

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 182

Summary of the Texota Oil Company - Sarah Swenson No. 1
Burke County, North Dakota
Well No. 1037 - Permit No. 1049

by Dan E. Hansen
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The Texota Oil Company - Sarah Swenson No. 1, Burke County, North Dakota. Location 1990 feet from the south line and 1990 feet from the west line of Section 22 T. 163N. R. 93W. Elevation: 1921 G.L. 1933 K.B.

The Texota Oil Company - Sarah Swenson No. 1 was spudded December 7, 1955; drilled to a total depth of 6,507 feet; and completed on pump January 25, 1956. No cores were cut. Four drill stem tests were taken, Electric, laterlog-3, and microlog were run.

Logging Record:

Schlumberger electric log run one, 12/24/55, 582-5210
Schlumberger laterlog-3 run one, 1/6/56, 5210-6505
Schlumberger microlog run one, 12/24/55, 3700-5208

Drill Stem Tests:

Dst #1 - 6179 to 6195. Recovered 500' frothy oil and mud emulsion and 230' salt water. FFP 335# SIBHP 1375#.

Dst #2 - 6219 to 6254. Recovered 810' heavy oil and gas cut mud, 310' free oil and 30' oil cut salt water. FFP 400# SIBHP 1875#.

Dst #3 - 6257 to 6287. Recovered 10' slightly gas cut mud, 100' slightly oil and gas cut mud and 180' sulphur water. FFP 145# SIBHP 1135#.

Dst #4 - 6441 to 6507. Recovered 110' drilling mud and 1140' slightly oil and gas cut sulphur water. FFP 850# SIBHP 2850#.

Completion Data:

The Mission Canyon interval from 6220 to 6250 was treated with 750 gallons of acid after perforating the casing with five (5) shots/foot. The well was tested on pump for twenty-four hours during the days of January 28, 1956 to January 29, 1956. Net barrels of oil per twenty-four hours was 32 with 30 per cent of the gross being water. The gravity of the oil was 38 A.P.I.

Casing Record:

Set 82 feet 10 3/4" surface casing with 335 sacks cement. 6404 feet of 5 1/4" casing with 450 sacks cement.

Formation tops were determined from samples and the laterolog. Doubtful or obscure formation tops were not picked unless noted. Color names and identifying numbers are taken from the 1948 Rock-Color chart which is distributed by the National Research Council, Washington, D.C.

FORMATION TOPS

Cretaceous System	
Pierre formation	1130
Niobrara formation	3077
Greenhorn formation	3416
Dakota group sandstones "Muddy"	3802
basal sandstones	4017
Jurassic System	
Rierdon formation	4560
Piper limestone	5080
Triassic System	
"Spearfish formation"	5272
Mississippian System	
Big Snowy group	
Kibbey	5598
Madison group	
Charles formation	5733
"D" salt	5798
0-600	Samples missing.
600-630	Clay, medium light gray, soft, silty, and spongy. Small amounts of light brownish gray, silty clay.
630-990	Clay, pale red, silty micaceous and sandstone, light gray, calcareous, quartzose. Medium light gray clay as above. Small amounts of lignite fragments.
990-1140	Sandstone, light gray, friable, calcareous, generally subrounded, fine medium-grained. Chiefly feldspar and quartz.
1140-2890	Shale, medium light gray to medium gray, massive micro-micaceous, lumpy. Traces of silt. Poor samples.
2890-3100	Shale, as above and dark gray shale. Traces of light gray and greenish gray bentonite. Poor samples.
3100-3130	Shale, medium dark gray, calcareous, compact, massive, "1 st white specks."
3130-3240	Shale, as above, with many loose and very coarse grains of quartz, metamorphic rock fragments, and buff dolomite. Traces of lignite. Very poor samples.
3240-3300	Shale, medium gray to medium dark gray, noncalcareous, platy to massive. Traces of light gray and light greenish gray bentonite and calcite prisms.
3300-3440	Shale, dark gray, lumpy to platy, micromicaceous, with shales as above. Traces of pyrite.
3440-3560	Shale, medium-gray, very calcareous, massive, with shales as above. "2 nd white specks". Fragments of cemented calcite prisms. Traces light gray and light greenish gray bentonite.
3560-3780	Shale, medium dark gray to dark gray, massive, micromicaceous. Medium gray shale, as above. Traces light greenish gray bentonite.
3780-3800	Shales, as above, with small amounts of light gray, dense, fine-grained, quartzose sandstone.
3800-3960	Shales, as above. Chiefly medium dark gray.
3960-4030	Shale, as above. Traces of pyrite cemented, very fine-grained, glauconitic, quartzose sandstone.
4030-4070	Shale, as above. Traces of very-fine-grained, silty quartzose sandstone, micaceous.

4070-4140 Shale, as above. Trace of fine-medium grained, white to very light gray quartzose sandstone. Traces of coarse, angular to rounded, clear quartz grains. Traces iron carbonate "pellets" from 4100-4140.

4140-4210 Shale, as above. Sandstone, very light gray, fine medium-grained, quartzose.

4210-4240 Shales, as above, very light gray and pale reddish gray shale, waxy with iron carbonate "pellets". Traces of loose coarse-grained quartz.

4240-4250 Shale, as above, fine grained, light gray, dense quartzose sandstone, micaceous in part.

4250-4260 Samples missing.

4260-4290 Poor samples, small amount of above shale and sandstone?

4290-4300 Samples missing.

4300-4400 Very poor samples. About a little of everything that has been logged above. Traces of very-coarse quartz grains.

4400-4450 Shales, as above. Small amounts of light gray shale and very-fine grained, slightly calcareous quartzose sandstone.

