

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 32

Summary of the Carter Oil Co. - North Dakota State #1 Wells County, North Dakota

By Morton Strassberg
December, 1953

Carter Oil Company - North Dakota State No. 1, Wells County, North Dakota, NE 1/4 SE 1/4 Section 16, T. 143N., R. 71W. (1780 feet from S. line, 660 feet from E. line) Elevation G.L. 1877, K.B. 1889.

The Carter Oil Company - North Dakota State No. 1 was spudded November 28, 1952 and 10 3/4 inch casing was set at 272 feet K.B. with 250 sacks cement.

The drilling was completed January 19, 1953 and the well abandoned. Total Depth 5154 feet. Cement plugs were set at the following places:

5008-4938 with 35 sacks	2470-2420 with 25 sacks
4131-4061 with 35 sacks	2318-2268 with 25 sacks
3680-3630 with 25 sacks	273- 243 with 20 sacks
3060-2960 with 50 sacks	10- 0 with 5 sacks

CORES

#1 1321-1332	#5 2824-2880
#2 2711-2754	#6 3446-3456
#3 2754-2771	#7 4735-4745
#4 2771-2824	#8 5010-5065

TESTS

DST #1 Misrun, 105 feet of fluid above tool, did not open.

DST#1 Second run - tool open at 1:03 P.M., 1-9-53, open 1 1/2 hours. Weak blow for 6 minutes, died - received 40 feet drilling mud, no shows. IFP - 0#, FFP - 0 #, 30 minutes SIP - 0#, Hydro - 2700#.

Tops

Formation tops were determined from samples, cores, electric log and microlog, not all lithologic formation tops called in following list. Colors were determined from rock color chart.

Cretaceous System	<u>Depth</u>
Niobrara Formation	1160
Greenhorn Formation	1764
Dakota	2318
Jurassic System	
Morrison Formation	2559
Sundance Formation	2650
Piper Formation	2785

Mississippian System	
Charles Formation	2880
Mission Canyon Formation	3000
Lodgepole Formation	3250
Englewood Formation	3620
Devonian System	
Lyleton Formation	3650
Nisku Formation	3682
Duperow Formation	3710
Souris River Formation	3840
Dawson Bay Formation	3925
Ashern Formation	3950
Silurian System	
Interlake Group	4010
Ordovician System	
Upper Stony Mountain	4065
Lower Stony Mountain	4130
Red River Formation	4231
Winnipeg Formation	4825
Pre-Cambrian	5135
Total Depth	5154

<u>From</u>	<u>To</u>	<u>Formation</u>
276	290	Limestone, very light gray, silty.
290	330	Shale, medium gray.
330	350	Shale, medium light to medium gray.
350	360	Shale, medium gray.
360	370	Shale, medium light to medium gray.
370	380	Shale, medium light gray.
380	390	Shale, medium to medium dark gray.
390	400	Shale, medium light to medium dark gray.
400	420	Shale, medium light to medium gray.
420	440	Shale, medium light gray.
440	460	Shale, medium light to medium gray.
460	480	Shale, medium light gray.
480	510	Shale, medium light to medium gray.
510	530	Shale, medium light to medium dark gray.
530	540	Shale, medium light to medium gray.
540	570	Shale, medium to medium dark gray.
570	580	Shale, medium to medium dark gray.
580	620	Shale, medium light to medium gray.
620	640	Shale, medium light to medium dark gray.
640	690	Shale, medium light to medium gray.
690	710	Shale, medium light to medium dark gray.
710	740	Shale, medium light to medium gray.
740	750	Shale, medium light gray.
750	780	Shale, medium light to medium gray.
780	790	Shale, medium light gray.
790	800	Shale, medium light to medium gray.
800	820	Shale, medium light gray.
820	830	Shale, medium light to medium dark gray.
830	840	Shale, medium light to medium gray.
840	850	Shale, medium light to medium dark gray.

