

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 268

Summary of the Mike Watch Company - H. F. Spickler #1 and #1-A
Foster County, North Dakota
Well No. 1227 - Permit No. 1239

By John P. Bluemle
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The Mike Wetch Company - H. F. Spickler #1 and 1-A, Foster County, North Dakota. Location (1-A): NE NE Section 25, T. 147N., R. 64W; (25 feet north of #1). Elevation: 1467.97 Ground, 1463 D.F. Total Depth: #1. 480, #1-A-3273.

The Mike Wetch Company - H. F. Spickler #1 and #1-A were spudded August 15 and 28, 1956, drilled to total depths of 480 and 3273 feet, found dry and plugged August 25 and October 3 respectively. No drill stem tests were taken and no cores were cut. Electric log was run by Schlumberger.

Logging Record:

Schlumberger electric log.

Casing Record:

#1. Set 7" surface casing at 120 feet with 35 sacks of cement.
#1-A. Set 7" surface casing at 214 feet with 214 sacks of cement.

Plugging Record:

#1. Set 10 sacks at base of surface casing and at 285 feet; 3 sacks at top of surface casing; drilling mud between all plugs.

#1-A.

<u>Plus Set</u>	<u>Sacks Cement</u>
2415 feet	12
1715 feet	12
1417 feet	12
bottom surface casing	17
top surface casing	5

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

FORMATION TOPS

Cretaceous System

Niobrara Formation	540
Greenhorn Formation	972
Belle Fourche Formation	1076
"Muddy"	1301
Skull Creek Formation	1327
Fall River Formation	1426

Mississippian System

Lodgepole Formation	1716
Basal Mississippian Shale	1941

Devonian System	
Duperow Formation	2003
Souris River Formation	2147
Ordovician System	
Stonewall Formation	2223
Stony Mountain Formation	
Gunton Member	2292
Stoughton Member	2320
Red River Formation	2415
Winnipeg Formation	
Roughlock Member	2993
Icebox Member	3053
Black Island Member	3186
Cambrian System	
Deadwood Formation	3204
Pre-Cambrian	3271
Total Depth	3273

Mike Wetch No. 1 - Spickler

20' sample interval from 200-460.

200-260	Shale, medium light gray, slightly calcareous to non-calcareous, resinous, massive to fissile; a few yellowish gray chips of limestone; sand, coarse grained and subrounded, decreases in quantity downward.
260-300	Shale, medium light gray to light olive gray, very slightly calcareous, compact to fissile.
300-380	Shale, as above, with chips of pale yellowish brown limestone, dolomitic, microsucrosic.
380-460	Shale and limestone, as above, siltstone, light gray, calcareous with inclusions similar to the aforementioned limestone; siltstone is quite spongy and porous.

Mike Wetch No. 1 "A" Spickler

10' sample interval from 250-1750

250-290	Shale, medium light gray, slightly calcareous, resinous, massive to fissile; a few yellowish gray chips of limestone; bentonite, limestone which can be seen as veins in some chips of shale, increases downward.
290-340	Shale, light gray, very slightly calcareous, compact to fissile, angular inclusions of yellowish gray limestone; calcite prisms of Inoceramus at 310; shale becomes slightly more calcareous downward.
340-380	Shale, as above only medium light gray to light olive gray very slightly calcareous; small black inclusions at 350.
380-410	Shale as above and limestone, yellowish gray; bentonitic; calcite prisms.
410-490	Shale and limestone as above; sand, medium grained; bentonitic (poor samples from 430-490).
490-530	Shale, dark gray, non-calcareous, fissile, sooty, brittle. (Samples are poor and highly contaminated with drilling mud); chips of calcareous brownish gray limestone included.
530-540	Shale, light gray with grayish brown petroliferous surfaces; probably due to spilled oil; also shale as above.
540-550	Shale, dark gray, non-calcareous very fissile and flaky.

550-570 Shale, light brownish gray to brownish gray, highly calcareous, abundant white specks with a few black inclusions; color becomes entirely light brownish gray at 560.

570-640 Shale, colors as above, highly calcareous, flaky to fissile, abundant white specks and limestone inclusions; becomes bentonitic downward; Globigerina.

