

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 15

Summary of the Alvin Peplinski No. 1 Well

Stutsman County, North Dakota

By Sidney B. Anderson

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General Atlas Carbon Company - Alvin Peplinski No. 1, Stutsman County, North Dakota, Section 21, T. 142 N., R. 63 W., (1980 feet S. of N. line and 1980 feet E. of W, line, Section 21.) Elevation: D.F. 1490, K.B. 1493, G.L. 1483.

The General Atlas Carbon Company - Peplinski No. 1 was pccudded July 28, 1952 and 10 inch casing was set at 336 feet, with 190 sacks of cement.

The drilling was completed August 30 and the well abandoned. Total Depth - 2918.

Cement plugs were set at the following places:

2570 - 2600 with 45 sacks.

1932 - 2000 with 35 sacks.

1730 - 1770 with 25 sacks.

1400 - 1450 with 50 sacks.

3500 - 370 with 20 sacks.

330 - 300 with 25 sacks in surface pipe. 10' cement in the top of the surface pipe.

Formation tops determined from sample and electric logs, not all lithologic formation tops called in following list.

TOPS

	<u>Depth</u>
Cretaceous System	
Niobrara Formation	475
Greenhorn Formation	972
Dakota	1312
Jurassic System	
Piper Lime	1740
Mississippian System	
Lodgepole Formation	1774
Englewood Formation	1890
Devonian System	1932
Ordovician System	2044
Stony Mountain Shale Member	2044
Red River Formation	2103
Winnipeg Formation	2642
Winnipeg sand	2850
Pre-Cambrian	2918
Total Depth	2918

<u>From</u>	<u>To</u>	<u>Formation</u>
10	20	Sand, light brown to colorless quartz fine grained.
20	60	Sand, tan to colorless quartz, fine grained.
60	130	Medium light gray shale and sand as above, mostly colorless, fine to medium grained.
130	140	As above and little medium dark gray shale.
140	150	Shale, medium light gray to medium dark gray and sand as above, mostly shale.
150	160	Medium light gray shale and some medium grained quartz sand.
160	190	Shale, medium light to medium dark gray.
190	200	Medium light gray shale.
200	230	Shale as above to medium dark gray.
230	350	Medium light gray shale.
350	370	Shale as above and some medium grained sand and white calcareous ash?
370	470	Medium light gray shale.
Niobrara Formation 475		
470	490	Medium gray shale.
490	510	Shale as above and little dark gray.
510	540	Same as above and few white specks.
540	550	As above with white specks.
550	570	As above, little brownish shale with white specks and blue bentonite.
570	580	Shale, medium light gray and dark gray; with white specks.
580	670	Shale, medium light gray with white specks.
670	720	Shale, medium light gray to slightly brownish, white specks.
720	770	Shale as above to slight brownish gray with white specks. Some dark gray shale.
770	830	Shale, medium light gray to medium dark gray.
830	850	Medium dark gray shale.
850	860	Shale, medium dark gray & medium light gray, few medium grained quartz grains in shale.
860	880	Medium light gray shale with white specks.
880	890	Medium dark gray shale.
890	900	Medium gray shale.
900	910	Medium light gray shale.
910	920	Medium dark gray shale.
920	930	Medium gray shale.
930	940	Medium dark gray shale.
940	960	Medium gray shale.
960	970	Medium gray to medium dark gray shale.
Greenhorn Formation 972		
Core		
976	977	Medium gray, limey sandy shale.
977	986	Medium gray shale with white specks, limey.
986	987	Shale as above but with very fine white specks.
987	988	Shale as above with white specks, limey.
988	989	Shale as above and bluish bentonitic shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
989	990	Medium gray shale with white specks, limey.
990	991	Light gray, very limey shale, with white specks.
End of Core		
991	1010	Shale, light to dark gray with white specks and some medium grained, free quartz grains.
1010	1060	Shale as above with inoceramus prisms.
1060	1100	Medium gray shale with white specks.
1100	1160	Shale, medium gray to medium dark gray with white specks.
1160	1170	As above to dark gray shale.
1170	1200	Shale, medium gray to medium dark gray.
1200	1220	Shale, medium to dark gray.
1220	1230	Shale as above and few pieces of fine grained gray sandstone.
1230	1240	Shale as above and (much free quartz cave).
1240	1250	Medium to dark gray shale.
1250	1270	Medium to medium dark gray shale.
1270	1290	Shale as above and few pieces of fine grained light gray sandstone.
Dakota 1312		
1290	1320	Medium gray shale.
1320	1330	Medium gray shale and few pieces of medium gray, fine sandstone.
1330	1340	Shale as above and few medium grained free quartz grains.
1340	1360	Shale as above and few pieces of medium gray, fine grained quartz sandstone.
1360	1430	Light gray to tan, very fine sandstone or siltstone, calcareous, and some medium gray shale.
1430	1440	Medium gray shale and very little siltstone.
1440	1450	Medium gray shale and very little siltstone or sandstone as above tan to light gray and pieces of medium gray siltstone.
1450	1460	Medium gray shale and few medium grained free quartz grains.
1460	1470	Medium gray shale.
1470	1480	Medium gray shale and few medium grained free quartz grains, sub-rounded.
1480	1490	Medium gray shale, very little light gray siltstone and little glauconite.
1490	1510	Medium gray shale.
1510	1520	Medium gray shale and few pieces of reddish shale, brown concreting sandstone pellets.
1520	1530	Medium gray shale, some medium grained free quartz sandstone pellets, little fine reddish calcareous sand.
1530	1550	As above and little whitish sandstone.
1550	1580	Shale as above, very little reddish sandstone, little white sandstone and brown sandstone pellets; some free quartz, medium grained.

