

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 205

Summary of the Sohio Petroleum Company - Hanson-A No. 1
Renville County, North Dakota
Well No. 1178 - Permit No. 1190

by Dan E. Hansen
November, 1958

The Sohio Petroleum Company - Hanson-A No. 1, Renville County, North Dakota. Location: 661.02 feet from the south line and 658.4 feet from the west line of Section 9, T. 163N., R. 87W. Elevation: 1804 Ground, 1814 K.B. Total Depth: 5600, Mississippian test.

The Sohio Petroleum Company - Hanson-A No. 1 was spudded June 22, 1956; drilled to a depth of 5600 feet; found dry; and plugged July 16, 1956. Four drill stem tests were taken and three cores were cut. Electric gamma ray, and microlaterolog were run.

Logging Record:

Electric and gamma ray - run one, 7/16/56, 377-5599
Microlaterolog - run one, 7/16/56, 3600-5596

Coring Record:

#1 4875-4886
#2 4886-4934
#3 4935-4983

Drill Stem Tests:

DST #1 (Mississippian) - tested interval from 4841 to 4850. Open 1 hour. Shut in 30 minutes. Recovered 30' drilling mud, no shows. Flow pressure 0 psi, shut in pressure 1870 psi, hydrostatic pressure 2800-2650 psi.

DST #2 (Mississippian) - tested interval from 4879 to 4904. Open 1 hour. Shut in 30 minutes. Recovered 130' mud, slightly water cut. Initial flow pressure 132 psi final flow pressure 132 psi, shut in pressure 2135 psi, hydrostatic pressure 2815-2675 psi.

DST #3 (Mississippian) - tested interval from 5198 to 5222. Open 90 minutes (1 1/2 hours). Shut in 30 minutes. Recovered 300' sulfurous salt water. Flow pressure 100-200 psi, shut in pressure 2400 psi, hydrostatic pressure 2980-2975 psi.

DST #4 (Mississippian) - tested interval from 5375 to 5383. Tool open 2 hours, Shut in 30 minutes. Recovered 826' sulfurous salt water. Flow pressure 75-340 psi, shut in pressure 2325 psi, hydrostatic pressure 2950-2910 psi.

Casing Record:

Set 10 3/4" surface casing at 410.38 (K.B.) with 275 sacks Pozmix Cement plus 2% Calcium Chloride.

Plugging Record:

Interval Plug	Set Sacks Cement
#1 5510-5460	16
#2 4975-4925	16
#3 4711-4659	16
#4 3345-3295	16
#5 455- 355	45
#6 Surface	

Abandoned 398.88 feet of surface casing in hole. Top joint cut off 3 feet below plow depth and steel plate welded on top.

Formation tops were determined from samples and electric logs. Obscure formation tops were not picked. Color names are from the 1948 Rock Color Chart which was distributed by the National Research Council, Washington, D.C.

FORMATION TOPS

Cretaceous System

Niobrara formation	2423
Greenhorn formation	2733
Mowry formation	3002
Fall River sandstone	3317

Jurassic System

Piper limestone	4297
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Triassic System (?)

Spearfish formation	4462
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Mississippian System

Charles	4690
Midale beds	4880
Mission Canyon formation	4963
Lodgepole formation	5488

0-400	No samples.
400-430	Gravel, fragments of yellowish brown dolomite, light gray chert, biotite and feldspar fragments, and gray clay.
430-460	Clay, medium gray, silty, with fragments of lignite.
460-490	Clay, light gray, calcareous, bentonitic.
490-550	Clay, light gray, bentonitic and fragments of lignite. Traces of brownish gray siliceous clay fragments.
550-580	Clay, light gray and sandstone, medium-grained, calcareous cement, quartz, biotite, muscovite, dark gray and light green silicates.
580-610	Clay, light to medium gray, silty.
610-760	Clay, as above, and sandstone, fine-medium-grained, calcareous and siliceous cement, quartz, biotite, and mafics.
760-790	Sandstone and siltstone, brownish gray, siliceous.
790-910	Clay and silt, light gray to light brownish gray.
910-1570	Shale, medium gray, massive and shale, silty, medium gray, soft.
1570-1600	Shale, as above, with brownish gray claystone fragments.
1600-1870	Shale as above.
1870-1930	Shale, as above, with small amounts of light gray bentonite.
1930-1990	Shale, as above, with fragments of brownish gray claystone.
1990-2200	Shale, as above. Small amount of claystone, as above.

