

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 173

Summary of the Sohio Petroleum. Company - M. L. Marcel #1  
Renville County, North Dakota  
Well No. 814 - Permit No. 968

by James Peterson  
June 1957

Sohio Petroleum Company, M. L. Marcel #1, Renville County, North Dakota.  
Location: C NW NW Sec. 13, 163N., 84W. Elevation: 1613 GR, 1623 KB.

The Sohio Petroleum Company, M. L. Marcel #1 was spudded January 3, 1955, drilled to a total depth of 4600 feet, found dry, and was plugged January 28, 1955.

Logging Record:

Electric log and microllog by Schlumberger.

Casing Record:

10 3/4" surface pipe at 576'.

Plugging Record:

Plug #1 3922' with 25 sacks cement. Top of Charles.  
Plug #2 3033' with 15 sacks cement. Bottom of Dakota.  
Plug #3 2614' with 15 sacks cement. Top of Dakota.  
Plug #4 570' with 10 sacks cement. Bottom surface.  
Plug #5 with 5 sacks cement. Top surface.

Formation tops were determined from samples and electric logs. Doubtful or obscure tops were not picked. Color names and identifying numbers were taken from the 1948 Rock-Color Chart which is distributed by the National Research Council, Washington, D.C.

FORMATION TOPS

Cretaceous System

Niobrara formation 1840 (electric log)  
Greenhorn formation 2125  
Basal Cretaceous ss. 2615

Jurassic System

Piper formation 3483

Triassic System

Spearfish formation 3755

Mississippian System

Charles formation 3920  
Mission Canyon formation  
(MC-3) 4170  
Mission Canyon fm. (MC-2) 4333  
Lodgepole formation 4490

580-640 Shale, medium light gray, lumpy irregular fragments, soft.  
Limestone, very light gray, sublithographic, silty. Rounded sand grains, chert fragments.

640-720 Shale as above.  
 720-820 Shale, medium light gray, massive, compact.  
 820-900 Shale, medium light gray to medium gray, irregular fragments.  
 900-1020 Shale, medium light gray to medium gray, irregular to compact, white bentonite fragments.  
 1020-1180 Shale as above; occasional grayish orange (10YR7/4) shale fragments, chert, sublithographic limestone.  
 1180-1260 Shale, medium light gray to medium gray, compact.  
 1260-1460 Shale as above. Occasional limestone fragments, sublithographic to lithographic.  
 1460-1580 Shale, medium light gray to medium gray, lumpy to compact, scattered bentonite.  
 1580-1820 Shale, medium light gray, lumpy, with white bentonite inclusions, calcareous, to medium dark gray shale, platy to massive.  
 1820-1880 Shale, medium dark gray, platy. Soft white calcareous specks.  
 Shale as above.  
 1880-2000 Shale, medium light gray, lumpy to platy; medium dark gray shale, platy.  
 2000-2020 Shale as above. Dolomite, moderate brown, siliceous.  
 2020-2060 Shale as above.  
 2060-2140 Shale, dark gray, platy. Shale as above.  
 2140-2160 Limestone, very light gray, lithographic, crystalline.  
 2160-2180 Shale, medium dark gray, platy to massive, soft, white calcareous specks.  
 2180-2220 Limestone, very light gray to light gray, lithographic, dense.  
 Shale, medium light gray to dark gray, platy to lumpy.  
 2220-2615 Shale as above. Occasional white bentonite fragments.  
 2615-2625 Free sand grains, colorless, sub-round to sub-angular, vitreous to frosted, pitted, coarse to very coarse. Shale as above.  
 2625-2640 Shale as above.  
 2640-2720 Sandstone, colorless, fine grained, calcareous cement, sub-angular; free sand grains, medium, colorless, sub-angular to sub-round, colorless, frosted and pitted. Shale, medium light gray to medium dark gray, platy.  
 2720-2830 Shale as above, sandstone as above.  
 2830-2900 Shale, medium gray to dark gray, platy. Occasional sandstone fragments, very fine grained, light gray.  
 2900-3000 Free sand grains, colorless to moderate reddish orange, sub-round to sub-angular, vitreous to frosted, pitted. Shale as above.  
 3000-3040 Shale, medium light gray, soft, platy to medium dark gray, platy, occasional sandstone as above.  
 3040-3070 Shale, light greenish gray (5G8/1) to very light gray, platy; shale as above. Loose sand grains.  
 3070-3100 Shale as above, sandstone, very fine grained, light gray, shaley. Occasional very light gray sublithographic limestone fragments.  
 3100-3140 Shale, light gray, lumpy, parts silty to shale, moderate brown (5YR3/4). Shale as above.  
 3140-3160 Shale, light gray to medium dark gray, platy, limestone, very light gray, lithographic, subcrystalline. Shale, light greenish gray, platy.  
 3160-3240 Shale as above.  
 3240-3280 Shale as above; limestone, light gray, lithographic, crystalline.  
 3280-3320 Shale, medium light gray to medium dark gray, platy.

3320-3363 Shale, moderate brown (5YR3/4), platy to massive, brittle. Interbedded limestone, white, sucrosic to crystalline.

3363-3380 Circulation 1/2 hour. Shale, limestone as above. Siltstone, light gray, calcareous.

