

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 124

Summary of Calvert Drilling Incorporated-Petra Stangeland #1
Renville County, North Dakota
Well #867 - Permit #880

by LaVerne B. Nelson
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Calvert Drilling Incorporated - Petra Stangeland #1, Renville County, North Dakota, NE SW Section 29, T. 162N., R. 86W., (200 feet NW of 1980 feet from south section line and 1980 feet from west section line). Elevation Ground 1759', K.B. 1768'.

The Calvert - Stangeland #1 was spudded May 10, 1955. 10 3/4 inch surface casing was set at 810 feet with 485 sacks of cement. The well was completed as a dry hole and was plugged and abandoned May 29, 1955. The well was drilled to a total depth of 5550 feet.

Plugging Record

From	To	Formation	No. Sacks Cement
0'	45'	Top Surface Pipe	5
810'	855'	Bottom Surface Pipe	15
3265'	3310'	Top Dakota Group	15
3680'	3725'	Top Cretaceous Lakota Sandstone	15
4100'	4145'	Top Jurassic Rierdon Formation	15
4360'	4405'	Top Gypsum Springs Formation	15
4750'	4795'	Top Charles Formation	15

The following formation tops were picked from samples and electric log. Not all lithologic tops were called in the following list. Colors were determined from Rock Color Chart.

FORMATION TOPS

Cretaceous System	
Pierre Formation	1160
Niobrara Formation	2412
Greenhorn Formation	2735
"Dakota"	2311
Jurassic System	
Top Jurassic System	3775
Piper Formation	4275
Triassic System	
Spearfish Formation	4463
Mississippian System	
Charles Formation	4733
Mission Canyon Formation	5280

40-250 Sand and gravel - glacial. Poorly sorted, fine to coarse, well rounded to angular, coated, pitted, and frosted. Some feldspar, biotite and heavy minerals.

250-520 Sand as above. Few fragments of well rounded, pebble size, fine grained limestone. Some light gray silt.

520-640 Sand as above. Few limestone fragments. Some lignite.

640-790 Sand, poorly sorted, fine to coarse grained, angular to globular, coated, pitted, frosted, and clear. Some dark heavy minerals and feldspar fragments. Some well rounded limestone pebbles.

790-920 Sand and silt. Very light gray and medium dark gray, argillaceous silt. Some very fine grained, well rounded quartz grains.

920-1130 Shale, light gray to medium light gray, silty, compact.

1130-1160 Shale, light brown and medium light gray, silty, massive, spongy to compact.

1160-2380 Shale, medium light gray, massive, compact to brittle, bentonitic. Traces of very fine crystalline, light brownish gray, limestone fragments.

2380-2470 Shale, dark gray, earthy luster, lumpy, calcareous, compact, first white specks. Traces of pyrite and fossil fragments.

2470-2740 Shale, medium light gray, earthy, massive, compact to brittle.

2740-2860 Shale, dark gray to black, earthy, massive, compact, second white specks, calcareous, few Inoceramus prisms.

2860-3160 Shale, dark gray to medium dark gray, earthy, fissile, compact to slightly brittle.

3160-3240 Shale, dark gray, earthy, flaky and fissile, compact to brittle.

3240-3320 Shale, medium gray, earthy, massive and flaky, spongy to compact.

3320-3500 Sandstone, white, very fine and fine grained, friable. Some medium to coarse, angular, vitreous quartz grains. Traces of pyrite. Some shale as above. Some glauconitic sandstone.

3500-3600 Shale, medium light gray, earthy, massive, compact. Some very fine grained, friable sandstone. Some siderite pellets.

3600-3660 Sand, medium to coarse, angular, poorly sorted, vitreous, pitted. Some shale as above.

3660-3760 Sandstone, white, very fine grained, friable. Some shale, medium gray, massive, earthy, compact. Few siderite pellets.

3760-3780 Limestone, white, fragmental, dense. Some shale as above.

3780-3820 Shale, greenish gray and medium gray, earthy, massive, compact.

3820-4030 Shale, greenish gray, medium gray and dark gray, earthy, flaky, compact. Some very fine grained, glauconitic, sandstone.

