

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 169

Summary of the Caroline, Hunt Trust Estate - C. A. Pfeiffer No. 1
Sheridan County, North Dakota
Well No. 735 - Permit No. 749

By James Peterson
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Caroline Hunt Trust Estate, C. A. Pfeiffer No. 1, Sheridan County, North Dakota. Location: 660 feet from the south line and 662 feet from the west line of Sec. 16, T. 146N., R 74W., Elevation: 1983 ground, 1993 D.F., 1994 K.B.

The Caroline Hunt Trust Estate, C. A. Pfeiffer No. 1 was spudded October 5, 1954, drilled to a total depth of 6342, found dry, and plugged October 31, 1954.

Logging Record:

Gamma Ray-Neutron, Electric Micrologging by Schlumberger.

Casing Record:

10 3/4" Surface casing at 356' with 250 sacks cement.

Plugging Record:

0 to 10' 10 sacks cement
270 to 356' 30 sacks cement
2623 to 2680' 20 sacks cement
3193 to 3250' 20 sacks cement
3863 to 3920' 20 sacks cement

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	610
Niobrara formation	1654
Greenhorn formation	2112
Dakota Group Sands	
Dakota silt	2625
Dakota sand	2688
Jurassic System	
Top of Jurassic	2915
Piper formation	3220
Triassic System	
Spearfish formation	3420
Mississippian System	
Charles formation	3470
Mission Canyon formation	3755 (Electric Log)
Mission Canyon 2	3886
Lodgepole formation	4020

Englewood formation	4594
Devonian System	
Lyleton formation	4610
Nisku formation	4622
Duperow formation	4654
Dawson bay formation	4870
Winnipegosis formation	4952
Ashern	5030
Silurian System	
Interlake group	5070
Ordovician System	
Stony Mountain formation	5395
Red River formation	5500
Winnipeg formation	
Shale member	6115
Sand member	6290
360-390	Shale, medium light gray, lumpy, bentonitic, silty, lignite.
390-420	Shale as above, dolomitic limestone, pinkish gray to light brownish gray, subcrystalline.
420-480	Sandstone, very light gray, medium grained, angular to sub-angular. Composed largely of quartz, glauconite, magnetite, calcareous.
480-570	Shale, medium light gray, lumpy, spongy, silty, slightly calcareous, shale moderate brown (5YR4/4), calcareous, dolomitic limestone, pinkish gray, sandstone as above.
570-600	As above, lignite.
600-690	Shale, greenish gray to pale yellowish brown, lumpy, spongy, slightly calcareous, some fragments, silty.
690-720	Shale as above, green specks in greenish gray shale.
720-960	Shale, medium gray, earthy, lumpy, slightly bentonitic, calcareous, some pyrite.
960-1500	Shale, medium light gray to medium gray, earthy, fairly compact, shale as above, white bentonite.
1500-1620	Shale, medium gray, lumpy, calcareous, some bentonite, shale, medium dark gray, massive, slightly calcareous.
1620-1740	Shale, medium gray, massive, fairly compact, soft white calcareous specks in shale; shale, medium dark gray, platy to lumpy, white bentonite.
1740-2040	Shale, medium light gray to medium gray, lumpy, earthy, calcareous, some calcareous white specks, shale, medium dark gray, as above, white bentonite, some pyrite crystals.
2040-2140	Shale as above, shell fragments.
2140-2180	Shale, medium dark gray, massive, white calcareous specks in shale; shale medium to medium dark gray, platy to lumpy, medium gray shale, calcareous, shell fragments, yellowish gray calcite.
2180-2200	Shale, medium dark gray, massive, calcareous white specks in shale.
2200-2240	Shale as above, shale medium light gray, lumpy, calcareous, limestone, yellowish gray, shell fragments.
2240-2340	Shale, medium gray, lumpy, calcareous to medium dark gray, platy.
2340-2380	Shale as above, white bentonite.
2380-2500	Shale, medium dark gray to dark gray, platy to shale, medium gray to medium dark gray, lumpy, bentonitic, lightly calcareous.

