

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 66

Summary of Herman Hanson Oil Syndicate-N. E. Hanson #1

McLean County, North Dakota
Permit #448 Well #432

by Laverne B. Nelson
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Herman Hanson Oil Syndicate-N. E. Hanson #1, McLean County, North Dakota, C SW SE Section 2, T. 146N. R. 81W. (500 feet from south line and 526 feet from west line). Elevation 1947 grd., 1957 K.B.

The The Herman Hanson Oil Syndicate-N. E. Hanson #1 was spudded October 13, 1953 and 496 feet of 10 3/4 inch surface casing was set with 300 sacks of cement. The well was drilled to a total depth of 7222 feet and abandoned November 20, 1953.

The well was plugged with 15 sack cement plugs at 6360 feet, 5370 feet and 4110 feet. 20 sack cement plugs were set at 3300 feet and 510 feet. 5 sacks cement plug was set at surface.

Cored Intervals

5377-5400; recovered 23'
5565-5623; recovered 58'
5623-5681; recovered 58'
6220-6277; recovered 57'
7120-7178; recovered 58'

Formation tops were determined from sample and electric logs, not all lithologic formation tops were called in following list. Colors were determined from rock color chart.

FORMATION TOPS

Cretaceous System	
Pierre Formation	904
Niobrara Formation	2050
Greenhorn Formation	2727
Dakota	3374
Jurassic System	
Morrison Formation	3650
Sundance Formation	3706
Piper Formation	4173
Triassic System	
Spearfish Formation	4393
Mississippian System	
Amsden Formation	4498
Big Snowy Group	4562
Kibbey Formation	4813

Charles Formation	4968
Mission Canyon Formation	5390
Lodgepole Formation	5739
Englewood Formation	6378
Devonian System	
Lyleton Formation	6430
Fisku Formation	6505
Duperow Formation	6592
Souris River Formation	6859
Dawson Bay Formation	7013
Total Depth	7222

<u>From</u>	<u>To</u>	<u>Formation</u>
500	530	Shale, very light gray, calcareous, soft, silty, some black carbonaceous material.
530	590	Shale, light gray, silty, finely micaceous, very slightly calcareous spongy, falls apart in acid.
590	620	Shale, same as above, much fine grained quartz, glauconitic and biotite in white calcite matrix.
620	650	Shale, medium light gray, soft, spongy, finely micaceous, silty, some pale reddish brown, silty, shale.
650	680	Shale, as above, some black carbonaceous material, calcareous, bentonitic shale.
680	710	Shale, medium gray, soft, spongy, much black carbonaceous lignite.
710	740	Shale, medium dark gray, soft, spongy, some lignite.
740	770	Shale, medium light gray, silty, soft, spongy, micaceous bentonitic, very fine, subangular quartz.
770	800	Shale, medium light gray, soft, spongy, silty, micaceous, some very fine subangular clear quartz, some black organic shale and lignite, bentonitic.
800	860	Shale, medium light gray, soft, spongy, micaceous, bentonitic, very fine, subangular quartz.
860	920	Shale, dark gray, laminated, organic, some shale and sandstone as above.
920	1100	Shale, medium light gray, micaceous, disaggregated, spongy, bentonitic 980-10 some glauconite.
1100	1130	Shale, medium dark gray, flaky, spongy, some bluish white bentonite.
1130	1190	Shale, medium light gray, compact, spongy, micaceous.
1190	1280	Shale, medium gray, laminated, spongy, micaceous, bentonitic, some bluish white bentonite.
1280	1490	Shale, medium light gray, massive, firm, micaceous.
1490	1910	Shale, medium light gray, massive, brittle, very fine mica flakes.
1910	2000	Shale, medium light gray, flaky, friable, some white bentonite.
2000	2060	Shale, dark gray, flaky, friable, silty.
2060	2120	Shale, medium light gray, flaky, friable, some bluish white bentonite trace of coarse, angular, frosted quartz pebbles.
2120	2150	Shale, and bentonite as above.

