

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 251

Summary of the Amerada Petroleum Corporation - R. E. Newton No. 1
Stark County, North Dakota
Well No. 613 - Permit No. 627

by Clarence G. Carlson
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The Amerada Petroleum Corporation - R. E. Newton No. 1 well is located in the NW, SW of Section 31, T. 140N., R. 99W., Stark County, North Dakota. Elevation: K.B. 2697; G.L. 2686.

The Amerada Petroleum Corporation - R. E. Newton No. 1 well was spudded July 21, 1954, drilled to a total depth of 9,577 feet, and completed as the discovery well of the Belfield-"Heath" pool on October 20, 1954. The well was abandoned as uneconomic on October 22, 1956, after producing 6,905 barrels of oil and 26,569 barrels of water.

Logs run:

Laterolog-Gamma Ray
Microlaterolog-Gamma Ray
Radioactivity
Section Gauge

Cores: None

Tests:

DST 1; 8,019-8,066; tool open 4 hours, shut in 30 minutes, 1,000 feet of water cushion. Tool opened with very strong blow for 33 minutes, decreasing to very weak blow for remainder of test, gas to surface in 1 hour and 40 minutes, recovered 1,000 feet of slightly gas cut salt water with no shows of oil, salt content 275,000 PPM. IHP 4850; IFP 1235; FFP 3715; BHP 3775; FHP 4675.

DST 2; 8,254-8,266; tool open 4 hours, shut in 30, minutes, 1,000 feet of water cushion; strong blow throughout test, gas to surface in 45 minutes, gas flowed at rate of 35,000 CFPD; closed tool and pulled 9 strands of fluid and well began to flow, put head on drill pipe and reversed out, recovered 6300 feet of fluid: 1,000 feet of water cushion and 5300 feet containing 48 barrels of free oil, 28.1° API, 5% water and 20 barrels of salt water, salt content 200,000 PPM. Pressures: IHP 5025; IFP 850; FFP 3135; BHP 3565; FHP 4900.

DST 3; 8,338-8,356; tool open 4 hours, no shut in, 1,000 feet of water cushion. Few air bubbles immediately, dead for 35 minutes, bubbles for 15 minutes, very strong blow for 25 minutes, gradually decreasing to good blow for remainder of test, gas to surface in 1 hour and 30 minutes. Recovered 1,000 feet of highly gas cut water cushion, 2670 feet of highly gas cut salt water (210,000 PPM), no show of oil. Pressures: IHP 4950; IFP 660; FFP 1900; no BHP; FHP 4750.

DST 4; 8,512-8,553; tool open 4 hours, shut in 30 minutes. Opened with very strong blow, for 1 hour, gradually decreasing to weak blow at end of test, gas to surface in 1 hour. Recovered 1,000 feet of highly gas cut water cushion, 6713 feet of very highly gas cut salt water (210,000 PPM), no oil. Pressures: IHP 4975; IFP 1280; FFP 1380; BHP 4025; FHP 4950.

DST 5; 9488-9499; Tool open 4 hours, shut in 30 minutes, 2,000 feet of water cushion. Opened with weak blow gradually decreasing and dead in 3 1/2 hours. Recovered 2,000 feet of water cushion, bottom 200 feet very slightly gas cut and 190 feet of very slightly gas cut water. Pressures: IHP 5600, FHP 5540, IFP 1010, FFP 1065, BHP 4110.

Casing and Completion:

10 3/4 inch casing was set at 618 feet with 400 sacks of cement; 5 1/2 inch casing was set at 8420 feet with 950 sacks of cement. The interval from 8,249 feet to 8,254 feet was perforated with 4 shots per foot. Swabbed 20.5 hours, recovered 268 barrels fluid, cut 44% salt water; swabbed 10.5 hours, recovered 141 barrels of fluid, cut 24% salt water, GOR 113-1, shut in 13.5 hours, SITP 500.

The well was abandoned October 22, 1960. The 5 1/2 inch casing was cut off at 4,635 feet and pulled. Cement plugs were set from 8369-8001, 50 sacks; 4635-4501, 50 sacks and 625-591, 25 sacks. Spotted 10 sack cement plug in top of 10 3/4 inch casing.

