

# NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 40

## SUMMARY OF THE CARTER OIL ALLYN MacDIARMID NO 1 RAMSEY COUNTY, NORTH DAKOTA

BY MORTON STRASSBERG

Carter Oil-MacDiarmid No. 1, Ramsey County, North Dakota. NE 1/4 NE 1/4 Section 16, T. 154N. R. 65W. (660 feet from N. line, 660 feet from E. line). Elevation 1476 G.L.

The Carter Oil--MacDiarmid No. 1 was spudded November 10, 1952 and 10 3/4 inch casing was set at 227 feet. The well was completed as a dry hole December 1, 1952 and was abandoned. Total depth 3745 feet.

### TESTS:

DST 1140-1185. Tool open 30 minutes very weak blow for 3 minutes, recovered 32 feet drilling mud, IFPO, FFPO, SIP 15 minutes 0, Hydro 650#.

### CORES:

- #1 1175-1185
- #2 2450-2454
- #3 3687-3745

Cement plugs were set at the following depths:

- 3710'-3660' with 25 sacks
- 2660'-2610' with 25 sacks
- 2170'-2120' with 25 sacks
- 1525'-1450' with 45 sacks
- 248'- 218' with 15 sacks
- 10'-Surface with 5 sacks

Formation tops were determined from samples and electric, micro, and radioactivity logs. Not all lithologic tops were called in the following list. Colors were determined from rock color chart.

### FORMATION TOPS

<u>Formation</u>	<u>Depth</u>
Cretaceous System	
Niobrara Formation	590
Greenhorn Formation	1068
Lakota	1478
Jurassic System	
Morrison Formation	1501
Sundance Formation	1620?
Piper Formation	1880
Devonian System Undifferentiated	2152
Ashern Formation	2580
Silurian System	
Interlake Group	2610

Ordovician System		
Upper Sony Mountain Formation	2795	
Lower Stony Mountain Shale	3561	
Winnipeg Formation	3561	
Winnipeg Sand	3665	
Pre Cambrian	3728	
TOTAL DEPTH	3745	

