

GEOLOGICAL REPORT

Horizon Oil & Gas Co.
and
Petroleum, Inc.
#1-21 Nash

1980' from South Line and
1120' from East Line
Sec. 21-33S-28W
Meade County, Kansas
South Borchers Area

Commencement Date: 3/18/67
Completion Date: 4/4/67
Elevation: 2493 K.B. (Datum)
2485 G.L.
Total Depth:
Driller: 5960
Schlumberger: 5950
Contractor: Garvey Drilling Co.
Rig #22
Electrical Surveys: Schlumberger
Dual Induction-
Laterolog, BHC Sonic-
Gamma Ray-Caliper

Casing:
Surface: 8 5/8" @ 1450'
Production: None

Special Equipment: None

FORMATION TOPS AND STRUCTURAL COMPARISONS

	Horizon & Pet., Inc. #1-21 Nash Sec. 21-33S-28W	Skelly & Shamrock #1 Borchers NE SW Sec. 21-33S-28W
Wreford	2973 (- 480)	2987 (- 468)
Heebner Shale	4434 (-1941)	4452 (-1933)
Lansing	4604 (-2111)	4624 (-2105)
Kansas City	4869 (-2376)	4890 (-2371)
Base of Kansas City	5200 (-2707)	5220 (-2699)
Marmaton	5220 (-2727)	5238 (-2719)
Cherokee	5402 (-2909)	5414 (-2895)
Morrow Shale	5708 (-3215)	5718 (-3199)
Chester (Mississippian)	5788 (-3295)	5806 (-3287)
Base of Chester "C" Zone	5894 (-3401)	5918 (-3399)
Total Depth (Log)	5950 (-3457)	

SAMPLE DESCRIPTIONS & DRILL STEM TESTS

Morrow

- 5710-13 A trace of fine grained, clear, glassey, non-glaucinitic, quartz sand with poor to no visable porosity and no oil stain was observed from this interval.
- 5716-24 This interval consisted primarily of dark brown and black mottled, dense, non-porous limestone.
- 5724-31 This interval contained clear to gray fine grained, fairly friable, non-glaucinitic quartz sand which had poor to no visable porosity.

The above sections were covered by D.S.T. #1.

D.S.T. #1 5711-40 reported depths = 5703-32 corrected to E. Log depths.

Open 15 min., shutin for 30 min., open 60 min., shutin 30 min.

Weak blow increased to fair. No gas to surface.

Recovered 20 feet drilling mud with no shows.

ISIP 215/30"

FSIP 166/30"

FP 33-33

HH 2761-2761

5732-52 This interval contained fine to medium grained, clear to gray, very glauconitic quartz sand interbedded with black shale and some brown to tan very limey, glauconitic quartz sands. Some of the sand clusters were friable and appeared to have porosity.

D.S.T. #2 was run in this interval.

D.S.T. #2 5746-58 reported depths = 5738-50 corrected to E. Log depths.

Open 30 min., shutin 30 min.

Very weak blow for 7 min. and died.

Recovered 5 feet drilling mud with no shows.

FP 33-33

BHP 99/30"

HH 2777-2777

5752-55 Black shale.

5255-74 This interval contained fine to medium grained, very glauconitic, gray quartz sand very much as described above. Some clusters were friable and appeared to have some porosity while much of the sand contained black shale laminations. No staining or shows were observed and because of the similarity of the sand to that tested by D.S.T. #2 and the relatively low structural position of the sand, this interval was not tested. Electric log calculations indicate the clean portions of this interval to be water bearing.

Chester

5788-T.D. The Mississippian Chester sections penetrated in this hole consisted of light to dark gray, tan and brown, medium to coarse crystalline, very chalky, fossiliferous and oolitic limestones, with no visible porosity or shows, interbedded with medium to dark gray shales.

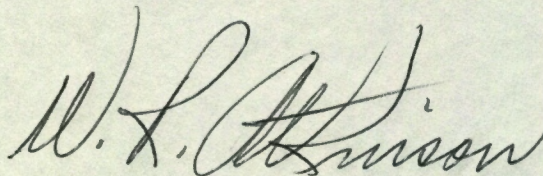
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Kansas City
4870-78

This zone upon a cursory evaluation of the electric log appeared to be of interest. More exhaustive study of the zone, however, failed to show that it was potentially productive. The zone consisted of light tan, fine crystalline, very chalky limestone with poorly developed oolitic porosity. No oil staining, fluorescence or cut in carbon tetrachloride could be detected in the samples from the zone.

