

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 97

Summary of the Ward Williston Drilling Company - Gorder Ballantyne #1
Bottineau County, North Dakota
Well #577 - Permit #591

by Morton Strassberg
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Ward Williston Drilling Company - Gorder Ballantyne #1, Bottineau County, North Dakota, NE SE NE Section 35, T. 164N., R. 80W. (1650 feet from N. line and 330 feet from E. line) Elevation 1494.7 KB, 1483.7 GL.

The Ward Williston - Ballantyne #1 was spudded May 8, 1954 and 10 3/4 inch casing was set at 198 feet with 145 sacks of cement. The well was completed June 10, 1954, in the Charles Formation. The well was perforated in the interval between 3218 and 3225 and flowed 85 barrels of oil in 24 hours through 16/64 inch choke. No salt water, ground out 1/10 of 1% BS and W.

Cores

3208-3223
3223-3233
3259-3277

Formation tops were determined from samples, cores and a radioactivity log. The tops were corrected to the radioactivity log tops. Not all lithologic tops were called in the following list. Colors were determined from the rock color chart.

FORMATION TOPS

Cretaceous System	
Niobrara Formation	1310
Greenhorn Formation	1635
Dakota	2095
Jurassic System	
Morrison Formation	2292
Piper Formation	2800
Triassic System	
Spearfish Formation	3070
Mississippian System	
Charles Formation	3210

200-380	Shale, medium light gray.
380-620	Shale, medium light to medium gray.
620-680	Shale, light and medium dark gray.
680-800	Shale, medium light and medium gray.
800-920	Shale, medium light gray.
920-980	Shale, light to medium light gray.
980-1010	Shale, light to medium gray, bentonitic.
1010-1070	Shale, medium light to medium gray, calcareous, bentonitic.
1070-1130	Shale, medium light to medium gray, bentonitic.

1130-1280 Shale, medium dark to dark gray, white specks.
 1280-1300 Shale, medium to medium dark gray, calcareous, bentonitic.
 1300-1380 Shale, medium dark to dark gray, white specks, calcareous, calcite crystal fragments.
 1380-1500 Shale, medium to medium dark gray, calcareous, bentonitic.
 1500-1540 Shale, medium dark to dark gray, white specks, calcareous calcite prisms and pyrite.
 1540-1580 Shale, medium to medium dark gray, white specks, calcareous, bentonitic.
 1580-1600 Shale, medium dark to dark gray.
 1600-1660 Shale, dark gray.
 1660-1680 Shale, medium dark to dark gray.
 1680-1700 Shale, medium dark gray, white specks, calcareous, calcite fragments and prisms.
 1700-1840 Shale, black, calcite fragments and prisms in a fragmental limestone.
 1840-1880 Shale, medium dark to dark gray, calcite fragments and crystals.
 1880-1920 Shale, brownish gray, white specks, calcareous and dark gray shale.
 1920-1940 Shale, medium dark and dark gray.
 1940-1960 Shale, dark gray.
 1960-2010 Shale, medium to medium dark gray, pyritic.
 2010-2100 Shale, medium to medium dark gray, iron stained.
 2100-2130 Sandstone, coarse to very coarse grained, rounded, frosted.
 2130-2150 Sandstone, fine and coarse to very coarse grained, pyritic.
 2150-2160 Siltstone, pyritic, coarse grained free quartz.
 2160-2180 Sandstone, fine grained pyritic and coarse to very coarse.
 2180-2200 Shale, medium gray iron stained and moderate red, medium light gray siltstone.
 2200-2220 Shale, medium to medium dark gray, medium light gray siltstone.
 2220-2240 Shale, medium light to medium dark gray and gray red silty, iron stained, siltstone concretions.
 2240-2250 Sandstone, light gray fine grained, iron stained.
 2250-2270 Shale, medium to medium dark gray, iron stained siltstone concretions.
 2270-2320 Shale, medium to medium dark gray, iron stained siltstone.
 2320-2350 Shale, medium to medium dark gray, light gray calcareous siltstone.
 2350-2370 Siltstone, very light gray, glauconitic, calcareous, medium light to medium dark gray shale.
 2370-2380 Shale, medium light and medium dark gray.
 2380-2480 Shale, light greenish and medium dark gray, glauconitic calcareous siltstone.
 2480-2500 Shale, light to greenish gray and gray red, calcareous, glauconitic siltstone.
 2500-2520 Shale, light greenish gray, very light to light gray fragmental limestone.
 2520-2550 Shale, light greenish to medium gray.
 2550-2600 Shale, light greenish to medium gray, light gray calcareous siltstone.
 2600-2630 Shale, light to light greenish and medium gray.
 2630-2640 Shale, medium light to medium gray and pale brown.
 2640-2680 Shale, medium light to medium gray, gray red and greenish gray.

2680-2690 Shale, pale to grayish red.

2690-2710 Sandstone, coarse to very coarse grained, rounded to subrounded, frosted, iron stained. May be cave?

