

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 43

Summary of the Pure Oil Company J. M. Carr #1
Well #403, Permit #419

By Morton Strassberg

March 1954

Pure Oil Company--J. M. Carr No. 1, Foster County, North Dakota; C NE NE Section 15, T. 146 N., R. 66 W. (660 feet from N. line, 660 feet from E. line). Elevation G.L. 1537, K.B. 1547.

The Pure Oil Company--J. M. Carr No. 1 was spudded August 19, 1953 and 10 3/4 inch casing was set at 378 feet with 270 sacks of cement.

The drilling was completed September 11, 1953 and the well abandoned. Total depth 3567 feet. Cement plugs were set at the following depths.

2837-2797 with 15 sacks	1677-1637 with 15 sacks
2434-2394 with 15 sacks	408-348 with 30 sacks
1928-1888 with 15 sacks	20-surface with 10 sacks

CORES

#1 2054-2064
#2 2390-2419
#3 2419-2439
#4 2825-2843
#5 2883-2903

TOPS

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

FORMATION TOPS

Cretaceous System	
Niobrara Formation	680
Greenhorn Formation	1186
"Muddy"	1525
Dakota	1678
Jurassic System	
Morrison Formation	1880?
Piper Formation	1925
Triassic System	
"Red Beds" (Spearfish)?	2000
Mississippian System	
Lodgepole Formation	2059
Englewood Formation	2363

Devonian System	2424
Silurian System	
Interlake Group	2497
Ordovician System	
Stony Mountain	2682
Lower Stony Mountain	2727
Red River Formation	2829
Winnipeg Formation	3374
Pre Cambrian	3556
Total Depth	3567

The Red Beds lying immediately below the Piper Lime are listed as being questionable Spearfish, however they may be lower Jurassic, or may possibly be Mississippian in age.