Due to the lack of favorable shows on the drill stem tests and the poor log calculations in the intervals not drill stem tested, this hole was plugged and abandoned without running production casing.



W. R. Atkinson
Geologist

HORIZON OIL & GAS CO.
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DRILLING TIME

Drilling time by 1 ft. intervals from 4400 ft. to T.D.

4400-4410	1	-	1	-	1	-	1	-	2	-	2	-	2	-	3	-	3	-	2
-4420	2	-	1	-	1	-	1	-	3	-	3	-	3	-	3	-	2	-	2
-4430	2	-	2	-	1	-	1	-	1	-	1	-	1	-	1	-	4	-	2
-4440	1	-	3	-	3	-	3	-	3	-	2	-	3	-	2	-	1	-	2
-4450	1	-	1	-	1	-	1	-	1	-	3	-	3	-	3	-	2	-	1
-4460	2	-	2	-	3	-	2	-	2	-	2	-	3	-	2	-	2	-	3
-4470	3	-	3	-	3	-	3	-	3	-	2	-	2	-	2	-	2	-	2
-4480	2	-	3	-	2	-	2	-	3	-	3	-	2	-	3	-	2	-	3
-4490	3	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4500	2	-	3	-	2	-	2	-	2	-	3	-	2	-	2	-	2	-	2

4500-4510	2	-	2	-	3	-	3	-	1	-	1	-	1	-	1	-	1	-	2
-4520	1	-	1	-	1	-	2	-	2	-	2	-	1	-	2	-	2	-	1
-4530	1	-	1	-	2	-	2	-	1	-	1	-	2	-	2	-	2	-	2
-4540	1	-	1	-	2	-	1	-	1	-	1	-	1	-	1	-	1	-	2
-4550	2	-	3	-	2	-	3	-	3	-	2	-	2	-	2	-	4	-	3
-4560	4	-	3	-	4	-	4	-	2	-	3	-	3	-	4	-	4	-	4
-4570	5	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3	-	3
-4580	2	-	3	-	4	-	2	-	3	-	4	-	3	-	4	-	5	-	1
-4590	2	-	2	-	3	-	2	-	2	-	3	-	3	-	3	-	3	-	3
-4600	3	-	4	-	3	-	3	-	3	-	2	-	4	-	3	-		-	3

Trip @ 4546

Lost circulation
@ 4568

Short 1'

4600-4610	3	-	3	-	4	-	5	-	4	-	5	-	2	-	3	-	4	-	5
-4620	4	-	5	-	5	-	3	-	4	-	4	-	4	-	3	-	4	-	3
-4630	3	-	2	-	2	-	3	-	4	-	4	-	4	-	4	-	5	-	3
-4640	3	-	5	-	6	-	6	-	5	-	6	-	5	-	2	-	2	-	5
-4650	6	-	8	-	5	-	6	-	5	-	3	-	4	-	3	-	4	-	7
-4660	4	-	4	-	4	-	5	-	2	-	3	-	3	-	3	-	3	-	2
-4670	3	-	3	-	3	-	3	-	4	-	5	-	5	-	8	-	7	-	4
-4680	2	-	3	-	3	-	6	-	5	-	7	-	8	-	7	-	5	-	2
-4690	5	-	9	-	10	-	5	-	4	-	2	-	2	-	2	-	2	-	4
-4700	4	-	3	-	4	-	3	-	3	-	4	-	4	-	3	-	3	-	4

4700-4710	3	-	3	-	4	-	6	-	3	-	5	-	7	-	5	-	2	-	3
-4720	2	-	3	-	3	-	4	-	6	-	9	-	7	-	7	-	4	-	4
-4730	3	-	3	-	4	-	5	-	7	-	6	-	5	-	6	-	9	-	5
-4740	5	-	10	-	7	-	7	-	8	-	12	-	7	-	8	-	6	-	4
-4750	5	-	3	-	5	-	6	-	1	-	5	-	1	-	1	-	1	-	1
-4760	1	-	2	-	2	-	2	-	2	-	2	-	2	-	3	-	2	-	2
-4770	3	-	5	-	2	-	3	-	3	-	3	-	3	-	2	-	3	-	4
-4780	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4790	1	-	2	-	1	-	1	-	2	-	2	-	1	-	2	-	2	-	2
-4800	2	-	2	-	2	-	2	-	2	-	4	-	5	-	7	-	4	-	4

