NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 174

Summary of the North Central Oil Corporation - Arthur Pearson #1
Bottineau County, North Dakota
Well #1300 - Permit #1312

by James Peterson
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North Central Oil Corporation, Arthur Pearson #1, Bottineau County, North Dakota, Location: C NW NW Sec. 36-163N-83W. Elevation: 1564 ground.

The North Central Oil Corporation, Arthur Pearson #1 was spudded October 19, 1956, was drilled to a total depth of 4014 feet and completed as an oil well November 17, 1956. The initial production was 255 barrels per day, 200 to 1 gas-oil ratio, 9.5% water, 28.5 gravity.

Logging Record:
Schlumberger electric log and microlateral log.

Coring Record:
3812-3825; 3825-69; 4004-14.

Testing Record:
DST #1, 3814-25, misrun.

DST #2, 3812-25, open 2 hours, recovered 183' mud, slightly cut with salt water. FP 105#, 30 min. SIP 1650'.

DST #3, 3847-69, open 2 hours, recovered 130' mud, slightly water cut with few flecks of oil. FP 115-195#, 30 min. SIP 1845#.

DST #4, 4000-4014, open 1 hour, recovered 70' heavily oil and gas cut mud, 210' oil FP 75#, 20 min. SIP 1550#.

DST #5, 3998-4014, open 3 hours, recovered 100' heavily oil and gas cut mud, 400' clean oil. FP 75-250#, 45 min. SIP 1649#.

Casing Record:
8 5/8" set at 349' KB with 175 sacks of cement.
5 1/2" set at 4001' KB with 100 sacks of cement.

Perforation Record:
Open hole. Acidized with 250-250-250-1000 gallons from 4001' to 4014'.

Formation tops were determined from samples and electric logs, corrected to the electric logs. Doubtful or obscure formations 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	
Pierre formation	400
Niobrara formation	1748
Greenhorn formation	2029
Basal Cretaceous Ss.	2548
Jurassic System	2970
Piper limestone	3372
Triassic System	
Spearfish formation	3638
Mississippian System	
Charles formation	3850

360-420	Shale, medium light gray, lumpy, sandy. Dolomite fragments, very light gray to yellowish gray, grainy, sublithographic.
420-470	Shale, medium light gray, lumpy to platy, slightly micaceous.
470-660	Shale, medium light gray, platy, well indurated.
660-840	Shale, light gray to medium gray, lumpy to compact.
840-1140	Shale as above, compact.
1140-1900	Missing.
1900-1940	Shale, medium dark gray, white calcareous specks; shale, medium light gray to medium dark gray, calcite veinlets. Inoceramus prisms, shell fragments.
1940-2030	Shale, medium light gray, some fragments bentonitic to medium dark gray compact. Crystalline pyrite, Inoceramus prisms. Shale as above.
2030-2080	Shale, medium dark gray, compact, white calcareous specks, crystalline calcite veinlets and inclusions, Inoceramus prisms. Shell fragments.
2080-2130	Shale, grayish black, platy, compact; shale, as above; crystalline pyrite; Inoceramus prisms.
2130-2150	Shale, medium light gray to medium gray, calcareous, compact Inoceramus prisms, shell fragments.
2150-2170	Shale medium dark gray, platy, calcareous to dark gray, platy.
2170-2360	Shale, medium dark gray, platy to medium gray shale with some fragments sandy, calcareous.
2360-2390	Shale as above, shale, dark gray, platy.
2390-2540	Shale, medium dark gray, platy to medium light gray, slightly bentonitic. Irregular fragments.
2540-2560	Shale as above; quartz coarse sand grains and granules, sub-round to sub-angular, vitreous to frosted, colorless.
2560-2580	As above; Occasional medium grained sandstone fragments, sub-angular, well sorted, calcareous cement.
2580-2640	Quartz sandstone, coarse grains to granules, sub-round to sub-angular, frosted and pitted, colorless, very friable.
2640-2660	Quartz sandstone, colorless, medium grained, sub-angular, well sorted, frosted, pitted, calcareous cement; sandstone as above.
2660-2750	Shale, medium light gray to medium dark gray, lumpy to platy. Shell fragments, crystalline pyrite.
2750-2770	Shale as above, siltstone, very light gray, calcareous.
2770-2780	As above; sandstone, fine grained, very light gray, well sorted, pyritic.

