

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 166

Summary of the Amerada Petroleum Corporation - L. W. Luddington No. 1
Bottineau County, North Dakota
Well No. 962 - Permit No. 974

By James Peterson
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Amerada Petroleum Corporation - L. W. Luddington, Bottineau County,
North Dakota. Location: C SW NE Sec. 5, T. 160N., R. 80W. Elevation: 1503'
K.B.

The Amerada Petroleum Corporation - L. W. Luddington was spudded August
31, 1955, drilled to a total depth of 4318, found dry and plugged Sept. 12,
1955.

Logging Record:

Gamma ray-neutron, microlaterolog, electric, laterolog. Run September
12, 1955 by Schlumberger.

Testing Record:

DST #1 3640-3652'. 2 hrs. test. Very weak blow for 1 hour and then a
very weak intermittent blow for 45 min. and died. Rec. 191' of muddy salt
water, IHP 2010, IFP 75, 1/2 hour. BHP 1810, FHP 1950.

DST #2 - 3912-3924'. 2 hr. test. Air immediately, very weak blow for 2
hours. Rec, 558' of muddy salt water, no free gas or oil. IHP 2175, IFP 0, FFP
275, 30 min. BHP 1700, FHP 2150.

Casing Record:

5 jts. 9 5/8" surf. csg. set at 216' with 125 sacks cement.

Plugging Record:

3954 to 3897 with 20 sacks cement.
3674 to 3617 with 20 sacks cement.
3444 to 3387 with 20 sacks cement.
2396 to 2339 with 20 sacks cement.
242 to 184 with 20 sacks cement.
top of surface casing with 10 sacks cement.

Formation tops were determined from samples and mechanical logs
corrected to log tops. Doubtful or obscure formation tops were not picked.
Color names and identifying numbers are from the 1948 color chart distributed
by the National Research Council, Washington, D. C.

FORMATION TOPS

Cretaceous System

Pierre formation	290
Niobrara formation	1547 (electric log)
Greenhorn formation	1870
Dakota Group sands	2356

Jurassic System	2503
Piper formation	3184
Triassic System	
Spearfish formation	3408
Mississippian System	
Charles formation	3637
Mission Canyon fm. (MC3)	3890
Mission Canyon fm. (MC2)	4003
Mission Canyon fm. (MC1)	4040
Lodgepole formation	4198

0-216	Missing.
216-290	Shale, predominately light gray, some grayish orange pink, lumpy, spongy, micaceous, fine sand grains, slightly calcareous.
290-380	Shale, medium gray, lumpy, white micaceous bentonite and very light gray limestone inclusions.
380-410	Shale, medium light gray, lumpy and irregular fragments to fairly compact.
410-470	Shale, medium light gray to medium gray, fairly compact.
470-500	Shale, medium light gray, fairly compact. A few fragments of bentonite.
500-590	Shale, medium light gray to medium gray, compact, micro-micaceous.
590-710	Shale, predominately medium light gray, compact; limestone fragments, very light gray, rounded, sublithographic, argillaceous, grainy.
710-800	Shale, medium light gray to medium gray, mostly compact to lumpy, irregular. A few shell fragments.
800-830	Shale, medium light gray, compact, occasional limestone fragments, very light gray; sublithographic, argillaceous, a few sand grains.
830-950	Shale, medium light gray, compact to lumpy; occasional limestone fragments as above.
950-1040	Shale as above, also occasional fragments of yellowish gray, rounded, compact, calcareous shale.
1040-1310	Shale, medium light gray, compact to lumpy, bentonitic.
1310-1340	Shale, medium light gray, lumpy to compact, bentonitic, interbedded medium dark gray limestone; limestone fragments, pinkish gray, crystalline.
1340-1400	Shale, medium dark gray, platy to fissile.
1400-1520	Shale, medium light gray, lumpy; white bentonite; cavings.
1520-1700	Shale, medium light gray, lumpy, bentonitic to medium gray, compact. Interbedded limestone, inoceramus fragments.
1700-1790	Shale, medium light gray to medium dark gray, compact, platy, fossiliferous.
1790-1850	Shale, medium dark gray, platy to fissile.
1850-1880	Shale, medium light gray, platy, calcite crystals; shale as above.
1880-1940	Shale, medium dark gray, compact, soft white calcareous specks. Caving.
1940-1970	Shale, medium gray to medium dark gray, compact, platy, soft white calcareous specks; fossiliferous. Limestone, medium light gray, crystalline, very argillaceous.
1970-2000	Shale, medium dark gray, fissile, shale as above, limestone as above.
2000-2030	Shale, light gray, lumpy, bentonitic to medium gray to medium dark gray, platy to fissile. Limestone, light gray, crystalline to fragmental. Limestone as above.

