Summary of the Phillips Petroleum Company, Phillips - Carter No. Dak. No. 1
Morton County, North Dakota
Well No. 26 - Permit No. 42

by Richard Maywald

Phillips Petroleum Company, Phillips - Carter North Dakota No. 1, Morton County, North Dakota, Location: C NE NW Section 29, T. 136N., R. 81W.
Elevation: 1991 ground, 2005 K.B.

The Phillips Petroleum Company, Phillips - Carter North Dakota No. 1 was spudded December 30, 1950, drilled to a total depth of 7790, found dry, and plugged June 8, 1951.

Logging Record: Schlumberger electric log.

Coring Record:
3136 - 3140 4921 - 4942
3162 - 3179 5670 - 5709
4021 - 4036 5720 - 6066
4210 - 4226 7788 - 7790
4450 - 4500

Testing Record:
DST #1, 4912-22: Open 2 hours, shut in 15 minutes, received 25' drilling fluid, 720' black sulfur water and 1/2 pt. 30º brown oil in test tool. Initial hydrostatic mud pressure 2631 psi, initial flow pressure 295 psi, final flow pressure 468 psi, shut in pressure 1965 psi, final hydrostatic mud pressure 2602 psi.

Casing Record:
15 1/2" at 20' with 27 sacks cement
13-3/8" at 405.96 with 500 sacks cement

Plugging Record:
50 sacks cement at 4925
100 sacks cement at 3850
70 sacks cement at 3200
300 sacks cement at 780
6 sacks cement at surface

Formation tops were determined from samples and electric logs. Doubtful or obscure formation tops were not picked. Color names and identifying numbers are taken from the 1948 Rock-color Chart which is distributed by the National Research Council, Washington, D.C.

FORMATION TOPS

Cretaceous system
Pierre formation 722
Greenhorn formation 2450
Dakota Group sandstones


“Muddy” formation 2875
Basal Cretaceous sandstones 3105

Jurassic system
Piper limestone 3652

Triassic system
Spearfish formation 3870

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Mississippian system
Amsden formation 4010

Big Snowy group 4070
Charles formation 4410
Mission Canyon formation 4745 ?
Lodgepole formation 5035
Englewood formation 5580

Devonian system
Lyleton formation 5615
Nisku formation 5650
Duperow formation 5710
Ashern formation 6050 ?

Silurian system
Interlake group 6100

Ordovician system
Stony Mountain formation
  Upper member 6315
  Lower member 6400
Red River formation 6495
Winnipeg formation
  Shale member 7180
  Sand member 7315