Formation tops were determined from samples and mechanical logs; tops were corrected to the Laterolog-Gamma Ray tops. Colors were determined by use of the Rock Color Chart distributed by the Geological Society of America. Not all formation tops were picked in the following list.

FORMATION TOPS

Cretaceous System	
Greenhorn formation	4724
Mowry formation	5242
Fall River formation	5676
Jurassic System	
Sundance formation	5978
Piper limestone	6596
Triassic System	
Spearfish formation "A" salt	6740
Permian System	
Minnekahta limestone	7432
Opeche formation	7482
Pennsylvanian System	
Minnelusa formation	7660
Amsden formation	7878
Mississippian System	
Big Snowy group	8374
Kibbey limestone	8647
Madison group	8776
Poplar interval	8776
Ratcliffe interval	9126
Frobisher-Alida interval	9340

4500-4740 Shale, medium gray to medium dark gray, fissile.
 4740-4830 Shale, medium dark gray, platy to fissile, calcareous, contains "white specks", many *Inoceramus* fragments.
 4860-5460 Shale, medium dark gray, platy to fissile.
 5460-5610 Shale, medium dark gray, fissile.
 5630-5640 Shale, medium dark gray, fissile.
 5650-5670 Shale, as above.
 5670-5710 Shale, medium gray to medium dark gray, platy to fissile; traces of sandstone, very light gray to white, very fine to fine grained, argillaceous, calcareous.
 5710-5740 Shale, medium gray to medium dark gray with silty layers; a little sandstone, very light gray to white, very fine to fine grained, argillaceous.
 5740-5790 Shale, very light gray, soft, fissile, greasy; some shale, medium gray, soft, fissile.
 5790-5810 Shale, very light gray, soft, lumpy, greasy, with numerous siderite pellets; a little sandstone, white to very light gray, very fine to fine grained, argillaceous.
 5810-5820 Shale, very light gray to light olive gray, soft, lumpy, greasy, some siderite pellets; traces of sandstone, light gray, very fine grained, silty.
 5820-5830 Sandstone, very light gray to white, very fine to fine grained, slightly micaceous; some shale, as above.
 5830-5850 Shale, very light gray to medium light gray and olive gray, soft, lumpy in part, fissile in part, traces of sandstone, as above.
 5850-5870 Sandstone, colorless to very light gray, very fine to medium grained, clean, quartzose, firmly cemented; shale, as above.
 5870-5900 Shale, very light gray to light olive gray, lumpy in part, fissile in part, soft; traces of sandstone, as above.
 5900-5920 Shale, light olive gray and traces of light greenish gray, soft, lumpy to fissile; traces of sandstone, as above.
 5920-5940 Sandstone, very light gray to very light greenish gray, very fine to fine grained, silty, argillaceous; traces of shale, as above.
 5940-5980 Sandstone, as above; some shale, light olive gray and light greenish gray, lumpy in part, platy in part.
 5980-6010 Shale, light olive gray to light gray, lumpy; a little sandstone, as above.
 6010-6040 Shale, light olive gray, lumpy to fissile, silty, very slightly calcareous.
 6040-6050 Shale, as above; some sandstone, very light greenish gray to light gray, very fine grained, argillaceous, calcareous.
 6050-6080 Sandstone, very light greenish gray to light olive gray, very fine grained, calcareous, argillaceous; some shale, as above.
 6080-6100 Shale, light greenish gray to light olive gray, platy to fissile, very slightly calcareous.
 6100-6110 Shale, as above; some sandstone, very light gray, very fine to fine grained, calcareous.
 6110-6140 Sandstone, very light gray, very fine to fine grained, calcareous, some shale, as above.
 6140-6170 Shale, greenish gray, platy, a little sandstone, as above, shale, as above.
 6170-6180 Shale, greenish gray and light olive gray, platy to fissile.
 6180-6200 Shale, as above; some sandstone, very light gray, very fine to fine grained, calcareous.

6200-6230 Sandstone, very light gray, fine grained, calcareous.

6230-6270 Sandstone, as above; some shale, greenish gray to light olive gray, platy to fissile, slightly calcareous.

6270-6300 Sandstone, very light gray, very fine to fine grained, clean, quartzose, calcareous cement.