<u>From</u>	<u>To</u>	<u>Formation</u>
0	40	Sandstone, very fine to fine grained, frosted to clear, subangular.
40	60	Sandstone, very fine to fine grained, calcareous, argillaceous.
60	80	Sandstone, very fine to fine grained, frosted to clear, subangular.
80	140	Sandstone, fine to medium grained, subrounded, frosted.
140	260	Sandstone, fine to coarse grained, subrounded to subangular.
260	280	Missing Sample.
280	340	Sandstone, very fine to coarse grained, subrounded to subangular, frosted to clear.
340	380	Sandstone, very fine to medium grained, medium gray shale.
380	460	Shale, medium light gray.
460	660	Shale, medium light gray.
660	700	Shale, dark gray calcareous.
700	740	Shale, medium gray, white specks calcareous.
740	760	Shale, medium light gray, white specks, calcareous.
860	880	Shale, medium light gray, white specks, calcareous, pyrite.
880	900	Shale, medium light to medium dark gray, white specks, calcareous, pyritic.
900	940	Shale, medium to medium light gray, white specks, calcareous, pyritic.
940	960	Shale, medium light to medium gray, calcareous.
960	980	Shale, medium light to dark gray, calcareous.
980	1000	Shale, medium light to medium gray, calcareous, pyritic.
1000	1020	Shale, medium light to medium dark gray, calcareous.
1020	1060	Shale, medium light to medium gray, calcareous, bentonitic.
1060	1100	Shale, medium gray, calcareous.
1100	1120	Shale, medium dark gray, calcareous, white bentonite.
1120	1160	Shale, medium to medium dark gray, calcareous, white bentonite.
1160	1180	Shale, medium gray.
1180	1200	Shale, medium gray, white specks calcareous.
1200	1220	Limestone, medium gray, fragmented calcite prisms, medium gray shale with white specks.
1220	1260	Limestone, light gray fragmental, calcite prisms. Medium gray calcareous shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
1260	1300	Shale, medium to medium dark gray, white specks, calcareous calcite prisms.
1300	1310	Shale, medium dark gray, white specks, calcareous, light gray, fragmental limestone.
1310	1330	Shale, medium to medium dark grey calcareous, calcite prisms.
1330	1360	Shale, medium to medium dark gray, calcareous, calcite prisms white bentonite.
1360	1380	Shale, medium dark gray calcareous.
1380	1420	Shale, medium dark gray, calcareous, light gray, calcareous siltstone.
1420	1450	Shale, medium to dark gray, calcareous, bentonitic.
1450	1490	Shale, medium dark to dark gray, bentonitic, calcite prisms.
1490	1510	Shale, medium dark to dark gray, calcite prisms.
1510	1540	Shale, medium to dark gray, light gray siltstone.
1540	1560	Shale, medium to medium dark gray, light gray siltstone.
1560	1570	Shale, medium to medium dark gray.
1570	1590	Shale, medium to dark gray, light gray siltstone.
1590	1620	Shale, medium to dark gray, calcareous.
1620	1640	Shale, medium to medium dark gray.
1640	1660	Shale, medium to dark gray, fine grained free quartz, calcite prisms.
1660	1680	Shale, medium dark gray, fine to medium grained free quartz.
1680	1686	Shale, medium gray and medium light gray silty.
	1686	Circulation. Shale, medium dark gray and medium light gray, silty, white bentonite.
1686	1690	Shale, medium light gray silty, free fine grained quartz.
1690	1700	Shale, medium dark gray and medium light gray silty.
1700	1710	Shale, medium dark gray and medium light gray silty, iron stained siltstone, concretions.
1710	1720	Sandstone, white very fine grained, calcareous, iron stained siltstone, concretions. Medium dark gray shale.
1720	1730	Siltstone, light gray, calcareous, white very fine grained sandstone, iron stained siltstone concretions. Medium to medium dark gray shale.