<u>From</u>	<u>To</u>	<u>Formation</u>
240	260	Limestone, white, fine grained, silty.
260	280	Limestone, white to very light gray, fine grained, silty.
280	320	Shale, medium light gray.
320	330	Missing sample.
330	400	Shale, medium light gray.
400	410	Shale, medium dark to dark gray, calcareous, inoceramus prisms.
410	500	Medium light gray.
500	520	Medium gray.
520	540	Shale, medium gray calcareous.
540	580	Shale, medium to medium dark gray.
580	620	Shale, dark gray, carbonaceous.
620	640	Shale, dark gray, bentonitic.
640	700	Shale, medium to dark gray, calcareous.
700	720	Shale, medium to medium dark gray, white specks, calcareous.
720	730	Shale, medium to medium dark gray, calcareous.
730	740	Shale, medium to medium dark gray, calcareous.
740	800	Shale, medium gray, calcareous.
800	880	Shale, medium gray, white specks, calcareous.
880	890	Shale, medium light to medium gray, white specks, calcareous.
890	920	Medium light to medium gray, white specks, calcareous.
920	930	Shale, medium gray and white bentonite.
930	950	Shale, medium light to medium gray, bentonite.
950	970	Shale, medium gray, calcareous, white specks.
970	980	Shale, medium gray, bentonitic.
980	1010	Shale, medium gray, white specks, calcareous.
1010	1020	Shale, medium dark gray.
1020	1030	Shale, medium gray.
1030	1040	Shale, medium to medium dark gray, calcareous.
1040	1050	Shale, medium gray, bentonitic.
1050	1070	Shale, medium to medium dark gray, calcareous.
1070	1080	Shale, medium dark to dark gray, calcareous, inoceramus fragments.
1080	1100	Shale, medium to dark gray, highly calcareous.
1100	1110	Missing sample.
1110	1120	Shale, dark gray, highly, calcareous, inoceramus fragments.
1120	1130	Shale, medium to medium dark gray, calcareous, inoceramus fragments.
1130	1140	Shale, medium dark to dark gray.
1140	1160	Shale, medium gray, highly calcareous.
1160	1180	Shale, medium to medium dark gray, calcareous.
1180	1190	Shale, medium light to medium gray, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
1190	1220	Shale, medium to medium dark gray, calcareous.
1220	1230	Shale, medium to dark gray, calcareous.
1230	1240	Shale, medium to medium dark gray, calcareous.
1240	1250	Shale, medium gray, calcareous.
1250	1260	Shale, medium to medium dark gray, calcareous.
1260	1280	Shale, medium to medium dark gray, calcareous.
1280	1290	Shale, medium gray, slightly calcareous.
1290	1310	Shale, medium dark to dark gray, calcareous.
1310	1320	Shale, medium dark to dark gray, slightly calcareous.
1320	1340	Shale, medium to medium dark gray, calcareous.
1340	1350	Shale, medium dark gray, calcareous. Little free quartz.
1350	1360	Shale, medium dark gray, calcareous.
1360	1370	Shale, medium dark gray calcareous. Few free quartz grains.
1370	1430	Shale, medium to medium dark gray.
1430	1450	Shale, medium to medium dark gray, calcareous.
1450	1460	Limestone, yellowish gray, fine grained, arenaceous to silty.
1460	1480	Sandstone, fine to medium grained, frosted, subrounded to subangular.
1480	1490	Sandstone, fine to coarse grained, subangular to subrounded frosted.
1490	1520	Siltstone, pale brownish gray. Medium gray shale. Free quartz grains.
1520	1530	Shale, medium to medium dark gray, silty, pyritic. Few quartz grains.
1530	1560	Siltstone, light brown, argillaceous. Few free quartz grains.
1560	1570	Siltstone, light brown, argillaceous.
1570	1580	Siltstone, light brown, argillaceous. Medium gray shale
1580	1590	Siltstone, light brown, argillaceous. Medium gray shale. Few free quartz grains
1590	1600	Shale, medium gray and light brownish gray, silty. Little fine to medium grained, subrounded to subangular quartz.
1600	1620	Shale, medium gray and light brown silty. White silty limestone.
1620	1640	Shale, medium light to medium gray, calcareous.
1640	1670	Shale, medium to medium light gray, calcareous, silty. Fine grained free quartz.
1670	1680	Shale, medium light to medium gray, silty, calcareous.
1680	1690	Shale, grayish red and medium dark gray.
1690	1700	Shale, medium to medium dark gray, silty, calcareous.
1700	1710	Shale, medium to medium dark gray and grayish red, calcareous.
1710	1720	Shale, medium light to medium dark gray, calcareous.
1720	1730	Shale, medium to medium dark gray. Light gray calcareous siltstone.
1730	1740	Shale, medium to medium dark gray. Grayish red very fine grained sandstone.
1740	1770	Shale, medium light to medium dark gray. Little very fine grained iron stained sandstone.
1770	1790	Medium light to medium gray. Little light brown siltstone.
1790	1800	Shale, medium light to medium dark gray. Few free quartz grains.

<u>From</u>	<u>To</u>	<u>Formation</u>
1800	1820	Shale, medium light to medium dark gray. Light brown siltstone.
1820	1830	Shale, medium to medium dark gray. Little white fine grained dolomite.
1830	1840	Shale, medium dark gray. Medium gray calcareous siltstone. Little white fine grained dolomite.
1840	1850	Shale, medium to medium dark gray. Little white gypsum.
1850	1860	Shale, medium to medium dark gray. Little light gray, siltstone.
1860	1880	Shale, medium to medium dark gray. White gypsum. Little white limestone.
1880	1890	Limestone, yellowish gray fine grained dolomitic. Medium dark gray shale.
1890	1900	Limestone, very light gray, fine grained, dolomitic.
1900	1910	Limestone, white to very light gray, dense.
1910	1920	Shale, light olive gray, calcareous. White gypsum.
1920	1930	Shale, light olive gray, calcareous.
1930	1940	Shale, light olive gray, calcareous. Light gray, dense dolomite.
1940	1960	Limestone, light gray, dense.
1960	1970	Dolomite, grayish orange pink, fine grained, pinpoint porosity.
1970	1990	Limestone, light gray, dense.
1990	2000	Limestone, light to medium light gray, dense.
2000	2010	Limestone, yellowish gray, dense, dolomitic. Medium gray shale.
2010	2020	Shale, greenish gray and light brown, calcareous.
2020	2030	Gypsum, white to iron stained.
2030	2040	Dolomite, yellowish gray, dense, calcareous.
2040	2050	Shale, greenish to medium gray. White gypsum.
2050	2060	Shale, pale reddish brown. White gypsum.
2060	2100	Gypsum, white to iron stained. Pale reddish brown shale.
2100	2110	Shale, pale reddish brown. White gypsum.
2110	2120	Shale, medium dark gray and pale reddish brown. Pale red siltstone. White gypsum.
2120	2130	Siltstone, pale reddish brown, arenaceous. Medium dark gray shale.
2130	2140	Shale, medium dark gray. Pale reddish brown, arenaceous siltstone.
2140	2150	Sandstone, iron stained, fine grained, subrounded to rounded. Medium dark gray shale.
2150	2160	Dolomite, pale red, fine grained, some pinpoint porosity.
2160	2170	Shale, medium dark gray. White limestone. Few free iron stained quartz grains.
2170	2180	Dolomite, yellowish brown, fine grained, pinpoint porosity.
2180	2210	Dolomite, grayish orange pink, fine grained, tight.
2210	2240	Dolomite, light brownish gray, fine grained, some pinpoint porosity.
2240	2250	Dolomite, yellowish gray, fine grained to microsucrosic.
2250	2260	Limestone, grayish orange pink, fine grained to microsucrosic dolomitic.
2260	2270	Limestone, pinkish gray, microsucrosic to dense.