Cambrian system 7440
Pre-Cambrian 7790
Total Depth 7790

0-30 Sandstone, pale yellowish, fine grained, friable, subangular quartz grains.
30-45 Sandstone, light olive gray, fine-grained, subangular quartz with scattered dark mineral grains.
45-80 Sandstone, dark yellowish brown, friable with very fine-grained sand surrounding fine grained quartz.
80-200 Shale, pale yellowish brown, spongy to compact, sandy micaceous.
200-210 Siltstone, grayish orange pink, very fine grained, micaceous, scattered lignitic material, friable.
340-410 Shale, light brownish gray, finely micaceous, compact, sandy.
410-480 Sandstone, pale yellowish brown, very fine grained, calcareous, spongy.
480-550 Sandstone, as above, but more compact, and grading in color to light olive gray, and micaceous.
550-710 Sandstone, light greenish gray (5GY6/1) very fine grained, medium compact, calcareous, abundant dark green mineral grains.
710-740 Sandstone, as above, but grading into a siltstone texture.
740-830 Sandstone, yellowish gray (5Y7/2) micaceous, compact, very fine grained.
830-850  Shale, light olive gray (5Y6/1) finely micaceous, lumpy and compact, lignitic fragments.
850-870  Sandstone, yellowish gray, compact, calcareous, micaceous, silty.
870-980  Shale, light brownish gray, lumpy and compact, bentonitic, slightly calcareous, scattered pyrite and mica.
980-1000 No samples.
1000-1020 Shale, as above, some scattered black lignitic material.
1020-1100 Shale, light gray, lumpy and compact, very finely micaceous, bentonitic.
1100-1260 Shale, medium light gray, flaky and brittle, bentonitic.
1260-1300 Shale, light gray, scattered medium sized biotite flakes, brittle and lumpy, slightly calcareous, bentonitic.
1300-1410 Shale, light gray, lumpy and compact, slightly bentonitic.
1410-1430 Shale, as above, scattered, pieces of white bentonite, bentonitic.
1430-1510 Shale, as above bentonitic.
1510-1540 Shale, as above, with white bentonite, bentonitic.
1540-1550 Shale, as above with Inoceramus prisms.
1550-1580 Shale, light gray, lumpy and compact, white bentonite, bentonitic.
1580-1630 Shale, light gray, lumpy and compact, bentonitic.
1630-1660 Shale, brownish gray, lumpy and compact, layers of white, bentonite.
1660-1720 Missing.
1720-1780 Shale, medium light gray, lumpy and compact, bentonitic, some white bentonite.
1780-1870 Shale, medium gray, lumpy and spongy, bentonitic, some white bentonite, slightly calcareous to calcareous.
1990-2060 Shale, light gray, lumpy and compact, calcareous, bentonitic, white bentonite.
2060-2140 Shale, light gray, lumpy and compact, bentonitic.
2140-2150 Missing.
2150-2400 Shale, as above, scattered white bentonite.
2400-2450 Shale, medium gray, lumpy and spongy, bentonitic, from 2410-2420 abundant white bentonite.
2450-2500 Shale, medium gray, lumpy and spongy, bentonitic, white bentonite, Inoceramus prisms, calcareous.
2500-2550 Limy shale, light gray, abundant “white specks”, lumpy and compact, scattered Inoceramus prisms.
2550-2600 Limy shale, medium gray, with gradually fewer “white specks”, lumpy and compact, scattered Inoceramus prisms, some particles of white bentonite.
2600-2790 Shale, medium dark gray, laminated and compact, calcareous, scattered fragments of a light gray, limy shale, scattered Inoceramus fragments.
2790-2830 Shale, medium gray, lumpy and compact, bentonitic, calcareous.
2830-2900 Shale, medium dark gray, laminated and compact, bentonitic, finely micaceous.
2900-3030 Shale, medium dark gray, flaky and brittle, finely micaceous, some Inoceramus fragments scattered at intervals; some black carbonaceous fragments.
3030-3050 Shale as above, shale, medium light gray, lumpy and compact.
3050-3120 Shale, medium gray, flaky and brittle, finely micaceous.
3120-3210  Shale, medium gray to light gray, flaky and brittle, the medium gray shale is silty.
3210-3280  Silty shale, light gray, lumpy and compact, unconsolidated sand, medium to coarse-grained, subrounded, coarse grained sandstone, grains subrounded, cemented with pyritic cement, abundant subangular coarse grained quartz.
3280-3300  Shale, light gray, lumpy and spongy, slightly calcareous, silty.
3300-3330  Shale, light gray, lumpy and compact, finely micaceous.
3330-3350  Shale, greenish gray, laminated and compact, very bentonitic.
3350-3420  Sandstone, grayish orange pinks very fine-grained, friable calcareous cemented, green shale as above, scattered pieces of white bentonite.
3420-3460  Sandstone, light brown (5YR6/4), very fine grained, calcareous cement.
3460-3490  Sandstone, pale yellowish brown (10YR6/2), very fine grained, calcareous very finely micaceous.
3490-3500  Sandy siltstone, light brownish gray, argillaceous, finely micaceous.
3500-3530  Silty shale, light olive gray (5Y6/1), calcareous and bentonitic, finely micaceous.
3530-3560  Shale, medium gray, platy, finely micaceous.
3560-3600  Siltstone, pale yellowish brown, compact, argillaceous.
3600-3620  Shale, limy, light brown (5YR6/4), massive, shaly cavings from above.
3620-3670  Shale as above.
3670-3690  Limestone, grayish orange pink, sublithographic, subangular, shale cavings from above.
3690-3710  Shale, medium gray, flaky, slightly calcareous, bentonitic.
3710-3770  Dolomite, pinkish gray, dense, very finely crystalline, subangular, shale cavings from above.
3770-3800  Shale, moderate reddish orange (10R6/6) massive, with scattered particles of white sucrosic gypsum.
3800-3830  Gypsum, white sucrosic, shale as above.
3830-3850  Shale, medium light gray, flaky, brittle.
3850-3940  Sandstone, medium fine grained, rounded grains, friable, moderate orange pink, shale cavings from above.
3940-3950  Poor sample.
3950-4040  Missing.
4040-4050  Poor sample.
4050-4070  Shale, medium gray, splintery, brittle.
4070-4090  Shale, medium dark gray, finely micaceous, platy, brittle.
4090-4120  Missing.
4120-4180  Shale as above, moderate reddish orange shale cavings.
4180-4200  Missing.
4200-4310  Shales as above, white anhydrite and moderate reddish orange shale cavings.
4310-4340  Shale, light brown (5YR6/4), waxy, lumpy, brittle, moderate reddish brown and medium gray shale cavings.