1730	1735	Sandstone, white, calcareous, medium to medium dark gray shale.
1735	1740	Sandstone, white, very fine grained, calcareous, iron stained siltstone concretions. Medium to medium dark gray shale.
1740	1745	Shale, medium gray, silt, calcareous. Iron stained siltstone concretions.
1745	1760	Shale, medium to medium dark gray, very fine to fine grained sandstone. Iron stained siltstone concretions.
1760	1775	Shale, medium to medium dark gray. Iron stained siltstone.
1775	1780	Shale, medium to medium dark gray. Very fine grained sandstone and iron stained siltstone concretions.
1780	1785	Siltstone, iron stained and siltstone concretions, fine grained free quartz, medium gray shale.
1785	1790	Sandstone, very fine to fine grained, iron stained siltstone concretions, medium to medium dark gray.

<u>From</u>	<u>To</u>	<u>Formation</u>
1790	1820	Shale, medium to medium dark gray, fine grained free quartz and iron stained siltstone concretions.
1820	1835	Shale, medium light to medium dark gray. Little fine grained free quartz and iron stained siltstone concretions.
1835	1845	Shale, medium light to medium gray calcareous.
1845	1860	Shale, medium light to medium gray, calcareous, very fine grained, calcareous sandstone.
1860	1870	Shale, medium to medium dark gray, few iron stained siltstone concretions.
1870	1875	Shale, medium to medium dark gray, very fine to fine grained free quartz and iron stained siltstone concretions.
1875	1880	Sandstone, medium to coarse grained, frosted, subrounded, medium gray shale.
1880	1885	Sandstone, fine to coarse grained, frosted subrounded to subangular, iron stained siltstone concretions.
1885	1900	Sandstone, fine to coarse grained, frosted iron stained pyrite.
1900	1925	Sandstone, fine to medium grained, subrounded, frosted, medium gray shale.
1925	1945	Shale, medium grey and medium light gray silty, free quartz.
1945	1950	Shale, medium gray and medium light gray silty, light gray siltstone, fine to coarse grained free quartz.
1950	1955	Limestone, light gray, fragmental, fossiliferous, silty.
1955	1960	Shale, medium gray and light gray siltstone, light gray fragmental limestone.
1960	1965	Shale medium gray and medium light gray silty.
1965	1970	Siltstone, light gray calcareous, medium gray shale.
1970	1990	Shale, medium gray, light gray calcareous siltstone, fine grained free quartz.
1990	1995	Shale, medium gray and medium light gray silty.
1995	2000	Shale, medium to dark gray, light gray calcareous siltstone, fine to medium grained free quartz.
2000	2005	Shale, medium to dark gray and pale reddish brown, silty light gray oolitic limestone.
2005	2015	Shale, medium gray and medium light gray silty, fine grained free quartz.
2015	2025	Shale, medium gray, light gray siltstone and fine grained free quartz.
2025	2030	Shale, medium gray and pale reddish brown, light gray siltstone pyrite.
2030	2031	30 minutes circulation, shale medium to pale reddish brown calcareous, light gray siltstone.
2031	2040	Shale, medium to pale reddish brown, light to medium gray siltstone and fine to medium grained free quartz, pyrite.
2040	2050	Shale, medium and pale reddish brown, light to medium light gray siltstone and fine grained free quartz.
2050	2051	3/4 hour circulation, limestone, white to very light gray, fine grained and chalky dolomitic, medium gray and pale reddish brown shale.
2054		Core #1. Limestone, light greenish gray, argillaceous.
2055		Limestone, light greenish gray, chalky, argillaceous.
2056		Dolomite, light greenish gray, microsucrosic.