2500-2620 Shale, medium gray to medium dark gray, lumpy, slightly calcareous, some fragments bentonitic, shale, medium dark gray, platy.

2620-2700 Shale medium light gray to medium gray, lumpy, slightly calcareous containing some bentonite; shale, medium gray to medium dark gray, platy.

2700-2760 Sandstone, very light gray, angular to sub-angular, very fine grained, silty, calcareous, micaceous, some pyrite. Also reddish orange sandstone, very fine grained, dolomitic, well cemented.

2760-2800 Sandstone, very light gray to moderate reddish orange, medium to coarse, sub-angular to globular grains frosted to vitreous luster, friable.

2800-2810 Sandstone as above, shale medium gray, lumpy structure, earthy luster, spongy, sand grain inclusions, to medium dark gray, platy shale.

2810-2820 Shale as above, some sandstone.

2820-2850 Shale, medium dark gray, platy, compact, shale, medium gray, lumpy.

2850-2910 Sand, very light gray, coarse grained to granules, sub-angular to globular frosted to vitreous, pitted, shale as above.

2910-2980 Shale, medium light gray to dark gray, platy to fissile, sand grains, coarse siltstone, very light gray, calcareous.

2980-2990 Shale, medium dark gray to dark gray, platy, sooty luster, compact.

2990-3020 Shale, medium gray to medium dark gray, platy, compact. Siltstone to very fine grained sandstone, very light gray.

3020-3030 Shale as above, sandstone, very light gray, fine grained, milky limestone matrix.

3030-3050 Shale as above, siltstone, very light gray, calcareous.

3050-3060 Shale as above, limestone, light gray, sublithographic; sub-crystalline, argillaceous.

3060-3080 Shale, limestone as above, also very coarse sand grains and fragments of sandstone, fine grained, calcareous.

3080-3120 Shale, medium light gray to medium dark gray, platy, compact, also shale, medium light gray, lumpy.

3120-3150 Shale medium gray to dark gray platy, compact.

3150-3170 Shale, moderate brown (5YR3/4), very calcareous, lumpy to angular, compact fragments, shale as above.

3170-3180 Shale, moderate brown, as above, anhydrite, white crystalline.

3180-3190 Shale, medium light gray, platy to medium dark gray, platy; shale as above.

3190-3210 Shale as above, limestone, white, chalky.

3210-3230 Shale as above, limestone, very light gray to light gray, sandy, argillaceous, a few white, vitreous, crystalline anhydrite fragments. Cavings.

3230-3330 Limestone, white, fine to finely crystalline, sublithographic, sub-angular, fragments, shale, anhydrite as above. A few fragments of greenish gray, (5GY6/1), subwaxy, slightly dolomitic, platy to fissile. Much cavings.

3330-3370 As above, chert, pinkish gray to light gray, sharp angular fragments.

3370-3430 Cavings, anhydrite, white, crystalline, shale, limestone, as above.

3430-3450 Shale, pale reddish brown (10R5/4), angular fragments, massive, slightly calcareous, sand and anhydrite inclusions, cavings.

3450-3460 Shale, moderate reddish brown (10R4/6), lumpy calcareous, soft, white anhydrite or gypsum and light gray shale inclusions. Also shale, light to medium gray, platy, fairly compact.

3460-3470 Shale, pale reddish brown (10R5/4), angular to sub-angular, slightly calcareous, massive, fairly compact. Shale, medium light gray to medium gray, fragments of gypsum and anhydrite.

3470-3490 Shale as above, anhydrite, white to pinkish gray, crystalline.

3490-3500 Sample as in 3450-3460 interval.

3500-3510 Sample as in 3460-3470 interval.

3510-3520 Calcitic dolomite, grayish red to very dark red, argillaceous to silty, sub-angular fragments, grainy texture; shale as above.

