

WENDELL S. JOHNS

Buffalo Oil Company & Mine Drilling Company

#1 Mutual

SN/SN/NO; 24-153-208

Ellis County, Kansas

Elevation: 209 derrick floor

Note: All measurements are from the top of the rotary housing which is three feet above the derrick floor. Time log starts at 3030' corrected measurement, and log has been corrected for measurement correction 3100 = 3130

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
3030 - 40	6-5-4-5-4-3-3-4-3-3	
50	2-2-3-3-3-2-1-1-2-3	
60	3-2-2-2-3-3-2-2-3-2	
70	2-2-2-2-2-2-1-2-2-2	
80	2-2-2-3-4-3-3-2-2-2	
90	2-3-4-3-4-3-3-3-4-3	
90 - 1100	3-2-3-3-2-2-3-4-3-3	
1100 - 10	3-3-2-3-3-3-3-4-4-3	
20	4-4-3-3-4-4-3-3-3-3	
30	3-3-3-3-3-4-3-3-4-4	
40	3-4-2-3-2-2-2-2-3-2	Trip 3130
50	3-4-2-3-3-3-2-1-1-1	
60	1-2-2-4-4-3-2-2-5-1	
70	2-1-2-1-3-2-3-2-5-5	
80	3-1-3-1-2-1-2-1-1-1	
90	1-2-1-1-1-3-1-2-1-2	
90 - 3200	2-3-1-3-4-1-2-2-2-3	Top Tupaka 3193
3200 - 10	3-2-4-4-2-5-3-3-2-1	
20	2-2-2-4-4-3-4-4-4-4	
30	4-3-4-4-3-4-4-3-2-2	
40	2-2-3-3-4-4-4-3-4-2	
50	1-1-1-2-2-1-1-1-2-4	S.R. 3240-49
60	3-3-5-7-5-6-2-2-1-5	
70	1-4-3-5-3-5-6-5-4-4	
80	4-5-7-2-2-9-6-3-3-5	
90	5-5-4-3-4-6-2-7-7-4	
90 - 3300	4-5-3-3-3-4-4-4-5-5	
3300 - 10	3-3-2-2-2-3-3-3-2-2	
20	2-2-2-2-2-2-3-2-2-1	
30	2-1-2-1-5-3-3-3-5-7	
40	4-4-3-4-4-4-4-4-4-4	
50	6-7-7-10-10-9-9-7-5-4	Circ. 3350; 2 hrs.
60	4-2-1-1-1-2-5-6-7-5	Circ. 3358; 1 hr.
70	3-4-3-2-3-3-4-6-6-5	
80	4-5-6-6-6-5-4-4-4-4	
90	3-5-6-7-7-7-7-2-9-6	Trip 3390
90 - 3400	4-6-5-6-6-4-3-7-2-2	
3400 - 10	3-3-2-3-2-2-2-3-3-2	Circ. 3410; 1 hr.
20	4-5-5-3-4-5-2-3-2-3	
30	3-4-5-5-5-3-2-1-2-1	
40	2-2-2-2-2-3-2-3-1-2	
50	2-1-1-1-2-1-3-2-1-1	
60	2-1-1-2-2-2-3-2-1-1	S.R. 3453-54

