

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 265

Summary of the Calvert Drilling, Inc. - George S. Garland #1
Foster County, North Dakota
Well No. 1205 - Permit No. 1217

By John P. Bluemle
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The Calvert Drilling Inc. - George S. Garland #1, Foster County, North Dakota. Location: Center NE NE Section 28, T. 147N., R. 67W. Elevation: 1577 Ground, 1588 K.B., Total Depth: 2266.

The Calvert Drilling Inc. - George S. Garland #1 was scudded July 26, 1956; drilled to a total depth of 2266 feet, found dry and plugged July 30, 1956. One drill stem test was taken; no cores were cut. Electric and gamma ray-neutron logs were run by Schlumberger,

LOGGING RECORD:

Schlumberger electric log--Run one, 7/30/56, 206-2265
Schlumberger gamma ray-neutron--Run one, 7/30/56; 100-2265

DRILL STEM TEST:

DST #1 Tested interval from 2173-2215. Open 1 hour. Shut in 30 minutes. Very strong blow 25 minutes, gradually weakened, died in 40 minutes. Recovered 120' slightly muddy fresh water; 1860' fresh water. Hydrostatic pressure: initial, 1275 psi, final 1225 psi; initial flow pressure: 456 psi; final flow pressure: 875 psi; and shut in pressure: 875 psi.

CASING RECORD:

Set 10 3/4" surface casing at 205.98 feet with 150 sacks of cement.

PLUGGING RECORD:

<u>Interval Plug Set</u>	<u>Sacks Cement</u>
2220 to 2160	20
1800 to 1740	20
210 to 160	25
10 to 0	5

Formation tops were determined from samples and electric logs. Doubtful or obscure formation tops were not picked. Color names are from the 1951 Rock Color Chart distributed by the Geological Society of America. Samples were poor throughout.

FORMATION TOPS

Cretaceous System	
Niobrara Formation	723
Greenhorn Formation	1280
Belle Fourche	1333
New Castle Formation	1601
Skull Creek Formation	1637
Fall River Formation	1756
Jurassic System	

Undifferentiated	2002
Piper Formation	2032
Redbeds	2133
Mississippian System	
Tilston Interval (?)	2166
Lodgepole Formation	2211
Total Depth	2266

230-260	Shale, medium gray, slightly calcareous, resinous, fissile, compact; few chips are grayish black; rounded grains of quartz.
260-350	Shale, medium gray, very slightly calcareous, resinous, fissile, compact; becomes non-calcareous at 290; trace of bentonite.
350-380	Sample is missing.
380-530	Shale, as interval 260-350, medium gray to medium light gray; massive, compact.
530-590	Shale, medium gray to brownish gray; a few black inclusions from 530-560; massive, compact.
590-610	Shale, as above; slightly calcareous, fissile, compact.
610-760	Shale, medium light gray to pale yellowish brown; the latter is dolomitic; fissile, compact.
760-790	Shale, light olive gray, very slightly calcareous, massive, compact.
790-810	Shale, dark gray to olive gray, calcareous, fissile, bentonitic; massive to disaggregated.
810-900	Shale, medium gray, very calcareous, white specks, massive, compact; bentonitic; a few small chips of coal at 870.
900-930	Shale, as above; white specks appear to be pressed into elongated structures parallel to shale fissility; also grayish black shale, blocky with limestone inclusions; chert, bentonite.
930-1020	Shale, as above; limestone inclusions stand out in relief: highly calcareous.
1020-1200	Shale, medium light gray, calcareous, white specks and limestone inclusions; bentonitic; massive and disaggregated; some pyrite at 1110 (poor samples).
1200-1320	Shale, medium gray to olive gray; slightly calcareous, silty, massive to splintery, compact to disaggregated; calcareousness decreases downward and color deepens; (poor samples 1260-1320).
1320-1350	Shale, olive gray to medium light gray, calcareous; calcite prisms of Inoceramus: a little coarse grained limestone, mostly calcite.
1350-1410	Shale, as above; abundant white specks, highly calcareous; bentonitic; abundant calcite prisms at 1380.
1410-1470	Shale, dark gray, calcareous, earthy, fissile, brittle, bentonitic with calcite prisms; abundant white specks at 1440 and flaky.
1470-1560	Shale, as above; sand angular to subrounded; medium grained. Predominantly frosted quartz but also rounded grains of limestone and shale.
1560-1590	Shale, medium gray, slightly calcareous, silty, earthy, massive to fissile and splintery; brittle.
1590-1620	Shale, medium gray, micromicaceous, slightly calcareous; splintery, flaky.
1620-1710	Shale, as above; shale, brownish gray, dolomitic, massive; a few pieces of very dusky red and massive dolomite; pyritic at 1680.
1710-1740	Shale, as above with black inclusions; limestone, pale red to yellowish gray; grainy to crystalline calcite cemented.