3520-3550 Limestone, pinkish gray, sublithographic, fragmental to fine grained, some recrystallization, parts chalky. Shale, anhydrite as above.

3550-3580 Limestone, light gray to light brownish gray, fragmental to fine, shale, pale reddish brown to light greenish gray; shale, anhydrite as above.

3580-3600 Limestone, very light gray to light brownish gray, angular fragments, subcrystalline, tight, limestone, very light gray, fragmental, shale, light gray, very calcareous to argillaceous, sublithographic limestone cavings.

3600-3610 Limestone, very light gray, fine to fragmental, shale as above, cavings.

3610-3620 Limestone, very light gray to light brownish gray, fragmental, limestone, light gray, sublithographic, shale, light gray to medium gray, cavings.

3620-3640 Shale, light gray to medium dark gray, platy, fairly compact to very light gray, calcareous shale. Also some pale reddish brown, slightly calcareous shale (as in 3460-3470 interval). Limestone as above.

3640-3660 Limestone, very light gray, fragmental, limestone, white to light gray subcrystalline, chalky to dense; shale as above, shell fragments, anhydrite, white, crystalline.

3660-3670 Shale, medium light gray, compact, silty, calcareous, shale medium light gray, calcareous to very argillaceous limestone; limestone light gray, subcrystalline.

3670-3680 Limestone, light gray, subcrystalline to finely crystalline, slightly argillaceous, sublithographic, anhydrite, white, crystalline, shale as above. Much cavings.

3680-3690 Limestone, light brownish gray, fragmental, anhydrite as above, cavings.

3690-3730 Anhydrite, white, crystalline; limestone as above, some light brownish gray, subcrystalline limestone, cavings.

3730-3750 Much cavings. Shale, medium gray to medium dark gray, platy; anhydrite as above, sandstone, very light gray, fine grained, calcareous.

3750-3770 Dolomite, very light gray to light gray, subcrystalline, sub-angular, slightly argillaceous, shale, anhydrite as above.

3770-3780 Dolomite, light gray, as above.

3780-3790 Limestone, pinkish gray, fine to fragmental, sublithographic, also some light brownish gray limestone, crystalline, dolomite as above; anhydrite, white, fine to finely crystalline.

3790-3800 Anhydrite as above, limestone, dolomite as above.

3800-3840 Limestone, very light gray, sublithographic, oolitic to fragmental. Some fragments show replacement by secondary anhydrite and some recrystallization. Shell fragments.

3840-3860 Limestone as above, anhydrite, very light gray, crystalline.

3860-3880 Limestone as above, limestone, very light gray, sublithographic, argillaceous.

3880-3890 Limestone, light brownish gray, argillaceous, replaced by varying amounts of crystalline, secondary anhydrite.

3890-3900 Anhydrite, white to very light gray, subcrystalline to crystalline; limestone as above.

3900-3910 Anhydrite as above, limestone, light brownish gray to brownish gray, fine to fragmental, some replacement by anhydrite, parts argillaceous, cavings.

3910-3920 Dolomite, light gray to light bluish gray, subcrystalline, dense, limestone, very light gray, fine to finely crystalline, showing secondary replacement by anhydrite, anhydrite as above, cavings.

3920-3940 Limestone, pale yellowish brown, finely crystalline, argillaceous, some fragments oolitic.

3940-3970 Limestone as above, also limestone, pale yellowish brown, oolitic to fragmental, shell fragments.

3970-4020 Limestone, white sublithographic, chalky, subcrystalline, limestone as above.

4020-4140 Limestone, very light gray to light gray, fragmental, sub-round to sub-angular, secondary recrystallization, some fragments argillaceous, fossiliferous. Limestone, white, subcrystalline, sublithographic.

4140-4200 Limestone, light gray to medium gray, fragmental, sub-angular, fossiliferous, some fragments argillaceous.

4200-4220 Limestone, very light gray to medium light gray, as above.

4220-4230 Limestone as above, a few chert fragments.

4230-4240 Limestone, pinkish gray to medium light gray, as above.

