

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 35

Summary of the Rhodes-Langenfelds R. R. Gibbons #1  
Towner County, North Dakota

By Carole Smith  
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Rhodes-Langenfeld R. R. Gibbons #1, Towner County, North Dakota; C SW 1/  
4 SE 1/4, Section 17, T. 157N., R. 65W. Elevation: 1493 G.L., 1499 K.B.

The Rhodes-Langenfeld R. R. Gibbons #1 was spudded October 27, 1952 and 202 feet of 10 3/4 inch surface casing was set with 225 sacks of cement. Cement plugs of 15 sacks were set at 3000 feet, 1950 feet, and 1260 feet. At 200 feet a cement plug of 20 sacks was set. A 5 sack cement plug was set at the surface.

The well was abandoned November 7, 1952 at a total depth of 3765 feet.

No tests.

FORMATION TOPS

	<u>Depth</u>
Cretaceous System	
Niobrara Formation	556
Greenhorn Member	995
Muddy	1287
Dakota	1394
Jurassic System	
Sundance Formation	1580
Piper Formation	1835
"Red Beds"	1907
Devonian System	
"Nisku"	1952
Duperow Formation	2000
Souris River Formation	2310
Dawson Bay Formation	2380
Ashern	2590
Silurian System	
Interlake Group	2620
Ordovician System	
Upper Stony Mountain	2853
Lower Stony Mountain	2937
Red River	3022
Winnipeg Formation	3567
Winnipeg Sand	3745
Pre-Cambrian	3757

Formation tops were picked by Anderson of the North Dakota Geological Survey from sample and electric logs. Colors determined from rock color chart. Non-interpretive sample log.

<u>From</u>	<u>To</u>	<u>Formation</u>
200	240	Shale, medium dark gray, somewhat waxey; some pale yellow-brown shale; much calcareous, medium light gray shale (220-240); some light gray, dense limestone (220-240); some fine quartz sand.
240	320	Shale, medium gray, dense; small amounts of inoceramus (?) fragments; rapidly decreasing amounts of fine sand; traces of pyrite.
320	380	Shale, medium light gray; some moderate yellow-brown (10YR5/4), dense, greasy dolomite; traces of inoceramus (?) fragments.
380	440	Shale, medium light gray, waxey, some slightly lighter and green tinged; some bentonite (400-420).
440	500	Shale, medium light gray, soft, lumpy, very bentonitic, much shale as above (440-460); small amounts of dense dolomite as above, and inoceramus fragments.
500	520	Shale, medium gray, lumpy, slightly bentonitic; a small amount of dense dolomite as above; trace of pyrite.
520	600	Shale, gray black to black, partly lumpy; some shale as above (520-540), traces of pyrite.
Niobrara 596		
600	680	Shale, medium light gray to medium gray, calcareous, lumpy; grayish black (640-660), some dense, medium gray limestone (660-680).
680	820	Shale, medium gray, calcareous, lumpy, becoming decreasingly calcareous starting at 740; traces of pyrite.
820	980	Shale, medium gray to medium dark gray, mostly lumpy, slightly calcareous in part; traces of pyrite.
980	1000	Missing samples.
Greenhorn 995		
1000	1060	Inoceramus fragments, much; much pyrite (1000-1040); much dark gray calcareous shale with white spots, increasing in amount; traces of pyrite.
1060	1080	Missing samples.
1080	1160	Calcareous shale, dark gray, with white spots; many inoceramus fragments; small amounts of pyrite.
1160	1180	Missing samples.
1180	1220	Calcareous shale, grayish black, partly lumpy; some inoceramus fragments and small amounts of shaly inoceramus limestone; small amounts of pyrite.
1220	1240	Missing samples.
1240	1280	Shale, dark gray to grayish black; much pyrite (1240-1260); a few shell fragments.
Dakota 1286		
Morrison 1325		
1280	1370	Shale, dark gray, mostly lumpy, increasingly calcareous; small amounts of pyrite, inoceramus fragments, traces of fine sand beginning at 1310.
1370	1380	Missing samples.