10' sample interval from 1740-2200.

- 1740-1760 Siltstone, moderate brown, slightly calcareous, massive; slightly petroliferous; becoming sandy from 1750-1760; also shale, as above.
- 1760-1790 Shale, grayish black to medium gray; micromicaceous, slightly calcareous; fissile to splintery; a few chips of yellowish gray limestone, sucrosic; a few iron-carbonate pellets; quartz sand, medium grained; pyrite.
- 1790-1800 Limestone, pinkish gray, oolitic, coarse, sandy with rounded grains of quartz included; also shale, as above.
- 1800-1820 Limestone as above with iron-carbonate inclusions; abundant free iron-carbonate pellets.
- 1820-1870 Poor samples; mostly shale; abundant pyrite at 1850.
- 1870-1910 Sand, rounded quartz, medium grained to coarse grained; abundant agate; sample is predominantly shale caved from above.
- 1910-2000 Dolomite, dark yellowish brown, subcrystalline, dense; intermixed sand and shale as above, (poor samples; cavings include coal and Globgerina).
- 2000-2040 Sand, very coarse grained, subangular to subrounded, clear to fronted; composed of limestone, metamorphics and pure quartz; becomes mixed with shale at 2030.
- 2040-2060 Limestone, pinkish gray, coarse grained with dark gray inclusions; sand and shale as above.
- 2060-2080 Limestone, mottled light olive gray, yellowish gray; sucrosic to slabby; dense.
- 2080-2100 Limestone, pinkish gray, oolitic to sucrosic; dark gray inclusions; streaked with silt and becoming scabby at 2090.
- 2100-2110 Limestone, yellowish gray; very silty and loose aggregate of calcite crystals; highly porous.
- 2110-2150 Limestone, light gray, microsucrosic with black inclusions, ostracodes; dense.
- 2150-2170 Siltstone, moderate reddish brown, calcareous, silty to sandy; becomes more compact at 2160.
- 2170-2200 Limestone, very pale orange, grainy to slabby, limited tubular porosity; a few calcite inclusions.

5' sample interval from 2200-2220

- 2200-2205 Limestone, very pale orange, lighter than above; tends to be chalky; slabby with a tendency to contain calcite fragments; dense.
- 2205-2210 Limestone, very pale orange slabby to fragmental and oolitic; intergranular porosity.
- 2210-2215 Limestone, pale red (10R6/2), slabby to fragmental; calcite inclusions; nonporous.
- 2215 - circulation 1/4 hours - Limestone, pale red, (5R6/2), sucrosic to slabby, dense.
- 2215-2240 Limestone, yellowish gray, slabby, fossiliferous, dense; shale, medium gray, splintery; grayish red limestone mixed in at 2220.

10' sample interval from 2220-2260

- 2240-2266 Limestone, dolomitic, pale red, (10R6/2), slabby to sucrosic, silty, dense.
- 2266 Total depth.