4240-4250 Limestone, very light gray to medium light gray, fragmental, fossiliferous, some fragments argillaceous.

4250-4270 Limestone, white, soft, chalky, limestone as above.

4270-4310 Limestone, light gray, subcrystalline, dense, argillaceous, sub-angular fragments, to light gray, fragmental, fossiliferous limestone.

4310-4320 Limestone, pinkish gray to light gray, fragmental to fine; silica granules, pinkish gray to pale reddish brown, sub-rounded.

4320-4340 Limestone, white, chalky to fragmental, limestone, granules as above, shell fragments.

4340-4360 Limestone, very light gray to medium light gray, fragmental, some fragments argillaceous, few fragments of white, finely crystalline anhydrite.

4360-4370 Limestone as above.

4370-4390 Chert, very light gray to medium light gray, angular fragments.

4390-4400 Chert, medium light gray, angular fragments, calcareous chert, light gray angular fragments; limestone, very light gray to medium light gray, fragmental.

4400-4430 Calcareous chert, light gray, angular fragments, subcrystalline, some fragments of light gray argillaceous limestone.

4430-4440 Calcareous chert, as above, very light gray to light gray fragmental limestone, limestone as above.

4440-4450 Limestone, light gray, fine to fragmental.

4450-4470 Limestone, light gray, subcrystalline, sublithographic, slightly argillaceous.

4470-4480 Limestone as above, calcareous chert, light gray, angular fragments.

4480-4490 Calcareous chert, very light gray to light gray; limestone, light gray, subcrystalline, argillaceous. A few white chert fragments.

4490-4530 Calcareous chert as above, limestone very light gray, sub-lithographic, argillaceous.

4530-4550 Siliceous limestone, very light gray, massive.

4550-4570 Limestone, very light gray, massive, subcrystalline.

4570-4580 Limestone as above; limestone, very light gray to pinkish gray, crystalline, vuggy, argillaceous, anhydrite, crystalline, vitreous.

4580-4600 Calcareous dolomite, very light gray to light brownish gray, fine to crystalline, vuggy, argillaceous, anhydrite as above.

4600-4610 Dolomite, light brownish gray, as above, anhydrite as above.

4610-4620 Missing.

4620-4640 Dolomitic limestone, pinkish gray to light brownish gray, fine to crystalline, vuggy, argillaceous.

4640-4650 Dolomite, pinkish gray, slightly calcitic, slightly argillaceous, finely crystalline to crystalline, vuggy.

4650-4670 Dolomite, light brownish gray, slightly calcitic, argillaceous, finely crystalline to crystalline, vuggy porosity.

4670-4690 Calcitic dolomite, light brownish gray to brownish gray, fine to crystalline, argillaceous, vuggy.

4690-4700 Limestone, very light gray to pinkish gray, subcrystalline to finely crystalline, calcitic dolomite as above.

4700-4710 Limestone, dolomite as above, calcitic dolomites very light gray to light brownish gray, fine to crystalline, vuggy.

4710-4740 Calcitic dolomite, light brownish gray, crystalline, vuggy, slightly argillaceous.

4740-4780 Calcitic dolomite, light brownish gray, subcrystalline to crystalline, as above.

4780-4800 Limestone, pinkish gray to light gray, subcrystalline, sublithographic, argillaceous.

4800-4820 Limestone as above, sand granules and pebbles, sub-round to sub-angular, calcitic dolomite, very light gray to light brownish gray, finely crystalline argillaceous, anhydrite, white, finely crystalline.

4820-4840 Sand, calcitic dolomite as above, also light brownish gray to pinkish gray, fine to fragmental limestone, anhydrite as above.

4840- Calcitic dolomite, very light gray to light brownish gray, subcrystalline to finely crystalline or microsucrosic, sublithographic, some anhydritic, argillaceous, anhydrite, sand as above.