2710-2780 Shale, greenish gray to grayish red, coarse free quartz and fine grained sandstone.

2780-2810 Shale, medium light to greenish, gray, gray red, pyrite.

2810-2830 Dolomite, yellowish gray to pale yellowish brown, very fine grained to sublithographic.

2830-2840 Shale, medium light to medium and gray red.

2840-2850 Limestone, light olive gray, fossiliferous, very fine grained.

2851 3/4 hr. Circulation, sandstone, fine grained, calcareous cement.

2850-2860 Same as above.

2860-2889 Limestone, light olive gray, chalky, argillaceous.

2889-2920 Limestone, very light gray, chalky to sublithographic, dolomitic.

2920-2940 Limestone, very light to yellowish gray, sublithographic to chalky, dolomitic.

2940-2950 Limestone, yellowish gray, chalky to sublithographic, dolomitic, white anhydrite.

2950-2960 Dolomite, pale yellowish to pale brown, sublithographic, pinpoint porosity.

2960-3000 Anhydrite, white to pale red.

3000-3010 Shale, medium to medium dark gray, white anhydrite.

3010-3060 Anhydrite, white.

3060-3070 Shale, greenish gray and gray red.

3070-3080 Shale, grayish red, arenaceous.

3080-3100 Shale, grayish red arenaceous, pale red siltstone.

3100-3150 Siltstone, pale red argillaceous, fine to coarse iron stained quartz inclusions.

3150-3160 Sandstone, fine to coarse grained, rounded, frosted, anhydritic cement.

3160-3170 Siltstone, pale reddish brown, arenaceous.

3170-3208 Sandstone, coarse to very coarse grained, rounded, frosted iron stained, anhydrite cement.

3208 Circulation, sandstone, as above.

3208-3209 Siltstone, pale yellowish to pale brown, micaceous, good oil cut.

3209-3212 Siltstone, greenish gray and gray red, argillaceous, micaceous, some vertical fracture, oil cut.

3212-3213 Sandstone, fine to coarse grained, anhydritic, yellowish gray sublithographic dolomite anhydrite inclusions.

3213-3214 Dolomite, interbedded pale brown and yellowish gray, sublithographic, oil cut, anhydrite inclusions, pale yellowish brown highly arenaceous dolomite, petroliferous odor, good oil cut.

3214-3215 Anhydrite, white to pale brown with pale yellowish brown sublithographic dolomite inclusions.

3215-3216 Dolomite, grayish orange pink to pale yellowish brown, very fine grained, petroliferous odor, good oil cut.

3216-3217 Dolomite, grayish orange pink, very fine grained, argillaceous, interbedded with grayish red shale.

3217-3218 Dolomite, yellowish gray sublithographic and pale yellowish brown, very fine grained, argillaceous.

3218-3220 Dolomite, yellowish gray, sublithographic, small anhydrite inclusions.

3220-3221 Dolomite, yellowish gray, sublithographic, brachiopods, iron stained.

3221-3223 Limestone, pale yellowish brown, sucrosic, dolomitic, intergranular and vugular porosity, strong petroliferous odor, good fluorescence and oil cut.

3223-3224 Limestone, pale yellowish brown, sucrosic, intergranular and pinpoint porosity anhydrite inclusions, petroliferous odor, good fluorescence and oil cut.

3224-3225 Limestone, pale yellowish brown, very fine grained to sublithographic, some pinpoint porosity, anhydrite inclusions, odor, fluorescence and cut.

3225-3226.5 Limestone, yellowish gray to pale yellowish brown, very fine grained, some scattered pinpoint porosity, good petroliferous odor, oil cut and stain.

3226.5-3227 Limestone, pale yellowish brown, very fine grained and sucrosic, intergranular porosity, anhydrite inclusions, good petroliferous odor, fluorescence and cut.

3227-3229 Limestone, pale yellowish brown, microsucrosic, good odor and cut, dolomitic.

3229-3230.9 Limestone, pale to pale yellowish brown, fine grained to sucrosic, good intergranular and vugular porosity, anhydrite inclusions, good odor and cut.

3240.9-3233 Limestone, yellowish gray sublithographic, anhydrite inclusions, white to medium gray anhydrite.

3233-3250 Anhydrite, pale red to white.

3259-3260 Dolomite, pale yellowish brown, microsucrosic, good odor and oil cut.

3260-3261 Dolomite, pale red and light olive gray, argillaceous, microsucrosic, slight oil cut.

3261-3262 Dolomite, grayish red, argillaceous, pale brown anhydrite.

3262-3264 Anhydrite, gray red with gray red dolomitic shale streaks.

3264-3277 Anhydrite, pale red to gray red with gray red shale streaks.

3277-3280 Anhydrite, pale to gray red.

3280-3295 Anhydrite, white to pale red, pale red sublithographic argillaceous dolomite.

3295 Total depth.