6300-6320 Sandstone, as above; some shale, light greenish gray to light olive gray, platy to fissile, very slightly calcareous.

6320-6360 Shale, light greenish gray to light olive gray, fissile to platy, calcareous; some shale, medium gray, platy to fissile, very slightly calcareous.

6360-6390 Shale, medium gray to olive gray, fissile, very slightly calcareous.

6390-6400 Shale, as above, and shale, light olive gray to pale brown, fissile, calcareous.

6400-6410 Limestone, very light gray to medium light gray, very finely crystalline, argillaceous; some shale, as above.

6410-6440 Limestone, medium light gray, finely crystalline, argillaceous; traces of sandstone, very light gray, very fine to fine grained, calcareous; some shale, light olive gray to light gray, platy, calcareous.

6440-6450 Limestone, medium light gray, very finely crystalline, argillaceous.

6450-6460 Limestone, as above; some shale, greenish gray to light olive gray, fissile to platy, calcareous.

6460-6470 Siltstone, very light gray, calcareous; some limestone and shale, as above.

6470-6500 Shale, grayish red, lumpy, compact, calcareous; some siltstone, as above.

6500-6520 Shale, as above.

6520-6540 Shale, as above; some sandstone, very light gray, very fine grained, calcareous.

6540-6570 Sandstone, very light gray, very fine to fine grained, argillaceous, very calcareous grading to fine grained, sandy limestone.

6570-6580 Sandstone, as above; some shale, moderate reddish orange to grayish red, platy, calcareous.

6580-6600 Shale, grayish red to medium gray and greenish gray, lumpy, calcareous.

6600-6640 Limestone, very light gray to white, earthy; a little very light gray chert.

6640-6650 Limestone, very light brownish gray, very finely crystalline.

6650-6660 Limestone, as above; traces of shale, pale reddish brown, lumpy, slightly calcareous.

6660-6700 Shale, pale reddish brown, lumpy, slightly calcareous.

6700-6730 Shale, as above; much shale, medium gray, lumpy to fissile.

6730-6740 Shale, as above; some limestone, very light gray to light yellowish gray, finely crystalline.

6740-6770 Shale, pale reddish brown, lumpy, slightly calcareous; a little anhydrite, colorless to white.

6770-6870 Salt, colorless.

6870-6910 Traces of shale, pale reddish brown, trace of anhydrite, white, and much shale, medium light to medium gray, platy to fissile.

6910-6930 Traces of siltstone, moderate reddish orange, very slightly calcareous; some shale, pale reddish brown to moderate reddish orange, lumpy, calcareous; a little anhydrite, colorless to white.

6930-6970 Siltstone, moderate reddish orange, very slightly calcareous, with some fine to medium, rounded, frosted, quartz grains; some anhydrite, colorless to white.

6970-7010 Siltstone, as above; some sandstone, pinkish gray, very fine to fine grained, calcareous.

7010-7030 Siltstone, moderate reddish orange, slightly calcareous, sandy.

7030-7070 Salt, colorless; siltstone, moderate reddish orange.

7070-7260 Salt, colorless; some shale, medium gray, platy to fissile, calcareous; a little siltstone, as above.

7260-7350 Siltstone, moderate reddish orange; salt.

7370-7390 Siltstone, as above.

7400-7410 Siltstone, moderate reddish orange, slightly calcareous.

7410-7440 Shale, medium gray, platy, non-calcareous; traces of siltstone, as above.

7440-7450 Traces of dolomite, grayish pink, very finely crystalline; a little anhydrite, white; much shale and some siltstone, as above.

7450-7470 Limestone, grayish pink to white, finely crystalline, micro-granular.

7470-7480 Limestone, as above; a little salt.

7480-7490 Limestone, as above; some siltstone, moderate reddish orange to pinkish gray, calcareous.

7490-7510 Limestone, as above; a little siltstone, as above, and a little salt.

7510-7610 Salt, colorless; some siltstone, moderate reddish orange.

7610-7630 Shale, moderate reddish orange, lumpy, calcareous.

7640-7660 Shale, as above.

7660-7670 A little dolomite, white, finely crystalline; a little anhydrite, white; some shale, as above.

