

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 140

Summary of the Calvert Exploration Company - Christ Rau #1
Stutsman County, North Dakota
Well No. 669 - Permit No. 683

By Clarence Carlson
March, 1956

The Calvert Exploration Company-Rau #1 is located in SE, SW of Section 35, T. 139N., R. 68W., Elevation 1869' GL., 1880' K.B.

The Calvert Exploration Company-Rau #1 was spudded November 23, 1954, and 10 3/4" casing was set at 436 feet with 285 sacks of cement. The well was drilled to a total depth of 4100 feet, plugged and abandoned December 8, 1954.

Logs: Electric, Gamma Ray-Neutron

Cores: 3693-3703

Plugging Records:

3946 - 3991 with 15 sacks
3171 - 3216 with 15 sacks
2974 - 3019 with 15 sacks
2454 - 2499 with 15 sacks
2268 - 2313 with 15 sacks
2080 - 2115 with 15 sacks
Surface casing with 5 sacks

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

FORMATION TOPS

Cretaceous System	
Pierre Formation (samples)	130
Niobrara Formation	1072
Greenhorn Formation	1563
Dakota Group	1858
Dakota Group Sand	2082
Jurassic System	
Piper Lime	2353
Redbeds	2392
Mississippian System	
Mission Canyon Formation	2436
Lodgepole Formation	2506
Englewood Formation	2912
Devonian System	2944
Ordovician System	
Stony Mountain Formation	
Upper Member	3020
Lower Member	3112
Red River Formation	3170

Winnipeg Formation	3745	
With a sand unit from 3765		
to 3817 that is in the same		
stratigraphic position as		
sand previously described		
in the General Atlas Carbon		
Company-Ketterling #1		
and Calvert Nitschke #1		
Winnipeg Shale	3818	
Winnipeg Sand	3948	
Precambrian		
Granite	4098	
0-40		Sand, fine to coarse grained, subangular to rounded, quartz. Some grains of limestone and shale.
40-100		Sand, loose quartz grains as above, much light gray shale, some limestone grains.
100-130		Sand and gravel, composed of limestone, quartz, and various ingeous composition pebbles.
130-310		Shale, light gray, compact lumpy.
310-430		Shale, light gray, lumpy, compact, bentonitic.
430-880		Shale, medium gray to medium light gray, lumpy compact.
880-910		Shale, medium light gray, lumpy compact, with a little white bentonite.
910-970		Shale, medium light gray, lumpy, compact.
970-1090		Shale, medium dark gray, lumpy, compact.
1090-1210		Shale, medium dark gray, calcareous, white specked, lumpy, compact.
1210-1330		Shale, medium dark gray, foliated, spongy.
1330-1570		Shale, medium gray to medium dark gray, lumpy, compact.
1570-1690		Shale, medium dark gray, calcareous, white specked, foliated, spongy with many Inoceramus fragments.
1690-1780		Shale, medium dark gray to medium gray, lumpy to platy, compact, many Inoceramus fragments.
1780-1840		Shale, medium gray and medium dark gray, platy, compact.
1840-1870		Sandstone, light gray, fine to medium grained, subangular quartz, silty. Some shale, as above.
1870-1920		Shale, medium gray, lumpy, compact.
1920-1960		Shale, medium gray and medium dark gray, lumpy, compact. Some sandstone fine grained, with pyrite cement.
1960-1980		Shale, medium dark gray, platy, spongy to compact.
1980 2040		Shale, medium gray, platy to lumpy, compact, some loose, medium to coarse grained, subangular to subrounded quartz.
2040-2120		Shale, medium gray and medium dark gray, platy to lumpy, compact, with much pyrite.
2120-2160		Sandstone, very light gray to white, fine grained, calcareous, some pyrite and shale, as above.
2160-2180		Sand, loose quartz, medium to very coarse, subangular grains.
2180-2260		Sand, as above. Some shale, medium gray and pyrite.
2260-2340		Shale, medium gray, platy, compact, some sand, as above and pyrite.
2340-2350		Siltstone, light gray, calcareous, shale, medium gray, platy, compact. Some loose quartz and pyrite.

2350-2360 Limestone, white to light gray, fine grained, granular, slightly, argillaceous, silty.

2360-2370 Limestone, as above. Some shale, medium dark gray, platy compact.

