The Calvert Drilling, Inc., - #1 Ray Craig was spudded January 11, 1957; drilled to a total depth of 4562 feet, found dry and plugged on January 23, 1957.

Logs:
   Electrical and gamma ray-neutron to 4569 feet.

Cores: None.

Drill Stem Tests:
   DST #1 3501' - 3584'. Open 30 minutes. Shut in 15 minutes. Opened with strong blow equalizing toward end of test.
   Recovered - 3223' fluid: 720' slightly mud cut water
                  2503' slightly salty water

Pressures:
   Initial flow 1040#
   Final flow 1430#
   Shut in 1440#
   Initial hydrostatic 1860#
   Final hydrostatic 1920#

   DST #2 4330' - 4342'. Open 10 minutes. Shut in 15 minutes. Opened with strong blow, continued throughout test.
   Recovered - 2342' fresh water muddy at top
                  240' loose sand with water

Pressures:
   Initial flow 1877#
   Final flow 1877#
   Shut in 2142#
   Initial hydrostatic 2542#
   Final hydrostatic 2542#

Casing Record:
   Set 10 3/4" surface casing at 1917' K.B. with 220 sacks cement of 2% chloride.
Plugging Record:
4562' to 4331' mud
4331' to 4271' 20 sacks cement
3570' to 3510' 20 sacks cement
3315' to 3255' 20 sacks cement
2672' to 2612' 20 sacks cement
2223' to 2153' 20 sacks cement
220' to 180' 20 sacks cement
10' to 0' 5 sacks cement

Formation tops were determined from Schlumberger logs in conjunction with samples. Colors and descriptive numbers were taken from the Goddard, and others, 1951 Rock Color Chart distributed by the Geological Society of America, New York, New York.

FORMATION TOPS

Cretaceous System
Pierre shale 310
Niobrara formation 1080
Greenhorn formation 1616
Dakota group 1961
Newcastle sandstone 2033
Fall River formation 2225

Jurassic System
Piper limestone 2550

Mississippian System
Madison formation 2672
Bottineau interval 2834
Bakken formation 3283

Devonian Undifferentiated 3315

Ordovician System
Stony Mountain formation 3398
Red River formation 3570
Winnipeg formation
Upper 4123
Middle 4208
Lower 4340

