

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 56

Summary of the Calvert Exploration Co. - Carbonneau No. 1

Bottineau County, North Dakota
Well No. 328, Permit No. 344

By Morton Strassberg

April 1954

Calvert Exploration-Carbonneau No. 1, Bottineau County, North Dakota, C NW 1/4 NW 1/2 Section 28, T. 162N., R74W. (660 feet from N. line and 660 feet from W. line). Elevation G.L. 1887, K.B. 1895.

The Calvert-Carbonneau No. 1 was spudded June 6, 1953 and 10 3/4 inch casing was set at 322 feet with 175 sacks of cement. The well was completed as a dry hole June 21, 1953 and was abandoned. Total depth 3865 feet.

Fifteen sack cement plugs were set at the following depths:

| | |
|-----------|-----------|
| 3737-3782 | 2190-2233 |
| 3066-3109 | 315- 358 |
| 2400-2443 | 0- 43 |

Cores were taken from 3030-3086 feet.

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

FORMATION TOPS

| <u>Formation</u> | <u>Tops</u> |
|----------------------|-------------|
| Cretaceous System | |
| Niobrara Formation | 1340 |
| Greenhorn Formation | 1806 |
| Dakota | 2192 |
| Jurassic System | |
| Morrison Formation | 2358 |
| Sundance Formation | 2450 |
| Piper Formation | 2777 |
| Triassic System | |
| Spearfish Formation | 3006 |
| Mississippian System | |
| Charles Formation | 3066 Core |
| Lodgepole Formation | 3100 |
| Englewood Formation | 3693 |
| Devonian System | |
| Lyleton Formation | 3713 |
| Nisku Formation | 3745 |
| Duperow Formation | 3843 |

| <u>From</u> | <u>To</u> | <u>Formation</u> |
|-------------|-----------|---|
| 410 | 450 | Shale, medium light gray, and grayish orange pink, calcareous, silty. |
| 450 | 500 | Shale, medium to medium light gray, calcareous. |
| 500 | 570 | Shale, medium gray and grayish orange pink. |
| 510 | 580 | Shale, medium light to medium gray. |
| 580 | 620 | Shale, medium gray. |
| 620 | 660 | Shale, medium light gray. |
| 660 | 730 | Shale, medium light to medium gray. |
| 730 | 1130 | Shale, medium light gray. |
| 1130 | 1190 | Shale, medium light gray. |
| 1190 | 1260 | Shale, medium light to medium gray. |
| 1260 | 1310 | Shale, medium light to medium dark gray and light brown calcareous. |
| 1310 | 1330 | Shale, medium light gray. |
| 1330 | 1340 | Shale, medium light gray and light brown calcareous. |
| 1340 | 1390 | Shale, medium dark to dark gray, white specks. |
| 1390 | 1400 | Shale, medium dark to dark gray, white specks, bentonitic. |
| 1400 | 1420 | Shale, medium light to medium gray, white specks, calcareous. |
| 1420 | 1610 | Shale, medium to medium dark gray, calcareous. |
| 1610 | 1680 | Shale, medium to medium dark and light olive gray, calcareous. |
| 1680 | 1690 | Shale, medium light to medium gray, calcareous. |
| 1690 | 1760 | Shale, medium to medium dark and olive gray, calcareous. |
| 1760 | 1780 | Shale, medium dark to dark gray. |
| 1780 | 1810 | Shale, medium dark to dark gray. |
| 1810 | 1830 | Shale, medium dark to dark gray, white specks, calcareous. |
| 1830 | 1840 | Shale, medium dark to dark gray, white specks, calcareous, calcite prisms. |
| 1840 | 1910 | Shale, medium light to dark gray, white specks, calcareous. |
| 1910 | 1990 | Shale, medium to medium dark gray, white specks, calcareous. |
| 1990 | 2010 | Shale, medium light to dark gray, white specks, calcareous. |
| 2010 | 2090 | Shale, medium light to medium gray, calcareous. |
| 2090 | 2100 | Shale, light to medium dark gray. |
| 2100 | 2110 | Shale, light to medium dark gray, coarse to very coarse, subangular, frosted free quartz. |
| 2110 | 2190 | Shale, medium light to medium dark gray. |
| 2190 | 2210 | Shale, light to medium dark gray, coarse to very coarse grained, subrounded to subangular, frosted quartz. |
| 2210 | 2230 | Sandstone, medium to very coarse grained, subangular to subrounded, frosted. Medium light to medium gray shale. |
| 2230 | 2240 | Shale, medium to medium light gray. |
| 2240 | 2250 | Sandstone, medium to coarse grained, subangular, frosted. |
| 2250 | 2270 | Sandstone, medium to very coarse grained, subangular to subrounded, frosted. |
| 2270 | 2280 | Shale, medium to medium dark gray, calcareous, coarse to very coarse grained free quartz. |
| 2280 | 2290 | Sandstone, coarse to very coarse grained, subrounded, frosted. |
| 2290 | 2300 | Shale, medium light to medium gray, coarse grained free quartz. |