(2) Time logs; Buffalo and also Drilling Co. #1 Mutual

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
3460 - 70	3-3-5-6-6-5-7-4-7-8	Circ. 3465; 1 hr.
80	6-6-6-7-4-9-6-4-6-5	Number 3476
90	4-10-9-8-8-6-6-6-5-6	
90 - 3500	6-6-6-6-4-5-5-7-5-6	Rough 3499 - 3500
3500 - 10	6-5-3-4-7-8-7-7-6-7	
20	7-5-7-7-6-5-6-6-5-4	
30	5-8-9-8-8-8-4-4-8-7	Landing 3521; Circ. 3530; 1 hr.
40	7-7-7-6-5-7-7-7-7-5	
50	7-7-7-5-5-5-5-5-6-7	
60	6-8-7-7-7-7-6-7-7-7	
70	7-7-8-7-7-6-6-8-8-8	
80	7-8-10-9-10-9-9-8-5-8	
90	7-6-7-5-6-8-10-10-5-4	
90 - 3600	4-6-8-9-5-5-3-3-3	Circ. 3594; 1 hr.; Circ. 3600; 1 hr.
3600 - 10	3-4-6-3-10-10-7-8-4-4	Circ. 3606; 1 hr. D.S.T. 3587-3606; New #7
20	4-4-4-4-4-3-4-4-3-4-5	
30	3-4-6-8-8-7-7-7-5-5	
40	6-6-6-7-4-7-7-8-6-6	
50	6-6-6-6-5-7-6-7-6-3	
60	7-7-6-8-6-6-4-4-5-4-4	
70	5-5-6-6-6-7-5-6-7-7	
80	8-6-8-6-8-8-8-5-4-5	
90	3-3-7-5-5-4-6-7-5-5	Circ. 3684; 1 hr.
90 - 3700	6-4-6-6-6-5-8-7-8-7	S.R. 3695-96
3700 - 10	5-4-4-4-5-8-8-8-6-7	S.R. 3700 - 01
20	5-8-6-8-8-8-8-8-8-8	
30	9-7-9-8-8-6-6-7-6-6	
40	6-6-7-6-8-10-6-8-9-11	
50	8-9-8-9-7-10-10-10-10-7	
60	4-3-5-5-4-4-3-5-7-9	Circ. 3760; 1 1/2 hr.
70	7-9-4-6-10-11-9-9-8-7	Base Kansas City 3766
80	8-7-6-6-6-7-7-6-6-6	
90	6-7-6-8-6-5-6-6-6-7	S.R. 3783-86
90 - 3800	6-7-7-5-6-8-8-9-8-6	
3800 - 10	6-6-6-7-5-6-6-7-7-7	Circ. 3810; 1 hr.
20	8-11-9-11-11-8-8-8-6-6	Trip 3812
30	5-5-4-4-5-10-11-11-10-11	Circ. 3824; 1 hr.
40	11-9-10-10-7-7-4-4-3-6	
50	11-10-10-11-10-7-11-11-12-12	Circ. 3860; 1 hr.
60	10-11-10-9-10-6-11-11-14-13	Circ. 3843; 1 hr. D.S.T. 3842-3860; New #7A
70	9-12-12-13-11-12-9-10-10-12	
80	12-11-13-12-13-11-12-11-12-13	
90	14-12-13-14-14-14-12-15-16-16	
90 - 3900	17-13-13-16-14-10-13-8-9-8	
3900 - 10	10-7-8-6-5-4-4-4-3-4	Top Conglomerate 3901; Circ. 3908; 1 hr.
20	5-4-5-4-7-9-10-4-9-15	Top Beagen 3917
30	36-10-7-10-6-10-12-12-7-3	Circ. 3921; 1 hr; Trip 3921
40	4-4-8-17-12-9-14-25-12-11	Trip 3938
50	14-15-14-17-22-27-17-23-42-14	Circ. 3949 1 hr; Trip 3949
60	10-14-14-9-19-24-26-15-19-19	

(2) Time log; Buffalo & Mine Drilling Co. #1 Mutual

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
3960 - 70	33-19-16-19-37-14-11-17-18-8	Rough 3966-67; Trip 3965
80	6-13-14-10-12-4-4-9-5	
90	14-7-3-6-4-4-5-5-13-16	Top Granite Wash 3968; Circ. 3968; 2 hrs.
90 - 4000	14-11-7-5-8-7-7-5-5-7	
4000 - 10	7-6-6-8-8-9-8-7-7-9	Top Granite 4010; Circ. 4010 2hrs. D.S.T. 3975 - 4010; Sew #7A
20	5-5-4-7-8-10-11-6-8-6	S.M. 4011-12
30	6-9-11-10-12-12-15-15-15-11	
40	8-5-5-8-12-12-10-11-11-12	
50	9-12-11-15-11-11-14-13-10-10	Rough 4041-42
55	10-8-9-8-8	Circ. 4055 2 hrs.
	Total depth	
	Man Schlumberger	
	D & A 4/21/51	