Trip @ 4740

4800-4810	3	-	1	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4820	1	-	2	-	2	-	2	-	1	-	2	-	2	-	2	-	2	-	2

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4820-4830	2	-	2	-	2	-	3	-	2	-	3	-	4	-	3	-	3	-	3
-4840	2	-	2	-	3	-	2	-	2	-	3	-	2	-	4	-	3	-	4
-4850	5	-	6	-	5	-	6	-	10	-	8	-	4	-	4	-	5	-	4
-4860	10	-	6	-	6	-	8	-	12	-	9	-	9	-	9	-	7	-	3
-4870	7	-	7	-	5	-	7	-	4	-	7	-	8	-	8	-	8	-	9
-4880	9	-	8	-	7	-	10	-	7	-	2	-	2	-	2	-	2	-	2
-4890	2	-	1	-	2	-	3	-	5	-	5	-	7	-	6	-	7	-	11
-4900	7	-	4	-	5	-	4	-	3	-	1	-	2	-	1	-	2	-	3

Trip @ 4891

4900-4910	2	-	2	-	4	-	2	-	1	-	2	-	1	-	1	-	2	-	1
-4920	2	-	2	-	2	-	3	-	2	-	3	-	3	-	3	-	4	-	4
-4930	7	-	4	-	6	-	5	-	4	-	3	-	3	-	4	-	3	-	5
-4940	7	-	2	-	4	-	3	-	4	-	3	-	3	-	4	-	4	-	6
-4950	4	-	4	-	4	-	5	-	8	-	6	-	6	-	6	-	7	-	7
-4960	4	-	7	-	8	-	7	-	8	-	7	-	3	-	3	-	4	-	3
-4970	3	-	3	-	4	-	7	-	6	-	8	-	8	-	6	-	6	-	6
-4980	5	-	8	-	8	-	7	-	6	-	8	-	7	-	6	-	5	-	5
-4990	5	-	6	-	5	-	4	-	4	-	4	-	3	-	3	-	4	-	4
-5000	4	-	4	-	4	-	4	-	4	-	6	-	6	-	5	-	6	-	5

5000-5010	5	-	5	-	5	-	3	-	5	-	4	-	5	-	5	-	5	-	5
-5020	6	-	5	-	6	-	5	-	6	-	7	-	4	-	6	-	5	-	6
-5030	5	-	6	-	5	-	6	-	8	-	6	-	6	-	7	-	7	-	8
-5040	6	-	5	-	6	-	7	-	6	-	7	-	8	-	7	-	9	-	4
-5050	5	-	3	-	5	-	4	-	3	-	5	-	4	-	4	-	4	-	4
-5060	4	-	5	-	5	-	5	-	4	-	3	-	5	-	6	-	4	-	7
-5070	4	-	2	-	2	-	4	-	5	-		-	4	-	4	-	4	-	3
-5080	4	-	3	-	1	-	1	-	1	-	1	-	1	-	2	-	3	-	4
-5090	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-5100	4	-	4	-	4	-	3	-	4	-	4	-	5	-	3	-	4	-	4

Trip @ 5039
1' off

5100-5110	5	-	4	-	3	-	4	-	4	-	3	-	4	-	5	-	4	-	4
-5120	4	-	5	-	3	-	4	-	4	-	4	-	4	-	4	-	4	-	5
-5130	4	-	6	-	3	-	6	-	4	-	5	-	4	-	4	-	8	-	8
-5140	6	-	9	-	4	-	4	-	3	-	3	-	6	-	5	-	7	-	7
-5150	6	-	7	-	9	-	5	-	5	-	4	-	4	-	5	-	4	-	4
-5160	4	-	5	-	5	-	3	-	5	-	2	-	2	-	2	-	4	-	2
-5170	2	-	8	-	7	-	5	-	3	-	4	-	4	-	5	-	5	-	5
-5180	4	-	6	-	5	-	6	-	6	-	6	-	5	-	7	-	6	-	6
-5190	6	-	7	-	6	-	8	-	8	-	6	-	5	-	6	-	7	-	5
-5200	7	-	7	-	7	-	8	-	6	-	7	-	7	-	6	-	7	-	8