4340-4390  Shale, medium gray, platy, brittle some pyrite, moderate reddish orange shale cavings.
4390-4340  Limestone, very light gray, sublithographic, massive, dense.
4340-4440  Missing.
4440-4450  Limestone, pale yellowish brown, fine grainy texture, angular fragments, shale, medium gray, flaky, brittle.
4450-4500  Missing.
4500-4610  Dolomitic limestone, grayish orange pink to light brownish gray, fine grainy texture, subangular fragments, some gray flaky shale cavings.
4610-4620  Limestone, light brownish gray, fine grainy textured, subangular fragments, sparse fossil fragments.
4620-4640  Dolomite, very light gray, microsucrosic, subangular fragments.
4640-4650  Dolomite, grayish orange pink, very finely crystalline, angular fragments, anhydrite, white, sucrosic.
4650-4700  Dolomite, grayish orange pink, very finely crystalline, semi-angular fragments, shale, brownish gray, long tabular fragments, brittle, from 4680-4700 traces of a lumpy, grayish orange shale.
4700-4740  Limestone, light brownish gray, very finely crystalline, microsucrosic texture, some small fossil shells replaced with calcite. Limestone, medium gray, very finely crystalline, somewhat argillaceous to shaly.
4740-4770  Anhydrite, pale bluish to white, microsucrosic to sucrosic textures.
4770-4790  Shale, medium dark gray, limy, silky luster, platy, brittle, anhydrite as above.
4790-4810  Limestone, pinkish gray, finely crystalline, grainy texture, some fine pinpoint porosity, fragments are subangular, some authigenic calcite.
4810-4840  Limestone, as above, texture is microsucrosic. Microfossils at 4830-4860. Very fine pinpoint porosity.
4840-4890  Limestone, pinkish gray, sublithographic, very dense.
4890-4920  Described under the core chip descriptions.
4920-4942  Limestone, pale yellowish brown, composed of small spherical to elliptical shaped oolites with some scattered porosity between the oolites, much medium gray shale from caving. Poor samples.
5000-5060  Limestone, grayish orange pink (5YR7/2), composed of small irregular to flatten oolites with fair to poor porosity, secondary calcite filling the spaces between the oolites.
5060-5100  Limestone, light gray, some scattered shell fragments, oolitic as above, poor porosity.
5100-5160  Limestone, as above, but little if any porosity texture is more grainy instead of being oolitic.
5160-5270  Limestone, as above, but increasing number of shell fragments, no porosity.
5270-5370  Limestone, as above, fine grained, angular fragments, grainy texture, medium gray shale, from caving. From 5320 to 5360 are brachiopod fragments.
5370-5460  Limestone, pinkish gray to light gray, small spherical oolitic with fine porosity to a finely crystalline texture, fragments are semi-rounded, scattered fossil shell fragments, scattered fragments of dark gray shale.
5460-5560  Limestone, pinkish gray, finely crystalline, subangular fragments, some white, microsucrosic limestone.
5560-5580  Shale, dark gray, platy, compact, some scattered limestone fragments, medium gray, medium grained.
5580-5590  Limestone, pinkish to light gray, very fine grained, angular fragments.
5590-5610  Poor samples.
5610-5630  Limestone, pinkish gray, very fine grained, semi-angular fragments.
5630-5670  Limestone, brownish gray, fine grained, subcrystalline texture, angular fragments, some light gray, platy fragments of shale.
5670-6066  Missing.
6066-6100  Limestone, pinkish gray, microsucrosic, limestone, light gray, fine-grained with ostracode fossils at 6080-6090.
6100-6110  Dolomite, very pale orange, with scattered, well-rounded quartz grains inbedded in the dolomite.
6110-6140  Limestone, pinkish gray, lithographic, subangular fragments.
6140-6160  Shale, light gray, lumpy, compact, some pyrite, scattered fragments of above limestone.
6160-6280  Dolomite, pinkish gray, fine grained, grading to a grainy texture, small angular fragments.
6280-6320  Dolomite, light gray, sublithographic, small semi-angular fragments, dolomite fragments as above.
6320-6380  Shale, light gray with some pyrite to brownish gray, finely foliated, compact, (6330-6370) is missing.
6380-6390  Dolomite, very light gray as above.
6390-6410  Missing.
6410-6420  Dolomite, yellowish gray (5Y7/2), very finely crystalline, microsucrosic, semi-angular fragments.
6420-6450  Limestone, mottled light gray color, very fine grained, finely fossiliferous, small angular fragments, some scattered pyrite.
6450-6480  Shale, medium dark gray, fissile, brittle, scattered limestone, as above.
6480-6520  Limestone, as above, sublithographic, fossil fragments.
6520-6550  Dolomite, very light gray, very finely crystalline, microsucrosic.
6550-6570  Limestone, mottled light gray, very finely crystalline, fossiliferous (Ostracodes); some scattered pore spaces, secondary calcite.
6570-6680  Dolomite, pinkish gray, very finely crystalline, evenly textured, angular fragments, from 6600-6620 some fossil ostracodes. From 6600-6630 some medium dark gray, fissile shale.
6680-6770  Limestone, pinkish gray, very finely crystalline, evenly textured, angular fragments, very finely porous, some fossil ostracodes and shells.
6770-7090  Limestone, as above, but more dense, microsucrosic, more shell fossils, color grading to a very light gray.
7090-7130  Limestone, very light gray, silty shale, moderate red (5R5/4), lumpy, shale, medium gray, platy, brittle, some pyrite.
7130-7180  Sandstone, very fine grained, very light gray, well cemented, composed essentially of very small quartz grains.
7180-7450  Shale, greenish gray (5G6/1), waxy, luster, fractured into thin tabular fragments, brittle, shale is fissile. From 7330 scattered fragments of fine-grained quartzose sandstone with well rounded grains.
7450-7530  Shale, as above, scattered sand grains, fine to medium size, well rounded white to clear quartz.
7530-7560  Shale, as above, scattered fragments of sandstone composed of fine-grained well rounded quartz grains with green glauconitic sand grains among them.
Shale, as above.
Sandstone, fine grained, well cemented, glauconitic, composed essentially of quartz, shale as above.
Shale, dark greenish gray, waxy luster, fractures into thin, tabular fragments, brittle.
Total Depth.