<u>From</u>	<u>To</u>	<u>Formation</u>
2057		Limestone, white to pinkish gray, oolitic to fragmental, tightly cemented.
2058		Dolomite, very light to light red, microsucrosic.
2059	2062 1/2	Dolomite, white to very light gray, microsucrosic to chalky.
2062 1/2	2063	Limestone, white to pinkish gray, oolitic to fragmental, tightly cemented.
2064		Core. Dolomite, very light gray, microsucrosic.
2065	2070	Dolomite, very light gray dolomitic, medium gray shale.
2070	2075	Shale, medium to medium dark gray and pale red, light gray fragmental limestone and very light gray microsucrosic dolomite.
2075	2090	Limestone, white to pinkish gray, fragmental to oolitic, medium to medium dark gray shale.
2090	2100	Limestone, white to pinkish gray, fragmental, medium gray and pale reddish brown shale.
2100	2115	Limestone, white to pinkish gray, medium dark gray shale.
2115	2125	Limestone, white to pinkish gray, fragmental, pinkish gray calcareous, siltstone.
2125	2135	Limestone, white to pinkish gray fragmental and pinkish gray microsucrosic, argillaceous.
2135	2145	Limestone, grayish pink to pale reddish brown, microsucrosic, argillaceous.
2145	2160	Limestone, grayish pink to pale red, microsucrosic, argillaceous and very light gray fragmental.
2160	2165	Limestone, very light gray to pale red, fragmental and grayish pink to pale red microsucrosic, argillaceous.
2165	2185	Limestone, white to pinkish gray, fine grained to fragmental.
2185	2205	Limestone, very light to pinkish gray, fine grained to fragmental, medium gray and pale red brown shale.
2205	2210	Limestone, white to pinkish gray, fine grained to sub-lithographic, medium gray and pale reddish brown shale.
2210	2220	Limestone, white to pinkish gray, fine grained to fragmental.
2220	2225	Limestone, white to pinkish gray, fine grain to fragmental medium gray and pale reddish brown shale.
2225	2235	Limestone, white to pinkish gray, fine grained to microsucrosic.
2235	2245	Limestone, white to pinkish gray, fine grained to microsucrosic medium gray and pale reddish brown shale.
2245		35 minutes circulation, limestone, white fine grained to microsucrosic, pale reddish brown shale.
2245	2260	Shale, medium gray and pale reddish brown calcareous white to very light gray, fine grained limestone.
2260	2280	Shale, pale reddish brown calcareous and medium gray, very light to yellowish gray fine grained limestone.
2280	2295	Limestone, white to yellowish gray, chalky to fine grained pale red and medium gray shale.
2295	2300	Shale, pale reddish brown calcareous, white to yellowish gray fine grained limestone.
2300	2305	Limestone, white chalky.
2305	2310	Limestone, white chalky and yellowish gray fine grained pale reddish brown calcareous shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
2310	2320	Shale, medium gray and pale reddish brown calcareous yellowish gray fine grained limestone.
2320	2335	Limestone, white chalky and yellowish gray fine grained.
2335	2340	Limestone, yellowish gray, microsucrosic, dolomitic.
2340	2350	Limestone, yellowish gray, microsucrosic, dolomitic and white chalky.
2350	2355	Limestone, white chalky.
2355	2360	Limestone, white chalky, medium dark and pale red brown shale.
2360	2365	Shale, pale reddish brown calcareous and medium dark gray, white chalky limestone.
2365	2370	Shale, pale reddish brown, calcareous and medium dark gray.
2370	2375	Limestone, yellowish gray, sublithographic.
2375	2380	Limestone, yellowish gray to pale reddish brown, fine grained.
2380	2390	Shale, pale reddish brown, calcareous and medium dark gray.
2390		70 minutes circulation, shale, pale reddish brown calcareous and medium gray.
2390	2407	Core. Shale, pale red, hackly, bontonitic.
2407	2420	Missing sample.
2420		Dolomite, pale red, fine grained, little pinpoint porosity.
2420	2424	Dolomite, pale red, microsucrosic.
2424	2428	Dolomite, grayish pink, microsucrosic dense.
2428	2434	Dolomite, pale red, microsucrosic.
2434		Limestone, yellowish gray, sublithographic, pinkish gray microsucrosic dolomite.
2436		Dolomite, pinkish gray to pale red, microsucrosic to fine grained.
2437		Dolomite, pale red microsucrosic, some pinpoint porosity.
2438	2439	End Core. Dolomite, pale red, microsucrosic.
2439	2445	Missing sample.
2445	2455	Dolomite, light brownish gray, microsucrosic.
2455	2465	Dolomite, pale red, microsucrosic, intergranular porosity.
2465	2470	Dolomite, yellowish gray, microsucrosic.
2470	2480	Dolomite, grayish red to pale red, microsucrosic, intergranular porosity.
2480	2495	Dolomite, light brownish gray, microsucrosic dense.
2495	2500	Dolomite, light brownish gray, microsucrosic, intergranular porosity.
2500	2510	Dolomite, light brownish gray, microsucrosic to sublithographic.
2510	2520	Limestone, grayish orange pink, fine grained to sublithographic.
2520	2530	Limestone, grayish orange pink to yellowish gray, sublithographic.
2530	2535	Limestone, very light to yellowish gray, fine grained to sublithographic,
2535	2550	Limestone, very light to pale yellowish brown, sublithographic.
2550	2560	Limestone, very light to yellowish gray, sublithographic to fragmental.
2560	2565	Limestone, yellowish gray, sublithographic to lithographic.