640-650 Shale, light olive gray, highly calcareous, massive to fissile.

650-680 Shale, as above; also dark gray, non-calcareous, flaky; pyrite.

680-700 Shale, light olive gray to light brownish gray, highly calcareous, flaky to fissile; abundant white specks in shale.

700-720 Shale, as above, pyritic and bentonitic, limonite stains.

720-780 Shale, as above to medium light gray with limonite stains; also chips of olive gray dolomitic limestone; pyritic, bentonitic with calcite prisms at 730.

780-800 Shale, medium dark gray, fissile, slightly calcareous, bentonitic; also light olive gray and slightly calcareous to very calcareous.

800-950 Shale, medium light gray, slightly calcareous, massive to dark gray, non-calcareous, flaky, also light gray pieces with white specks and very calcareous as above; chips of yellowish gray limestone, calcite prisms and becoming sandy at 850; shells at 870 (poor samples from 850-930).

950-960 Shale, dark gray, very slightly calcareous, flaky; and shale, light olive gray, very slightly calcareous, compact with brown stains.

960-980 Shale, medium dark gray, non-calcareous; and light olive gray shale as above, calcareous and disaggregated; chips of chalky limestone at 970.

980-990 Shale, very calcareous, brownish to olive gray, has inclusions of limestone and abundant white specks, fissile to flaky texture.

990-1000 Shale, light brownish gray, highly calcareous; pressed limestone specks and inclusions parallel the fissility; calcite prisms of Inoceramus.

1000-1030 Shale, brownish gray; calcareous, abundant tiny white specks, calcite prisms, chips of limestone at 1010 and black inclusions at 1020.

1030-1070 Shale, brownish gray, calcareous with limestone inclusions, calcite prisms, limestone chips at 1060.

1070-1110 Shale, medium dark gray, calcareous, massive, compact; tends to lighter shades downward.

1110-1130 Shale, medium gray and calcareous to medium dark gray and very slightly calcareous; compact to fissile; bentonitic, silty; chips of dark gray shale at 1120.

1130-1160 Shale, as above; also shale with white pressed specks and schistose appearance; limestone inclusions; highly calcareous.

1160-1170 Shale, as above; pieces of limestone composed entirely of particles of calcite derived from prisms of Inoceramus.

1170-1200 Shale, dark gray, flaky, highly calcareous, sandy at 1180, apparently caving from above; dark shale becomes splintery at 1190.

1200-1240 Shale, dark gray, flaky, earthy, calcareous, fragments of Inoceramus; poor samples.

1240-1300 Shale, as above; also siltstone light olive gray, massive; bentonite.

1300-1310 Shale as above; siltstone, light olive gray, very slightly calcareous; poor sample.

1310-1340 Siltstone, light olive gray to moderate brown (5YR3/4), very slightly calcareous, considerable limonite staining, finely divided pyrite; also dark gray shale.

1340-1350 Siltstone, light gray, very slightly calcareous, massive to fissile and splintery.

1350-1370 Siltstone, as above, and shale, medium dark gray, fissile non-calcareous.

1370-1410 Shale, dark gray, flaky, non-calcareous; bentonite; siltstone, as above but with considerable limonite stains; pyritic and disaggregated at 1380; poor samples.

1410-1420 Shale, dark gray, flaky to fissile, calcareous abundant pyrite and calcite prisms.

1420-1430 Sand, subangular; mostly quartz, medium grained.

1430-1460 Shale, olive gray, very slightly calcareous, splintery; also sand, as above; chips of yellowish gray limestone.

1460-1490 Shale, dark gray, flaky to fissile, very slightly calcareous; sandy; increasing amount of lighter gray shale downward.

1490-1510 Shale, medium dark gray, splintery to fissile, calcareous, bentonitic, sandy; shale becomes less calcareous downward.

1510-1540 Shale, much as above; a few iron carbonate pellets, increasing slightly downward.

1540-1560 Shale, medium dark gray, slightly calcareous, fissile with a few compact pieces; bentonitic; a few iron-carbonate pellets.

1560-1570 Shale, dark gray, calcareous, resinous, fissile; a few grains of reddish brown siltstone; bentonitic.

1570-1580 Shale, as above; sand, primarily quartz, medium grained, sub-angular.