<u>From</u>	<u>To</u>	<u>Formation</u>
2270	2280	Limestone, white to pinkish gray, fine grained dense.
2280	2290	Limestone, pale red, sublithographic.
2290	2300	Limestone, pale yellow, fine grained to sublithographic.
2300	2320	Limestone, same as above. Pale reddish brown shale.
2320	2330	Dolomite, grayish pink, microsucrosic. Yellowish gray, fine grained to dense limestone.
2330	2360	Dolomite, grayish pink, fine grained to microsucrosic.
2360	2380	Dolomite, grayish pink to pale red, microsucrosic.
2380	2390	Dolomite, pale red, microsucrosic. Medium dark gray shale.
2390	2400	Limestone, white to pinkish gray, fine grained, pinkish gray microsucrosic dolomite, medium dark gray shale.
2400	2410	Limestone, pinkish gray, fine grained dense to microsucrosic.
2410	2420	Missing sample.
2420	2430	Limestone, pinkish gray, fine grained to sublithographic.
2430	2440	Missing sample.
2440	2450	Dolomite, grayish orange pink, microsucrosic, some pinpoint porosity.
2450	2460	Dolomite, grayish orange pink, microsucrosic, medium to medium dark gray shale.
2460	2470	Limestone, yellowish gray fine grained, medium to medium dark gray shale.
2470	2480	Limestone, yellowish gray, fine grained, little pinpoint porosity, medium gray shale.
2480	2500	Limestone, pinkish gray, fine grained, dense.
2500	2530	Limestone, white to yellowish gray, fine grained to microsucrosic.
2530	2540	Limestone, pinkish gray, fine grained, brachiopods.
2540	2570	Limestone, pinkish gray, fine grained, dense.
2570	2590	Shale, light brown, silty, calcareous.
2590	2610	Shale, light brown to pale reddish brown, calcareous.
2610	2620	Dolomite, light brown, fine grained, argillaceous, pinpoint porosity.
2620	2630	Dolomite, white to iron stained, microsucrosic.
2630	2650	Dolomite, white to iron stained, sublithographic.
2650	2660	Dolomite, white to pinkish gray, fine grained to microsucrosic.
2660	2670	Dolomite, pinkish to yellowish gray, microsucrosic to sublithographic.
2670	2690	Dolomite, yellowish gray, fine grained, intergranular to pinpoint porosity.
2690	2710	Dolomite, white to pinkish gray, sublithographic.
2710	2730	Dolomite, white, microsucrosic to sublithographic.
2730	2740	Same as above. Medium dark gray shale cave?
2740	2750	Limestone, white very fine grained to sublithographic. Shale moderate brown cave?
2750	2760	Dolomite, microsucrosic to dense, shale, light brown and medium gray cave?
2760	2780	Dolomite, white, microsucrosic to sublithographic.
2780	2800	Dolomite, moderate orange pink, shale, light red calcareous. Little fine grained free quartz.
2800	2810	Dolomite, pale red, fine grained. Little fine grained quartz.

