Lansing 3811
30	9-8-7-9-8-9-6-6-8-10	
40	5-4-8-10-7-7-6-8-9-7	
50	7-5-6-6-6-7-8-6-6-6	
60	10-10-11-10-10-14-14-7-4-4	Trip @ 3857
70	6-4-3-3-3-4-3-3-5-7	
80	5-5-5-7-9-7-8-10-10-8	
90	6-7-9-8-8-9-9-10-11-10	
3890 - 3900	10-9-10-9-7-7-10-10-10-9	
3900 - 10	12-14-10-8-8-7-5-3-3-5	
20	5-5-6-4-4-5-3-5-8-10	
30	12-14-9-10-10-12-8-5-4-5	
40	4-5-5-5-6-7-13-18-16-12	
50	11-11-7-8-9-14-19-19-20-20	
60	20-15-11-11-7-5-6-10-7-3	
70	2-3-2-2-5-13-14-14-9-12	
80	11-10-13-12-4-3-2-2-7-7	
90	6-10-10-13-12-12-12-13-12	
3990 - 4000	13-8-10-10-10-10-10-10-6-4	
4000 - 10	4-8-11-9-10-9-9-7-4-3	
20	3-2-2-2-2-2-3-3-4-6	
30	9-10-8-10-12-12-12-9-7-5	
40	3-4-8-12-12-10-11-6-4-4	
50	5-7-7-7-8-12-11-11-10-7	

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<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
4050 - 60	7-7-8-10-11-12-11-12-11-14	
70	14-14-12-11-13-14-14-12-11-12	
80	13-11-7-12-7-8-8-8-10-13	
90	13-14-15-11-13-10-9-10-13-16	
4090 - 4100	15-12-12-14-16-16-14-13-11-8	Trip @ 4093
4100 - 10	3-4-11-12-11-5-11-12-10-7	
20	9-9-8-8-6-7-7-7-6-7	
30	7-5-8-7-9-5-6-6-6-8	Base Kansas City 4125 Top Marmaton 4125
40	6-4-4-3-4-3-4-5-8-7	
50	5-5-10-9-8-8-10-8-8-8	
60	9-7-5-5-6-7-7-8-7-7	
70	10-10-9-9-10-7-8-8-8-13	
80	10-11-11-10-11-11-10-11-10-11	
90	10-11-8-10-13-10-6-6-5-7	
4190 - 4200	11-12-10-11-11-9-8-13-14-15	
4200 - 10	12-11-14-14-14-14-15-14-14-14	
20	16-14-12-12-12-12-15-12-12-11	Trip @ 4220
30	10-11-11-11-9-8-7-7-6-7	
40	10-10-10-10-12-12-11-12-5-7	
50	4-8-8-7-7-5-6-5-5-14	
60	12-13-14-12-10-9-8-7-6-5	Top Mississippi 4256
70	6-5-5-4-5-6-6-6-6-5	
80	5-7-6-7-8-6-8-15-13-14	Top Kinderhook 4277
90	15-18-6-10-12-10-10-12-13-12	Circ. 1 hr @ 4282; D.S.T. new bit @ 4282
4290 - 4300	14-9-4-3-4-4-4-4-5-4	
4300 - 10	4-5-4-5-6-6-4-4-7-6	
20	5-7-8-10-12-10-7-12-26-19	Circ. 1 hr @ 4320
30	30-15-17-11-13-13-13-13-13-8	Trip @ 4321
40	9-6-11-14-10-13-12-10-10-10	
50	14-14-13-10-5-3-3-4-5-4	Top Viola 4343
60	5-7-5-3-3-4-4-7-5-6	
70	5-5-7-15-17-19-24-20-11-10	Circ. 1 hr @ 4368 Trip 4368
80	14-9-14-9-11-8-8-8-7-10	
90	10-15-15-14-11-12-13-19-15-18	
4390 - 4400	16-14-13-14-7-9-10-15-12-9	Trip @ 4394
4400 - 10	11-12-10-14-15-13-11-16-14-12	
20	13-14-13-13-15-15-14-15-14-17	
30	15-14-15-15-14-13-11-8-8-8	Top Simpson 4427
40	11-18-17-19-20-10-4-3-3-4	
50	5-5-9-7-4-4-6-6-8-9	Circ. 1½ hrs @ 4443; D.S.T. new bit @ 4443
60	9-9-10-10-10-10-11-12-9-6	
70	9-7-6-4-8-10-10-5-8-27	Circ. 1½ hrs @ 4470; D.S.T. R.T.D. 4470

Time log condensed by Willis Jack Magathan