

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 179

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"
1960-2240	Shale, medium dark gray, flaky.
2240-2280	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.