

August 9, 1963

G E O L O G I C A L   R E P O R T

K & E DRILLING, INC.

#2 Kohart  
135' N of C NE SE  
Section 28-9S-24W  
Graham County, Kansas

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COMMENCED: July 31, 1963  
COMPLETED: August 7, 1963

ELEVATION: 2541' K.B.  
2538' D.F.

CASING RECORD: 8-5/8" set @ 248' with 175 sacks.  
4-1/2" set @ 4125' with 125 sacks.

ELECTRICAL SURVEYS: Welex "Radiation-Guard"

DRILL STEM TESTS: Three tests by Miller Testing Co.

NOTE: All depths and data are relative to the Kelly Bushing and have been taken from the electric log measurements.

FORMATION RECORD

<u>Formation</u>	<u>Depth</u>	<u>Subsea</u>
Heebner	3843	(-1302)
Toronto	3865	(-1324)
Lansing-Kansas City	3876	(-1335)
Base of Kansas City	4110	(-1569)
Total Depth	4126	(-1585)

Top of the Lansing-Kansas City at 3876'

- 3876 - 3883 Limestone: White, finely crystalline to chalky, part dense, part slightly oolitic, very slightly cherty. No visible porosity. Trace of light staining.
- 3907 - 3911 Limestone: Cream, finely crystalline, cherty. Fair pinpoint and very small vugular porosity with light saturation. Trace of free oil in wet sample with no odor.
- 3917 - 3923 Limestone: White, finely crystalline to partly chalky, oolitic, part calcitic. Fair to good vugular and oocastic porosity with some saturation. Free oil in wet sample with no odor.

DRILL STEM TEST #1, 3916 - 3922, Open 90 minutes with a good blow throughout. Recovered 1200' gas, 30' oil and gas cut mud, 60' of very heavy oil and gas cut mud, 125' of slightly mud cut oil, 230' of oil and 825' of very slightly oil cut water.

Initial Bottom Hole Pressure	1390 p.s.i.
Initial Flow Pressure	90 p.s.i.
Final Flow Pressure	580 p.s.i.
Final Bottom Hole Pressure	1365 p.s.i.

- 3953 - 3963 Limestone: White, finely crystalline to slightly chalky, oolitic. Fair to poor oocastic and vugular porosity with some saturation. Free oil in wet sample with no odor.

DRILL STEM TEST #2, 3943 - 3958, Open 120 minutes with fair blow throughout. Recovered 1175' of gas, 326' of very heavy oil and gas cut mud with some free oil.

Initial Bottom Hole Pressure in 30 minutes	1300 p.s.i.
Initial Flow Pressure	50 p.s.i.
Final Flow Pressure	145 p.s.i.
Final Bottom Hole Pressure in 45 minutes.	1285 p.s.i.

4016 - 4020 Limestone: White to very light gray, finely crystalline to chalky, fossiliferous, slightly cherty. Good to poor vugular and fossil-cast porosity with spotted saturation. Trace of free oil in wet sample with no odor.

DRILL STEM TEST #3, 3999 - 4022, Open 90 minutes with a good blow throughout. Recovered 1200' of gas, 30' of oil specked mud, 60' of oil and gas cut mud, 60' of heavy oil and gas cut mud, 150' of very heavy oil and gas cut mud, 95' of muddy gassy oil.

Initial Bottom Hole Pressure in	
30 minutes	1275 p.s.i.
Initial Flow Pressure	80 p.s.i.
Final Flow Pressure	185 p.s.i.
Final Bottom Hole Pressure in	
30 minutes	585 p s.i.

4039 - 4045 Limestone: Tan to light gray, fine to coarsely crystalline, fossiliferous. Good vugular porosity with fair saturation. Free oil in wet sample with a very faint odor.

4057 - 4061 Limestone: Light gray, finely crystalline, fossiliferous, part calcitic. Scattered fair to poor vugular porosity with some saturation.

4078 - 4084 Limestone: Very light gray, finely crystalline, slightly fossiliferous, slightly cherty. Poor to fair small vugular and pinpoint porosity with some staining and saturation. Trace of free oil in wet sample with no odor.

Base of the Kansas-City at 4110'

Rotary Total Depth at 4126'

REMARKS

The relative structural position of the Kohart #2 as compared to nearby wells is shown in the following table:

	K & E #2 Kohart NE SE 28-9S-24W	Chief #1 Kohart SE NE 28-9S-24W	Chief #2 Kohart NE NE 28-9S-24W
Heebner	-1302	-1299	-1304
L-KC	-1335	-1334 (oil & wtr)	-1344
35' zone	-1366	-1371 (OCM & OC wtr)	-1372
50' zone	-1376	-1380 (1990' oil)	-1383 (wtr/s.s.o.)
90' zone	-1412	-1415 (mud/s.s.o.)	-1414 (oil & wtr)
140' zone	-1475	-1475 (OCM & oil)	-1478 (mud)
160' zone	-1498	-1500 (mud/s.s.o.)	-1500 (mud)
180' zone	-1516	-1518 (mud/s.s.o.)	-1518 (mud)
200' zone	-1537	-1538	-1538 (OCM & OCwtr)
220' zone	-1554	-1555	-1554 (OCM & OCwtr)
		Oil - 160' zone	Oil - 90' zone