<u>From</u>	<u>To</u>	<u>Formation</u>
2150	2270	Shale, medium gray, disaggregated, bentonitic, some bluish white bentonite, trace of lignite.
2270	2330	Shale, medium dark gray, flaky, silty, traces of crystalline limestone, some bluish white bentonite.
2330	2360	Shale, medium gray, lumpy, disaggregated, calcareous, white specks.
2360	2580	Shale, medium gray, lumpy, disaggregated, calcareous, silty.
2580	2600	Missing samples.
2600	2660	Shale, medium gray, firm, laminated, much medium, angular, clear quartz, few coarse grains, some reddish brown iron stained shale.
2660	2690	Shale, medium dark and medium gray, flaky, traces of Inoceramus fragments and white specks.
2690	2870	Missing samples.
2870	2960	Shale, medium dark gray, platy, friable, calcareous, second white specks, few Inoceramus fragments.
2960	3050	Shale, medium dark gray, platy, friable.
3050	3080	Missing samples.
3080	3170	Shale, medium dark gray, platy, friable.
3170	3200	Missing samples.
3200	3380	Shale, medium gray, soft, spongy, flaky.
3380	3410	Siltstone, white calcareous, micaceous, brown, siliceous, bulbous concretions or pellets.
3410	3501	Shale, medium gray, firm, flaky, traces of medium subangular quartz pebbles and siliceous pellets.
3501		1 hour circulation, sandstone, medium to coarse, subangular and rounded clear and frosted, pitted quartz, some rose quartz.
3501	3560	Sandstone, as above.
3560	3650	Shale, medium dark gray, flaky, friable, electric log shows sandstone as above, a few fine to medium, subangular, frosted quartz.
3650	3760	Shale, medium gray, lumpy, disaggregated, some flaky, soft, streaks of very fine sandstone and siltstone, a little greenish gray shale.
3760	3810	Shale, as above, some very fine, calcareous sandstone, brownish, silty shale, a little gypsum.
3810	3850	Shale, medium gray, splintery, brittle, laminated, some greenish gray shale, some very fine calcareous sandstone, some silt.
3850	3910	Shale, greenish gray and medium dark gray, splintery, friable, pink and white crystalline anhydrite.
3910	3960	Shale, greenish gray and medium dark gray, splintery, some anhydrite.
3960	4010	Shale, greenish gray, flaky, friable.
4010	4080	Shale, greenish gray, splintery, brittle, calcareous, some pink and white anhydrite, some argillaceous limestone.
4080	4100	Shale, as above, much pink and white anhydrite, some medium, well rounded, frosted quartz.
4100	4110	Shale, as above, no quartz, little crystalline, white, anhydrite.
4110	4120	Siltstone, some shale as above.

<u>From</u>	<u>To</u>	<u>Formation</u>
4120	4140	Shale, greenish gray, disaggregated, calcareous, very silty, some white crystalline anhydrite.
4140	4170	Shale, greenish gray, splintery, brittle, much white and pink crystalline anhydrite, trace of gypsum.
4170	4190	Shale, as above, some yellowish gray, dense, sublithographic dolomite.
4190	4220	Limestone, yellowish gray, dense, sublithographic, shale and anhydrite as above.
4220	4230	Limestone, as above, some white, chalky, very porous limestone.
4230	4250	Limestone, as above, some anhydrite crystal inclusions in the limestone.
4250	4260	Limestone, buff, tan, pale red and grayish pink, dense, lithographic argillaceous.
4260	4330	Limestone, white to yellowish gray, very fine to sub-lithographic dense.
4330	4350	Limestone, as above, some moderate reddish brown, and greenish gray shale.
4350	4360	Shale, moderate reddish brown and light gray, some crystalline anhydrite.
4360	4380	Shale, greenish gray, splintery, brittle, some white crystalline anhydrite.
4380	4390	Limestone, yellowish gray, dense, very fine grained, much crystalline and some lithographic anhydrite, greenish gray and light gray shale.
4390	4440	Shale, dark reddish brown and greenish gray, silty, some crystalline anhydrite.
4440	4450	Shale, pale reddish brown, silty, soft, much crystalline anhydrite.
4450	4520	Siltstone, moderate reddish orange to pale reddish brown some anhydrite inclusions.
4520	4570	Sandstone, white to gray, very fine, dolomitic, cemented, iron stained.
4570	4580	Shale, moderate reddish orange, silty.
4580	4590	Shale, greenish gray, and lavender, splintery, brittle, silty.
4590	4600	Dolomite, yellowish brown and purple, dense, lithographic.
4600	4640	Shale, moderate reddish brown, soft, spongy, calcareous.
4640	4660	Shale, greenish gray, laminated, friable, silty.
4660	4680	Shale, greenish gray, pale red, lavender, calcareous, splintery, some variegated, silty limestone, some silt, trace of fine, well rounded, frosted quartz.
4680	4710	Shale, moderate red, disaggregated, a little oolitic limestone.
4710	4750	Shale, pale yellowish orange and moderate red, dolomitic, some crystalline and lithographic anhydrite, trace of argillaceous limestone.
4750	4770	Sandstone, white, fine clear, cemented with calcite, shale as above.
4770	4790	Sandstone, moderate reddish orange, fine, calcite cemented some shale as above.
4790	4800	Sandstone, moderate reddish, orange, medium, well rounded, cemented with silica.