(Log condensed by Kendall S. Johns)

FORMATION LOG

W ENDELL S. COHEN

Buffalo Oil Company & Rine Drilling Co.
 #1 Mutual
 SW/SW/NW; 28-15S-20W
 Ellis County, Kansas
 Elevation: 2189 derrick floor

12 1/2" surface casing 197' - 175 sacks

Comm.: 3-27-51
 Comp.: 4-11-51

Note: All measurements are from the rotary bushing which is three feet above the derrick floor. The log has been corrected below 3000' for measurement correction 3100 - 3130.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
0 - 320	Shale	Drillers log 0 - 3030
320 - 460	Sand	
460 - 890	Shale and shells	
890 - 990	Sand	
990 - 1440	Shale and Shells	
1440 - 1480	Anhydrite	Stone Corral
1480 - 2330	Shale and shells	
2330 - 2380	Shale	
2380 - 2570	Limestone	
2570 - 2705	Limestone and shale	
2705 - 2815	Limestone	
2815 - 3030	Shale and shells	
3030 - 3146	Mostly limestone, gray to tan, dense to sub-crystalline; shale streaks.	Sample log 3030 to T.D.
3146 - 3193	Mostly sand, fine, semi-glassy, angular, gray to white	
3193 - 3240	Limestone, tan to light brown, dense some mottled limestone; streaks gray shale.	Topeka
3240 - 3249	Limestone, brown, dolomitic, sucrose, finely oolitic	Good porosity, no show
3249 - 3279	Limestone, gray, dense to sub-crystalline; chert, tan to gray; gray shale streaks.	
3279 - 3285	Limestone, as above	Trace vugular & oolitic porosity.
3285 - 3300	Limestone, as above; some chert, gray, opaque, mottled.	
3300 - 3318	Limestone, gray-brown, granular to finely crystalline; much chert, gray, opaque, non vitreous.	Possibly some porosity,
3318 - 3351	Limestone, gray to brown, finely crystalline; streak gray to black shale.	
3351 - 3356	Limestone, tan-gray sucrose, finely oolitic and oolitic.	Porous, no show
3356 - 3366	Limestone, gray to tan, dense	Possible porous streaks
3366 - 3399	Limestone, tan, sub-crystalline to dense; much chert, gray to blue-gray, opaque, figured; streaks gray shale.	
3399 - 3410	Limestone, tan to gray finely crystalline, some oolitic, very little porosity.	