5200-5210	5	-	9	-	8	-	8	-	7	-	7	-	9	-	14	-	12	-	7
-5220	10	-	14	-	4	-	3	-	3	-	4	-	4	-	3	-	7	-	5
-5230	3	-	3	-	4	-	4	-	3	-	3	-	4	-	2	-	2	-	3
-5240	3	-	2	-	3	-	3	-	3	-	3	-	2	-	2	-	2	-	2
-5250	2	-	3	-	4	-	4	-	6	-	5	-	5	-	5	-	4	-	6
-5260	5	-	5	-	3	-	4	-	4	-	4	-	6	-	3	-	4	-	4
-5270	3	-	5	-	5	-	4	-	4	-	5	-	4	-	5	-	4	-	4

Trip @ 5213

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5270-5280	5	-	6	-	4	-	4	-	4	-	4	-	4	-	5	-	6
-5290	4	-	3	-	4	-	3	-	4	-	4	-	4	-	7	-	4
-5300	5	-	5	-	5	-	6	-	7	-	7	-	7	-	5	-	10

5300-5310	11	-	9	-	9	-	5	-	4	-	6	-	4	-	6	-	5	1' off
-5320	5	-	5	-	5	-	6	-	3	-	4	-	9	-	6	-	4	
-5330	3	-	3	-	4	-	4	-	4	-	6	-	6	-	5	-	5	
-5340	5	-	5	-	4	-	3	-	4	-	6	-	9	-	9	-	9	
-5350	9	-	8	-	6	-	5	-	4	-	5	-	6	-	5	-	5	
-5360	6	-	10	-	7	-	9	-	8	-	9	-	7	-	5	-	7	Trip @ 5386
-5370	6	-	4	-	5	-	4	-	4	-	4	-	4	-	3	-	4	
-5380	3	-	2	-	3	-	4	-	5	-	5	-	5	-	6	-	9	
-5390	4	-	9	-	9	-	9	-	11	-	9	-	3	-	5	-	4	
-5400	2	-	2	-	5	-	3	-	6	-	8	-	8	-	7	-	8	

5400-5410	7	-	8	-	9	-	7	-	7	-	7	-	7	-	11	-	6
-5420	3	-	3	-	5	-	6	-	3	-	5	-	8	-	7	-	7
-5430	6	-	8	-	5	-	5	-	6	-	4	-	7	-	7	-	7
-5440	6	-	5	-	6	-	7	-	4	-	6	-	5	-	6	-	6
-5450	4	-	5	-	6	-	7	-	5	-	6	-	7	-	9	-	7
-5460	5	-	6	-	12	-	9	-	6	-	8	-	8	-	8	-	9
-5470	5	-	8	-	9	-	8	-	6	-	7	-	8	-	9	-	10
-5480	8	-	10	-	8	-	4	-	5	-	10	-	6	-	8	-	6
-5490	8	-	5	-	6	-	6	-	6	-	6	-	7	-	7	-	12
-5500	8	-	5	-	5	-	5	-	5	-	5	-	7	-	8	-	6

5500-5510	8	-	5	-	5	-	4	-	7	-	5	-	7	-	5	-	7	Trip @ 5507
-5520	6	-	5	-	5	-	6	-	7	-	8	-	4	-	7	-	8	
-5530	5	-	5	-	5	-	4	-	3	-	5	-	2	-	5	-	3	
-5540	8	-	8	-	6	-	4	-	4	-	4	-	4	-	5	-	4	
-5550	5	-	3	-	4	-	5	-	5	-	3	-	4	-	4	-	8	
-5560	4	-	4	-	5	-	5	-	7	-	5	-	4	-	5	-	6	
-5570	4	-	4	-	4	-	4	-	5	-	4	-	7	-	5	-	3	
-5580	5	-	5	-	5	-	3	-	6	-	4	-	4	-	5	-	5	
-5590	7	-	7	-	5	-	7	-	5	-	6	-	6	-	5	-	7	
-5600	4	-	6	-	6	-	6	-	4	-	4	-	5	-	5	-	4	