<u>From</u>	<u>To</u>	<u>Formation</u>
850	880	Shale, medium light to medium gray.
880	890	Shale, medium light gray.
890	900	Shale, medium light to medium gray.
900	930	Shale, medium light gray.
930	940	Shale, medium light to medium gray.
940	960	Shale, medium light gray.
960	980	Shale, medium light to medium gray.
980	1000	Shale, medium light gray.
1000	1040	Shale, medium light to medium gray.
1040	1050	Shale medium light gray, bentonitic.
1050	1060	Shale, medium light gray.
1060	1070	Shale, medium light gray, bentonitic, inoceramus prisms.
1070	1090	Shale, medium light gray, bentonitic.
1090	1150	Shale, medium light gray.
1150	1170	Shale, medium light gray, bentonitic.
Niobrara	1160	
1170	1190	Shale, medium light gray.
1200	1220	Shale, medium light to medium dark gray, white specks.
1220	1240	Shale, medium light to medium dark gray, white specks.
1240	1250	Shale, medium dark to dark gray, white specks.
1250	1280	Shale, medium to medium dark gray, bentonitic, white specks.
1280	1290	Shale, medium to medium dark gray, bentonitic.
1290	1300	Shale, medium dark gray, bentonitic.
1300	1310	Shale, medium dark to dark gray, bentonitic.
1310	1321	Shale, medium light to medium dark gray.
1321	1332	Shale, medium gray, calcareous.
1332	1360	Shale, medium light to medium gray, bentonitic, calcareous.
1360	1370	Shale, medium light to medium gray, calcareous.
1370	1380	Shale, medium light to medium gray, calcareous. Little pinkish gray dolomite.
1380	1410	Shale, medium light to medium gray, bentonitic, calcareous.
1410	1420	Shale, medium light to medium gray, calcareous, white specks.
1420	1430	Shale, medium dark gray, calcareous, white specks.
1430	1440	Shale, medium light to medium dark gray, calcareous.
1440	1460	Shale, medium to medium dark gray, calcareous, white specks.
1460	1470	Shale, medium to medium dark gray, calcareous, white specks.
1470	1480	Shale, medium light to medium gray, calcareous.
1480	1490	Shale, medium to medium dark gray, calcareous, white specks.
1490	1500	Shale, medium light to medium gray, calcareous, white specks.
1500	1520	Shale as above, pyrite.
1520	1540	Shale, medium to medium dark gray, calcareous.
1540	1560	Shale, medium gray, calcareous.
1560	1570	Shale, medium gray, slightly calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
1570	1610	Shale, medium light to medium gray, calcareous.
1610	1710	Shale, medium light to medium gray.
1710	1740	Shale, medium gray.
1740	1750	Shale, medium to medium dark gray.
1750	1760	Shale, medium to medium dark gray, calcareous.
Greenhorn 1764		
1760	1770	Shale, medium gray, calcareous, inoceramus prisms.
1770	1780	Shale as above, white specks.
1780	1790	Shale, medium gray, calcareous, white specks.
1790	1810	Shale, medium light to medium gray, calcareous, white specks.
1810	1840	Shale, medium light to medium dark gray, calcareous, white specks.
1840	1870	Limestone, very light gray. Medium gray calcareous shale.
1870	1880	Shale, medium to medium dark gray, calcareous.
1880	1890	Shale, medium gray, calcareous.
1890	1900	Shale, medium dark gray, calcareous.
1900	1910	Shale, medium gray, calcareous.
1910	1930	Shale, medium gray, calcareous, white specks.
1930	1940	Shale, medium to medium, dark gray, calcareous, white specks.
1940	1960	Shale, medium light to medium dark gray, calcareous, bentonitic.
1960	1970	Shale, medium to medium dark gray, calcareous.
1970	1980	Shale, medium to medium dark gray, calcareous, bentonitic.
1980	1990	Shale, medium dark gray, calcareous.
1990	2010	Shale as above, inoceramus prisms.
2010	2030	Shale, medium to medium dark, gray, calcareous.
2030	2040	Shale, medium dark to dark gray.
2040	2050	Shale, medium to medium dark gray.
2050	2060	Shale, medium gray.
2060	2070	Shale, medium dark gray.
2070	2080	Shale, medium to medium dark gray.
2080	2090	Shale, medium gray.
2090	2100	Shale, medium to medium dark gray, bentonitic.
2100	2110	Shale, medium to medium dark gray, calcareous.
2110	2130	Shale, medium to medium dark gray.
2130	2140	Shale, medium to medium dark gray, calcareous.
2140	2150	Shale, medium to medium dark gray.
2150	2160	Shale, medium gray.
2160	2170	Shale, medium to medium dark gray.
2170	2190	Shale, medium gray.
2190	2200	Shale, medium gray.
2200	2210	Shale, medium gray, slightly calcareous.
2210	2230	Shale, medium gray.
2230	2240	Shale, medium gray, slightly bentonitic.
2240	2250	Shale, medium to medium dark gray, inoceramus prisms.
2250	2260	Shale, medium to medium dark gray.
2260	2270	Shale, medium gray.
2270	2300	Shale, medium to medium dark gray.