7670-7680 Traces of sandstone, pinkish gray, very fine to fine grained, clean, quartzose; some siltstone and shale, moderate reddish orange, slightly calcareous.

7680-7700 Sandstone, pinkish gray, very fine to medium grained, subrounded to rounded, frosted grains, clean, quartzose.

7700-7710 Dolomite, pinkish gray, very finely crystalline; sandstone, as above.

7710-7800 Dolomite, pinkish gray to grayish pink, fine grained, limy; some sandstone, as above.

7800-7860 Sandstone, grayish pink to moderate pink, very fine to medium grained, subrounded to rounded, clean, quartzose; some dolomite, as above.

7860-7880 Sandstone, as above.

7880-7900 Dolomite, grayish pink to moderate pink, very finely crystalline.

7900-7930 Dolomite, as above; some sandstone, very light, gray to grayish pink, very fine to fine grained, dolomitic.

7930-7950 Dolomite, grayish pink, very finely crystalline to fine grained, granular.

7950-7990 Dolomite, as above; some slightly arenaceous; some sandstone, grayish pink, very fine to fine and medium grained, dolomitic.

7990-8010 Dolomite, grayish pink, very finely crystalline, dense.

8010-8030 Dolomite, grayish pink, fine grained, granular to finely crystalline; a little sandstone, grayish pink to very light gray.

8030-8040 Sandstone, grayish pink to moderate pink, very fine to fine grained, calcareous; some dolomite, as above.

8040-8066 Dolomite, grayish pink, very finely crystalline, to fine grained, granular; some sandstone, as above.

8066-8070 Shale, medium dark gray, platy to fissile; traces of lignite or coal; traces of dolomite, as above; may be trip sample.

8070-8080 Sandstone, pinkish gray to very light gray, fine grained, clean, quartzose, slightly dolomitic; some dolomite, as above.

8080-8100 Dolomite, grayish pink, finely crystalline to fine grained, granular; a little sandstone, as above.

8100-8140 Dolomite, as above; some shale, moderate red, 5R5/4, platy, calcareous.

8140-8160 Shale, medium gray, fissile to platy; traces of shale, moderate red and greenish gray, platy.

8160-8170 Dolomite, grayish pink, finely crystalline to fine grained, granular; shale, as above.

8170-8200 Limestone, light gray to very light brownish gray, very finely crystalline, slightly argillaceous.

8200-8230 Limestone, brownish gray, very finely crystalline, slightly argillaceous; some limestone, very light brownish gray, finely crystalline, slightly argillaceous.

8230-8236 Shale, medium gray to light olive gray and greenish gray, fissile to lumpy, soft, calcareous.

8236-8256 Shale, medium gray, fissile to lumpy, soft, calcareous, contains ostracodes.

8256-8260 Shale, as above; a little sandstone, colorless to very light brownish gray, fine to medium grained, subangular.

8260-8266 Sandstone, colorless to very light brownish gray, very fine to medium grained, subangular, clean, firmly cemented, spotty stain, no cut.

8266-8270 Shale, medium gray, fissile, soft, calcareous; traces of sandstone, as above.

8270-8290 Shale, as above, contains some ostracodes.

8290-8305 Shale, medium gray, fissile to platy, calcareous.

8305-8330 Shale, as above; some limestone, light gray, very finely crystalline.

8330-8335 Shale, pale brown, 5YR5/2, lumpy to platy, compact, some shale, as above.

8335-8355 Sandstone, colorless to light gray, very fine to fine grained, slightly friable.

8355-8360 Shale, medium gray and variegated, fissile to platy; traces of sandstone, as above.

8360-8380 Sandstone, colorless to very light gray, very fine to fine grained, subangular, slightly friable; shale, as above.

8380-8400 Shale, medium gray, fissile to platy, some variegated shale; some siltstone, moderate reddish orange; some loose sand grains, fine to medium, rounded to subrounded grains.

8400-8410 Limestone, very light gray to very light brownish gray, very finely crystalline; some shale, greenish gray, platy, calcareous.

8410-8420 Dolomite, very light gray, finely crystalline, slightly argillaceous; some shale, as above.

8420-8440 Dolomite, as above.

8440-8450 Limestone, very light gray, finely crystalline, slightly argillaceous; some shale, medium gray, greenish gray and light olive gray, platy.