| <u>From</u> | <u>To</u> | <u>Formation</u> |
|-------------|-----------|--|
| 2300 | 2310 | Shale, medium light to medium gray fine, grained, calcareous sandstone and coarse grained free quartz. |
| 2310 | 2390 | Shale, medium light to medium gray, coarse grained free quartz. |
| 2390 | 2450 | Shale, medium light to medium gray, very fine grained sandstone, bentonitic. |
| 2450 | 2470 | Shale, medium light to medium and light olive gray, bentonitic calcareous. |
| 2470 | 2480 | Shale, medium light to light greenish gray, bentonitic. |
| 2480 | 2500 | Limestone, white, oolitic, arenaceous. |
| 2500 | 2530 | Shale, medium light to medium dark gray, calcareous, white oolitic, arenaceous limestone. |
| 2530 | 2580 | Shale, medium light to medium gray and light brown. Very fine grained calcareous sandstone. |
| 2580 | 2590 | Shale, medium light to medium gray, calcareous. Very fine grained calcareous, sandstone. |
| 2590 | 2610 | Shale, medium light to medium gray and light brown silty. |
| 2610 | 2630 | Shale, medium light to greenish gray and pale reddish brown. |
| 2630 | 2670 | Shale, medium light to greenish gray and light brown, silty, calcareous. |
| 2670 | 2720 | Shale, medium light to greenish gray and pale reddish brown. |
| 2720 | 2780 | Shale, medium light gray, light brown and pale reddish brown, silty. |
| 2780 | 2800 | Limestone, yellowish gray, fine grained to chalky, medium light gray pale reddish brown and greenish gray shale. |
| 2800 | 2820 | Shale, medium light and pale reddish brown, very light gray fine grained limestone. |
| 2820 | 2840 | Limestone, very light gray, sublithographic. |
| 2840 | 2875 | Shale, medium light to medium gray and pale reddish brown, very light gray sublithographic limestone. |
| 2875 | 2890 | Limestone, white sublithographic, medium light to greenish gray shale. |
| 2890 | 2920 | Shale, medium light to medium gray, calcareous and pale reddish brown. |
| 2920 | 2955 | Shale, medium light to medium gray and pale reddish brown, calcareous, white anhydrite. |
| 2955 | 2985 | Shale, medium light to pale reddish brown, calcareous, white anhydrite. |
| 2985 | 3010 | Shale, medium light to medium gray and pale reddish brown, calcareous, white anhydrite. |
| 3010 | | Shale, 3/4 hr. circulation, pale reddish brown and medium light gray calcareous, white anhydrite. |
| 3010 | 3030 | Shale, pale reddish brown and medium light gray, calcareous, white anhydrite. |
| 3030 | | 3/4 circulation, shale, pale reddish brown and medium light gray calcareous, pale reddish brown siltstone. |
| 3030 | 3031 | Core, shale, grayish red to light brown, arenaceous. |
| 3031 | 3036 | Siltstone, light brown, argillaceous. |
| 3036 | 3049 | Siltstone, light brown to pale reddish brown, argillaceous, arenaceous. |
| 3049 | 3054 | Siltstone, pale reddish brown, argillaceous, anhydritic, arenaceous. |

