Summary of the Leach Oil Corporation - R. R. Smith #1
Bottineau County, North Dakota
Well #1324 - Permit #1336

By Clarence Carlson
September 1957

Leach Oil Corporation - R. R. Smith #1, Bottineau County, North Dakota.
Locations C SW SW Section 14, T.162N., R.80W. Elevation: 1507 K.B. - 1497 G.L.

The Leach Oil Corp. - R. R. Smith #1 was spudded December 10, 1956; drilled to a total depth of 3680 feet and completed as a producer from the Spearfish formation, January 28, 1957.

Casing Record:
8 5/8" casing at 231 feet with 120 sacks of cement.
5 1/2" casing at 3570 feet with 200 sacks of cement.

Cores: 3486 1/2 - 3491 1/2
Logs: Electric, laterolog, microlaterolog.

Tests:
DST #1, 3425-3435. Tool open 90 minutes, shut in 30 minutes; good air blow throughout; recovered 1700 feet of gas in drill pipe, 35 feet of slightly oil cut mud, 350 feet of clean gassy 35° API oil, HP 1980#-1960#, FP 75#-210#, SIP 1670#.

DST #2, 3481 1/2-3491 1/2. Tool open 4 hours, shut in 45 minutes. Weak air blow throughout. Recovered 38 feet of drilling mud, scum oil, 58 feet of gassy, oil cut watery mud, 58 feet of gassy, oily, watery mud, 58 feet of gassy, oily, water-mud emulsion, 58 feet of watery, gassy emulsion, 58 feet of salt water. HP 1965#, FP 40#-165#, SIP 1410#.

Perforations:
3425-3433, 6 shots per foot acidized with 250 gallons MCA.

Initial Production:
25 barrels of oil per day, 20% water, 37° API.

Formation tops were determined from samples and mechanical logs, corrected to electric log tops. Color names and identifying numbers are from the 1948 Rock-Color chart distributed by the National Research Council, Washington, D.C.

FORMATION TOPS

Cretaceous System
Pierre formation (samples) 235
Niobrara formation (E log) 1478
Greenhorn formation 1775
Dakota group 2046
Dakota group sandstone 2243
Jurassic System 2495
Piper limestone 3022
Triassic System
Spearfish formation 3252
Mississippian System
Charles formation 3446

