NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 133

Summary of the Amerada Petroleum Corporation - A. U. Beauchamp #1
Bottineau County, North Dakota
Well No. 893 - Permit No. 905

By Dan E. Hansen
January 1956

The Amerada Petroleum Corporation - Beauchamp No. 1, Bottineau County, North Dakota. Location is 660 feet from south line, 660 feet from east line, SE SW Section 21, T. 161N., R. 79W. Elevation 1473 K.B. Total Depth 4080 feet.

The Amerada Petroleum Corporation - Beauchamp No. 1 was spudded June 16, 1955, drilled to a total depth of 4080 and completed as a new oil discovery July 10, 1955.

Completion data:

The completion test commenced July 15. Test lasted 23 hours on flow. Flow Pressure on tubing 0 lbs/sq in., size tubing 2 3/8" size choke 3/4", shut in pressure 700#. Result of test, 73 bbls oil calculated on 23 1/2 hr. actual gauge; gas-oil ratio not enough to measure, 22% water, gravity of oil 35.1° API.

Perforation was in the Spearfish formation from 3403 to 3411. Well was treated with 200 gal. acid 1000# sand, and 2000 gal. petrolfrac.

Cored intervals;

Core #1 3420 to 3478
Core #2 3478 to 3509
Core #3 3509 to 3567

Drill Stem Tests:

DST #1 2192-2203, open 2 hours, shut in 15 minutes, air immediately, strong blow for 1 hour 30 minutes, flowed fresh water for remainder of test, estimated flow 5 barrels per minute, recovered 2203' fluid, as follows: 180' fresh water, muddy, slightly gas cut, 2023' fresh water. IHP 1220, IFP 390, FFP 900, BHP 905, FHP 1200.

DST #2 2790-2816, tool open 2 hours, shut in 30 minutes, air immediately, very weak blow for 6 minutes and died, dead for 54 minutes, by-passed fluid, very weak blow for 1 minute and died, dead for 59 minutes, recovered 40' drilling mud. IHP 1465, IFP 0, FFP 0, BHP 225, FHP 1400.

DST #3, 3395-3420, open 2 hours, shut in 10 to 30 minutes, no water cushion, air immediately weak blow increasing to strong blow in 7 minutes and strong blow for remainder of test, show of gas in first 240' of drill pipe, recovered 192' free oil gravity 22.8°, grind out 2% drilling mud, 123' dark brown oil cut drilling mud (est. 50% oil). IHP 1800, IFP 120, FFP 180, BHP 1530, FHP 1840.

DST #4 3476-3509, open 2 hours, shut in 30 minutes, no water cushion, air immediately, weak blow increasing to good blow in 1 1/2 hours decreasing to weak blow at end of test, recovered 75' oil and gas cut drilling mud (est. oil at less than 1%) 300' white salt water. IHP 1940, IFP 0, FFP

150, BHP 1670, FHP 1890.

CASING RECORD

Size	Put in well	Left in Well	Sacks of Cement
9 5/8"	221	212	125
5 1/2"	3550	3550	250

Logs Run: Electrical, Microlaterolog, Laterolog, and Radiation.

Formation tops were picked from samples and electric logs, corrected to the electric logs. Not all formation tops are called in the following list. Colors are from the rock color chart.

FORMATION TOPS

Cretaceous System	
Niobrara Formation	1065
Greenhorn Formation	1720
Dakota Group	1995
Dakota Group Sand	2190
Jurassic System	2612
Piper Lime	2988
Triassic System	
Spearfish Formation	3230
Mississippian System	
Charles Formation	3440
Mission Canyon Formation	3714
Lodgepole Formation	4018