<u>From</u>	<u>To</u>	<u>Formation</u>
Sundance	1395	
1380	1400	Shale, grayish black; small amounts of sandstone; traces of pyrite; traces of iron concretions (1390-1400).
1400	1440	Shale, gray black; some soft, bentonitic shale, dark yellow-orange to moderate reddish brown; traces of iron concretions; small amounts of pyrite.
1440	1487	Shale, medium dark gray to dark gray, partly lumpy; some pyrite; small amounts of fine iron concretions and fine sugary limy quartzose sandstone; small amounts of soft, multicolored, bentonitic shale.
1490	1530	Shale, medium gray; yellow to pink, lumpy, bentonitic; some fine iron concretions, pyrite; traces of fine limy quartzose sandstone as above; increasingly gray and calcareous.
1530	1590	Shale, grayish black; much bentonitic yellow to pink, lumpy shale; small amounts of dirty quartzose sandstone; some pyrite.
1590	1650	Missing samples.
1650	1680	Limestone, mottled black and white, fine sugary, silty; some very pale brown, shaly, silty, fine sugary limestone; some moderate reddish brown shale (in increasing amounts) and dark gray shale; traces of pyrite and shell fragments and shell impressions; some light olive-gray, fine sugary, shaly silty limestone (1670-1680).
1680	1700	Sandstone, light olive-gray, fine sugary, limy, slightly shaly; much reddish brown and gray shale; some limestone as above.
1700	1720	Sandstone, white, pale reddish brown, fine sugary, soft, partly limy, black specked; some dark gray and moderate reddish brown shale, increasing in amount; small amounts of pyrite, gypsum, and limestone as above.
1720	1740	Shale, moderate reddish brown; some dark gray shale white gypsum, pyrite.
1740	1760	Gypsum, pale pink to white, very soft; much moderate reddish brown shale and pale green shale; traces of pyrite.
1760	1770	Shale, moderate reddish brown and pale green; some gypsum as above; small amounts of pyrite, sandstone as above.
1770	1790	Missing samples.
Piper	1795	
1790	1800	Limestone, pale yellow-brown, very light gray, shaly; much shale as above; small amounts of gypsum, pyrite.
1800	1810	Limestone, pale yellow-gray, sub-crystalline; some light gray, limestone as above; some imbedded quartz; traces of shale, pyrite, and gypsum.
1810	1830	Limestone, very pale yellow-gray to very pale yellow-brown; fine sugary to chalky, much fine to medium imbedded quartz; traces of pyrite.
1830	1840	Dolomite, very pale yellow-gray to very pale orange, dense, sub-lithographic, partly lumpy and oolitic.
1840	1850	Dolomite, grayish brown (5YR3/2) to very pale brown, dense to micro-sugary; traces of pyrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
1850	1860	Dolomitic limestone, very light gray to very pale yellow-brown, sub-lithographic; traces of shale, gypsum, pyrite, dolomite as above.
1860	1880	Limestone, very light gray, dense, lithographic, slightly shaly; traces of moderate reddish brown shale, dark gray shale, pyrite.
1880	1900	Limestone, very light gray, lumpy, powdery, shaly; some dense limestone, shale, pyrite, gypsum.
1900	1910	Limestone, dark gray, dense, very shaly; traces of shale, gypsum pyrite.
"Red Beds" 1907		
1910	1920	Shale, moderate reddish brown; some white gypsum.
1922		Gypsum, white, soft; much shale as above; small amounts of gray and greenish shale, dense limestone. 30 minutes circulation.
Nisku 1952		
1930	1960	Shale, moderate reddish brown; some white gypsum, decreasing in amount.
1960	1984	Dolomite, white to pale pink, very fine sugary to dense; traces of shale, gypsum.
Core		
1984	1994	Dolomite, very pale orange to very pale yellow-brown, very fine sugary, slightly vuggy.
1994	2000	Dolomite, as above, only pink tinged; small amounts of shale, pyrite.
Duperow 2000		
2000	2010	Dolomite shale, reddish purple to moderate reddish brown; some shaly dolomite; traces of gray shale, pyrite.
2010	2030	Dolomite, pale yellow-brown to pale orange-pink, fine sugary to very fine sugary; small amounts of dolomitic shale as above and dense dolomitic limestone; the dolomite gets more red (2020-2030).
2030	2040	Limy dolomite, very pale yellow-brown, moderate red, reddish purple, fine sugary; small amounts of black shale and pyrite.
2040	2050	Dolomite, dusky yellow to pinkish orange to pale red, fine sugary; traces of gray shale, pyrite.
2050	2060	Dolomite, grayish orange, fine sugary; some chalky, yellow-gray dolomite, very limy in part; traces of shale, pyrite.
2060	2070	Dolomite, very pale yellow-gray, dense, partly shaly, slightly silty in part; much very pale yellow-brown, dense limestone.
2070	2080	Dolomite, very pale gray, very pale yellow to pink, fine sugary, slightly limy; traces of shale and pyrite.
2080	2100	Dolomite, very pale yellow-brown, sugary, slightly limy, porous; much light olive-gray, sugary dolomite.