0-220 Glacial gravel and sand.
220-240 Shale, medium gray, fissile and glacial material.
240-540 Shale, medium light gray, lumpy, compact.
540-620 Shale, medium light gray, lumpy, bentonitic, soft.
620-720 Shale, as above with a little bentonite, very light gray, micaceous.
720-980 Shale, medium light gray, lumpy, compact.
980-1000 Shale, very light gray, lumpy, compact.
1000-1040 Shale, medium light gray and pale yellowish brown 10YR6/2, lumpy, soft.
1040-1060 Shale, very light gray, lumpy compact.
1060-1280 Shale, medium light gray, lumpy, bentonitic.
1280-1480 Shale, medium gray, fissile.
1480-1560 Shale, medium to medium dark gray, platy and fissile.
1560-1580 Shale, as above with a few “white specks”.
1580-1640 Shale, medium to medium dark gray, fissile.
1640-1680 Shale, medium light gray, flaky, calcareous, “white specks” and shale as above.
1680-1800 Shale, medium dark gray, flaky.
1820-1860 Shale, medium dark gray, flaky, many Inoceramus fragments.
1860-1960 Shale, medium to medium dark gray, flaky, calcareous, “white specks”
1960-2220 Shale, medium dark gray, flaky.
2220-2280 Sandstone, fine to coarse, rounded to subrounded colorless quartz, very poorly cemented, traces of pyrite; shale as above.
2280-2300 Some sandstone as above; shale, as above and some shale, very light gray, fissile, micaceous.
2300-2345 Sandstone, colorless, fine to coarse, rounded to subangular quartz, mostly loose.
2345-2380 Shale, medium to medium dark gray, flaky, soft.
2380-2400 Sandstone, grayish orange 10YR7/4, very fine to fine grained, calcareous, firmly cemented; shale as above.
2400-2460 Shale, medium light gray, platy and fissile.
2480-2500 Shale, medium light gray, platy.
2500-2540 Shale, medium light gray and medium dark gray.
2540-2620 Shale, medium light gray, flaky; a little sandstone, very light gray, very fine grained, calcareous.
2620-2680 Shale, light greenish gray, 5G8/1, flaky, soft, calcareous; a little sandstone as above.
2680-2700 Shale as above; some fragments of limestone, light gray fragmental with carbonaceous streaks.
2700-2780 Shale, light greenish gray, 5G8/1, flaky, calcareous.
2800-2860 Shale, light greenish gray 5G8/1, to greenish gray 5GY6/1, flaky to platy, calcareous.
2860-2920 Shale, greenish gray and grayish red 10R4/2, platy, calcareous.
2920-2970 Shale as above; some sandstone, white, very fine grained, calcareous.
2970-2980 Dolomite, white, finely crystalline; a little chert, very light gray; shale as above.
2980-3020 Shale, light olive gray 5Y6/1, grayish red and greenish gray, platy, calcareous.
3020-3030 Limestone, light gray, finely crystalline.
3030-3040 Shale, light olive gray and greenish gray, platy, calcareous; a little limestone as above.
3040-3050 Dolomite, yellowish gray to light gray, finely crystalline; some anhydrite, white to light gray, dense.
3050-3100 Shale, light olive gray, greenish gray and grayish red, platy, compact; a little dolomite as above and chert, white.
3100-3110 Shale as above and limestone, white, finely crystalline.
3110-3190 Shale as above and medium dark gray, platy and flaky.
3190-3230 Anhydrite, colorless to white; shale as above.
3230-3250 Anhydrite as above and shale, medium dark gray.
3245 Circulation 1/2 hr. - Sandstone, grayish orange pink 5YR7/2, very fine to medium, rounded grains, some staining, good fluorescence and cut. Depth of circulation sample may be in error, and thus it may be from 3425.
3250-3280 Shale, medium dark gray and anhydrite, white.
3280-3300 Siltstone, moderate reddish orange and light gray.
3300-3430 Siltstone, as above with some medium, rounded, frosted quartz grains; samples are mostly shale cavings.
3435 Circulation - Sandstone, moderate reddish orange to white, very fine to medium grained, rounded, some oil staining and cut.
3443 Circulation - Shale, grayish red, medium dark gray, greenish gray, platy.
3443-3450 Shale, as above and a little sandstone, grayish orange pink, very fine to medium grained.
3450-3460 Dolomite, pinkish gray to very light gray, finely crystalline, grainy.
3460-3485 Anhydrite, white to very light gray, dense, slightly calcareous.
3486-3487 Limestone, yellowish gray, finely crystalline, granular, spotty fluorescence, fair out with CCl₄.
3487-3488 Limestone, light yellowish gray, finely crystalline, granular with some medium crystals of pale brown anhydrite.
3488-3491 Limestone, light yellowish gray, fine to medium crystalline, granular to fragmental, fair stain, fluorescence and cut.
3490-3501 Samples all shale cavings.
3501 Circulation - Limestone, light yellowish gray, finely crystalline, fragmental, a few ostracods.
3501-3521 Limestone, yellowish gray, finely crystalline, granular.
3521-3530 Limestone, light yellowish gray, very finely crystalline, dense.
3530-3540 Anhydrite, pinkish gray, calcareous and argillaceous.
3540-3550 Anhydrite as above and limestone, pinkish gray, fine to medium crystalline, grainy.
3550-3665 Anhydrite, white, dense; poor samples.
3665-3670 Dolomite, yellowish gray, finely crystalline to microsucrosic.
3670-3680 Limestone, yellowish gray, oolitic with a finely crystalline matrix.
3680 Total Depth.