2030-2090 Shale as above.

2090-2120 Shale, medium gray to medium dark gray, compact, platy to fissile.

2120-2150 Shale, medium dark gray, fissile.

2150-2300 Shale, medium light gray to medium gray, lumpy, irregular, fragments, bentonitic to fairly compact, platy, as above.

2300-2350 Shale, medium gray, lumpy, irregular fragments, medium dark gray shale inclusions, white bentonite. Shale, medium dark gray, fissile.

2350-2372 Shale, medium gray, lumpy to platy to medium dark gray, platy. Occasional medium gray, silty, very calcareous shale.

2372 Circulation 1/2 hour. Shale as above. Scattered silica granules, vitreous, subround. Occasional sandstone fragments, fine to medium grained, calcareous, subangular. Bentonite.

2372-2400 As above.

2400-2440 Shale, sand as above. Shale, medium light gray, bentonitic, unconsolidated, unsorted sand grain inclusions.

2440-2500 Sandstone granules, frosted to vitreous, subangular to subround. Shale as above.

2500-2580 Shale, medium to medium dark gray, lumpy, bentonitic to platy. Samples contain much sand, cavings.

2580-2600 Shale, sand granules as above. Occasional fine grained, light gray, calcareous sandstone fragments.

2600-2640 Anhydrite, white to pinkish gray, finely crystalline; sand as above. Shale, medium light gray to medium dark gray, platy.

2640-2660 Anhydrite as above. Quartz sand granules to pebbles, colorless, subround to subangular, vitreous to frosted, unconsolidated. Sandstone, light gray, fine grained, calcareous.

2660-2680 Unconsolidated sand grains; shale, light greenish gray to light gray.

2680-2710 Shale, light greenish gray (5GY8/1), subwaxy to light gray, platy. Much caving.

2710-2770 Shale, light gray, massive to platy. Cavings.

2770-2850 Shale, predominantly medium light gray, massive to platy, compact.

2850-2920 Shale, medium light gray, lumpy with sand grain inclusions to platy, shell fragments.

2920-2950 Shale, medium light gray to medium gray, platy; occasional medium light gray crystalline limestone fragments.

2950-3000 Shale, medium light gray lumpy to platy to medium gray, platy. Scattered fragments of dark yellowish orange, silty shale.

3000-3130 Shale, light gray to medium dark gray, platy, some variegated. Scattered fragments of medium light gray, fine grained sandstone. Occasional limestone fragments.

3130-3150 Dolomite limestone, white, subcrystalline, sublithographic, shale as above.

3150-3190 Dolomitic limestone, white to pinkish gray, grainy to crystalline, sublithographic to lithographic. Anhydrite, pinkish gray, crystalline.

3190-3240 Limestone, very light gray, subcrystalline, sublithographic. Occasional light gray oolitic limestone. Much caving.

3240-3350 Limestone, white to very light gray, subcrystalline to grainy, sublithographic, occasional recrystallization, anhydrite fragments. Much caving.

3350-3380 Anhydrite, white, finely crystalline to medium light gray, crystalline.

3380-3400 Anhydrite as above; limestone, very light gray, subcrystalline, sublithographic.

3400-3430 Anhydrite as above; shale, pale reddish brown, silty, anhydritic, slightly calcareous.

3430-3490 Shale, pale reddish brown, fairly compact, parts silty, a few pale reddish brown sandstone fragments, friable.

3490-3510 Sandstone, pale reddish brown, fine to medium grained, subround to subangular grains, friable; shale as above.