2200-2440 Shale, medium gray to medium dark gray, soft, massive to flaky, slightly silty. Traces of light gray bentonite.

2440-2600 Shale, medium to medium dark gray shale, massive to platy, small amounts of shale with "white specks", calcareous, traces of pyrite, light gray bentonite.

2600-2670 Shale, medium gray to medium dark gray, soft, massive to flaky.

2670-2740 Shale, medium dark gray, massive.

2740-2870 Shale, medium dark gray, calcareous, "white specks". Fragments of calcite prisms cemented as a fragmental limestone, light gray. Traces of pyrite.

2870-3010 Shale, medium gray, medium dark gray, laminated to flaky.

3010-3320 Shale, medium dark gray to dark gray, laminated to flaky. Traces of glauconitic, fine grained, light gray, quartzose sandstone 3150-3170.

3320-3370 Shales, as above, with fine-grained, light gray, quartzose sandstone.

3370-3420 Shale, as above, traces of medium gray shale and light greenish gray bentonite.

3420-3450 Shale, as above, small amounts of medium grained, angular to subrounded, iron stained, quartzose sandstone, with a few fragments pyrite cemented, traces of reddish brown shale.

3450-3470 Sandstone, fine to coarse grained, angular to surrounded, white, clear quartz grains.

3470-3500 Shale, as above, traces of above sandstone.

3500-3550 Shale, medium gray to medium dark gray. Traces of fine grained quartzose sandstone. Traces of reddish brown "pellets".

3550-3570 Shale, as above.

3570-3620 Sandstone, medium to coarse grained and granules of white clear, and pink, angular to subrounded, quartz grains. Shale as above, traces of brownish red shale.

3620-3640 Shale, medium gray to medium dark gray, small amounts of light gray, fine grained sandstone.

3640-3650 Sandstone, fine grained, very light gray quartzose, slight brown iron staining, traces of green mineral, calcareous cement with some pyrite cement.

3650-3700 Sandstone, as above, traces of greenish gray, brownish gray and light gray shales.

3700-3730 Shale, medium dark gray with small amounts of greenish gray and brown-red gray shales.

3730-3760 Sandstone, fine grained, quartzose, glauconite (?) calcite cement. Shales as above.

3760-3850 Shale, medium dark gray with small amounts of greenish gray, light to medium gray, traces of reddish brown shale, and traces of light gray siltstone.

3850-3950 Shale, greenish gray and light gray, with medium dark gray shale. Traces of fine grained, quartzose sandstone and siltstone.

3950-3970 Shales, as above, with fine medium grained quartzose sandstone pyrite cemented and pyrite. Small amounts of very light gray, carbonaceous streaked limestone.

3970-4030 Shale, dark gray to medium dark gray, traces of greenish gray splintery shale and light gray, silty shale, poor samples.

4030-4110 Shales, as above, with increase in content of reddish brown shale, traces of fine grained calcareous quartzose sandstone fragments.

4110-4120 Shales, as above, sandstone, medium grained, angular to sub-rounded, quartzose.

4120-4210 Shales, greenish gray, splintery, reddish brown, medium gray, and medium dark gray. Fine grained, calcareous cemented, quartzose sandstone. Light brownish gray limestone fragments at 4140-4160.

4210-4220 Limestone, light yellowish gray, fragmental, flattened oolites and dense crystalline matrix. Shales, as above.

4220-4240 Shales as above.

4240-4250 Limestone, light yellowish gray, fragmental, fine medium and dense, sublithographic. Shales, as above.

4250-4310 Shales as above, and small amounts of limestone, as above.

4310-4360 Limestone, light pinkish gray, sublithographic. Shales, as above. Poor sample.

4360-4400 Shales, as above.

4400-4500 Shales, as above, with anhydrite, white, coarse, crystalline and traces of limestone as above.

4500-4570 Siltstone and sandstone, very fine grained with traces medium-grained quartz. Traces red-brown shale. Shales as above.

4570-4650 Siltstone, pale reddish brown and sandstone, very fine grained, quartzose.

4650-4660 Sandstone, pale reddish brown, medium to coarse-grained, quartzose, rounded frosted.

4660-4690 Shale, silt, and fine grained sandstone, as above. Small amounts of coarse quartz grains.

4690-4700 Anhydrite, limey, pinkish gray, coarse crystalline.

4700-4720 Limestone, pinkish gray, granular, fine-grained, very shaly and grading into a very pale red, very calcareous siltstone.