4030-4050 Shale, greenish gray, medium gray, dark gray, earthy and subwaxy, flaky, compact. Some moderate reddish brown shale. Some siltstone. Trace of pink granular anhydrite.

4050-4060 Shale, greenish gray, medium gray, dark gray, moderate reddish brown, earthy, compact.

4060-4100 Shale, as above. Little calcareous. Very fine grained sandstone.

4100-4150 Shale as above. Some fragmental limestone and very fine grained sandstone.

4150-4160 Shale, greenish gray and dark gray, earthy, massive, compact. Little reddish brown shale.

4160-4190 Shale, medium gray, greenish gray and moderate reddish brown variegated, earthy to waxy, compact, massive. Some very fine grained, calcareous, friable sandstone. Few fragments of fragmental limestone.

4190-4250 Some shale as above. Much very fine to fine grained, well sorted, calcareous, friable sandstone. Few fragments of very pale orange, fine granular limestone.

4250-4300 Shale, medium gray to greenish gray and moderate reddish brown, earthy, massive, compact to brittle. Some greenish gray, argillaceous siltstone and very pale orange, fine granular limestone.

4300-4380 Shale, medium gray, greenish gray and dark gray, massive, compact to brittle. Some very pale orange sublithographic limestone. Samples are poor.

4380-4480 Shale as above. Trace of white granular gypsum. Samples are very poor. 4400-4450 increase in amount of gypsum.

4480-4730 Siltstone, moderate reddish orange, argillaceous, medium grained quartz inclusions. Some shale and gypsum as above. 4480-4500

4730-4780 Anhydrite, grayish pink to pale red, dense, massive. Some yellowish gray, very fine granular limestone.

4780-4820 Limestone, yellowish gray, very fine granular, slightly fragmental, some brown anhydrite inclusions. Fair to good intergranular porosity.

4820-4840 Anhydrite, white, dense, granular to massive.

4840-4890 Shale, medium gray to greenish gray, earthy, massive, compact.

4890-4910 Anhydrite, bluish white, dense, massive.

4910-4940 Limestone, pale yellowish brown, fine granular, good intergranular porosity.

4940-4950 Anhydrite, white, granular.

4950-4960 Limestone, pale yellowish brown, fine granular, good intergranular porosity, brown, finely crystalline anhydrite inclusions.

4960-4990 Anhydrite, bluish gray, dense, massive.

4990-5040 Limestone, yellowish brown, fine granular, good intergranular porosity. Streaks of dense massive anhydrite.

5040-5060 Anhydrite, bluish gray, dense, massive.

5060-5070 Limestone, pale yellowish brown, fine granular and medium fragmental, fair to good porosity.

5070-5090 Anhydritic limestone, pale yellowish brown, fine to medium granular.

5090-5110 Anhydrite, medium gray, dense, massive.

5110-5140 Limestone, pale yellowish brown, fine to coarse oolites in fine granular matrix. Fair oolitic porosity. Anhydrite inclusions.

5140-5220 Limestone, pale yellowish brown, sublithographic to lithographic, dense. Some anhydrite. Poor porosity. Some oolitic limestone with poor porosity.

5220-5250 Limestone, pinkish gray to very pale orange, fine to coarse oolitic, fairly dense. Some fair to good intergranular and vuggy porosity. Some pinkish gray, fine granular limestone.

5250-5400 Limestone, pinkish gray to very pale orange, slightly oolitic to fine grained, dense, poor porosity. Streaks of good porosity.

5400-5420 Limestone, grayish orange pink to pinkish gray, fine to medium fragmental, fine grained to sublithographic matrix, good intergranular porosity.

5420-5430 Limestone as above. Samples are poor.

5430-5450 Limestone, pinkish gray to grayish orange pink, medium oolitic, good oolitic porosity.

5450-5470 Limestone, light brownish gray to brownish black in part, fine to medium granular, fairly dense and poor porosity.

5470-5520 Limestone, pale yellowish brown, fine to medium granular, good intergranular porosity.

5520 Limestone, pale yellowish brown, medium to coarse crystalline, dense.