3510-3520 Sandstone, grayish orange, fine to medium grained, subround to subangular, fair sorting, friable.

3520-3582 Sandstone, as above; shale, pale reddish brown, compact. Fossiliferous.

3582 Circulation 1/4 hour. Shale, dark reddish brown, compact, some fragments variegated. Sandstone as above.

3582-3609 As above.

3609-3640 Circulation 1/4 hour. Sandstone and shale as above.

3640-3652 As above; cavings. Occasional limestone fragments, very light gray, microsucrosic, sublithographic.

3652 Circulation 1/2 hour. Limestone, very light gray, microsucrosic to crystalline, sublithographic matrix, slightly argillaceous.

3652-3660 Limestone as above, limestone, light brownish gray, subcrystalline to crystalline, dense.

3660-3670 Limestone, light brownish gray, subcrystalline to crystalline; limestone, very light gray, suberystalline-sublithographic matrix, fragmental.

3670-3690 Limestone, very light gray to light brownish gray, fragmental to crystalline; anhydrite, light gray, subcrystalline. Dolomite, pale red to light gray, very fine grainy texture.

3690-3700 Dolomite as above; anhydrite, light gray, subcrystalline.

3700-3720 Anhydrite, light gray, subcrystalline, dense.

3720-3723 Limestone, very light gray, subcrystalline, sublithographic, colorless to light brownish gray calcite crystals, secondary anhydrite replacement.

3723 Circulation 1/2 hour. Limestone as above. Anhydrite, very light gray, fine grainy texture.

3730-3740 Limestone, very light gray, subcrystalline, sublithographic.

3740-3750 Missing.

3750-3770 Anhydrite, light bluish gray, subcrystalline, dense.

3770-3780 Anhydrite as above; limestone very light gray, very fine grainy texture, calcite inclusions.

3780-3800 Anhydrite, light bluish gray to light gray, subcrystalline, dense. Limestone, very light gray, subcrystalline, sublithographic, secondary calcite recrystallization.

3800-3824 Anhydrite, light gray as above. Shell fragments.

3824-3830 Circulation 1/2 hour. Anhydrite, light brownish gray, subcrystalline dolomitic. The anhydrite has an irregular structure and it appears that something, most likely a salt, has been dissolved out of it.

3830-3850 Anhydrite, light brownish gray, subcrystalline, dolomitic, subangular fragments.

3850-3870 Anhydrite, light gray, subcrystalline, dense.

3870-3890 Limestone, yellowish gray, subcrystalline, sublithographic, secondary calcite recrystallization.

3890-3910 Anhydrite, light gray, subcrystalline, dense.

3910-3924 Calcitic dolomite, light olive gray, microsucrosic, anhydritic, some fragments vuggy.

3924-3930 Circulation 1/2 hour. As above.

3930-3960 Limestone, yellowish gray, sublithographic, grainy, secondary calcite recrystallization, some fragments fragmental, argillaceous.

3960-4000 Limestone, pinkish gray to light brownish gray, fragmental.

4000-4010 Limestone, white, subcrystalline, sublithographic, secondary calcite replacement.

4010-4030 Limestone, light gray, grainy, sublithographic; limestone as above. Much cavings.

4030-4040 Limestone, very light gray, subcrystalline, fossiliferous, oolitic.

4040-4050 Limestone as above, limestone, white, subcrystalline, sublithographic.

4050-4100 Limestone, very light gray, oolitic, fine grainy matrix, sublithographic.

4100-4110 Limestone, light gray, grainy, sublithographic.

4110-4200 Limestone, very light gray, subcrystalline to fine grainy, secondary calcite recrystallization, some fragmental limestone.

4200-4260 Limestone, very light gray to medium gray, fragmental, oolitic, very fossiliferous.

4260-4280 Limestone, very light gray, subcrystalline, sublithographic, to very light gray, fragmental.

4280-4300 Limestone, very light gray to medium gray, crystalline to fragmental, fossiliferous.

4300-4318 Limestone, medium light gray, oolitic; limestone as above.

4318 Limestone, light gray, grainy to crystalline, sublithographic.