4720-4740 Shales, dark greenish gray splintery and light brownish gray, splintery. Traces of anhydrite. The shales appear to be cave.

4740-4750 Limestone, pale red, fragmental, dense very silty and contains a small amount of very-fine-grained quartz.

4750-4770 Limestone, as above, grading into a fine-grained quartzose sandstone.

4770-4790 Shale, light gray, very calcareous, traces of sand grains and grades into a shaly limestone. Inclusions of anhydrite.

4790-4800 Anhydrite, white to light gray, crystalline. Shale and limestone, as above.

4800-4830 Limestone, light brownish gray, fragmental, fine-coarse grained, granular to subcrystalline. Traces of fossil fragments, ostracods.

4830-4870 Anhydrite, light gray, dense and medium gray shale.

4870-4875 Samples missing.

Core Chip Description

Core #1 (recovered 11')

4875-4883 Missing.

4883-4886 Limestone, light gray, very shale, fine-grained, soft, grainy. Slight banding.

Core #2 (recovered 48')

4886-4887 Silt and shale, medium dark gray to brownish gray, calcareous, banded.

4887-4888 Limestone, light gray, very shaly, slight banding, grainy.

4888-4890 Limestone, yellowish gray to light olive gray, fragmental, granular to grainy, fine to medium grained.

4890-4893 Limestone, light olive gray, fragmental, fine grained grainy, very shaly and silty, slight banding.

4893-4894 Limestone, pale yellowish brown, fragmental, fine-grained, granular and grainy, slight banding, shaly.

4894-4895 Limestone, light gray to yellowish gray, very silty and shaly, fragmental, grainy and granular.

4895-4896 Limestone, as above, with shell fragments.

4896-4897 Limestone, light brownish gray, fragmental, fine- to very coarse-grained, oolitic, well cemented.

4897-4898 Limestone, very light brownish gray to yellowish gray, fragmental, fine-medium-grained, grainy to subcrystalline.

4898-4899 Limestone, yellowish gray to light gray, fragmental, granular, fine-grained. Traces pinpoint porosity.

4899-4900 Limestone, light brownish gray, fragmental, psuedo-oolitic, irregular, fine grained. Inclusions of brownish gray anhydrite crystals.

4900-4901 Limestone, as above.

4901-4902 Limestone, medium gray, shaly, banded, fragmental, grainy, fine-grained.

4902-4904 Limestone, light gray to light olive gray, fragmental, grainy and granular, fine grained, slight banding.

4904-4907 Limestone, yellowish gray, fine-grained to sublithographic.

4907-4908 Limestone, light brownish gray, dense, very fine grained, with bands of medium gray shaly limestone, dense.

4908-4909 Limestone, very light brownish gray, fragmental, fine-medium-grained, angular to rounded, psuedo-oolitic.

4909-4910 Shale, light gray, very calcareous, silty, shell fragments.

4910-4911 Limestone, very light gray, shaly and silty, very fine grained, grainy.

4911-4912 Limestone, very light brownish gray, fragmental, fine grained, grainy and granular.

4912-4913 Limestone, dolomitic, brownish gray, dense, fine grained, crystalline.

4913-4916 Limestone, yellowish gray, dense, very fine grained to sublithographic, grainy and granular, traces of banding, slightly shaly.

4916-4919 Limestone, yellowish gray, fragmental, fine-medium-grained, dense, rounded and angular, grainy to subcrystalline. Inclusions of brownish gray anhydrite crystals.

4919-4921 Limestone, medium gray to light brownish gray, fragmental, oolitic and dense, very fine grained crystalline.

4921-4934 Anhydrite, light gray, dense, crystalline.

Core #3 (recovered 42 1/2')

4935-4938 Anhydrite, as above. Inclusions of medium gray shale.

4938-4939 Dolomite, medium light gray, shale banding, dense, very fine grained, to sublithographic.

4939-4940 Limestone, light gray, fragmental, granular and grainy, thin bands of medium gray shale.

4940-4941 Shale, medium gray, brittle, platy.

4941-4945 Anhydrite, light gray, with medium gray shale.

4945-4947 Anhydrite, very light brownish gray, extremely dense.

4947-4948 Shale, medium dark gray, brittle.

4948-4952 Limestone, medium light gray, fine grained, grainy, very shaly and grading into a calcareous shale.

4952-4954 Anhydrite, light gray to white, with calcareous shale.

4954-4955 Limestone, light gray, fragmental, fine grained, grainy, shaly.