1580-1590 Shale, dark gray, non-calcareous, flaky; a few grains of reddish brown siltstone; bentonitic.

1590-1630 Shale, medium gray, micaceous, very slightly calcareous, flaky; abundant pellets of iron carbonate; color of shale becomes lighter downward; a few chips of reddish siltstone at 1610.

1630-1640 Circulation 1/6 hour. Sand, fine grained, mostly clear quartz, angular to rounded but mostly subrounded; also a few chips of gray shale and iron carbonate pellets.

1640 Circulation 1/3 hour. Sand, as above but slightly finer grained.

1640-1650 Sand, fine grained, frosted to clear, subrounded grains.

1650-1690 Sand, medium grained, frosted to clear, angular to subrounded; also pyrite grains; sand tends to be slightly coarser downward; rounded grains of limestone are included in the sand at 1680.

1690-1700 Sand, coarse and gravelly, frosted quartz and chips of dolomite and shale, all angular to rounded.

1700-1710 Gravel, mainly smooth with some angular pieces, about 50% dolomite chips with the remainder quartz and chert.

1710-1720 Shale, medium dark gray, highly calcareous, fissile; limestone, pinkish gray, oolitic to sucrosic; also considerable sand grains.

1720-1740 Limestone, pinkish gray, slabby to sucrosic; silty, also shale, as above.

1740-1750 Limestone, pinkish gray, grainy, specks of reddish silt included, fossiliferous (brachiopods).

1750-1760 Limestone, pinkish gray, a few dolomite pieces; oolitic to micro-sucrosic; some pinpoint porosity; fossiliferous.

1760-1770 Limestone as above, fragmental to microsucrosic; and shale, light olive gray to medium dark gray, limestone becomes slabby at 1765.

1770-1785 Limestone, pinkish gray, slabby to fragmental, dense, calcite inclusions; also shale as above; limestone tends to be chalky between 1780 and 1785.

1785-1790 Limestone, pinkish gray, fragmental to microsucrosic, shaly, dense.

1790-1800 Limestone, as above; a few pieces of reddish brown calcareous siltstone, medium dark gray, fissile shale becomes abundant at 1795.

1800-1810 Shale, olive gray, highly calcareous, soft, flaky; limestone, as above.

1810 Shale, medium dark gray, highly calcareous, soft, dissociates in water, flaky. Circulation 2/3 hour.

1810-1820 Shale, as above; limestone, pinkish gray, slabby, dense; becomes almost entirely shale at 1815.

1820-1830 Shale, as above; limestone, pinkish gray, fragmental to microsucrosic; limestone becomes predominant at 1825.

1830-1835 Limestone, pinkish gray, microsucrosic to oolitic and with tubular porosity; also shale, as above.

1835-1845 Limestone, pinkish gray, oolitic to microsucrosic, pinpoint and tubular porosity; a few fragmental pieces composed mainly of calcite; becoming very porous at 1840-1845.

1845-1850 Limestone, pinkish gray, fragmental to oolitic; porous.

1850-1855 Limestone, white, oolitic to fragmental, porous; tends to be chalky.

1855-1870 Limestone, pinkish gray, fragmental to oolitic, very porous; a few fragmental pieces are composed mainly of calcite crystals.

1870-1875 Limestone, as above, decreased porosity.

1875-1900 Limestone, pinkish gray to chalky white, oolitic to fragmental; intergranular and fractured porosity; color becomes mixed with grayish orange pink at 1890.

1900-1920 Limestone, pinkish gray, sucrosic to oolitic with calcite inclusions; intergranular porosity; slightly finer texture downward.

1920-1930 Limestone, as above except slightly pinker; shale, olive to brownish gray, very slightly calcareous, fissile.

1930-1940 Limestone, very pale orange, microsucrosic, some pinpoint porosity; small amount of shale, as above.

1940-1950 Limestone, grayish orange pink, slabby to microsucrosic, essentially non-porous; shale, olive gray, slightly calcareous, fissile to flaky.

1950-1970 Limestone, pinkish gray to light olive gray, slabby and fractured to microsucrosic, dense; shale, brownish gray, non-calcareous, fissile; some red clay cement and staining at 1960.