5600-5610	6	-	6	-	5	-	6	-	7	-	5	-	5	-	5	-	7	Trip @ 5626
-5620	8	-	4	-	8	-	7	-	9	-	5	-	6	-	10	-	7	
-5630	8	-	8	-	6	-	7	-	12	-	9	-	3	-	4	-	6	
-5640	4	-	4	-	4	-	5	-	5	-	5	-	5	-	3	-	3	
-5650	3	-	3	-	2	-	3	-	5	-	4	-	4	-	4	-	3	
-5660	4	-	5	-	3	-	5	-	4	-	6	-	5	-	4	-	5	
-5670	6	-	5	-	3	-	3	-	2	-	2	-	2	-	4	-	4	
-5680	5	-	3	-	4	-	5	-	3	-	5	-	5	-	5	-	3	
-5690	3	-	3	-	4	-	4	-	6	-	4	-	4	-	5	-	5	
-5700	5	-	4	-	4	-	4	-	4	-	5	-	6	-	5	-	4	

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5700-5710	6	-	4	-	5	-	4	-	5	-	4	-	4	-	5	-	5	-	3
-5720	6	-	5	-	2	-	4	-	4	-	2	-	4	-	4	-	9	-	5
-5730	5	-	4	-	5	-	5	-	6	-	6	-	5	-	4	-	5	-	5
-5740	6	-	4	-	3	-	2	-	1	-	2	-	2	-	3	-	1	-	3
-5750	2	-	1	-	2	-	2	-	2	-	3	-	3	-	3	-	3	-	2
-5760	2	-	3	-	3	-	3	-	3	-	2	-	3	-	2	-	4	-	3
-5770	3	-	1	-	2	-	2	-	1	-	1	-	2	-	3	-	3	-	1½
-5780	1½	-	1½	-	2	-	2½	-	1	-	1	-	1	-	1	-	2	-	1
-5790	3	-	2	-	2	-	3	-	3	-	3	-	4	-	3	-	3	-	3
-5800	3	-	3	-	2	-	3	-	5	-	7	-	5	-	4	-	7	-	7

D.S.T. #1 @ 5711-40

D.S.T. #2 @ 5746-58

5800-5810	5	-	7	-	7	-	6	-	7	-	5	-	5	-	5	-	7	-	6
-5820	7	-	1	-	2	-	7	-	7	-	9	-	7	-	5	-	5	-	8
-5830	7	-	5	-	7	-	8	-	7	-	13	-	11	-	9	-	15	-	8
-5840	9	-	8	-	8	-	5	-	7	-	7	-	7	-	6	-	8	-	10
-5850	12	-	10	-	8	-	7	-	8	-	11	-	15	-	9	-	13	-	12
-5860	3	-	3	-	4	-	2	-	3	-	2	-	1	-	1	-	4	-	3
-5870	3	-	3	-	4	-	3	-	4	-	3	-	4	-	3	-	3	-	3
-5880	3	-	7	-	3	-	5	-	6	-	3	-	5	-	5	-	5	-	3
-5890	3	-	2	-	5	-	5	-	4	-	4	-	3	-	2	-	3	-	6
-5900	3	-	5	-	5	-	6	-	7	-	7	-	7	-	7	-	6	-	8

Trip @ 5850

5900-5910	9	-	4	-	8	-	3	-	3	-	2	-	1	-	2	-	2	-	2
-5920	6	-	3	-	2	-	2	-	1	-	2	-	1	-	2	-	1	-	1
-5930	2	-	1	-	2	-	2	-	1	-	1	-	2	-	2	-	1	-	5
-5940	3	-	2	-	2	-	2	-	3	-	3	-	3	-	4	-	3	-	4
-5950	4	-	5	-	4	-	2	-	3	-	4	-	2	-	3	-	4	-	4
-5960	3	-	4	-	4	-	4	-	5	-	4	-	6	-	5	-	3	-	4

Trip @ 5903

T.D. - 5960