<u>From</u>	<u>To</u>	<u>Formation</u>
2810	2830	Dolomite, pale red, fine grained, arenaceous.
2830	2840	Dolomite, grayish pink, microsucrosic.
2840	2850	Dolomite, pale red, microsucrosic, shale, medium gray and moderate red.
2850	2860	Same as above. Pale red shale.
2860	2890	Dolomite, pale red, microsucrosic, medium gray shale.
2890	2900	Shale, pale red and medium gray. Pale red dolomite.
2900	2930	Shale, pale red and medium gray, white to light gray fragmental limestone.
2930	2940	Shale, pale red and medium gray.
2940	2970	Limestone, grayish pink fine grained, medium gray shale.
2970	2990	Limestone, grayish pink, fine grained to finely sucrosic. Little fine grained free quartz.
2990	3040	Dolomite, moderate orange pink, sublithographic.
3040	3050	Dolomite, yellowish gray, fine grained to sublithographic, calcareous.
3050	3060	Dolomite, yellowish gray, fine grained, some pinpoint porosity.
3060	3100	Dolomite, yellowish gray, fine grained to microsucrosic.
3100	3140	Limestone, pale red, microsucrosic, dolomite.
3140	3150	Limestone, grayish orange pink, fine grained.
3150	3160	Limestone, yellowish gray, fine to very fine grained.
3160	3180	Limestone, grayish orange pink, sublithographic.
3180	3190	Limestone, yellowish gray, fine grained, some pinpoint porosity.
3190	3200	Limestone, yellowish gray, fine grained, medium gray shale.
3200	3210	Limestone, yellowish to pinkish gray, fine grained, little pinpoint porosity.
3210	3220	Dolomite, grayish orange pink, microsucrosic, some pinpoint porosity, yellowish gray limestone.
3220	3230	Limestone, white sublithographic, medium gray shale.
3230	3250	Limestone, white to yellowish gray, fine grained, medium gray shale.
3250	3260	Anhydrite, light red.
3260	3290	Limestone, white to yellowish gray, fine grained, medium gray shale.
3290	3310	Limestone, grayish pink, fine grained, white chert.
3310	3330	Limestone, pinkish gray, fine grained.
3330	3340	Limestone, very fine grained dense, white chert.
3340	3360	Limestone, white to very light gray, microsucrosic, white chert.
3360	3370	Limestone, pinkish gray, very fine grained dense, medium dark gray shale.
3370	3400	Limestone, pinkish gray, fine grained.
3400	3440	Limestone, yellowish to pinkish gray, fine grained.
3440	3450	Limestone, light gray fine grained.
3450	3480	Limestone, pinkish gray, fine grained to dense.
3480	3490	Limestone, very light gray, fine grained to dense.
3490	3500	Same as above. Medium light gray shale.
3500	3520	Limestone, light gray, very fine grained, argillaceous.
3520	3540	Shale, light gray, calcareous.
3540	3550	Shale, light to medium light gray, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
3550	3560	Shale, medium light to greenish gray, calcareous.
3560	3570	Shale, greenish and light olive gray, hackly.
3570	3580	Shale, light olive gray.
3580	3590	Shale, light olive gray and greenish gray.
3590	3600	Shale, medium dark and light olive gray.
3600	3610	Shale, light olive gray and grayish red.
3610	3620	Shale, grayish red and greenish gray.
3620	3640	Shale, greenish gray and olive gray.
3640	3650	Shale, pale reddish brown.
3650	3660	Shale, pale reddish brown and light greenish gray.
3660	3670	Shale grayish red.
3670	3680	Shale, grayish red. Fine to very fine grained quartz.
3680	3690	Sandstone, very fine to medium grained, poorly sorted, subrounded to rounded, frosted, iron stained.
3690	3700	Sandstone, glauconitic to iron stained, very fine grained friable.
3700	3710	Sandstone, frosted slightly, iron stained and glauconitic, very fine grained, well sorted, rounded.
3710	3718	Missing sample.
3718	3728	Sandstone, white frosted, slightly iron stained, rounded to subrounded, very fine to fine grained.
3728	3735	Granite, pink, much weathered.