8450-8480 Limestone, very light gray, finely crystalline, dolomitic, argillaceous.

8480-8500 Shale, medium gray, greenish gray, platy; some limestone, as above.

8500-8510 Sandstone, white to colorless, slightly calcareous, very fine to fine grained.

8510-8530 Sandstone, pale red, 10R6/2, to grayish pink, very fine to fine grained, calcareous.

8530-8570 Sandstone, as above; a little siltstone, pale red, 10R6/2, calcareous.

8570-8600 Sandstone, pale red to grayish pink, very fine to fine grained, calcareous; a little sandstone, white, fine to medium grained.

8600-8660 Sandstone, pale red to grayish pink, very fine to fine grained, calcareous; some siltstone, pale red, calcareous.

8660-8680 Limestone, brownish gray, very finely crystalline, dense.

8680-8700 Limestone, brownish gray, very finely crystalline, dense; traces of limestone, light brownish gray, fine grained, granular to pseudo-oolitic.

8700-8800 Siltstone, grayish orange pink, slightly calcareous; some siltstone, moderate reddish orange.

8800-8880 Salt, colorless to grayish pink.

8880-8900 Siltstone, grayish orange pink, slightly calcareous; some salt.

8900-8930 Salt, colorless.

8950-8960 Salt, colorless; some limestone, light brownish gray, very finely crystalline.

8960-9010 Limestone, light brownish gray to very light brownish gray, fine grained, granular in part, finely crystalline in part.

9010-9020 Limestone, as above; traces of anhydrite, white.

9020-9050 Salt, colorless; some shale, medium dark gray to medium gray, platy.

9050-9100 Limestone, very light brownish gray, fine grained, granular in part, finely crystalline in part.

9100-9110 Limestone, as above; traces of anhydrite, very light gray.

9110-9130 Anhydrite, white to very light gray, dense; some limestone, as above.

9130-9200 Anhydrite, light gray, dense, limy; some limestone, light brownish gray, fine grained, granular to finely crystalline.

9200-9215 Anhydrite, light gray to very light gray, limy.

9215-9260 Limestone, brownish gray to light brownish gray, very finely crystalline to fine grained, granular, slightly argillaceous; some anhydrite, as above.

9260-9270 Limestone, very light brownish gray, fine grained, granular to finely crystalline.

9270-9290 Limestone, very light brownish gray, fine grained, fragmental.

9290-9305 Dolomite, very light brownish gray, microsucrosic, argillaceous.

9305-9320 Limestone, very light brownish gray, fine grained, granular to fragmental, slightly argillaceous.

9320-9325 Limestone, very light brownish gray to light brownish gray, finely crystalline to fine grained, fragmental; a little dolomite, very light brownish gray, microsucrosic.

9325-9355 Limestone, light brownish gray to very light brownish gray, finely crystalline to fine grained, fragmental.

9355-9360 Dolomite, very light brownish gray, microsucrosic, slightly argillaceous; limestone, as above.

9360-9380 Anhydrite, very light gray; limestone, very light brownish gray to light brownish gray, fine grained, fragmental.

9380-9395 Limestone, very light brownish gray to light brownish gray, fine grained, granular to fragmental.

9395-9435 Anhydrite, very light gray to white; limestone, as above.
 9435-9450 Limestone, very light brownish gray, fine grained, fragmental to granular; traces of anhydrite.
 9450-9455 Anhydrite, very light gray to very light brownish gray, dense; some limestone, as above.
 9455-9475 Anhydrite, white to light gray, dense.
 9475-9480 Limestone, light brownish gray to brownish gray, fine grained, granular, slight stain, no cut, some finely crystalline, fragmental.
 9480-9490 Limestone, light brownish gray, fine grained, fragmental, granular.
 9490-9516 Dolomite, light brownish gray, fine grained, granular, limy, slightly argillaceous, some oil stain, no cut.
 9516-9550 Dolomite, light brownish gray, fine grained, granular, limy, slightly argillaceous.
 9550-9570 Limestone, light brownish gray, fine grained, granular, slightly argillaceous.
 9570-9580 Limestone, light brownish gray, fine grained, fragmental, slightly argillaceous.