| <u>From</u> | <u>To</u> | <u>Formation</u> |
|-------------|-----------|--|
| 3054 | 3055 | Anhydrite, pale reddish brown, pale reddish brown siltstone. |
| 3055 | 3056 | Siltstone, pale reddish brown. |
| 3056 | 3057 | Siltstone, pale reddish brown, arenaceous. |
| 3057 | 3059 | Siltstone, pale reddish brown, highly arenaceous, anhydritic. |
| 3059 | 3061 | Siltstone, light brown, arenaceous. |
| 3061 | 3064 | Siltstone, light brown, arenaceous, anhydritic. |
| 3064 | 3065 | Siltstone, light brown, arenaceous. |
| 3065 | 3066 | Siltstone, light brown, highly anhydritic, arenaceous. |
| 3066 | 3067 | Anhydrite, white to pale red with inclusions of arenaceous siltstone. |
| 3067 | 3068 | Siltstone, light brown, arenaceous, anhydritic. |
| 3068 | 3069 | Anhydrite, white to medium gray, white fine grained dolomite. |
| 3069 | 3070 | Anhydrite, white, massive. |
| 3070 | 3072 | Dolomite, yellowish gray to pale yellowish brown, fine grained. |
| 3072 | 3073 | Dolomite, yellowish gray, microsucrosic, pinpoint porosity. |
| 3073 | 3074 | Limestone, yellowish gray, microsucrosic to fine grained. |
| 3074 | 3075 | Limestone, white, microsucrosic to fine grained, slightly oolitic. |
| 3075 | 3077 | Limestone, white oolitic, anhydrite, inclusions. |
| 3077 | 3079 | Limestone, white, fragmental to oolitic. |
| 3079 | 3082 | Limestone, pinkish gray, fragmental to oolitic pinpoint porosity. |
| 3082 | 3083 | Limestone, pinkish gray, fine grained. |
| 3083 | 3084 | Limestone, pinkish gray to light greenish gray, pale red limestone streaks. |
| 3084 | 3085 | Limestone, pale red, microsucrosic to fragmental, grayish red streaks. |
| 3085 | 3086 | Limestone, pale red, fragmental, red mottlings. |
| 3090 | 3100 | Limestone, grayish orange pink, fine grained. |
| 3100 | 3120 | Limestone, grayish orange pink, fine grained to oolitic. |
| 3120 | 3125 | Limestone, pale red, fine grained, argillaceous. |
| 3125 | 3130 | Shale, medium gray, platy. |
| 3130 | 3135 | Shale, medium gray, platy, grayish orange pink, fine grained limestone. |
| 3135 | 3145 | Limestone, fine grained to oolitic, medium gray shale. |
| 3145 | 3150 | Shale, medium light to greenish gray, pinkish gray, fine grained to oolitic limestone. |
| 3150 | 3160 | Shale, medium light to medium gray and pale reddish brown pinkish gray fine grained to fragmental limestone. |
| 3160 | 3220 | Limestone, pinkish gray to grayish orange pink, fine grained fragmental to oolitic. |
| 3220 | 3280 | Limestone, grayish orange pink, oolitic to fine grained. |
| 3280 | 3290 | Limestone, grayish orange pink, fine grained. |
| 3290 | 3305 | Limestone, pinkish gray, fine grained. |
| 3305 | 3310 | Limestone, pinkish gray, fine grained, light gray chert. |
| 3310 | 3325 | Limestone, very light gray, oolitic to fragmental. |
| 3325 | 3335 | Limestone, very light gray, fine grained. |
| 3335 | 3345 | Limestone, grayish orange pink, oolitic. |