<u>From</u>	<u>To</u>	<u>Formation</u>
1580	1588	Circulation 15 minutes. Medium grained colorless to amber quartz sand.
	1588	Circulation 30 minutes. Sandstone as above.
1588	1590	Sandstone as above.
1590	1600	Sandstone as above and medium gray shale.
1600	1620	Sandstone, fine to medium grained colorless quartz, free, few pieces of coarse colorless quartz.
1620	1630	As above and brown sandstone pellets.
	1634	Circulation 15 minutes. Sandstone as above, and much coarse colorless quartz.
	1634	Circulation 30 minutes. Sandstone, mostly medium to coarse colorless quartz.
1634	1670	Sandstone medium to coarse, mostly medium. Colorless quartz.
1670	1680	Colorless quartz sandstone medium grained, and some medium gray shale.
1680	1700	Colorless quartz sandstone medium grained, and some brown sandstone pellets.
1700	1740	Colorless to yellow sandstone. Medium to coarse free quartz, (sub-rounded to rounded).
Piper Lime 1740		
1740	1750	Sand as above, some white fine sandstone and white limestone, slightly sandy, little pinkish shale.
1750	1770	Reddish sandy shale, (some medium grained quartz in shale and medium grained free quartz). Little white limestone as above.
Lodgepole Formation 1774		
1770	1780	Much medium to coarse colorless sandstone. Some white limestone as above and a few pieces of red shale.
1780	1789	White fragmental limestone, little porosity.
	1789	Circulation 15 minutes. Much medium grained free quartz, little sand as above.
	1789	Circulation 30 minutes. Sand same as above, and some white fragmental limestone.
	1789	Circulation 45 minutes. Sand as above, and very little limestone as above.
1789	1810	Sand as above, limestone as above and some white floury limestone.
Core 1810-1830 7' recovery		
Core 1st'		White, dense fragmental to oolitic limestone.
Core 2nd'		White oolitic to fragmental limestone, little pinpoint porosity.
Core 3rd'		White fragmental to oolitic limestone, some pinpoint porosity.
Core 4th'		White fragmental to dense limestone.
Core 5th'		Limestone same as above.
Core 6th'		White, fine crystalline, dense limestone.