1970-1990 Limestone, as above but more slabby; shale, as above; siltstone, moderate red (5R5/4) to pale reddish brown, calcareous, loosely cemented fissile to blocky; siltstone becomes grayish red (10R4/2) and dominant lithology at 1980 and induration improves.

1990-2000 Limestone, pale red to very pale orange, slabby, dense; also siltstone, as above.

2000-2010 Limestone, white to yellowish gray, calcite inclusions, slabby to fragmental, dense.

2010-2040 Limestone, dolomitic, pale yellowish brown, sucrosic, high interstitial porosity; becomes microsucrosic and dense at 2020.

2040-2060 Limestone, dolomitic, very pale orange to moderate red, grainy to microsucrosic, pinpoint porosity; more red downward.

2060-2100 Limestone, dolomitic, very pale orange, microsucrosic; some cavernous porosity; pinker hue downward and becoming slabbier and silty.

2100-2130 Limestone, very pale orange to moderate orange, microsucrosic, limited porosity; fossiliferous; becomes more slabby downward with calcite inclusions.

2130-2150 Dolomite, calcic, grayish orange pink, slabby to microsucrosic and containing reddish silt; some cavernous porosity; becomes more coarsely sucrosic downward.

2150-2170 Dolomite, as above, and chalky limestone; also fragmental pale red (5R6/2) limestone; chips of subcrystalline dolomite at 2160.

2170-2180 Limestone, pale yellowish brown, microsucrosic limited pinpoint porosity.

2180-2210 Limestone, pale yellowish brown, slabby, dense; also pinkish gray chips of calcic dolomite; colors become quite variable at 2200 with a tendency to hues of red and purple.

2210-2220 Limestone, pale red (10R6/2), slabby, dense.

2220-2230 Interval missing.

2230-2240 Limestone, as above but tending more to be microsucrosic with some limited porosity.

2240-2260 Dolomite, calcic, moderate orange pink, silty with reddish brown chips of calcareous siltstone; vuggy with grains of quartz sand, both as inclusions and free; calcite crystals at 2250.

2260-2270 Sandstone, well indurated with calcareous cement; variable color but primarily moderate orange pink; abundant grains of rounded quartz; reddish silt; high intergranular and cavernous porosity.

2270-2290 Siltstone, moderate reddish orange, calcareous; mixed with sandstone as above but stained red by association with the red silt.

2290-2300 Siltstone, as above, but highly porous with scattered grains of sand size included; also limestone, moderate orange pink, pseudo-oolitic, very porous.

2300-2310 Limestone, as above with much quartz; also limestone, slabby, grayish orange pink, dense.

2310-2330 Limestone, dolomitic, pinkish gray, microsucrosic, dense; gray chips mixed in at 2320.

2330-2350 Limestone, light brownish gray, silty to sandy, mostly microsucrosic; also limestone as above.

2350-2370 Limestone, light brownish gray to pinkish gray, silty; microsucrosic, quite porous; becomes lighter downward with much cavernous porosity.

2370-2380 Limestone, dolomitic, grayish orange pink, abundant grains of rounded quartz sand as inclusions and free; high cavernous porosity but a few pieces are microsucrosic and dense.

2380-2390 Dolomite, calcic, very pale orange, subcrystalline; some tubular and cavernous porosity; tends to be fractured.

2390-2410 Dolomite, calcic, grayish orange pink, microsucrosic, some tubular porosity.

2410-2420 Limestone, very pale orange, slabby and fractured, dense; a few microsucrosic chips; non-porous.

2420-2430 Limestone, grayish orange pink, very slabby and dense; also porous fragmental chips.

2430-2460 Dolomite, calcic, moderate orange pink, microsucrosic to slabby; dense; color is quite variable with various shades of pinks and grays.

2460-2470 Limestone, light gray to pinkish gray, slabby; reddish silty inclusions; calcite inclusions.

2470-2480 Dolomite, subcrystalline, light brown, dense; also variable dolomites as between 2430 and 2460.

2480-2520 Dolomite, calcic, pinkish gray, blotched with circular lighter-colored areas, grainy; chips of limestone included; pinpoint porosity; becomes very pale orange at 2500.