(2) Formation log; Buffalo Oil & Mine Drilling #1 Mutual

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3410 - 3426	Limestone gray to brown, dense, streaks gray shale.	
3426 - 3460	Limestone light tan sub-crystalline, to dense, good porosity, vugular, pin-point and inter-crystalline, many fossils, possibly some oolites, some chert, opaque, light to dark gray	No show
3460 - 3476	Limestone, light tan, sub-crystalline some chert, gray, opaque, mottled	
3476 - 3479	Shale, black, soft	Heebner
3479 - 3485	Limestone, gray dense, possibly some chert	Leavenworth
3485 - 3497	Shale, green and gray, some fine gray micaceous sand	Snyderville
3497 - 3507	Limestone, white to light gray, sub-crystalline to finely crystalline, trace chert.	Toronto
3507 - 3509	Shale, gray	
3509 - 3514	Limestone, as above	Base Oread
3514 - 3521	Shale, gray and brown	Douglas
3521 - 3526	Limestone, tan to brown, finely crystalline, chert, gray, opaque spicular	Lansing
3526 - 3528	Shale, gray	
3528 - 3541	Limestone, as above, less chert	
3541 - 3546	Some shale, green, with limestone streak.	
3546 - 3562	Limestone, brown, finely crystalline, trace white to gray opaque chert	
3562 - 3565	Shale, gray	
3565 - 3570	Limestone, as above, possible trace porosity	
3570 - 3572	Shale, gray	
3572 - 3581	Limestone and chert, as above	
3581 - 3584	Shale, gray-green	
3584 - 3588	Limestone, gray sub-crystalline	
3588 - 3591	Limestone, as above; slight vugular porosity	Trace dead stain - no odor
3591 - 3595	Limestone, as above, no porosity	
3595 - 3601	Limestone, tan, finely crystalline, fair vugular porosity	Spotted dead stain; Possible trace live oil - no odor.
3601 - 3610	Limestone, white, sub-crystalline, streaks of gray-green shale, much chert, light gray opaque	
3610 - 3619	Limestone, as above, slightly oolitic; some vugular porosity	Spotted dead stain - no odor
3619 - 3647	Limestone, as above, some oolites, no porosity.	
3647 - 3655	Shale, gray with limestone streaks	
3655 - 3677	Limestone, tan to gray, dense; some oolites and chert; some gray shale streaks. Some porosity 3655 - 60	No show
3677 - 3682	Shale, dark gray to black	

(3) Formation log; Buffalo Oil & Mine Drilling #1 Mutual

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3682 - 3699	Limestone, cream to tan; dense to finely crystalline, trace oolites and chert.	
3699 - 3705	Shale, green and maroon	
3705 - 3713	Limestone, tan to brown; dense, very oolitic and oolitic; fair porosity.	No show
3713 - 3723	Limestone, tan, dense, oolitic	
3723 - 3728	Shale, gray and brown	
3728 - 3749	Limestone, gray to tan, dense some porosity, 3730-32 & 3736-38	No show
3749 - 3756	Shale, green and brown	
3756 - 3766	Limestone, as above; oolitic and oolitic, streaks of porosity	No show
3766 - 3798	Shale, green and brown, with streaks limestone, some red limestone	Base Kansas City Marmaton
3798 - 3807	Shale, as above, some white to gray chert, opaque spicular	
3807 - 3815	Limestone, gray sub-crystalline trace gray chert, much red limestone	
3815 - 3825	Shale, as above, some chert	
3825 - 3834	Limestone, as above	
3834 - 3839	Shale, as above	
3839 - 3850	Limestone, white to tan, finely crystalline to sub-crystalline, some light gray chert, opaque to translucent	
3850 - 3855	Limestone, as above, pin-point and vugular porosity.	Fair show live oil - no odor
3855 - 3856	Shale, gray	
3856 - 3882	Limestone, as above, with much chert, white, salmon pink, opaque to translucent spicular, mottled.	Not Conglomerate
3882 - 3895	Limestone and chert, as above, streaks green and brown shale.	
3895 - 3901	Shale, green and brown	
3901 - 3917	Shale, green and brown, gray fine siltstone, trace red jasperoid chert, trace gray rounded sand	Conglomerate
3917 - 3975	Sand, gray to white; fine to coarse, rounded to sub-angular	Reagan - spotted stain in top 10'
3975 - 3988	Shale, smoky brown, dense, some schistose shale	Cambrian
3988 - 4010	White quartzite, schistose shale and quartzite, some weathered granite in bottom part	Granite Wash
4010 - 4055	Granite, red and white, fairly coarsely crystalline	Solid granite
4055	Total depth D & A	

Drill Stem Tests:

- (1) 3587 - 3606; Open 1 hour - Recovered 60' salt water
B.H.P. 875#
- (2) 3841 - 3860; Open 20 minutes - Recovered 10' mud; very slight trace free oil. B.H.P. - 0
- (3) 3974 - 4010; Open 30 minutes - Recovered 1080' saltwater. B.H.P. 1170

(samples examined and log compiled by Wendell S. Johns)