3380-3390 Limestone very light gray, sublithographic, finely crystalline. Siltstone, white, very calcareous. Shale as above.

3390-3450 Circulation 3/4 hour. As above.

3450-3480 Shale as above, limestone, light gray, subcrystalline, parts silty. Occasional siltstone fragments as above.

3480-3490 Limestone, very light gray, sublithographic, subcrystalline with crystalline inclusions, slightly dolomitic.

3490-3500 Shale as above.

3500-3526 Limestone, white, subliithographic, suberystalline, chalky; shale as above.

3526 Circulation 3/4 hour. Limestone as above. Limestone, medium gray, lithographic, subcrystalline. Shale as above, sandstone, light gray, fine to medium grained, sub-round, calcareous cement.

3537 Circulation 2/3 hour. Sandstone, limestone as above.

3550-3587 Limestone, light gray, lithographic, very fine granular texture.

3587 Circulation 1 hour. Shale, moderate brown (5YR3/4), brittle to medium light gray, platy. Limestone as above.

3640-3660 Anhydrite, very light gray, finely crystalline. Cavings.

3660-3700 Limestone light gray, lithographic, subcrystalline; secondary, anhydrite, white, crystalline.

3700-3710 Limestone, light gray, subcrystalline, sublithographic, shaley. Limestone, very light gray, sandy. Abundant shale fragments, predominantly medium light gray. Crystalline anhydrite fragments. Cavings.

3710-3740 Limestone, pinkish gray to very light gray, subcrystalline, sublithographic. Much caving.

3740-3750 Shaley, silty, limestone, light gray. Cavings.

3750-3760 Shale, pale yellowish orange to dark yellowish orange, platy. Occasional pale yellowish orange, quartz sandstone fragments. Poor samples.

3760 Siltstone, light brown (5YR6/4), shaley, slightly calcareous. Shale as above. Caving.

3760-3780 As above.

3780-3802 Siltstone, light brown, crystalline anhydrite inclusions, calcareous. Free coarse sand granules, rounded.

3802 Circulation 1/2 hour. Siltstone, light brown, slightly calcareous. Inclusions of finely crystalline white anhydrite. Sand grains as above.

3820-3860 Sandstone, very fine grained, silty, light brown (5YR6/4), slightly calcareous, inclusions of finely crystalline white anhydrite.

3860-3890 Sandstone as above. Medium rounded sand grains.

3890-3900 Sandstone as above - more anhydritic than above.

3900-3910 Sandstone as in 3820-60 interval.

3910-3920 Sandstone as in 3900-10 interval. Anhydrite, white to pinkish gray, finely crystalline.

3920-3936 Anhydrite, yellowish gray (5Y8/1), subcrystalline to finely crystalline.

3936 Circulation 1/2 hour. Limestone, yellowish gray, grainy texture. Anhydrite as above.

3940-3973 Limestone, very light gray, subcrystalline, sublithographic.  
3973 Circulation 3/4 hour. Anhydrite, pale red (5R6/2), sub-  
crystalline, dense.

3980-3995 As above.

3995-3998 Limestone, yellowish gray (5Y8/1), sublithographic, grainey  
texture, with inclusions of brownish gray (5YR4/1), coarsely  
crystalline anhydrite.

3998-4010 Circulation 2/3 hour. Limestone as above.

4010-4060 Anhydrite, medium light gray, subcrystalline, dense.

4060-4080 Limestone, very light gray, grainy, interbedded finely crystalline  
anhydrite.

4080-4120 Anhydrite indicated by logs. Samples all cavings.

4120-4140 Limestone, yellowish gray, grainy, anhydritic. Very poor samples.

4140-4160 Anhydrite indicated by logs.

4160-4180 Limestone, very light gray, granular texture, anhydritic.

4180-4190 Missing.

4190-4202 Limestone, very light gray, very fine granular texture,  
anhydritic. Poor samples.

4202 Circulation 3/4 hour. Limestone, very light gray, very fine  
granular to finely crystalline; secondary replacement by light  
brown (5YR6/4) crystalline anhydrite, also finely crystalline  
white anhydrite.

4202-4220 As above.

4220-4250 Limestone as above; some fragments slightly shaley, some fragments  
sandy. Occasional oolites,

4250-4310 Limestone, yellowish gray, grainy. Poor samples.

4310-4338 Limestone, very light gray, very fine granular, secondary  
crystalline calcite, fossiliferous, some oolites.

4338 Circulation 2 hours. Limestone, yellowish gray, granular, sub-  
lithographic. Good porosity.

4340-4350 As above.

4350 Circulation 1 1/3 hours. Limestone, very light gray, granular,  
sublithographic. Good porosity.

4350-4370 As above.

4370-4390 Limestone as above. Occasional sublithographic, grainy, oolitic  
limestone fragments, yellowish gray.

4390-4430 Missing.

4430-4440 Cavings. Limestone, yellowish gray, granular.

4440 Circulation 3/4 hour. Limestone, yellowish gray, granular, sub-  
lithographic.

4450-4470 Cavings, limestone as above.

4470-4490 Limestone, very light gray, sublithographic, very fine granular,  
limestone as above.

4490 Limestone as above. Limestone, light gray, lithographic,  
fragmental, shaley, cavings.