Cambrian System
Deadwood formation 4350

Precambrian 4562

0-60 Till, grayish brown 5Y5/2, fragments of medium gray fissile shale.
60-90 Sand, light olive gray 5Y6/1, medium to coarse grained, few granules.
90-120 Sand, light olive gray 5Y5/2, medium to coarse grained, few till fragments.
120-150 Sand, as above, with few pebbles.
150-180 Gravel, mainly pebble sized, probably outwash.
188-210 Sand and granules, very coarse, abundant gray shale fragments.
210-253 Missing.
253-283 Sand and granules, very coarse.
283-310 Till, greenish gray 5GY6/1, fissile, slightly calcareous, little grayish bentonite.
310-400  Shale, greenish gray 5GY6/1, lumpy to fissile, calcareous, some gray bentonite.
400-430  Shale, medium gray N5, very fissile, slightly micaceous, little grayish bentonite.
430-520  Shale, as above, slightly calcareous.
520-550  Shale, as above, but more fissile.
550-700  Shale, medium dark gray N4, calcareous, little grayish bentonite.
700-730  Shale, medium gray N5, very fissile, slightly micaceous, small amount of bentonite, first Inoceramus prisms.
730-880  Shale, as above, slightly calcareous.
880-910  Shale, as above, Inoceramus prisms more abundant.
910-970  Shale, as above, more lumpy grayish bentonite.
970-1120 Shale, medium gray N5, fissile to lumpy, slightly micaceous and bentonitic, slightly calcareous.
1120-1210 Shale, medium dark gray N4 to brownish gray 5YR4/1, very calcareous, slightly lignitic, small amount light gray bentonite.
1210-1270 Shale, medium gray N4 to dark gray N3, very calcareous, slightly fissile, small white calcareous flecks, little light gray bentonite.
1270-1360 Shale, medium light gray N6 to greenish gray 5GY6/1, fissile to lumpy, very calcareous, small white calcareous flecks, slightly micaceous.
1360-1480 Shale, as above, medium gray N5 to medium dark gray N4.
1480-1600 Shale, medium gray N5, calcareous, lumpy to slightly fissile, compact.
1600-1690 Shale, medium gray N5, lumpy to fissile, calcareous, small amount of gypsum and pyrite, little grayish bentonite.
1690-1780 Shale, medium gray N5, lumpy to fissile, compact, calcareous, Inoceramus prisms with pyrite, some grayish bentonite, few medium sand grains.
1780-1810 Shale, as above, to dark gray N3.
1810-1840 Shale, as above, more calcareous, few medium sand grains.
1840-1900 Shale, medium dark gray N4, lumpy to slightly fissile, calcareous, small white flecks, Inoceramus prisms, small amount of gypsum and pyrite.
1900-1960 Shale, medium gray N5, to medium dark gray N4, fissile to lumpy, calcareous Inoceramus prisms, small amount of pyrite and gypsum.
1960-2020 Shale, as above, with more gypsum.
2020-2110 Shale, dark gray N3, fissile, calcareous, little glauconite, some pyrite and gypsum, little limestone, Inoceramus prisms, few loose quartz grains.
2110-2190 Shale, dark gray N3 to dark greenish gray 5GY4/1, fissile and in very thin fragments, calcareous, few small white flecks, white bentonite fragments, Inoceramus prisms, pyrite, a few loose quartz sand grains.
2190-2220 Shale, medium dark gray N4, fissile, calcareous, Inoceramus prisms, little pyrite, few medium sand grains.
2220-2250 Sand, medium gray, medium grained, rounded to subangular, some shale with pyrite and Inoceramus prisms.
2250-2290 Sand, medium gray, fine to medium grained, little glauconite, little shale and limestone, few siderite (?) pellets.
2290-2350 Sand, as above, with little bentonite and glauconite, small amount pyrite and green waxy shale, few siderite (?) pellets.
2350-2380 Shale, medium dark gray N4 to greenish gray, calcareous, little bentonite and few sand grains.
2380-2410 Shale, as above, with more quartz sand grains, and a silicified Inoceramus prism.
2410-2450 Shale, medium gray N5, fissile to slightly lumpy, calcareous, some pyrite and glauconite, little grayish bentonite, a few pieces of medium light gray N6 well cemented sandstone, little light gray siltstone.
2450-2460 Shale, as above, with a few fragments of light brown 5YR6/4 very fine grained, calcareous sandstone.
2460-2470 Sandstone, white to very light gray, fine to medium grained, slightly calcareous, very poorly indurated, shale cavings.
2470-2500 Missing.
2500-2530 Sandstone, as above, with shale cavings (?).
2530-2540 Shale, medium gray N5 to medium dark gray N4, fissile, slightly calcareous, some pyrite and bentonite, some quartz grains.
2540-2560 Shale, as above, with many Inoceramus prisms, and a few fine quartz sand grains.
2560-2570 Sandstone, light gray N7, fine grained, calcareous, friable, some reddish gray shale.
2570-2590 Sandstone, as above. Little pyrite and some shale.
2590-2620 Shale, medium gray N5 to medium dark gray N4, fissile, slightly calcareous a little pyrite and quartz sand grains, little silty shale.
2620-2650 Shale, medium light gray N6 to medium dark gray N4, fissile, slightly calcareous, much pyrite and many Inoceramus prisms, some light gray sandstone.
2650-2660 Shale, as above, with some sandstone as above, and little fine crystalline tan dolomite.
2660-2670 Dolomite, grayish orange pink 5YR7/2, microcrystalline, little reddish chert, few sand grains, shale cavings.
2670-2690 Dolomite, as above, little dolomitic limestone and sandstone.
2690-2710 Limestone, very fine crystalline, pinkish gray 5YR8/1, some shale and sand grains.
2710-2720 Limestone, finely crystalline, pinkish gray 5YR8/1 to pale red 5R6/2.
2720-2750 Limestone, finely crystalline, pale red 10R6/2 to pinkish gray 5YR8/1, few quartz sand grains, little argillaceous dolomite.
2750-2770 Limestone, finely crystalline to sublithographic, pinkish gray 5YR8/1, few quartz grains.
2770-2780 Limestone, as above, little anhydrite and quartz grains.
2780-2810 Limestone, finely crystalline, pinkish gray 5YR8/1, some finely crystalline grayish orange pink 5YR7/2 dolomite, few quartz grains.
2810-2850 Limestone, finely crystalline to sublithographic, pinkish gray 5YR8/1 to grayish orange pink 5YR7/2, little dolomite.
2850-2870 Limestone, finely crystalline to microsucrosic, grayish orange pink 5YR7/2, little dolomite and few medium quartz grains.
2870-2880 Limestone, as above, with a few pieces of white gypsum.
2880-2930 Limestone, finely crystalline to cryptocrystalline, grayish orange pink 5YR7/2 to pinkish gray 5YR8/1, little pinkish dolomite.
2930-2960 Missing.
2960-2970 Limestone, finely crystalline, pale yellow brown 10YR6/2 to grayish red 10R4/2, pinpoint porosity.
2970-3000 Limestone, and dolomitic limestone, finely crystalline to sublithographic grayish orange pink 5YR7/2.
3000-3020 Limestone, finely crystalline, some dolomitic limestone, pale yellowish brown 10YR6/2, few white chert fragments.

3020-3040 Limestone, fine to medium crystalline, very light gray N8 to grayish orange pink 5YR7/2, some mottled limestone.

3040-3130 Limestone, finely crystalline to sublithographic, grayish orange pink 5YR7/2, some dolomitic limestone.