2520-2530 Dolomite, calcic, very pale orange; microsucrosic, sparse pinpoint porosity.

2530-2540 Dolomite, calcic, very pale orange, oolitic, extremely high intergranular and cavernous porosity.

2540-2590 Dolomite, calcic, pale yellowish brown, sucrosic, interstitial porosity is much less than above but it increases some between 2570 and 2580; color becomes pinker downward.

2590-2620 Dolomite, calcic, grayish orange pink, subcrystalline; also dolomite as above; a few pale red chips of subcrystalline dolomite at 2600.

2620-2640 Limestone, very pale orange to pale yellowish brown, oolitic to fragmental; intergranular porosity; also dolomite, as above.

2640-2650 Dolomite, calcic, yellowish gray, sucrosic, cavernous and pinpoint porosity; gradational to limestone, above.

2650-2670 Limestone, dolomitic, white and grayish orange pink, microsucrosic to fragmental, cavernous porosity; calcite inclusions; a few pieces of limestone are composed of pure calcite crystals.

2670-2700 Dolomite, calcic, rhombic, intergranular porosity, pale red, color varies to lighter shades; also limestone, as above; cherty; limestone becomes dominant at 2690.

2700-2740 Dolomite, calcic, grayish orange pink, microsucrosic to subcrystalline; pinpoint and intergranular, and some cavernous porosity; pale red chips of sucrosic limestone at 2720; shaly at 2730.

2740-2820 Limestone, very pale orange, fragmental to microsucrosic, dense; shale, dark gray, fissile; purplish stains on limestone at 2760; sandstone, mainly quartz cemented with pyrite at 2780 and abundant pyrite.

2820-2860 Limestone, very pale orange as above to grainy, dense; colors are variable to pinks and yellows; some pieces are silty; rounded grains of quartz sand at 2840.

2860-2930 Limestone, pale yellowish brown, slabby, dense; fossiliferous.

2930-2950 Limestone, light brownish gray, slabby, cavernous porosity, calcite crystals as inclusions.

2950-2980 Limestone, very pale orange with purple streaks, slabby, limited porosity, chips of light greenish gray and pale reddish brown dolomitic shale; some pinkish gray, very porous limestone at 2960.

2980-2990 Limestone, as above; chips of pale reddish brown slightly calcareous siltstone.

2990-3020 Siltstone, moderate yellowish brown, calcareous; also reddish to greenish hues and limestone, as above; shale, dark gray, fissile, non-calcareous; gray and green hues increase downward.

3020-3030 Shale, greenish gray, silty, calcareous; extremely varied sample with limestone and gray shale also abundant.

3030-3100 Shale, grayish red and greenish gray; slightly calcareous; splintery, waxy; both shades dissociate in acid or water.

3100 3/4 hour circulation. Shale, grayish red and greenish gray; slightly calcareous; splintery, waxy.

3100-3120 Shale, as above; also brownish gray, fissile, calcareous.

3120-3140 Shale, light olive gray, massive to fissile; also greenish gray and grayish red, as above; reddish shale is slightly silty.

3140-3170 Shale, grayish red, splintery, waxy, silty, slightly calcareous; some intermixed greenish gray shale; a few grains of quartz sand; a few chips of dolomite, grayish orange pink, subcrystalline.

3175 Circulation. Dolomite, grayish orange pink as above; generally dense; shale, grayish red, splintery; also some greenish gray shale.

3177 Circulation. Dolomite, as above; and limestone, very pale orange; shale, as above.

3170-3180 Dolomite and limestone, as above plus shale, as above.

3180-3220 Sand, medium grained, mainly quartz, frosted to clear and sub-rounded; also shale and carbonates, as above; some pyrite.

3220-3230 Dolomite, grayish red, fine to medium crystalline; glauconitic, silty, interstitial porosity; also shale, as above.

3230-3250 Dolomite, as above except coarser and more porous; siltstone, moderate reddish orange, calcareous; sandy.

3250-3260 Dolomite, grading to arenite or calcarenite silty with calcareous cement, highly porous.

3260-3270 Shale, grayish red, very resinous, non-calcareous, splintery, also glauconitic, calcarenite, as above.

3271 Total Depth. Basic igneous rock, dusky blue (5PB3/2).
Circulation.