<u>From</u>	<u>To</u>	<u>Formation</u>
2300	2310	Shale, medium light to medium gray, calcareous.
2310	2330	Shale, medium to medium dark gray. Free fine to medium, subangular, frosted quartz.
Dakota 2318		
2330	2340	Shale, medium to medium dark gray. Very fine grained sandstone.
2340	2350	Shale as above, more sandstone.
2350	2360	Shale, medium to medium dark gray, white micaceous limestone.
2360	2380	Sandstone, very fine grained, calcareous.
2380	2390	Siltstone, light to medium gray, calcareous, medium gray shale.
2390	2410	Shale, medium to medium dark gray. Bentonite, light gray, carbonaceous, silty.
2410	2440	Shale, medium gray, bentonitic, silty, calcareous. Few iron stained siltstone concretions.
2440	2450	Shale, pale red to medium gray, calcareous, silty, bentonitic.
2450	2460	Shale, medium gray, light gray arenaceous limestone.
2460	2470	Shale, pale reddish brown, calcareous, arenaceous.
2470	2480	Sandstone, fine grained, calcareous, slightly iron stained. Medium dark gray shale.
2480	2490	Shale, medium to medium dark gray, arenaceous, calcareous.
2490	2500	Sandstone, very fine grained, calcareous and fine to medium grained frosted, subangular free quartz. Medium dark gray shale.
2500	2510	Shale, medium to medium dark gray. Free fine to medium, subangular, frosted quartz.
2510	2530	Sandstone, fine to medium, frosted to iron stained, subrounded to subangular. Medium dark gray shale.
2530	2540	Sandstone, fine to coarse grained, subangular to subrounded frosted to iron stained. Medium light to medium dark gray shale.
2540	2560	Sandstone, fine to medium grained, subrounded, frosted to iron stained. Pale reddish brown to medium gray shale.
Morrison 2559		
2560	2570	Siltstone, light gray, calcareous. Fine to medium free quartz, frosted, subangular.
2570	2590	Shale, medium light to medium dark gray. Light gray siltstone and fine to medium grained free quartz.
2590	2600	Shale, light to medium light gray, calcareous, silty.
2600	2620	Shale, light gray, silty calcareous and medium dark gray.
2620	2630	Shale, light to medium light gray, calcareous, silty.
2630	2640	Shale, dark gray and light gray calcareous.
2640	2650	Shale, medium dark to dark gray. Free fine to medium subrounded to subangular, frosted quartz.
Sundance 2650		
2650	2660	Shale, medium dark gray. Sandstone very fine to medium grained, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
2660	2670	Shale, medium dark gray, white arenaceous limestone.
2680	2690	Shale, medium to medium dark gray, white arenaceous limestone.
2690	2700	Shale, medium to medium dark gray.
2700	2710	Shale, medium dark gray. Little white arenaceous limestone.
2711	2714	Shale, pale green and moderate brown laminated, calcareous.
2714	2717	Shale, moderate brown and light gray, variegated.
2717	2720	Shale, pale brown, calcareous.
2720	2723	Shale, variegated, pale brown and light greenish gray, calcareous.
2723	2726	Shale, greenish gray and yellow gray laminated variegated and pale brown, calcareous.
2726	2729	Shale, pale brown, calcareous.
2729	2732	Shale, variegated, pale brown and light olive gray, calcareous.
2732	2735	Shale, pale brown, calcareous.
2735	2738	Shale, very light gray, silty, calcareous.
2738	2744	Shale, pale brown, calcareous.
2744	2749	Shale, light brownish gray, calcareous.
2749	2757	Shale, variegated light greenish gray and pale brown, calcareous.
2757	2760	Shale, variegated greenish gray and pale yellowish brown, calcareous.
2760	2763	Shale, variegated greenish gray and pale brown, calcareous.
2763	2771	Shale, variegated, light greenish gray and pale brown, calcareous.
2771	2774	Shale, variegated pale brown, light greenish gray, and grayish orange.
2774	2777	Shale, variegated, very light gray and grayish orange, calcareous.
2777	2783	Shale, pale yellowish brown, calcareous.
2783	2786	Shale, pale yellowish brown with light brown mottlings, calcareous.
2786	2792	Limestone, light olive gray, sublithographic.
2792	2795	Limestone, white, micro sucrosic, dense.
2795	2804	Limestone, yellowish gray, fine grained, dense.
2804	2810	Limestone, yellowish gray, sublithographic.
2810	2814	Limestone, yellowish gray, sublithographic, thin partings of medium gray calcareous shale.
2814	2818	Limestone, yellowish gray, sublithographic.
2818	2824	Shale, medium light to light brownish gray, calcareous.
2824	2827	Shale, greenish gray to pale red, very calcareous.
2827	2830	Shale, pale brown to grayish red.
2830	2833	Shale, pale brown.
2833	2836	Limestone, very light gray, fine grained, pinpoint porosity, and medium light to medium gray, fine grained.
2836	2839	Shale, light olive to greenish gray, dolomitic.
2839	2842	Shale, pale brown.
2842	2845	Shale, light brownish gray, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
2845	2848	Limestone, white, chalky.
2848	2854	Dolomite, white, very fine grained, dense.
2854	2860	Limestone, light gray, sublithographic.
2860	2863	Limestone, white, sublithographic.
2863	2865	Limestone, very light gray, sublithographic.
2865	2867	Limestone, white, sublithographic.
2867	2870	Limestone, very fine grained, dense.
2870	2873	Limestone, white, fine grained, dense, chalky, light brownish gray shale. White to light brownish gray anhydrite.
2873	2876	Limestone, white, fine grained, chalky. Pale red and green gray, calcareous shale.
2876	2879	Dolomite, grayish pink, fine grained dense.
Charles	2880	
Piper	2785	
2880	2920	Anhydrite, white, finely sucrosic. Reddish brown calcareous shale.
2920	2930	Shale, pale reddish brown, slightly calcareous.
2930	2940	Shale, pale reddish brown, calcareous, little white anhydrite.
2940	2950	Sandstone, fine grained, rounded, frosted, to iron stained. Pale reddish brown shale.
2950	2960	Shale, medium to medium dark gray and pale reddish brown.
2960	2970	Limestone, very light gray to grayish pink, fine grained. Medium dark and pale reddish gray shale.
2970	2990	Limestone, very light gray, fine grained to grayish red, argillaceous.
2990	3000	Limestone, pale reddish brown to grayish red, fine grained, argillaceous.
Mission	Canyon	3000
3000	3010	Limestone, pale reddish brown, fine grained, argillaceous.
3010	3030	Limestone, pale red and reddish brown, fine grained, argillaceous, medium dark gray shale.
3030	3070	Limestone, very light to pinkish gray, fine grained. Medium gray shale.
3070	3080	Limestone, white to very light gray, fine grained, dense.
3080	3130	Limestone, white, oolitic, intergranular porosity.
3130	3160	Limestone, pinkish gray, fragmental, tightly cemented.
3160	3190	Limestone, pinkish gray, fragmental to oolitic, little porosity.
3190	3200	Limestone, very light gray dense and fragmental to oolitic.
3200	3210	Limestone, very light gray, fragmental to oolitic, some intergranular porosity.
3210	3240	Limestone, very light to pinkish gray, fragmental to oolitic, well cemented.
3240	3250	Shale, medium to medium dark gray, light gray oolitic to fragmental limestone.