<u>From</u>	<u>To</u>	<u>Formation</u>
2100	2111	Limestone, pale yellow-brown, sugary; some pale yellow-gray dense limestone.
2110	2130	Dolomite, pale yellow-brown to moderate yellow-brown, increasingly pink tinged, sugary, porous.
2130	2150	Dolomite, pale yellow-brown, sugary, some slightly pink tinged, porous.
2150	2170	Limestone, sub-lithographic, white; some dolomite as above (50-60); small amounts of reddish, limy shale (60-70).
2170	2200	Dolomite, very pale yellow-brown, sugary; much very pale yellow-brown, dense limestone (2190-2200).
2200	2230	Limestone, very pale yellow-gray to white, sub-lithographic to chalky, becoming crystalline; some pinkish to moderate red, shaly limestone (2200-2220).
2230	2250	Limy dolomite, pale yellow-gray to pale yellow-brown, sugary, becoming very pink tinged and partly chalky; traces of limestone, shale, pyrite.
2250	2260	Limestone, pale yellow-brown, fine sugary; some dolomite as above; traces of pyrite, shale.
2260	2270	Limestone, white, dense to chalky; much dense, moderate red to pink, shaly dolomite.
2275	2280	Dolomite, pale yellow-brown, sugary; much very pale yellow-brown and pink mottled, sugary dolomite.
2280	2310	Dolomite, very pale yellow-brown to pink, fine sugary; small amount of white anhydrite (2280-2290); traces of pyrite, gray-green shale.
Souris River 2310		
2310	2320	Limestone, mottled light gray and pink, dense, shaly; small amounts of pink, dense dolomite.
2320	2350	Dolomite, moderate red to moderate orange-pink, fine sugary, shaly; some white, fine sugary anhydrite (2340-2350).
2350	2360	Dolomite, very pale yellow-brown, slightly pink tinged, slightly calcareous; small amount of dense, gray, limy dolomite.
2360	2380	Dolomite, pale yellow-brown, fine sugary, partly chalky, slightly limy; some pink, dolomitic shale (2370-2380).
2380	2390	Dolomite, light gray and pink mottled, dense, shaly; some fine sugary, pink dolomite.
2390	2410	Limy dolomite, very pale yellow-brown to very pale yellow-gray, fine sugary; much mottled pink and pale green, gray, shaly, limy dolomite; traces of dense pale grayed red dolomite, white anhydrite.
2404		Dolomitic limestone, pink and gray mottled, dense, shaly; small amount of white anhydrite. Circulation: 25 minutes.
2410	2440	Dolomite, light brown, slightly pink, fine sugary, somewhat limy, becoming denser and much redder; some calcite veinlets (2420-2430); traces of anhydrite, pyrite, dense limestone (2430-2440).
2440	2460	Limestone, pale yellow-gray to very pale yellow-brown, slightly pink tinged in part, dense; sub-crystalline; some dense dolomite (2450-2460).