4450-4530 Shale, dark gray. Sandstone, very light gray, calcareous, fine-grained with small amount medium-grained. Traces of pyrite. Traces of light gray and greenish gray shale. One fragment of very light gray shelly, fragmental limestone at 4450-4460 and sandy, fragmental limestone at 4500-4530. Poor samples.

4530-4560 Sandstone, very light gray, fine-grained, green mineral. Some pyrite cemented. Shales, as above.

4560-4650 Shale, medium light gray to greenish gray, (5GY6/1), and fine-grained, very light gray, calcareous sandstone, quartzose. Small amounts of pyrite. The shale is silty, micromicaceous and non-calcareous. Shales, also, as above. Traces of loose, coarse quartz grains. Trace of carbonaceous, fragmental, light gray limestone at 4630-4640.

4650-4700 Shale, greenish gray, waxy, splintery, with thin silt bands. Shales and sandstone, as above.

4700-4770 Samples missing.

4770-4820 Shale, greenish gray. Samples as above.

4820-4960 Shale, as above. Very-fine-grained, quartzose, calcareous sandstone. Traces of pale brown, splintery shale very light gray limestone from 4870-4960.

4960-5030 Limestone, very light brownish gray, fragmental, sandy and psuedo-oolitic to dense, fine-grained. Shale and sandstone, as above. Traces of pale brown shale.

5030-5090 Limestone, white to pinkish gray, dense, fine-grained, slightly sandy and cherty. Shale, as above.

5090-5100 Samples missing.

5100-5150 Shale, as above. Traces of above limestone. Poor samples.

5150-5190 Limestone, yellowish gray to light brownish gray, very-fine-grained to sublithographic, inclusions of anhydrite. Shales, as above. Traces pale brown to reddish brown shale.

5190-5200 Samples missing.

5200-5260 Shale, medium gray and shales as above. Traces of white anhydrite and pale brown shale.

5260-5480 Silt and sandstone, pale reddish brown, anhydritic, very-fine-medium grained quartz grains.

5480-5550 Silt, as above. The quartz grains become very-coarse-grained, rounded and frosted.

5550-5590 Sandstone, pale reddish brown, fine-coarse-grained, loose and silty, frosted rounded, quartzose sandstone. Silt as above.

5590-5650 Shale variegated, pale red, medium light gray to greenish gray, and olive gray. Splintery, waxy.

5650-5680 Silt, pale reddish brown and grades into a very-fine-grained sandstone, slightly calcareous. Traces of anhydrite, pale red shale.

5680-5730 Limestone, pale red, dolomitic and anhydritic, very-fine-grained to sublithographic to a light pale red sandy limestone. Small amount of pale red and greenish gray shale. Traces anhydrite.

5730-5750 Anhydrite, pinkish gray to light gray, dense crystalline and a small amount of fine-crystalline anhydritic limestone, light brownish gray. Sample, also, as above.

5750-5770 Limestone, grayish red to brownish gray, fragmental, oolitic to fine-grained and sublithographic, recrystallized.

5770-5800 Anhydrite, pink and white, moderate orange pink shale and dolomite.

5800-5810 Anhydrite, light bluish gray, dense, shaly and light gray shale.

5810-5850 Cavings, mainly shale from up the bore hole, particularly the Kibbey formation. Apparently some type of a fill in sample. Apparently salt.

5850-5900 Cave, as above. with trace light gray anhydrite and fragmental limestone.

5900-5920 Cave, as above. Apparently there is no correlation between the samples and the mechanical log.

5920-6020 Traces of light, gray anhydrite and light brownish gray, dense, very-fine-grained to sublithographic limestone. Plenty of duplicate bags.

6020-6030 Limestone, light brownish gray, fragmental, fine-coarse-grained to dense, fine-grained. Small amount light gray anhydrite.

6030-6090 Cave, as above.

6090-6130 Limestone, as above. Cave, as above. Samples very poor.

6130-6140 Limestone, very light brownish gray, fragmental, fine-coarse-grained small amounts of oolites, recrystallized. Inclusions of anhydrite. Trace vuggy porosity.

6140-6150 Cave.

6150-6170 Anhydrite, light gray to white, dense, with light gray and medium gray shale.

6170-6210 Limestone, dolomitic and anhydritic, silty, light brownish gray, fine-grained, granular. Intergranular porosity. Medium gray shale at 6200-6210.

6210-6220 Limestone, light brownish gray, fragmental, fine-coarse-grained, dense to very-fine-grained dense. Traces pinpoint porosity. Traces of anhydrite inclusions.

6220-6230 Samples missing,

6230-6250 Limestone, as above.

6250-6270 Limestone as above, with much dense, very-fine-grained to sublithographic, light brownish limestone.

6270-6290 Limestone, as above, with much medium gray and traces light gray anhydrite.

6290-6410 Limestone, light brownish gray, fragmental, fine-coarse-grained, recrystallized. Traces of oolites, anhydrite inclusions, dense. At 6350 the limestone becomes dolomitic with vuggular porosity.

6410-6440 Limestone, light brownish gray, fragmental, fine-coarse-grained. Granular in part. Shaly and contains much carbonaceous matter. The limestone is soft.

6440-6460 Limestone, medium light gray to light brownish gray, fragmental, fine-medium-grained, oolitic, dense.

6460-6490 Limestone, medium light gray to light brownish gray, dolomitic, granular silty, with trace quartz grains and limey quartzose sandstone. Fragmental limestone as above.

6490-6500 Limestone, as above. Medium gray shale content in creases.

6507 Total Depth.