2370-2390 Sandstone, light gray, fine to very fine grained, calcareous, shale, medium to medium dark gray, platy, compact.

2390-2410 Limestone, yellowish gray, fine grained, fragmental. Some sandstone as above.

2410-2420 Shale, pale red 10R6/2 to pale reddish brown, lumpy compact, calcareous. Some sandstone, as above.

2420-2440 Shale, moderate reddish orange to pale reddish brown, calcareous, lumpy, some gypsum.

2440-2450 Dolomite, grayish orange pink, very finely crystalline, dense.

2450-2470 Dolomite, as above and dolomite, grayish orange pink 10R8/2, very fine to fine grained granular, limey.

2470-2490 Limestone white to very light gray, fine grained, granular. Some dolomite as above.

2490-2510 Limestone white to very light gray, fine grained, granular with a few shell fragments, partly dense finely crystalline limestone.

2510-2530 Limestone grayish pink 5R8/2, fine grained, fragmental with some pale red 5R6/2, mottling. Some dolomite, grayish orange pink 5YR7/2, fine to medium crystalline, dense except for a few small vugs.

2530-2550 Limestone white, fine grained to finely crystalline, some limestone grayish pink, fine grained, granular.

2550-2570 Limestone white to grayish pink, finely crystalline dense and fine grained, granular with a few shell fragments, small amounts of white chert.

2570-2640 Limestone grayish orange pink, fine grained, granular, with a few shell fragments and some pale red mottling.

2640-2670 Limestone grayish orange pink, fine grained, fragmental, with a few shell fragments.

2670-2730 Limestone grayish orange pink, fine to medium grained, granular, some shell fragments.

2730-2750 Limestone grayish orange pink, fine to medium grained, granular, a few shell fragments, some white chert.

2750-2810 Limestone grayish orange pink, fine grained, granular to fragmental.

2810-2830 Limestone, white, fine grained, chalky.

2830-2840 Limestone pinkish gray, fine grained, fragmental, some white chalky limestone.

2840-2850 Limestone pinkish gray, fine grained, fragmental, some white chert.

2850-2860 Limestone yellowish gray, microsucrosic, some limestone as above and some white chert.

2860-2930 Limestone yellowish gray to grayish orange pink, fine grained, granular.

2930-2950 Shale, medium to medium dark gray, flaky, much limestone as above.

2950-2960 Limestone as above, a little dolomite, white to very light gray, fine grained, granular.

2960-2970 Dolomite, yellowish gray, finely crystalline, some limestone pinkish gray, fine grained granular good intergranular porosity with a few medium, frosted sand grains.

2970-3000 Limestone yellowish gray, fine to medium grained, granular good intergranular porosity, dolomitic, some dolomite, yellowish gray, finely crystalline dense.

3000-3020 Dolomite, pinkish gray, very finely crystalline, dense limey, dolomite, yellowish gray, fine to medium grained, granular, limey.

3020-3030 Dolomite, yellowish gray, finely crystalline and fine to medium grained, granular, limey.

3030-3050 Limestone light gray to yellowish gray, fine grained, fragmental, slightly argillaceous, some red mottling. Much dolomite, as above.

3050-3070 Limestone yellowish gray, finely crystalline, dense, some limestone yellowish gray, fine grained, fragmental with a few shell fragments.

3070-3080 Dolomite, grayish orange pink, microsucrosic limey.

3080-3090 Dolomite, as above, many coarse crystals of calcite, a little limestone light gray, fine grained argillaceous.

3090-3110 Limestone yellowish gray, very finely crystalline dense.

3110-3120 Dolomite, grayish orange pink, fine to medium grained, granular limey.

3120-3130 Dolomite, as above and limestone yellowish gray, finely crystalline dense.

3130-3150 Dolomite, grayish orange pink, fine grained granular, slightly argillaceous, some dolomite, fine to medium grained, granular.

3150-3170 Dolomite, grayish orange pink 5YR7/2 and pale red 5R6/2, fine to medium grained, granular, slightly argillaceous.

3170-3180 Dolomite, grayish orange pink, 5YR7/2 to yellowish gray, 5Y8/1, finely crystalline to fine grained granular.

3180-3196 Dolomite, pale red 10R6/2 and grayish orange pink 5YR7/2, finely crystalline and fine to medium grained, granular with fair to good intergranular porosity.