<u>From</u>	<u>To</u>	<u>Formation</u>
2460	2470	Limy dolomite, gray to grayish orange-pink, very fine sugary to chalky, shaly.
Dawson Bay 2470		
2470	2480	Limestone, gray to grayish orange-pink, very fine sugary to chalky, shaly, slightly dolomitic; some dolomite as above; trace pyrite.
2480	2490	Limestone to limy dolomite, white, dense, slightly pink tinged in part.
2490	2500	Dolomite, very pale yellow-brown, micro-sugary, partly mottled with pink, rust spots.
2500	2520	Dolomite, pale yellow-gray, fine sugary, few rust specks, becoming increasingly pink; trace pyrite.
2520	2530	Dolomite, pale yellow-brown, somewhat limy and shaly, sugary, somewhat porous, slightly pink; rust streaks; trace of pyrite.
2530	2550	Dolomite, pale yellow-gray, sub-crystalline to fine sugary, porous; some dense, pale red dolomite; much pink tinged, sugary dolomite.
Winnipegosis 2545		
2550	2570	Limestone, chalky white to very fine sugary, pale limestone; some pink to purple mottlings.
2570	2590	Dolomite, pale yellow-gray, limy, dense, sub-crystalline, somewhat mottled with pink.
2590	2600	Dolomite, white, sugary; much dense, pinkish gray, shaly dolomite, rust stained.
2600	2640	Dolomitic shale, pale red, dusky red, moderate reddish brown, some medium light gray; much reddish orange limy shale (2620-2640).
Ashern 2650		
2640	2670	Limestone, white, very dense, partly crystalline; small amounts of pale pink, crystalline dolomite (2650-2660); some very pale orange dolomite, dense (2660-2670).
Interlake 2700		
2670	2710	Limestone, white, slightly yellowish, dense, micro sugary, slightly dolomitic starting at 2690; much pink and orange-pink limestone, (2700-2710); small amounts of dense dolomite beginning at 2690.
Stony Mountain 2853		
2710	2860	Dolomite, white, dense, hard; some pale yellow-gray dolomite (2710-2720, 2730-2740, 2760-2770), slightly oolitic (2770-2780), quite vuggy (2810-2820); slightly pink tinged starting at 2820; traces of shale and pyrite.
2860	2880	Dolomite, as above; much grayed light red, shaly, dense dolomite; trace fine quartz.
2880	2890	Shaly dolomite, light red, dense; some white dolomite as above; trace of pyrite, fine quartz.

