

original & 8 copies

Geological Report

Horizon Oil & Gas Company
No. 1-9 Merkle

C. SE. NE Sec. 9-34S-27W.
Meade County, Kansas
McKinney Field

Miscellaneous Information

Rotary Commencement Date: Aug. 9, 1964
~~Commencement Date~~

Casing: 8 5/8" @ 1362' / 710 SX.

Rotary Completion Date: Aug. 25, 1964

2 3/8" @ 6030' / 200 SX.

Elevation: 2354 K.B. Datum point.

Production: 5,300 MCFGPD +

2351 D.F.

8 B condensate / MMCFG

2343 G.L.

from Chester.

Dry samples ~~were~~ caught at intervals of 10 feet were examined from 2900 feet to total depth. In addition, wet samples caught at 5 foot intervals were examined through the Marrow and Chester ~~formations~~ intervals.

A Baroid gas detection unit was in operation on the well from approximately ~~2700~~²²⁰⁰ feet to total depth. The logging unit was installed August 12, 1964 and released at total depth on August 25, 1964.

The well was attended by Mr. Bill Broughton, geologist, from 2800 feet to approximately 5350 feet. From 5350 feet to total depth, the well was watched by the undersigned.

Sample quality was very poor to approximately 4500 feet and fair to good from 4500 feet to total depth.

Formation Tops and Structural Data (E-log depths)

Wreford	Horizon #1-9 Merkle	Graham-Michaelis #1-10 Bohling
	SE NE 9-34-27	SW SE 10-34-27
Wreford	2935 (-581)	2982 (-601)
Council Grove	3043 (-689)	3093 (-712)
Toronto	4446 (-2092)	4498 (-2117)
Lansing	4609 (-2255)	4656 (-2275)

Marmaton	5290 (-2936)	5340 (-2959)
Cherokee	5487 (-3133)	5537 (-3156)
Morrow Shale	5802 (-3448)	5846 (-3465)
Morrow Sand	5878 (-3524)	Not Present
Base of Sand	5887 (-3533)	
Mississippian Chester	5920 (-3566)	5953 (-3572)
Chester "A" Zone	5930 (-3576)	5965 (-3584)
Chester "B" Zone	5957 (-3603)	5980 (-3599)
Total Depth	6046 (-3695)	

No shows of oil were observed in the samples from the well. Several zones contained gas as indicated by total gas readings recorded by the Baroid gas logging equipment. A discussion of each of these zones follows:

3026-35 Total gas reading 5 units. Sample quality too poor to describe. Electric log indicates zone to consist of streaks of nonporous limestone or dolomite and thin shales.

3197-3203 Total Gas reading 10 units. Sample quality too poor to describe. Electric log calculations indicate this zone to have a maximum of 11% porosity with water saturation of at least 81%.

3525-38 Total Gas reading 5 to 7½ units. Sample quality too poor to describe. Electric log indicates zone to be ~~tight~~ nonporous limestone or dolomite.

4431-40 Total Gas reading 30 units. Black carbonaceous shale. Hecker Shale.

$$\begin{array}{r} 4720 \\ 2383 \\ -2337 \\ \hline 26 \end{array}$$

$$\begin{array}{r} 4665 \\ 2354 \\ -2311 \end{array}$$

4665-92 No oil or gas shows were detected or recorded in this zone. It was closely watched because of a show of oil recovered on a wire line test of the comparable zone in the Skelly Oil Company #1 Charles Merkle Sec. 15-34-27. Although the zone was encountered 26 feet structurally higher in the Horizon #1-9 Merkle than in the Skelly well, it did not contain any shows and is indicated to be water bearing by electric log calculations.

5206-14 Total Gas reading 20 units. Black carbonaceous shale.

5325-32 Total Gas reading 8 units. Black carbonaceous shale.

5407-13 Total Gas reading 17 units. Black carbonaceous shale.

5456-62 Total Gas reading 20 units. Black carbonaceous shale.

5478-84 Total Gas reading 25 units. Black carbonaceous shale.

5740-60 and 5768-74 Total Gas reading maximum of 17 units. Thin streaks of black shale interbedded with nonporous chalky, cherty gray limestone and tight sandy limestone. ~~Schlumberger Dual Induction laterolog, Sonic Gamma Ray Caliper and Microcaliper were run at total depths.~~

5795-98 and 5802-05 Total Gas reading 25 and 50 units. Both zones black carbonaceous shale.

5842-58 No oil or gas shows. Mostly gray, brown to black dense limestone. Trace of fine grained limey tight glauconitic sandstone.

5878-87 No oil or gas shows. Fine grained limey, glauconitic sand.

DST #1 5805-5911 open 12 min. Shut in 30 min. Open 63 min. Shut in 30 min. Weak blow throughout. No gas to surface. Recovered 90 feet mud and 180 feet muddy salt water. ISIP 1585/30", FP 100-150, FSIP 1075/30".

5940-53 Total Gas reading 55 units. Tan coarse crystalline fragmental-fossiliferous limestone.

5954-57 Total Gas reading 10 units. Dark gray to black shale.

5964-76 Total Gas reading 30-45 units. Gray fossiliferous - oolitic chalky limestone.

5985-95 Total Gas reading 20 units. Gray fossiliferous - oolitic tight limestone. Schlumberger Dual Induction Laterolog, Sonic GammaRay, Caliper and Microlog Caliper were run at total depth.

Schlumberger wire line test #1 5967½-70 open 2 hours. Recovered 1.68 CF shot gas, 1.65 CF free gas and 900 cc water with spotted fluorescence. ISIP not taken, Sampling pressure less than 100, FSIP 1810/135".

WLT #2 5972.5-75 open 2½ hours. Recovered ~~1.28~~ 1.28 CF shot gas, 0.10 CF free gas and 1350 cc water with spotted fluorescence. ISIP less than

explosion pressure, Sampling pressure less than
100, FSIP less than $100/5$ ".

2 $\frac{7}{8}$ " casing was run to 6030 and cemented
with 200 sacks.

William P. Thurson
Geologist