<u>From</u>	<u>To</u>	<u>Formation</u>
2565		3/4 hour circulation, limestone, yellowish gray, sublithographic yellowish gray, microsucrosic dolomite.
2565	2570	Limestone, yellowish gray to pale yellowish brown, sublithographic to slightly oolitic, yellowish gray microsucrosic dolomite.
2570	2595	Dolomite, yellowish gray, microsucrosic.
2595	2600	Dolomite, grayish orange, microsucrosic.
2600	2605	Dolomite, grayish orange to pale red, microsucrosic.
2605	2610	Dolomite, pale red, microsucrosic. 3/4 hour circulation.
2610	2625	Dolomite, grayish orange pink and pale red, microsucrosic.
2625	2635	Dolomite, grayish orange pink, microsucrosic.
2635	2645	Dolomite, pale red, fine grained to microsucrosic, pinpoint porosity.
2645	2655	Dolomite, grayish orange pink to pinkish gray, microsucrosic to sublithographic, pinpoint porosity.
2655	2670	Dolomite, grayish orange pink, microsucrosic to sublithographic.
2670	2675	Dolomite, pinkish gray and grayish orange pink, sublithographic.
2675	2680	Dolomite, pinkish gray and grayish orange pink, sublithographic pale red calcareous shale, fine grained free quartz.
2680	2685	Dolomite, moderate orange pink, microsucrosic, considerable fine grained rounded, frosted free quartz.
2685	2690	Dolomite, yellowish gray, microsucrosic highly arenaceous. Considerable fine grained, rounded, frosted free quartz.
2692		Dolomite, pale red fine grained, to microsucrosic and yellowish gray microsucrosic arenaceous.
2690	2695	Dolomite, grayish orange pink and pale yellowish brown microsucrosic, medium gray shale.
2695	2700	Limestone, white sublithographic.
2700	2710	Limestone, white, sublithographic, grayish orange pink microsucrosic dolomite and medium gray dolomite.
2710	2715	Limestone, white to yellowish gray, sublithographic, medium gray shale.
2715	2720	Limestone, white to pinkish gray, fine grained to sublithographic medium gray shale.
2720	2725	Limestone, white to pinkish gray, fragmental.
2725	2730	Limestone, grayish orange, fine grained to fragmental.
2730	2735	Limestone, grayish orange and pinkish gray, fragmental.
2735	2755	Limestone, very light to light gray, fine grained to fragmental.
2755	2765	Limestone, very light to light gray, fine grained to fragmental, bryozoan fragments.
2765	2770	Limestone, very light to medium gray, fragmental, medium to medium dark gray shale.
2770	2775	Shale, medium to medium dark gray, light to medium gray, fragmental limestone.
2775	2780	Limestone, very light to medium gray, fragmental, medium gray shale, bryozoan fragments.
2780	2790	Limestone, very light to medium gray, fragmental, bryozoan fragments, pyrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
2790	2795	Limestone, very light to medium gray, fragmental, light to medium dark gray shale.
2795	2800	Limestone, very light to medium gray, fragmental, bryozoan fragments.
2800	2805	Shale, pale brown, calcareous, light to medium gray fragmental limestone.
2805	2815	Shale, medium to medium dark gray, very light to medium gray, fragmental limestone.
2815	2825	Limestone, pale red, sublithographic.
2825	2833	Core. Limestone, pale red, sublithographic.
2833	2834	Limestone, pale yellowish brown, microsucrosic vuggy, grayish red calcareous shale streaks.
2834	2845	End of core, dolomite, grayish pink microsucrosic.
2845	2850	Dolomite, grayish pink, microsucrosic, medium gray shale.
2850	2855	Limestone, pinkish gray, fragmental to sublithographic.
2855	2865	Limestone, grayish pink, fragmental, medium gray shale.
2865	2875	Limestone, pale red to pinkish gray, sublithographic.
2875	2883	Dolomite, pinkish gray, microsucrosic to sublithographic.
2883	2890	Dolomite, white, sublithographic.
2890	2897	Dolomite, white, sublithographic, yellow mottlings.
2897	2903	Dolomite, white, microsucrosic.
2903	2905	Dolomite, white to yellowish gray, microsucrosic.
2905	2915	Dolomite, yellowish gray, microsucrosic.
2915	2920	Dolomite, white, microsucrosic.
2920	2940	Dolomite, white to yellowish gray, microsucrosic.
2940	2945	Dolomite, yellowish gray to pale red, microsucrosic, intergranular porosity.
2945	2950	Dolomite, yellowish gray, microsucrosic, some intergranular porosity.
2950	2955	Dolomite, light brownish gray to yellowish gray, fine grained to microsucrosic.
2955	2980	Dolomite, grayish orange pink to yellowish gray, fine grained to microsucrosic, some intergranular porosity.
2980	3020	Dolomite, grayish orange pink, microsucrosic.
3020	3045	Dolomite, grayish orange pink, microsucrosic.
3045	3050	Dolomite, very pale orange, microsucrosic.
3050	3055	Dolomite, grayish orange pink microsucrosic to sublithographic.
3055	3060	Dolomite, grayish orange pink to pale yellowish brown, microsucrosic to sublithographic.
3060	3070	Dolomite, grayish orange pink, microsucrosic to sublithographic white chalky limestone.
3070	3075	Limestone, white, sublithographic pale reddish brown calcareous shale, grayish orange pink microsucrosic dolomite.
3075	3080	Limestone, white to very light gray, sublithographic, grayish orange pink, microsucrosic dolomite.
3080	3090	Dolomite, very pale orange, microsucrosic.
3090	3095	Limestone, white sublithographic.
3095	3100	Limestone, white sublithographic to chalky.
3100	3105	Limestone, white sublithographic to chalky, highly cherty.
3105	3110	Limestone, white chalky, white chert.