Core Chips Description
Shale, pinkish gray (5YR8/1), dense lumpy, scattered, small siderite nodules, some streaks of iron oxide staining along fracture planes.
Argillaceous quartzose fine grained sandstone, loosely cemented, grayish orange pink (5YR7/2) color. The grains are subrounded to subangular, clear quartz.
Dolomite, grayish pink (5R8/2) very fine grained, scattered pinpoint porosity, hard and dense.
Quartzose fine grained sandstone, pinkish gray (5Y8/1) well cemented, hard.
Shale, dark gray, laminated, compact, finely micaeous, dolomite, finely to medium fine crystalline, medium grainy, very hard, has a grainy texture.
Dolomite, mottled light gray, very finely crystalline, medium to spongy hardness, dense.
Shale, medium gray, massive, slightly calcareous, dense and compact.
Limestone, medium gray, highly brecciated, angular fragments surrounded by a matrix of finer fragments, well consolidated and cemented.
Anhydrite, white to light gray, very fine grained, dense, massive.
Dolomite, light gray, argillaceous, very fine grained, compact, dense, massive.
Anhydrite, white to pale blue, very fine grained, dense.
Limy dolomite, pale yellowish to dark brown, medium sized rhombic crystals, very dense and compact.
Limestone, grayish orange pink (5YR7/2), very fine grained, dense with large dusky yellowish brown rhombic crystals set in thin layers in the finer matrix.
Limestone, pale yellowish brown (10YR6/2) very fine grained, fair porosity secondary calcite replacing fossils.
Limestone, as above, poor pinpoint porosity, pseudo-oolitic structure, dense.
Limestone, pale yellowish brown (10YR6/2) very fine grained, microsucrosic texture, dense.
Limestone, as above.
Anhydrite, mottled white and pale blue color, very fine grained, dense.
Limestone, pale yellowish brown, very fine grained, dense, shows some thin banding.
Limestone, as above, but yellowish gray (5Y7/2), and sub-lithographic.
Limestone, very pale orange, numerous replaced small fossil shells, scattered pinpoint porosity.
Limestone, as above, but little to no porosity.
Dolomite, pale yellowish brown, very fine-grained, microsucrosic texture, dense.
Dolomite, greenish gray (5GY6/1) very fine grained and dense, has anhydrite inclusions and fine to medium sized well rounded quartz grains scattered in a thin layer through the dolomite, the dolomite is somewhat shaly.