3196- Circulation 1 hour - Dolomite as above and dolomite, yellowish gray, finely crystalline to fine grained.

3196-3210 Limestone yellowish gray, finely crystalline to fine grained with a few medium crystals of anhydrite, some dolomite, as above.

3210-3230 Limestone yellowish gray, finely crystalline, anhydritic, some dolomite, yellowish gray, limey, microsucrosic.

3230-3240 Limestone as above and limestone yellowish gray, fine grained. Some dolomite, yellowish gray, fine to medium grained, slight to fair, intergranular porosity.

3240-3270 Dolomite, yellowish gray and pale red 10R6/2, fine grained, limey.

3270-3290 Dolomite, yellowish gray, fine grained, microsucrosic to sublithographic.

3290-3310 Dolomite as above, with a little chert.

3310-3350 Dolomite, yellowish gray, finely crystalline, dense to fine grained, granular, a little white chert.

3350-3400 Dolomite, yellowish gray to grayish orange pink 5YR7/2, finely crystalline dense.

3400-3420 Dolomite, yellowish gray to grayish orange pink finely crystalline, dense and fine grained, granular with good intergranular porosity.

3420-3440 Dolomite, grayish orange pink 5YR7/2 to moderate orange pink 5YR8/4, finely crystalline dense and fine to medium grained, granular, some white chert.

3440-3450 Dolomite, grayish orange pink, finely crystalline dense, some white chert.

3450-3480 Dolomite, as above, some dolomite, grayish orange pink, fine to medium grained, granular.

3480-3500 Dolomite, grayish orange pink, finely crystalline, dense some white chert, some limestone, pinkish gray, fine grained, grainy and a few Bryozoa fragments.

3500-3530 Limestone pinkish gray, fine grained, fragmental, some white and pinkish gray chert.

3530-3550 Limestone pinkish gray, as above. Much chert, white and pinkish gray.

3550-3580 Limestone grayish orange pink 5YR7/2 fine to medium grained, grainy, some white chert.

3580-3620 Dolomite, grayish orange pink, fine to medium grained, granular, limey, some white chert.

3620-3690 Limestone yellowish gray, very fine to fine grained, grainy, fragmental in part.

Cores:

3693-3703 Limestone light brownish gray, fine to medium crystalline, dense some shell fragments with a few thin brownish gray, shaly limestone layers.

Samples

3703-3710 Limestone yellowish gray and light brownish gray, fine grained, fragmental.

3710-3730 Limestone yellowish gray to light gray, fine grained, fragmental, slightly argillaceous.

3730-8760 Limestone yellowish gray to light gray, fine grained, fragmental, slightly argillaceous and some scattered pyrite.

3760-3770 Limestone light gray, fine grained, grainy, fragmental slightly argillaceous. Some sandstone very light gray, fine grained, slightly calcareous.

3770-3800 Sandstone as above.

3800-3820 Sandstone very light gray, fine grained, calcareous, a little limestone light gray, very fine grained, a little shale, greenish gray 5GY6/1, platy, compact calcareous.

3820-3880 Shale, greenish gray, 5GY6/1, platy, compact, slightly calcareous, a few ostracodes.

3880-3890 Shale, as above, a little sandstone light greenish gray, very fine grained, slightly calcareous argillaceous.

3890-3930 Shale, greenish gray 5GY6/1 and olive gray 5Y4/1 platy, compact, slightly calcareous.

3930-3950 Shale greenish gray, 5GY6/1, olive gray 5Y4/1 and grayish red 5R4/2, platy, compact.

3950-3970 Sand, loose, colorless, fine to medium, rounded to subrounded quartz grains, a little sandstone colorless, fine grained, friable.

3970-3990 Sandstone light gray to grayish red, fine to medium grained slightly calcareous and loose sand, as above, a little shale, medium gray.

3990-4000 Sandstone light gray to grayish red, fine to medium grained.

4000-4010 Sandstone light gray, very fine to fine grained, friable glauconitic.

4010-4060 Sandstone light gray to pale red, very fine to medium grained glauconitic, some loose, medium, rounded quartz grains.

4060-4080 Sandstone light gray to pinkish gray, fine to medium, rounded to subrounded grains, slightly calcareous.

4080-4090 Sand, loose, medium to coarse, rounded frosted quartz grains.

4090-4100 Sand, as above and a few pieces of pink granite.