<u>From</u>	<u>To</u>	<u>Formation</u>
Core 7th' End of Core		Limestone same as above.
1830	1840	Limestone same as above.
1840	1850	White, fine grained dense limestone.
1850	1860	White, fine granular dense limestone.
1860	1880	Very light brown to tan fine granular limestone. Some pinpoint porosity, and little white limestone as above.
1880	1894	Light brown to light gray, fine grained, fragmental dense limestone.
Englewood Formation	1890	
	1894	Circulated, reddish brown to light gray soft silty shale.
1894	1910	Reddish brown silty shale, white limestone with red shale coating.
1910	1930	Reddish brown shale.
Devonian System	1932	
1930	1937	Light brown, gray, fine grained dense limestone, and light gray, fine grained, dolomite. Some shale as above.
	1937	Circulation 15 minutes. Very pale red, fine grained to slightly saccharoidal dolomite. Good pinpoint porosity.
	1937	Circulation 30 minutes. Very pale red, fine grained to slightly saccharoidal dolomite. Good pinpoint porosity.
	1937	Circulation 45 minutes. Pale brown to very pale red dolomite as above.
1940	1980	Pale brown to light, brown gray dolomite as above.
1980	1990	Dolomite same as above, and some very pale yellow brown, very fine crystalline, dense limestone.
1990	2000	Limestone as above and (much medium grained free quartz)Cave?
2000	2010	Pale brown, to light, brown gray, fine grained to slightly saccharoidal dolomite, fair, pinpoint porosity, and little limestone as above.
2010 red,	2019	Circulation 15 minutes. Pale brown, to very pale fine crystalline to fine grained dolomite, some pinpoint porosity.
	2019	Circulation 30 minutes. Dolomite, very fine grained, dense light gray dolomite. (Slightly pinkish tinge).
2019	2020	Very pale reddish brown, fine grained, crystalline, dense dolomite.
2020	2030	Light gray, fine grained dolomite, dense, with some red streaks and slightly pink tinge.
2030	2040	Dolomite as above and red shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
Ordovician System Stony Mountain Shale Member 2044		
2040	2050	Pale red to brown, fine grained, dense limey dolomite.
2050	2100	Reddish silty calcareous shale, with streaks of light gray shale.
Red River Formation 2103		
2100	2106	Dolomite, white with slightly pinkish tinge. Very fine grained dense, limey dolomite.
	2106	Circulation 15 minutes. Reddish to very pale yellow brown, fine grained, dense dolomite.
	2106	Circulation 30 minutes. Dolomite same as above and little saccharoidal, very pale yellow brown.
2107	2135	Lost Circulation.
	2120	Reddish fine grained, dense dolomite, and yellowish brown to buff; fine grain to saccharoidal dolomite. (Fair porosity in saccharoidal dolomite).
2120	2130	Dolomite same as above, and little white, very fine grained dense dolomite.
2130	2140	Very poor samples, sand and gray shale. Cave? Few pieces of tan to buff dolomite.
2140	2150	Very poor samples, sand and gray shale. Some white to pink saccharoidal dolomite.
2150	2160	Whitish to light buff sublithographic to lithographic dolomite, and much sand as above. Cave?
2160	2190	Dolomite as above.
2190	2220	White, very fine grained dolomitic limestone, dense.
2220	2230	White to buff, very fine grained dolomitic limestone, dense.
2230	2240	White to buff, fine grained, to saccharoidal, limey dolomite. Little pinpoint porosity in saccharoidal.
2240	2250	Buff to pinkish dolomite, fine grained, dense to saccharoidal dolomite, fair porosity in saccharoidal dolomite.
2250	2260	Buff, fine grained to fine saccharoidal, dense dolomite.
2260	2270	Dolomite as above, some light to medium gray shale. Free quartz cave.
2270	2320	Buff to very light brown, crystalline dense to saccharoidal, mostly fine crystalline.
2320	2330	Dolomite, whitish to buff saccharoidal. Poor to fair pinpoint porosity.
2330	2340	Whitish to buff and pinkish fine granular dolomite.
2340	2350	Buff to pinkish, fine granular to saccharoidal dolomite, fair porosity.
2350	2360	White to pinkish lithographic limestone.
2360	2370	White fragmental limestone with pink staining and little yellow staining.
2370	2380	White fragmental limestone with some staining as above, and fossil fragments.

<u>From</u>	<u>To</u>	<u>Formation</u>
2380	2400	Predominantly white, fine grained, to fragmental limestone, little pinkish. Few pieces of white chert.
2400	2410	Buff to whitish, fragmental limestone and fine saccharoidal. Few pieces of white chert, and some medium gray shale and pyrite. Cave?
2410	2420	Buff, fine grain to fine granular dolomite, and some limestone as above. Poor sample.
2420	2430	Whitish to buff to pinkish fragmental limestone, and a few pieces of white chert.
2430	2480	Limestone as above, mostly whitish to buff.
2480	2500	Limestone as above, and very fine saccharoidal; light brown limestone, slightly dolomitic.
2500	2510	Whitish fragmental dense limestone, and light brown, fine grained, dense limestone.
2510	2530	Whitish to very pale brown, dense fragmental limestone.
2530	2540	Limestone as above and few pieces of white crest.
2540	2610	Limestone, very pale brown, or tan fragmental, dense.
2610	2620	Limestone as above to light gray fragmental limestone.
2620	2670	Light gray, fine grained fragmental, dense limestone.
Winnipeg Formation 2642		
2670	2690	Limestone as above, and little green gray shale.
2690	2720	Green to green gray lumpy shale, calcareous.
2720	2730	Medium light gray to green gray shale.
2730	2760	Green fissile, waxey shale.
2760	2770	Shale as above, and few pieces of very fine grained sandstone; (colorless to slightly green tinge.)
2770	2780	Shale same as above.
2780	2800	Green and olive gray to medium gray shale.
2800	2810	Shale as above, and reddish brown shale.
	2810	Shale as above, much reddish brown shale, crinoid button.
2810	2850	Much red shale, little green shale, few pieces of medium dark gray shale.
Winnipeg Sand 2850		
2850	2857	Shale as above, and much medium grained free quartz, some coarse free quartz.
2857	2860	Much medium dark gray and green shale, little red shale, and few pieces of free quartz.
2860	2870	Shale, as above, and free quartz.
2870	2890	Shale as above, and much free quartz, medium grained, subangular to rounded.
2890	2918	Medium grained sandstone, reddish brown with glauconite shale as above.
Pre-Cambrian 2918		
Total Depth 2918		