Limestone, pale yellowish brown, very fine grained, grainy texture, scattered microfossils, very dense and hard, grades into a microsucrosic texture.

Dolomite, pale yellowish brown, very fine grained microsucrosic texture very dense and hard.

Limestone, pale yellowish brown, very fine grained, microsucrosic texture, very dense and hard, some pale bluish gray anhydrite.

Anhydrite, pale bluish gray, dense and very finely crystalline, color grades to pale brown.

Dolomite, pale yellowish brown, very fine grained, microsucrosic texture, hard and dense.

Limestone, pale yellowish brown, very fine grained some microfossils, hard and dense, secondary calcite filling fissures and vugs.

Anhydrite, greenish gray, very fine grained, dense.

Limestone, medium light gray, medium sized grains, grainy texture, dense.

Limestone, yellowish gray (5Y7/2), very finely crystalline, finely fossiliferous, dense and hard.

Dolomite, very pale orange, sublithographic, hard and dense.

Limestone, pale yellowish brown, medium grained, finely fossiliferous, very dense and hard.

Dolomite, bluish white, very fine grained, dense, has anhydrite nodules scattered in the dolomite. At 5911-5914 is some red anhydrite.

Limy shale, grading into limestone, medium gray, finely crystalline microfossils in thin parallel layers, shows a banded structure.

Dolomite, yellowish gray to bluish gray, fine grained, dense, anhydritic.

Limestone, yellowish gray, sublithographic, very dense, all fossils replaced by calcite.

Dolomite, very light gray, very fine grained, dense.

Limestone, very pale yellowish brown, very fine-grained, microsucrosic texture pore openings, hard and dense.

Limestone, as above, but without the pore openings.

Limestone, light olive gray (5Y6/1), sublithographic, dense, scattered fossil fragments.

Sandy dolomite, fine to medium sized well rounded quartz grains scattered in a matrix of finely crystalline, very light gray dolomite.

Quartzose biotite schist, mottled light to dark greenish black, vitreous to splintery luster, highly biotitic, showing good lineation, green mineral scattered throughout (hornblende?), has stringers of calcite filling fractures.