<u>From</u>	<u>To</u>	<u>Formation</u>
4800	4820	Limestone, very pale orange, very fine to sublithograhic, dense chalky.
4820	4860	Limestone, white to cream, sublithographic, dense.
4860	4930	Shale, moderate reddish orange to moderate reddish brown dolomitic much medium to coarse, well rounded quartz, some siltstone and anhydrite inclusions.
4930	4940	Dolomite, grayish orange pink, arenaceous, some anhydrite inclusions.
4940	4980	Shale, variegated dark yellowish orange, moderate reddish orange and moderate reddish brown, massive, brittle, arenaceous, slightly dolomitic.
4980	4990	Limestone, yellowish gray, very fine, crystalline, microfossiliferous some coarse crystalline with fine grained matrix.
4990	5000	Dolomite, grayish orange pink, dense, anhydrite inclusions.
5000	5010	Limestone, variegated yellowish gray, and purple, fragmental, carbonaceous streaks, no oil cut.
5010	5040	Limestone, very light gray, angular fragmental, slight porosity, chalky, some porous oolitic limestone.
5040	5050	Limestone, white to very light gray, fragmental, oolitic, chalky, dense, anhydrite inclusions.
5050	5062	Anhydrite, dense, sublithograplaic, some limestone as above.
5062		2 hour circulation, anhydrite, and limestone as above.
5062	5094	Anhydrite, medium bluish gray, dense, lithographic, some white crystalline, massive anhydrite.
5094		2 hour circulation, limestone, yellowish gray, dense, fine grained, anhydrite inclusions, some white crystalline, anhydrite.
5094	5120	Limestone, as above.
5120	5140	Anhydrite, yellowish gray, dense, lithographic and white crystalline sugary anhydrite, some limestone as above.
5140	5160	Limestone, yellowish gray, dense, very fine grained, some fragmental limestone and crystalline, white anhydrite, nonporous.
5160	5170	Limestone, as above, some porous oolitic limestone.
5170	5210	Anhydrite, medium bluish gray, dense, lithographic, some limestone as above.
5210	5220	Limestone, yellowish gray, fragmental, fine grained, matrix, sugary some anhydrite as above.
5220	5270	Anhydrite, as 5070-5210.
5270		1 hour circulation, as above.
5270	5310	Anhydrite, and limestone as above.
5310	5320	Limestone, yellowish gray, dense, sublithographic to very fine grained, anhydrite inclusions.
5320	5330	Limestone, very light gray, fragmental, porous, vuggy, chalky.
5330	5370	Anhydrite, bluish gray, dense, lithographic and medium grained crystalline anhydrite, tape correction 5370-5377.
5377	5382	Anhydrite, medium bluish gray, dense, lithographic, dolomitic. Cored 5377-5400 recovered 23'.
5382	5385	Limestone, yellowish gray, medium grained, fractured, oolitic anhydrite filled fractures and inclusions, some good interstitial porosity.