<u>From</u>	<u>To</u>	<u>Formation</u>
Lodgepole 3250		
3250	3260	Limestone, light gray, fragmental, tightly cemented.
3260	3280	Limestone, very light to light gray, fragmental to oolitic, little intergranular porosity.
3290	3300	Limestone, light gray, fragmental, well cemented.
3300	3320	Limestone, very light to light gray, fragmental, tightly cemented.
3320	3370	Limestone, very light to light gray, fragmental to fine grain.
3370	3380	Limestone, very light gray, fine grained.
3380	3390	Limestone, very light to light gray, fragmental, well cemented.
3390	3400	Limestone, very light to light gray, fragmental to oolitic, well cemented.
3400	3420	Limestone, light gray, fine grained dense to fragmental.
3420	3440	Limestone, very light to light gray, fragmental, some intergranular porosity.
3440	3460	Limestone, very light to light gray fragmental to oolitic, some intergranular porosity.
3460	3470	Limestone, very light to light gray, oolitic to fragmental, intergranular porosity.
3480	3490	Limestone, very light gray, oolitic to fragmental, little intergranular porosity.
3490	3500	Shale, medium to medium dark gray, little light gray limestone.
3500	3540	Limestone, white to very light gray, oolitic to fragmental, intergranular porosity.
3540	3550	Limestone as above, medium gray shale.
3550	3560	Limestone, white to very light gray, oolitic to fragmental, chalky, medium gray shale.
3560	3590	Limestone, white, fine grained to micro sucrosic, chalky.
3590	3600	Limestone, white to very light gray and medium gray, fine grained.
3600	3620	Limestone, light gray, fragmental to finely granular, pinpoint porosity, medium to medium dark gray shale.
Bakken 3620		
3620	3660	Shale, medium to medium dark gray.
Lyleton 3650		
3660	3680	Limestone, pale red, fine grained, dense, tight. Medium to medium dark gray shale.
Nisku 3682		
3680	3690	Limestone, pale red to light gray, fine grained to micro sucrosic.
3690	3700	Limestone, pale red to grayish pink, fine grained to micro sucrosic, dolomitic, pinpoint porosity.
3700	3710	Dolomite, grayish orange pink, micro sucrosic, pinpoint porosity.