4900-4920 Calcitic dolomite, very light gray to, pinkish gray, microsucrosic to finely crystalline, sublithographic, limestone, very light gray, subcrystalline, sublithographic, to light brownish gray, subcrystalline to crystalline limestone.

4920-4960 Limestone, pinkish gray, subcrystalline, sublithographic, to limestone very light gray to light brownish gray, crystalline to fragmental, calcitic dolomite as above, a few fragments of anhydrite, crystalline.

4960-5020 Limestone, pinkish gray to light gray, subcrystalline, dense, limestone light brownish gray, finely crystalline, argillaceous, some anhydrite inclusions.

5020-5030 Limestone, pinkish gray, subcrystalline, sublithographic, fossiliferous to limestone, pinkish gray to light brownish gray, fine to finely crystalline argillaceous.

5030-5070 Limestone, light gray, subcrystalline, limestone, white chalky, sublithographic, limestone, pinkish gray to light brownish gray, crystalline to argillaceous, shale, pale reddish brown, calcareous, massive.

5070-5100 Calcitic dolomite, pinkish gray to pale red, subcrystalline, sub-angular fragments, dense.

5100-5160 Calcitic dolomite as above, calcitic dolomite, pinkish gray to pale red, crystalline, vitreous.

5160-5200 Dolomite as above, dolomite, pale yellowish brown, finely crystalline to crystalline, parts argillaceous.

5200-5320 Calcitic dolomite, pinkish gray to pale brown, mostly sub-crystalline, some crystalline. Some fragments show vuggy porosity.

5320-5350 Calcitic dolomite, very pale orange to pale red, largely sub-crystalline, parts micro-sucrosic to crystalline, some fragments argillaceous. Limestone white, chalky.

5350-5370 Calcitic dolomite, grayish orange pink, crystalline, slightly argillaceous, pinpoint porosity, dolomite as above.

5370-5420 Calcitic dolomite, very light gray to light brownish gray, mostly finely crystalline, parts subcrystalline.

5420-5440 Limestone, very light gray to medium light gray, chalky to fragmental. Some white, crystalline, vitreous limestone, dolomite as above.

5440-5490 Limestone and dolomite as above, shale medium gray to dark gray, platy to fissile, fossiliferous, dolomite, pale red, sub-crystalline, cavings.

5490-5500 Shale, dark gray, fissile, compact.

5500-5530 Limestone, very light gray, subcrystalline, sublithographic to light brownish gray, subcrystalline, tight.

5530-5560 Limestone, very light gray to light gray, subcrystalline to micro-sucrosic, mostly sublithographic.

5560-5640 Dolomitic limestone to calcitic dolomite, very light gray, sub-crystalline, sublithographic.

5640-5710 Limestone, very light gray to light gray subcrystalline to finely crystalline, sublithographic, dolomitic limestone as above. Shell fragments.

5710-5740 Limestone, very light gray to pinkish gray, fine to fragmental, fossiliferous, anhydrite, crystalline.

5740-5920 Limestone, very light gray to pinkish gray, fine, finely crystalline to fragmental.

5920-5980 Limestone, very light gray to light gray, subcrystalline to finely crystalline, compact.

5980-6050 Limestone, very light gray to light gray, subcrystalline, some fragmental, compact, dense, very tight. Some fragments siliceous, fossiliferous.

6050-6120 Limestone as above, a few fragments of anhydrite, white crystalline, pyrite crystals.

6120-6140 Shale, greenish gray (5G6/1), thin bedded, slightly calcareous to very light gray, lumpy, limestone as above.

6140-6160 Shale, light greenish gray to brownish gray, lumpy, limestone inclusions, shale, dark gray to grayish black, thin bedded, compact, shale as above.

6160-6280 Shale, greenish gray (5G6/1) to olive gray, fissile, subwaxy.

6280-6290 Shale as above, sand granules, vitreous to frosted, round to subround.

6290-6310 Missing.
6310- Sandstone, very light gray, slightly calcareous matrix, vitreous
to frosted, grains round to sub-angular.