2780-2810	Very coarse quartz sand grains, colorless to grayish pink, sub-angular to sub-round, frosted, pitted, sandstone as above.
2810-2850	Shale, medium gray to medium dark gray, soft, platy; scattered sand grains and sandstone fragments as above. Cavings.
2850-2880	Sandstone, very light gray, fine grained, sub-angular, vitreous to frosted, calcareous.
2880-2890	Sandstone, very light gray, medium grained, sub-round to sub-angular, vitreous to frosted, friable, calcareous.
2890-2920	Sandstone as above; unconsolidated quartz granules, sub-angular colorless to pale red.
2920-2940	Siltstone, very light gray, calcareous; shale, medium light gray to medium dark gray, platy.
2940-2960	Shale as above.
2960-3000	Shale as above; siltstone to very fine sandstone, very light gray, calcareous.
3000-3010	Shale, medium dark gray, platy, to medium light gray, lumpy, soft.
3010-3040	Missing.
3040-3080	Shale as above.
3080-3170	Shale, medium light gray to greenish gray (5GY6/1), platy, shell fragments.
3170-3210	Shale, grayish red (10R4/2) platy to splintery; shale as above.
3210-3220	Shale as above, limestone fragments, very light gray, sub-lithographic, very fine granular texture.
3220-3230	Shale, grayish red (10R4/2) to light olive gray, platy to splintery, calcareous; limestone as above.
3230-3270	As above; siltstone to very fine grained sandstone, very light gray to light greenish gray (5GY8/1), calcareous.
3270-3290	Limestone, very light gray, granular, sublithographic to light gray, lithographic, subcrystalline and fractured. Sandstone, light gray, very fine grained, calcareous cement.
3290-3300	Sandstone as above.
3300-3370	Shale, grayish red (10R4/2) to light greenish gray, splintery, sandstone, very light gray, fine to medium sub-angular fragments, calcareous cement.
3370-3380	Shale as above.
3380-3420	Dolomitic limestone, very light gray, sublithographic, very fine granular texture, small vugs and minor pinpoint porosity, secondary crystalline anhydrite replacement. Fossiliferous.
3420-3435	Sandstone, very light gray, fine to medium grained, sub-angular, calcareous cement. Limestone as above.
3435-3490	Limestone, very light gray, sublithographic, subcrystalline to very fine granular texture, dense.
3490-3540	Shale, medium light gray to medium gray, platy, calcareous, limestone as above; anhydrite, white, crystalline.
3540-3600	Anhydrite, white to light gray, crystalline to subcrystalline; limestone as above.
3600-3610	Anhydrite, white, crystalline to light gray, subcrystalline, dense. Pyrite crystals.
3610-3640	Anhydrite as above interbedded with very light gray, sub-crystalline, sublithographic limestone.
3640-3660	Shale, moderate brown (5YR4/4) compact.
3660-3670	Siltstone, pale yellowish brown to light brown, slightly calcareous, anhydritic. A few medium sand grain inclusions. Shale as above.

3670-3740 Sandstone, light brown (5YR6/4), very fine grained, slightly calcareous. Shale, siltstone as above.
3740-3750 Sandstone, light brown (5YR6/4), very fine to medium grained, sub-rounded, some interbedded anhydrite, slightly calcareous, fair sorting.
3750-3760 Sandstone, light brown, very fine grained, some medium grain inclusions, as above.
3760-3791 Shale, pale brown, platy, compact. Sandstone as above.
3791-3800 Circulation 1 hour. Shale, pale red, platy, compact. Sandstone as above.
3800 Sandstone, light brown (5YR6/4), very fine grained, anhydritic, shale as above.

Core Chips
3812-3813 Dolomitic limestone, very light gray, subcrystalline, sub-lithographic, argillaceous. Reddish stains and dark gray, very thin stringers throughout.
3813-3814 Dolomitic limestone, very light gray, subcrystalline, sub-lithographic. Rust spots.
3814-3815 Dolomitic limestone as above. Some dark, crystalline inclusions.
3815-3820 Limestone, very light gray, grainy texture with scattered light olive gray crystals, sublithographic. Occasional vugs filled or partially filled by calcite crystals and anhydrite inclusions.
3820-3832 Limestone, very light gray, grainy, disseminated fossilfragments, fine fragmental texture. Occasional vugs as above.
3832-3834 Limestone, very light gray, very fine grainy texture, slightly fragmental, sublithographic, pale brown secondary crystalline calcite inclusions.
3834-3836 Limestone, very light gray, subcrystalline, sublithographic.
3836-3839 Limestone, very light gray, finely fragmental, fossiliferous, sublithographic. Occasional pale red banding.
3839-3842 Limestone, very light gray, subcrystalline, sublithographic.
3842-3843 Limestone, very light gray, finely crystalline, shale streaks.
3843-3844 Limestone, very light gray, subcrystalline, a few shell fragments.
3844-3846 Limestone, very light gray, grainy, finely fragmental, very fossiliferous, sublithographic.
3846-3848 Limestone, light gray, as above.
3848-3853 Limestone, yellowish gray (5Y7/2) to light olive gray (5Y6/1) grainy, finely fragmental, fossiliferous. Intergranular porosity. Slight oil odor. Good fluorescence and good cut with Ccl_4.
3853-3857 Limestone, very light gray, subcrystalline, sublithographic.
3857-3861 Limestone, very light gray, subcrystalline with secondary pale brown crystalline anhydrite.
3861 Limestone, very light gray, subcrystalline, siliceous.

Samples
3870-3885 Anhydrite, pale red (5R6/2), subcrystalline, dense, calcareous.
3885-3893 Anhydrite, pale yellowish brown (10YR6/2), crystalline, limestone matrix. Limestone, very light gray, very finely granular.
3893 Circulation 1 hour. Anhydritic limestone, yellowish gray, fine granular texture. Anhydrite as above.
3900-3905 Anhydrite, light gray, subcrystalline, dense.
3905-3920 Anhydrite, light gray to pale red, dense.
3920-3960 Anhydrite, light gray, subcrystalline, dense.

3960-3970	Anhydrite as above. Anhydritic limestone, yellowish gray, fine granular texture.
3970-4000	Anhydrite as above.
4000-4011	Cavings.
4011	Circulation 1 hour. Limestone, very light gray, fine granular texture, dolomitic.

Core Chips

4012-4014	Limestone as above. Slight oil shows.
4014-4017	Limestone, pale yellowish brown (10YR6/2), granular, oolitic, vuggy. Good porosity. Oil odor. Good fluorescence and good cut with Ccl_4.
4017-4018	Limestone, yellowish gray (5Y8/1), granular, oolitic, vuggy. Good porosity. Good fluorescence, good cut with Ccl_4 - not as good as above.
4018	Limestone, yellowish gray to very light gray, as above.
4021	Total depth.