Duperow	3710	
3710	3730	Dolomite, grayish orange pink to pale red, micro sucrosic, pinpoint porosity.
3730	3740	Dolomite, pale red to yellow gray, micro sucrosic and pale red micro sucrosic, intergranular to tubular porosity.
3740	3760	Dolomite, pale red to light olive gray, fine grained, good intergranular porosity.
3760	3780	Dolomite, pale red to light brownish gray, very finely sucrosic, pinpoint porosity.
3780	3790	Dolomite, light to light brownish gray, fine grained, dense. Light gray fine grained limestone.
3790	3800	Limestone, light to medium light gray, fine grained dense.
3800	3810	Limestone, very light to light gray, fine grained, dense.
3810	3820	Limestone, light to very light gray, fine grained, arenaceous.
3820	3830	Dolomite, light gray, fine grained to micro sucrosic, slight intergranular porosity. Slight oil stain.
3830	3840	Dolomite, light to medium light gray, micro sucrosic, pinpoint porosity.
Souris River	3840	
3840	3870	Dolomite, light gray, very fine grained, dense.
3870	3890	Dolomite, light gray, fine grained, dense, calcareous.
3890	3900	Shale, medium dark gray, light gray, fine grained dense dolomite.
3900	3910	Limestone, light gray, fine grained, dense.
3910	3920	Limestone, very light to light gray, fine grained dense.
Dawson Bay	3925	
3920	3940	Dolomite, very light to pale red pinpoint to intergranular porosity.
3940	3950	Dolomite, grayish orange pink.
Ashern	3950	
3950	3960	Dolomite, same as above.
3970	3900	Dolomite, very light gray to pale red, sublithographic. Grayish red dolimitic shale.
3980	3990	Dolomite, yellowish gray to pale red, sublithographic. Much aragonitic shell fragments.
3990	4000	Dolomite, grayish orange pink, fine grained dense.
4000	4010	Dolomite, very light gray, fine grained, dense.
Interlake	4010	
4010	4030	Dolomite, same as above.
4030	4050	Dolomite, grayish orange pink to very light gray, very fine grained, pinpoint porosity.
4050	4070	Dolomite, very light to pinkish gray, fine grained, dense.