<u>From</u>	<u>To</u>	<u>Formation</u>
2890	2900	Dolomite, white to pale pink with pale red stains, fine sugary; trace fine quartz.
2900	2910	Missing samples.
2910	2940	Dolomite, very light gray to pale pink, dark purple to orange-pink stains, very fine sugary, hard, dense; some pinkish, orange, dense, shaly dolomite (2930-2940); traces of pyrite, shale.
2940	2960	Dolomite, pale red, shaly, dense; some very fine sugary, white dolomite; some soft, gray, mottled with black limestone; some dense, purple limestone (2950-2960).
2960	2970	Limestone, red-purple, gray, dense, shaly; some crystalline, gray and white limestone; much fine sugary to chalky, white dolomite; traces of pyrite, shale.
2970	2980	Limestone, chalky, white to crystalline black and white, some slightly green tinged; shell impressions; traces of shale.
Stony Mountain Shale 2987		
2980	2990	Limestone, gray, chalky to sub-crystalline, partly shaly; some dense, pale yellow-gray dolomite; shell impressions.
2990	3000	Limestone, gray, crystalline; some shaly, red-purple to chalky white limestone; shell impressions; traces of shale.
3000	3010	Limestone, white to black, crystalline; small amounts of chalky limestone, shale, pink dolomite, shell impressions, pyrite.
3010	3020	Limestone, very light gray and chalky, pale purple and crystalline, gray to black and crystalline as above; much pale red, shaly dolomite; traces of shale, pyrite, and shell impressions.
Red River 3022		
3020	3040	Limestone, white, pale yellow-gray to pale yellow-brown, dense to chalky, slightly pink tinged in part; small amounts of shale, pyrite, shaly limestone, shell impressions.
3040	3060	Limestone; very pale yellow-brown to very pale orange, sub-crystalline, dense; fossils; some dense dolomite (3050-3060); traces of shale, pyrite.
3060	3070	Dolomite, pale yellow-gray to pale yellow-brown, slightly pink tinged in part, fine sugary; traces of shale, pyrite, fossils.
3070	3080	Limestone, pale yellow-brown, dense, sub-crystalline; some pale red, crystalline, dense limestone; traces of shell impressions, shale, pyrite.
3080	3150	Dolomite, very pale orange to pink, dense, lithographic, hard; some limestone as above (3080-3090); traces of pyrite, fossils, shale.
3150	3170	Dolomitic limestone, pale yellow-brown, fine sugary; some limy dolomite; slightly pink and less limy dolomite (3160-3170); traces of shell impressions, shale, pyrite.
3170	3200	Dolomite, pale yellow-brown, sugary; some chalky white limestone, increasing to very much (3190-3200); traces of pyrite, shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
3200	3210	Limy dolomite to limestone, pink to very pale orange, very fine sugary.
3210	3220	Limestone, pink to very pale orange, fine sugary; trace of pyrite.
3220	3230	Dolomite, pink, very pale yellow-brown to medium, yellow-brown, sugary.
3230	3240	Dolomite, grayish orange-pink, sugary, partly limy.
3240	3260	Limestone, very pale orange, sub-crystalline to sugary partly chalky and white; some sugary dolomite (3250-3260).
3260	3270	Dolomitic limestone, pale yellow-gray, sugary; small amount of light red, sub-crystalline dolomite; traces of shell impressions. Circulation 30 minutes.
3260	3270	Dolomite, moderate orange-pink, sub-crystalline; some sugary, very pale orange dolomite; traces of shell impressions, pyrite, shale.
3270	3280	Dolomite, pale yellow-brown, sugary; much pale yellow-gray, very fine sugary limestone.
3280	3290	Dolomite, pink tinged pale yellow-brown, sugary; some crystalline, pink and pale yellow-brown mottled limestone.
3290	3310	Limestone, pale yellow-gray, partly pink tinged, very fine sugary.
3310	3450	Limestone, pale yellow-gray to white sub-crystalline, to chalky, slightly pink in part, partly iron rust stained; traces of chert, pyrite, shell impressions bryozoa, fossils.
3450	3460	Limestone, grayish orange-pink, iron stained; dense; some chalky white limestone; trace of pyrite.
3460	3480	Limestone, grayish orange-pink, very pale orange, dense to chalky, partly dolomitic (3470-3480); trace pyrite fossils, chert.
3480	3500	Limestone, chalky white, slightly pink stained; increasing amounts of sub-crystalline, pink and very pale yellow-brown limestone; traces of pyrite.
Winnipeg	3567	
3500	3580	Limestone, white to yellow-brown, dense very fine sugary to chalky, slightly pink tinged in part; traces of shale, pyrite, fossils, chert.
3580	3600	Limestone, very pale yellow-brown chalky to pink sugary; some crystalline, mottled gray and white limestone; some moderate red to moderate red-brown dolomitic shale; some dense, purplish limestone (3590-3600); traces of chert, pyrite, fossils, shale.
3600	3610	Limestone, very pale yellow-gray to light gray, slightly pink, chalky to very fine sugary; traces of shale, pyrite, fossils, chert.
3610	3620	Limestone, gray, sub-crystalline to chalky white; much shale, limy gray-green, reddish orange-brown, calcareous red-purple, dark gray; traces of pyrite, fossils.
3620	3740	Shale, greenish gray, partly calcareous; some reddish brown lumpy shale beginning at 3650; traces of limestone, pyrite, black pellets (3630-3670).



Winnipeg Sand 3745

3740      3750      Shale, as above; some fine to medium, sub-angular to round  
sand; some loose, quartzose sandstone; some grayish, shaly,  
quartzose sandstone.

3757      Granite.