<u>From</u>	<u>To</u>	<u>Formation</u>
5385	5390	Limestone, light gray, oolitic and pisolitic, some good inter-oolitic porosity, some anhydrite filled interspaces.
5390	5395	Limestone, yellowish gray, dense, very fine grained and sub-lithographic anhydrite inclusion and filled fractures, poor porosity.
5395	5400	Limestone, yellowish grey, fine grained, fossiliferous, some brachiopods, some fair pinpoint porosity.
5400	5420	Limestone, as above, poor samples mostly cavings from above.
5420	5440	Limestone, white to yellowish gray, fine grained, crystalline some chalky oolitic limestone. A little fair pinpoint porosity.
5440	5520	Limestone, very light gray, medium to fine grained, sucrosic, some good interstitial porosity, few oolite streaks.
5520	5530	Limestone, grayish orange pink, to yellowish gray, dense, fine grained to lithographic, poor porosity, some brown dolomite crystal inclusions.
5530	5540	Anhydrite, medium bluish gray, dense, lithographic, dolomitic.
5540	5565	Anhydrite, white to very light gray, dense, lithographic.
5565		2 hour circulation, white and medium bluish gray anhydrite.
5565	5623	Cored interval. Core #2
5565	5567	Limestone, very light gray, fine grained, crystalline, numerous anhydrite inclusions and veins.
5567	5571	Limestone, yellowish gray, dense, sublithographic, very fine grained a little fracturing with anhydrite.
5571	5579	Limestone, yellowish gray, very fine grained, dense, fossiliferous, dolomitic, fair to good porosity at 5573-79, fractures and vugs.
5584	5595	Limestone, very light gray, fine grained matrix, numerous oolites and micro-fossils, slight to fair porosity, a few vertical fractures.
5595	5615	Limestone, yellowish gray, very fine grained, fair interstitial porosity, very silty.
5615	5620	Limestone, yellowish gray, oolitic, fine grained matrix, fossiliferous good interstitial porosity.
5620	5623	Limestone, yellowish gray, medium to coarse grained, some oolitic fossiliferous, fair pinpoint porosity.
5623	5681	Core #3
5623	5630	Limestone, yellowish gray, oolitic with fine grained matrix, brachiopods and horn corals, a little fracturing, good inter-oolitic porosity.
5630	5635	Limestone, yellowish gray, decrease in oolites with great percentage of fine grained matrix, good interstitial porosity, some fractures.
5635	5660	Limestone, as above, dolomitic.
5660	5681	Limestone, yellowish gray, very fine grained to sub-lithographic, poor porosity, slightly fossiliferous.
5681	5733	Core #4
5681	5700	Limestone, yellowish gray, oolitic, fine grained matrix, slight porosity.

<u>From</u>	<u>To</u>	<u>Formation</u>
5700	5704	Limestone, yellowish gray, fine grained, fossiliferous, brachiopods and oolites, some fracturing, fair porosity.
5704	5733	Limestone, very light gray, dense, sublithographic dolomitic.
5730	5750	Limestone, very light gray, dense, sublithographic, slightly dolomitic.
5750	5770	Limestone, yellowish gray, medium grained, fossiliferous, brachiopods.
5770		2 hour circulation, as above, some white, chalky, limestone.
5770	5820	Limestone, white to very light gray, very fine grained, dense, fossiliferous, some grainy limestone.
5820	5900	Limestone, very light gray, medium grained, some streaks of chalky oolitic limestone. Possibly some good vuggy porosity, argillaceous, slightly silty and fossiliferous, traces of pyrite.
5900	5930	Shale, dark gray, massive, friable, micro-micaceous.
5930	6000	Limestone, very light gray, medium grained, argillaceous, brachiopod fossils.
6000	6100	Limestone, light gray, fragmental, argillaceous, crystalline dense, fossiliferous, moderate yellow chert.
6100	6220	Limestone, medium gray, dense, lithographic, very argillaceous.
6220	6277	Core #5
6220	6277	Limestone, medium gray, dense, lithographic, highly argillaceous.
6277	6310	Limestone, very light gray, very fine grained, dense, argillaceous.
6310	6350	Limestone, very light gray, dense, very fine grained to sub-lithographic argillaceous, shaly bands.
6350	6390	Limestone, medium gray, fine to sodium grained, dense, arenaceous with silty streaks some shale and pyrite.
6390	6400	Shale, dark gray, platy.
6400	6415	Siltstone, very fine grained, well cemented, dolomitic, shale streaks.
6415	6510	Shale, moderate reddish brown, silty, calcareous, some dark gray, carbonaceous shale streaks.
6510	6515	Limestone, very pale orange, dense, fine grained sucrosic, dense, no apparent porosity, some brown anhydrite inclusions.
6515	6530	Limestone, very light gray, fine grained, sucrosic, dense, dolomitic silty.
6530	6540	Shale, dark gray, flaky, some greenish gray, platy shale.
6540	6595	Limestone, very pale orange to yellowish gray, very fine grained to sublithographic, dense, some medium grained, grainy limestone, traces of medium grained, grainy anhydrite.
6595	6600	Anhydrite, white, chalky, massive, interbedded with very light gray grainy limestone.
6600	6610	Anhydrite, white and brown, dense, sublithographic, some dense sublithographic, and fine grained, sucrosic limestone.
6610	6630	Dolomite, very pale orange, medium grained, grainy and some sublithographic dolomite.