It is recommended that the following zones be tested prior to abandonment of the well:

35' zone	3907 - 3090
50' zone	3918 - 3919
90' zone	3954 - 3956
140' zone	4017 - 4020
160' zone	4040 - 4044
200' zone	4079 - 4081

Respectfully submitted,

*Wayne L. Brinegar*

Wayne L. Brinegar, Geologist

WLB/lam

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DRILLING TIME LOG

1' Drilling Time from 3600' to Rotary Total Depth.

<u>From - To</u>	<u>Minutes</u>	<u>Remarks</u>
3600 - 3610	5-4-4-2-3-2-1-3-3-3	
10 - 20	2-3-3-3-3-4-4-4-5-3	
20 - 30	3-4-3-2-4-4-3-3-3-2	
30 - 40	4-4-4-4-4-4-5-3-4-4	
40 - 50	3-4-3-3-2-3-3-5-4-4	
50 - 60	3-4-4-3-3-3-3-2-2-2	
60 - 70	2-2-3-4-4-5-3-3-3-3	
70 - 80	3-4-4-3-3-1-1-1-2-2	
80 - 90	1-2-1-4-3-3-2-3-3-3	
3690 - 3700	2-3-5-3-3-4-3-4-2-2	
3700 - 3710	3-3-1-2-3-2-2-2-2-2	
10 - 20	1-2-3-4-3-3-3-4-3-4	
20 - 30	6-5-6-5-5-5-3-3-3-4	
30 - 40	2-3-3-2-2-2-2-2-1-2	
40 - 50	3-4-4-5-5-5-4-2-1-1	
50 - 60	1-2-4-2-3-1-1-1-1-2	New Bit @ 3755'
60 - 70	2-3-3-3-5-4-3-3-3-3	
70 - 80	4-3-3-3-4-3-4-4-4-5	
80 - 90	X-X-3-3-4-4-4-2 $\frac{1}{2}$ - $\frac{1}{2}$ - $\frac{1}{4}$	3780 = 3782
3790 - 3800	$\frac{1}{4}$ - $\frac{1}{2}$ - $\frac{1}{2}$ - $\frac{1}{2}$ -1-1-2-2-2-2	
3800 - 3810	2-2-3-4-4-4-4-5-3-2	
10 - 20	2-3-3-1-2-2-2-2-2-2	
20 - 30	1-1-1-2-2-2-3-2-2-3	
30 - 40	2-2-2-2-2-3-2-2-3-2	
40 - 50	2-2-2-3-2-2-3-4-4-5	
50 - 60	5-5-4-4-3-4-4-4-3-4	
60 - 70	4-4-4-4-4-5-3-3-5-6	
70 - 80	6-5-6-4-7-5-8-8-7-9	
80 - 90	6-8-7-5-7-8-10-10-8-5	
3890 - 3900	7-5-5-5-5-6-5-6-7-8	

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3900 - 3910	5-6-5-3-4-5-5-5-6-9	
10 - 20	6-5-5-2-6-7-8-6-8-4	Circulate @ 3918'
20 - 30	3-8-3-X-X-X-X-X-4	Circulate @ 3921'
30 - 40	3-5-4-4-7-12-11-6-3-2	Circulate @ 3922'
40 - 50	3-3-3-2-3-3-3-4-3-3	New Bit @ 3922'
50 - 60	4-4-4-2-4-3-3-3-2-3	No time - geolograph not
60 - 70	2-1-2-2-2-3-4-2-2-2	kicked in.
70 - 80	3-3-4-3-3-3-4-4-4-5	Circulate @ 3959'
80 - 90	5-4-4-4-5-5-5-4-4-4	New Bit @ 3959'
3990 - 4000	3-3-4-4-3-3-3-3-5	
4000 - 4010	5-4-3-4-4-4-4-4-5	
10 - 20	4-4-5-5-5-4-4-4-5-3	
20 - 30	3-5-5-6-2-4-4-4-5-4	Circulate @ 4023
30 - 40	4-4-5-3-5-4-4-3-4-4	
40 - 50	3-3-4-4-5-3-4-2-3-4	
50 - 60	3-3-3-3-4-2-2-3-4-3	
60 - 70	4-3-3-5-5-4-4-4-5-5	
70 - 80	6-5-4-5-6-4-5-5-4-3	
80 - 90	3-3-3-3-2-2-3-5-5-4	
4090 - 4100	5-3-5-5-4-3-3-5-4-5	
4100 - 4110	4-5-4-6-3-4-5-5-5-5	
10 - 20	5-3-3-4-3-3-5-4-4-3	
20 -	1-2-2-2-3-2-2	Circulate @ 4127'

Rotary Total Depth 4127'.