0-215	Samples missing.
215-1060	Shale, medium-gray, massive to flaky, compact to spongy, resinous, micro-micaceous. Light greenish-gray, micaceous bentonite at 460-500. Light brownish gray, siliceous shale at 700-900. Much loose grains of coarse, angular, white clear quartz, pink feldspar, and greenstone at 760-780.
1060-1260	Shale, as above, but becoming more spongy with light gray, light greenish gray bentonites.
1260-1440	Shale, as above, but medium-gray and medium dark gray.
1440-1460	Shale, medium gray, calcareous, “white specks”, compact, massive, pyrite.
1460-1640	Shale, medium dark gray, spongy, flaky, velvety. Light blue gray bentonite, pyrite, shell fragments.
1640-1720	Shale, medium dark gray, dark gray, calcareous, calcite prisms, pyrite.
1720-1820	Shale, as above, “white specks”, calcite chunks.
1820-1840	Shale, medium dank gray, soft, spongy, flaky and lumpy, slightly calcareous micro-micaceous.
1840-1860	Shale, gray black, velvety, flaky, spongy.
1860-2010	Shale, medium dark gray, soft, spongy, flaky and lumpy, slightly calcareous, micro-micaceous.
2010-2050	Shale, as above.

2050-2190	Shale, dark gray, flaky, soft, micro-micaceous, spongy. Traces of pyrite. Circulation at 2162, 30 minutes, with pyrite and traces very fine grained sandy, shaly, light gray silt. Traces very fine grained, light gray, glauconitic, quartzose sandstone 2170-2180.
2190-2200	Shale, as above, with very coarse grained, angular, clear quartz grains.
2200-2280	Sand, loose grains, white-clear, medium to coarse grained, pitted, frosted, angular to subrounded quartz. Shale as above. Some pyrite and pyrite cement.
2280-2290	Shale, as above, with coarse grained, red brown, siltstone siderite concretions, “pellets.”
2290-2360	Shale, as above, much loose quartz and pyrite as above, few fragments, light red gray limey clay. Circulation for 30 minutes at 2335.
2360-2400	Sandstone, light gray, mainly medium grained, slightly cemented by calcite and pyrite, angular quartzose, with gray shale as above. Circulation at 2365 and at 2384 for 30 minutes.
2400-2420	Sand, loose grains of coarse, white, pitted, angular quartz. Much pyrite and siderite coating the grains, shale as above.
2420-2440	Shale, as above, with much of above sandstone and pyrite.
2440-2460	Silt, light gray and shale, as above.
2460-2530	Sandstone, light brownish gray, very fine grained, calcareous cement and very light gray, silty, very fine grained, sandstone, with pink gypsum, shale, as above, and light green gray shale, very massive, compact, silty, light gray shale at 2520-2530.
2530-2570	Silt, light gray, slightly calcareous, bentonitic, with sandstone and shales as above.
2570-2630	Limestone, light gray, fine grained, crystalline, with much well rounded, coarse quartz grains and a few oolites and other rock sand grains. The limestone shows much solution and recrystallization, shales and sands as above.
2630-2720	Shale, light gray and light greenish gray, slightly calcareous, soapy, laminated to flaky. With fragments of fine grained, light gray white,(carbonaceous) shale streaked limestone, with traces of pink gypsum, and moderate brown, slightly calcareous shale.
2720-2850	Shale, light green gray and moderate brown, waxy, compact, splintery and flaky, slightly calcareous, much gray shale, fine grained, light gray white calcareous cemented quartzose sandstone throughout. Circulation 45 min. at 2816 pink gypsum at 2830 and shale becoming more moderate red brown.
2850-2880	Sandstone, fine grained, white to gray, quartzose, calcareous cement. Moderate brown and light green gray shale as above.
2880-2920	Sandstone, medium grained, calcareous cemented, quartzose, angular to rounded, shale as above.
2920-2940	Shale, as above, and limestone, yellowish gray, very fine grained, sublithographic.
2940-3150	Limestone, white, yellowish gray, very fine grained, sub-lithographic, shale as above. Traces pink, white anhydrite. Traces fine grained sandstone at 3030-3040, one hour circulation at 3133.
3150-3240	Anhydrite, white, medium crystalline, limestone and shale as above, apparently thin beds of anhydrite, limestone, and shale, 45 minutes circulation at 3227, loose, medium grained, frosted, rounded, pink quartz grains at 3230-3240.