<u>From</u>	<u>To</u>	<u>Formation</u>
3110	3120	Limestone, white chalky to sublithographic.
3120	3125	Limestone, white to grayish pink chalky to microsucrosic.
3125	3150	Limestone, grayish orange pink, microsucrosic.
3150	3155	Limestone, grayish pink to grayish orange pink, microsucrosic.
3155	3165	Dolomite, grayish orange pink, microsucrosic, pale reddish brown calcareous shale.
3165	3185	Limestone, grayish pink, fine grained to microsucrosic dolomite, white chert.
3185	3195	Limestone, white to greyish pink, microsucrosic, dolomite, white chert.
3195	3205	Limestone, white to yellowish gray, fine grained to microsucrosic, white chert.
3205	3235	Limestone, white to yellowish gray, microsucrosic to fine grained, dolomite.
3235	3260	Limestone, white to yellowish gray sublithographic.
3260	3285	Limestone, white to yellowish gray, sublithographic to fragmental.
3285	3305	Limestone, white to very light gray, sublithographic.
3305	3315	Limestone, very light to light brownish gray, sublithographic.
3315	3320	Limestone, very light to light brownish gray, fragmental to sublithographic.
3320	3330	Limestone, very light to light brownish gray, fragmental to sublithographic.
3330	3345	Limestone, very light to light brownish gray, sublithographic to fragmental, medium gray shale.
3345	3375	Limestone, very light to light gray, fine grained to sublithographic, medium gray shale.
3375	3395	Shale, medium gray, very light gray fine grained limestone. Lost circulation.
3395	3405	Shale, medium to medium light and greenish gray, yellowish gray fine grained limestone. Lost circulation.
3405	3415	Shale, greenish gray, yellowish grey fine grained limestone.
3415	3425	Shale, greenish gray. Lost circulation.
3425	3450	Shale, medium and greenish gray.
3430	3445	Shale, greenish gray splintery.
3445	3450	Shale, greenish gray splintery, yellowish gray fine grained limestone.
3450	3460	Shale, greenish gray, splintery, yellowish gray fine grained limestone, free fine grains quartz, pyrite.
3460	3465	Shale, greenish gray, splintery, yellow gray limestone cave?
3465	3475	Shale, medium and greenish gray, splintery to flakey yellowish gray, fine grained limestone, cave?
3475	3490	Shale, greenish gray, splintery.
3490	3495	Shale, greenish gray, splintery, and medium dark gray flaky, fine grained free quartz.
3495	3505	Shale, greenish gray and medium dark gray.
3505	3510	Shale, dark gray and greenish gray, splintery.
3510	3515	Shale, greenish gray and dark gray, splintery to flaky yellowish to pinkish gray, fine grained limestone cave?

<u>From</u>	<u>To</u>	<u>Formation</u>
3515	3535	Shale, greenish gray and dark gray, fine grained free quartz yellowish to pinkish gray, fine grained limestone, cave?
3535	3540	Shale, greenish gray, splintery, little fine grained free quartz, yellowish to pinkish gray fine grained to sublithographic limestone cave?
3540	3545	Shale, greenish gray and medium dark gray, considerable fine grained, subrounded to subangular free quartz.
3545	3550	Shale, greenish gray, fine grained, subrounded to subangular, frosted to clear free quartz, basic igneous rock.
3550	3555	Basic igneous rock.