<u>From</u>	<u>To</u>	<u>Formation</u>
6630		2 hour circulation, dolomite, medium gray, dense, sub-lithographic and grainy, argillaceous, some vuggy porosity.
6630	6680	Limestone, yellowish gray, fine to medium grained, dolomitic, grainy, dense, some vuggy porosity.
6680	6710	Limestone, same becoming finer grained, traces of anhydrite, numerous brown dolomite rhombs.
6710	6725	Limestone, yellowish gray, very fine grained and sub-lithographic numerous dolomite rhomb inclusions, no visible porosity, traces of lithographic anhydrite.
6725	6750	Limestone, vary light gray, very fine grained, sucrosic, dense, some white sucrosic anhydrite.
6750	6775	Dolomite, very light gray to grayish orange pink, medium to coarse grained, grainy, dolomite rhombs, fair interstitial porosity.
6780	6800	Dolomite, same, medium dark gray, shale streaks.
6800	6820	Anhydrite, brown, lithographic dense.
6820	6830	Limestone, yellowish gray, dense, very fine grained, no visible porosity.
6830	6840	Dolomite, very light gray, fine grained, dense, hard.
6840	6865	Limestone, yellowish gray, very fine grained, dense, no porosity, traces of anhydrite.
6865	6870	Dolomite, yellowish gray, fine grained, grainy.
6870	6882	Limestone, very light gray, sublithographic, dense, to very fine grained, sucrosic.
6882		3 1/3 hour circulation, yellowish gray, dense, fine grained, some dolomite, medium grained.
6882	6955	Dolomite, white to very light gray, fine grained, sucrosic, dense, crystalline anhydrite, veining, traces of sucrosic anhydrite.
6955	6980	Limestone, grayish orange pink to very pale orange, very fine grained to sublithographic, dense, dolomitic, some brown lithographic anhydrite.
6980	6994	Limestone, same shale streaks.
6994		2 hour circulation, dolomite, very light gray, dense, subcrystalline, to very fine grained.
6994	7040	Limestone, very light gray, very fine grained, dense, to sublithographic.
7040	7070	Limestone, very light gray, dense, subcrystalline, dolomitic, argillaceous.
7070	7120	Limestone, very light gray, very fine grained to chalky dense.
7120		3 hour circulation, limestone, same as above.
7120	7178	Core #6
7120	7125	Limestone, yellowish gray, medium grained with a very fine grained matrix, fossiliferous, inclusions of anhydrite, a little poor pinpoint porosity, streaks of carbonaceous material.
7125	7170	Limestone, yellowish gray, very fine grained, dense, anhydrite inclusions and veins some fair interstitial porosity.
7170	7175	Limestone, light olive gray, fine grained, dense, fossiliferous, highly arenaceous.

<u>From</u>	<u>To</u>	<u>Formation</u>
7175	7178	Dolomite, light gray, very fine grained to sublithographic, argillaceous.
7178	7220	Dolomite, light gray, fine grained, dense, argillaceous.