4955-4956 Limestone, light brownish gray, dense, very fine grained to sublithographic. Inclusions of coarse anhydrite crystals.

4956-4957 Limestone, white to yellowish gray, fine grained, grainy, chalky, slightly shaly.

4957-4959 Limestone, dolomitic, very light brownish gray, dense, very fine grained.

4959-4961 Limestone, very light gray, shaly, fragmental, very fine grained, grainy.

4961-4962 Limestone, very light brownish gray, fragmental, dense, pisolitic and oolitic, much recrystallized.

4962-4963 Limestone, light gray, dense, crystalline, fine grained, slightly shaly.

4963-4964 Limestone, as above, with bands of very calcareous shale.

4964-4965 Limestone, light brownish gray, dense, fragmental, subcrystalline with pore spaces filled with coarse crystalline calcite.

4965-4966 Limestone, very light brownish gray to yellowish gray, fragmental, pisolitic and oolitic. Inclusions of coarse calcite crystals.

4966-4968 Limestone, very light brownish gray, fragmental, fine grained, pseudo-oolitic, inclusions of clear calcite crystals.

4968-4972 Limestone, very light brownish gray, fragmental, fine coarse grained, oolitic, very vuggy porosity filled with clear calcite crystals.

4972-4973 Limestone, as above but also pisolitic.

4973-4974 Limestone, light gray, dense, very fine grained, grainy, shaly.

4974-4975 Limestone, very light gray, dense, very fine grained, grainy, slightly shaly.

4975-4976 Limestone, light brownish gray, fragmental, fine-coarse grained, oolitic, dense, porosity filled by clear crystals of calcite.

4976-4977 Limestone, light brownish gray, fragmental, fine grained, rounded, psuedo-oolitic.

4977-4978 Limestone, very light gray, dense, fine grained, crystalline. Inclusions of medium gray shale.

4978-4979 Limestone, light brownish gray, fragmental, pisolitic. Porosity filled with calcite and fine crystals of pyrite.

4979-4982 Limestone, very light brownish gray, fragmental, fine-medium grained, angular to rounded, inclusions of coarse grained fragments. Porosity filled by clear calcite crystals.

Sample Descriptions

4980-5010 Limestone, very light brownish gray, fragmental, fine-coarse-grained, rounded to angular, psuedo-oolitic and traces oolitic-pisolitic, dense.

5010-5080 Limestone, very light brownish gray, fragmental, oolitic, traces pisolites and rounded to angular fragmental. Greatly recrystallized, traces vuggy porosity.

5080-5110 Limestone, yellowish gray to very light brownish gray, fragmental, dense fine-coarse-grained, subcrystalline. Small amounts of calcareous fine grained quartzose sandstone and sandy limestone. Limestone, as above.

5110-5140 Limestone, yellowish gray, dense, fragmental, subcrystalline.

5140-5160 Limestone, very light brownish gray, fragmental, fine-medium-grained, angular to rounded, porous. Small amount of light gray, shaly sandy limestone at 5150-5160.

5160-5190 Limestone, yellowish gray to very light brownish gray, dense, fragmental, fine-medium grained, subcrystalline to fine grained crystalline.

5190-5210 Limestone, very light brownish gray, fragmental, fine-medium-grained, subcrystalline to grainy.

5210-5250 Limestone, light brownish gray, fragmental, fine grained, grainy and granular, shaly, trace silty. Trace of light brownish gray silt at 5210-5220.

5250-5280 Limestone, light brownish gray, fragmental, shaly, fine-coarse-grained, subcrystalline and slabby, dense. Limestone, as above, traces shell fragments.

5280-5290 Samples missing.

5290-5300 Limestone, as above.

5300-5380 Limestone, light brownish gray, fragmental, fine-medium-grained, subcrystalline and slabby, dense and dense, very fine grained crystalline. Poor samples.

5380-5410 Limestone, light brownish gray, fragmental, granular, and grainy, fine-grained, slightly silty.

5410-5440 Limestone, as above, and dense, fragmental, subcrystalline to crystalline limestone.

5440-5500 Limestone, light gray to very light brown gray, fragmental, fine-medium-grained, grainy to slabby and subcrystalline, dense.

5500-5590 Limestone, light gray, fragmental, varying from grainy and granular, fine grained, shaly to slabby, subcrystalline, dense. Trace shell fragments, poor samples.

5590-5600 Limestone, light gray, fine grained, dense, crystalline, shaly. Traces pyrite crystals.

5600 Total Depth.