3130-3150 Limestone, finely crystalline to microsucrosic, grayish pink 5R8/2, some argillaceous limestone.

3150-3190 Limestone, as above, with little reddish dolomite.

3190-3200 Missing.

3200-3220 Limestone, finely crystalline, grayish pink 5R8/2.

3220-3300 Dolomite, microsucrosic to finely crystalline, grayish orange pink 5YR7/2, some finely crystalline limestone as above.

3300-3320 Dolomite, microsucrosic to finely crystalline, grayish orange pink 5YR7/2 to light brownish gray 5YR6/1, some dolomitic limestone.

3320-3360 Dolomite, as above, to pale red 10R6/2.

3360-3400 Dolomite, microsucrosic to finely crystalline, pinkish gray 5YR8/1 to pale red 5R6/2, little pinpoint porosity.

3400-3420 Dolomite, as above, to light gray N7.

3420-3475 Dolomite, microcrystalline, medium light gray N6 to pinkish gray 5YR8/1, some microsucrosic with little pinpoint porosity.

3475-3480 Dolomite, microcrystalline, pinkish gray 5YR8/1 to grayish orange pink 5YR7/2.

3483 Circulation 3 3/4 hours. Dolomite, as above.

3483-3490 Dolomite, as above.

3490-3505 Dolomite, microcrystalline to microsucrosic, grayish orange pink 5YR7/2.

3505-3520 Dolomite, as above, to light gray N7.

3520-3539 Missing.

3539 Circulation 1/3 hour. Dolomite, microcrystalline and microsucrosic, grayish orange pink 5YR7/2, with little argillaceous limestone.

3539-3550 Limestone, argillaceous, medium gray N5, some dolomite as above.

3550-3570 Dolomite, microcrystalline, grayish orange pink 5YR7/2, some argillaceous limestone.

3570-3584 Missing.

3584-3610 Dolomite, microcrystalline, grayish orange pink 5YR7/2, little limestone.

3610-3710 Dolomite, microcrystalline, grayish orange pink 5YR7/2.

3710-3760 Dolomite, medium to fine crystalline, grayish orange pink 5YR7/2, some microsucrosic.

3760-3770 Dolomite, as above, with little white chert.

3770-3870 Dolomite, as above with little dark gray argillaceous limestone.

3870-3900 Dolomite, fine crystalline, to cryptocrystalline, grayish orange pink, 5YR7/2, little white chert.

3900-4000 Dolomite, fine crystalline, grayish orange pink 5YR7/2, little white chert and pyrite, little argillaceous limestone.

4000-4020 Dolomite, fine crystalline, pale red 5R6/2, and dolomitic limestone, cryptocrystalline, pinkish gray 5YR8/1, with some chert and pyrite.

4020-4040 Dolomite, as above, with little light gray limestone and greenish gray siltstone.

4040-4050 Dolomite, as above, with little medium gray shale.

4050-4080 Limestone, finely crystalline, pinkish gray 5YR8/1, with little dolomite.
4080-4090 Limestone, as above, with few medium sand grains.
4090-4110 Limestone, finely crystalline, pinkish gray 5YR8/1, slightly dolomitic, some fine to medium sand grains.
4110-4140 Limestone, as above, with much fine to medium sand grains.
4140-4150 Shale, medium gray N5, with much very fine sand.
4150-4160 Shale, as above, with much light gray calcareous siltstone.
4160-4170 Siltstone, light gray N7, little reddish dolomite and little sand.
4170-4180 Siltstone, as above, with little limestone and dolomite.
4180-4210 Shale, medium light gray N6, fissile, some siltstone, limestone, and little dolomite.
4210-4220 Shale, greenish gray 5G6/1, splintery, crinoid columnals.
4220-4270 Shale, as above, with few phosphate (?) pellets, little pink dolomite, and crinoid columnals.
4270-4290 Shale, as above, with little white chert.
4290-4300 Shale, splintery to platy, greenish gray 5GY6/1, little dolomite, few fine sand grains.
4300-4310 Missing.
4310-4330 Shale, as above, with little pyrite.
4334 Circulation 3 3/4 hours. Shale, as above, little tan limestone and little black shale, few fine angular sand grains.
4340-4360 Shale, as above, with little reddish shale, and light brown sand.
4360-4370 Shale, as above, with little reddish shale and light gray siltstone.
4370-4380 Missing.
4380-4420 Sandstone, very fine to silt size, pale red 10R6/2, little glauconite.
4420-4470 Sandstone, very fine to silt size, pale red 10R6/2 to darker red hues, little glauconite, shale cavings.
4470-4550 Sandstone, very fine grained, pale red 5R6/2, little glauconite, shale cavings.
4550-4562 Weathered granite, granite wash, reddish quartz and feldspar, much shale cavings.
4562 Total depth. Circulation 2 1/2 hours. Weathered granite as above with shale cavings.