<u>From</u>	<u>To</u>	<u>Formation</u>
Upper Stony Mtn. 4065		
4070	4080	Dolomite, pinkish gray to pale red, fine grained, dense. Medium dark gray shale.
4080	4090	Dolomite, very light to yellowish gray, fine grained, pinpoint porosity.
4090	4130	Dolomite, yellowish to pinkish gray, fine grained, dense.
Lower Stony Mt. 4130		
4130	4150	Shale, medium dark gray. Pinkish gray, fine grained dolomite.
4150	4160	Shale, medium to medium dark gray. Light gray fine grained, dense limestone.
4160	4170	Limestone, light to medium light gray, fine grained to fragmental. Medium dark gray shale.
4170	4180	Shale, medium to medium dark gray.
4180	4210	Shale, greenish gray calcareous.
4210	4230	Limestone, very light gray, fine grained, dense. Greenish gray shale.
Red River 4231		
4230	4240	Limestone, white to very light gray, fine grained, dense.
4240	4250	Limestone, very light to light gray, fine grained, dense.
4250	4290	Limestone, white to very light gray, fine grained, dense.
4290	4320	Limestone, very light to yellowish gray, fine grained, dense.
4320	4350	Limestone, very light to light gray, fine grained, pinpoint porosity.
4350	4400	Limestone, white to very light gray, fine grained, dense.
4400	4440	Limestone, white to very light gray, fine grained, dense, chalky.
4440	4450	Shale, medium to medium dark gray. Very light gray to pale red, fine grained limestone.
4450	4460	Limestone, very light to medium gray, fine grained, dense.
4460	4470	Limestone, very light fine grained, dense to medium light gray fine grained, pinpoint porosity. Medium dark gray shale.
4470	4500	Limestone, light gray to pale red, fine grained, dense, some pinpoint porosity.
4500	4510	Limestone, light to pinkish gray, fine grained. Medium to medium dark gray shale.
4510	4520	Limestone, very light to medium light gray, fine to medium grained. Medium gray shale.
4520	4540	Limestone, very light to light gray. Medium gray shale.
4540	4550	Shale, medium gray. Very light to light gray fine grained to micro sucrosic limestone.
4550	4560	Limestone, very light to light gray, fine grained, pinpoint porosity.
4560	4580	Limestone, very light to light gray, micro sucrosic, pinpoint porosity.
4580	4590	Limestone, very light to light gray, fine grained to micro sucrosic, pinpoint porosity. Medium gray shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
4590	4600	Limestone, very light to light gray, finely granular, intergranular porosity.
4600	4660	Limestone, white to very light gray, finely granular, chalky.
4660	4670	Limestone, very light to light gray, fine grained, dense to finely granular. Medium to medium dark gray shale.
4670	4690	Limestone, very light gray fine grained, dense.
4690	4710	Limestone, very light to light gray, fragmental, well cemented.
4710	4735	Limestone, very light to light gray, fine grained to fragmental, well cemented.
4735	4745	Limestone, light gray, fine grained, tight. Sand black carbonaceous shale, streaks.
4745	4760	Limestone, very light to light gray, fine grained, dense. Greenish to dark gray shale streaks.
4760	4780	Limestone, very light to light gray, fine to medium grained, tight.
4780	4800	Limestone, very light to light gray, fine grained, dense. Little fine to medium grained, subrounded, frosted quartz.
4800	4810	Limestone, white to very light gray fine grained, dense. Medium gray shale.
4810	4820	Shale, greenish gray to medium gray.
Winnipeg	4825	