| <u>From</u> | <u>To</u> | <u>Formation</u> |
|-------------|-----------|--|
| 3345 | 3355 | Limestone, grayish orange pink, oolitic, medium gray and pale reddish brown shale. |
| 3355 | 3360 | Shale, pale reddish brown and medium gray, grayish orange pink, oolitic limestone. |
| 3360 | 3370 | Limestone, grayish orange pink, oolitic to fragmental, pale reddish brown and medium light gray shale. |
| 3370 | 3400 | Limestone, grayish orange pink, oolitic. |
| 3400 | 3420 | Limestone, grayish orange pink, oolitic to fragmental. |
| 3420 | 3430 | Shale, medium light to medium gray. |
| 3430 | 3435 | Shale, medium light to medium gray, grayish orange pink, oolitic to fragmental limestone. |
| 3435 | 3440 | Limestone, yellowish gray, fine grained to fragmental. |
| 3440 | 3450 | Limestone, very light gray, fine grained. |
| 3450 | 3455 | Limestone, very light gray, fine grained, medium light to medium gray shale. |
| 3455 | 3470 | Limestone, very light to light gray, fragmental to oolitic. |
| 3470 | 3480 | Limestone, very light gray, fine grained to fragmental, chert. |
| 3480 | 3490 | Limestone, very light to light gray, fine grained to fragmental, cherty. |
| 3490 | 3500 | Shale, medium gray, light gray fine grained to fragmental limestone. |
| 3500 | 3520 | Limestone, very light gray fine grained, cherty. |
| 3520 | 3535 | Limestone, light gray, fine grained, cherty, medium gray shale. |
| 3535 | 3565 | Limestone, light gray, fine grained, cherty, medium light to medium gray and pale reddish brown shale. |
| 3565 | 3570 | Shale, medium light to medium gray, light gray, fine grained cherty limestone. |
| 3570 | 3580 | Limestone, light gray, fine grained, cherty. |
| 3580 | 3590 | Dolomite, light gray, fine grained, cherty, medium gray shale. |
| 3590 | 3610 | Limestone, light to medium light gray, fine grained, cherty, medium light to medium gray shale. |
| 3610 | 3615 | Limestone, very light to light gray, fine grained, cherty. |
| 3615 | 3620 | Dolomite, light gray, sublithographic, light gray fine grained limestone. |
| 3620 | 3625 | Shale, medium light to medium gray, light gray fine grained limestone. |
| 3625 | 3630 | Limestone, very light to light gray. |
| 3630 | 3640 | Limestone, very light to light gray, sublithographic. |
| 3640 | | 3/4 hr. circulation, limestone, very light gray, fine grained. |
| 3640 | 3660 | Limestone, very light gray, fine grained, cherty. |
| 3660 | 3690 | Limestone, very light gray, fine grained, cherty. |
| 3690 | 3695 | Shale, medium gray and pale reddish brown. |
| 3695 | 3700 | Shale, medium light to medium and greenish gray. |
| 3703 | | Siltstone, light gray, calcareous, medium light to greenish gray shale. |
| 3705 | 3710 | Shale, medium light to medium and greenish gray, light gray, calcareous siltstone. |

| <u>From</u> | <u>To</u> | <u>Formation</u> |
|-------------|-----------|--|
| 3710 | 3720 | Shale, medium light to medium gray, pale reddish brown and light greenish gray calcareous, silty. |
| 3720 | 3725 | Shale, light greenish gray, calcareous, silty. |
| 3725 | 3740 | Shale, light brown, silty, calcareous. |
| 3740 | 3745 | Limestone, very pale orange to grayish orange pink, fine grained to fragmental. |
| 3745 | 3755 | Limestone, grayish orange pink, fine grained. |
| 3755 | 3760 | Limestone, pale yellowish brown, fine grained to fragmental. |
| 3760 | 3765 | Limestone, pale yellowish brown, fragmental, medium light to medium gray and pale reddish brown shale. |
| 3765 | 3775 | Shale, medium, greenish gray and pale reddish brown, pale yellowish brown, fine grained to fragmental limestone. |
| 3775 | | 1/2 hr. Circulation, limestone, very pale orange, fine grained, medium gray and pale red brown shale. |
| 3775 | 3780 | Limestone same as above. |
| 3780 | 3790 | Shale, medium light to medium gray, white anhydrite. |
| 3790 | 3795 | Limestone, pale yellowish brown to very pale orange, medium light to medium gray and pale reddish brown shale. |
| 3795 | 3805 | Limestone, pale yellowish brown, sucrosic, dolomitic. |
| 3805 | 3815 | Limestone grayish orange pink, fine grained to sucrosic. |
| 3815 | 3825 | Shale, medium light to medium grays grayish orange pink, fine grained limestone. |
| 3825 | 3850 | Limestone, grayish orange pink, fine grained, medium light to medium gray and pale reddish brown shale. |
| 3850 | 3865 | Shale, medium light to medium gray and pale reddish brown, grayish orange pink fine grained limestone. |