3240-3260	Shale, moderate brown, massive, compact, silky, laminated.
3260-3420	Sandstone, and siltstone, moderate brown, calcareous, anhydrite, and clay cemented, sandstone is fine medium grained, rounded, frosted quartz grains. Circulation 30 minutes at 3361, good fluorescence and cut from 3400-3420. The samples fluorescence brown and the cut light yellow. Circulation one hour at 3420. Porosity and permeability don't appear to be too great.
Core #1	
3420-3426	Siltstone and very fine grained sandstone, slightly calcareous, yellow brown apparently permeability reduced by calcareous cement, poor fluorescence, good yellow brown ccl_4 cut.
3426-3427	Sandstone, white, medium coarse grained, well rounded, quartz, anhydrite white binder, small ccl_4 cut.
3427-3434	Silt, yellowish brown, as above, good ccl_4 cut.
3434-3436	Shale, very calcareous, pale red, massive, compact to brittle.
3436-3438	Shale, green gray, very calcareous, massive, compact, inclusions of white anhydrite.
3438-3440	Shale, grayish red, compact, calcareous, anhydrite inclusions.
3440-3444	Anhydrite, white pale red.
3444-3449½	Shale, pale red, compact, massive, dolomitic, anhydrite inclusions.
3449½-3451½	Shale, gray red, massive, compact, calcareous.
3451½-3454½	Anhydrite and dolomite, fine grained, dense, pale red to white, argillaceous.
3454½-3458	Anhydrite, pink gray, coarse crystalline, pale red shale.
3458-3460	Anhydrite and dolomite, very fine grained, light gray.
3460-3470	Shale, pale red, calcareous, brittle, banded, anhydrite inclusions.
3470-3478	Anhydrite and dolomite, light brownish gray, fine medium grained.
Core #2	recovered 13', cut 31'
3478-3509	
Top 2'	Anhydrite, white, coarse crystalline.
2nd 3'	Anhydrite, as above, with brown, recrystallized calcite with slight oil cut.
3rd 5'	Limestone, light gray, fine grained, fragmental, anhydrite, slight oil stain and cut.
Bottom 3'	Limestone as above.
Core #3	recovered 49' cut 58'
3509-3520½	Anydrite, light gray, and fine grained, pale red dolomite.
3520½-3529	Limestone, fine grained, sucrosic, light gray.
3529-3551½	Anhydrite, medium gray, shaly.
3551½-3556	Anhydrite, and dolomite, brownish gray, dense, fine grained.
3556-3558	Limestone, fine grained, pinkish gray, with some coarse grained fragmental anhydrite.
3558-3565	Samples missing.
3565-3595	Limestone, very light gray, yellowish gray, fine medium grained, fragmental and crystalline, with some coarse fragmental and crystalline fragments fair porosity.
3595-3615	Dolomite, and anhydrite, pale red, dense to light gray anhydrite.
3615-3715	Anhydrite, very light gray, with brown and gray shales.

3715-3820	Limestone, yellowish gray, fragmental, fine medium coarse grained, oolitic to crystalline, some anhydrite and calcite inclusions, some pinpoint porosity.
3820-3850	Anhydrite, light gray, fine coarse grained, some pink gray fine grained dolomite and gray shale, calcareous.
3850-3860	Limestone, very light gray, fine grained, anhydrite.
3860-3875	Limestone, yellowish gray, fragmental, fine grained to coarse grained, oolitic, vuggy porosity.
3875-3910	Limestone, light gray, fragmental, coarse grained oolitic with pinpoint porosity.
3910-4000	Limestone, fine grained, fragmental and coarse grained oolitic (minor amounts) with trace quartz grains at 3910-3990. Circulated 30 minutes at 3922, the limestone is soft and porous, traces of anhydrite.
4000-4050	Limestone, light gray, coarse grained, fragmental, dense, well cemented, traces brachiopod fragments, gray chert, much gray, fissile, calcareous shale.
4050-4080	Limestone, yellowish gray, as above, few fragments of cemented oolites at 4055-4060.
4080	Total Depth.