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*Geological Engineer*509 ORPHEUM BUILDING
WICHITA, KANSAS

May 8, 1955

K & E Drilling, Inc.
1006 Central Building
Wichita, KansasRe: Geological Report
K & E Drilling, Inc.
#1 SUTOR
SW/4 SW/4 SE/4 Sec.31-28-23W
Graham County, Kansas
Elevation: 2377' EE

Gentlemen:

The following formation tops were encountered in drilling the above captioned well:

	<u>Samples</u>	<u>Electric Log</u>
Anhydrite	1820 (-487)	-----
Topeka	2382 (-1008)	3380 (-1003)
Hockmer	3608 (-1231)	3610 (-1233)
Toronto	3632 (-1255)	3632 (-1255)
Lansing-Kansas City	3644 (-1267)	3646 (-1269)
Base Kansas City	3669 (-1402)	3672 (-1495)
Murmaton Cherty Lino	3949 (-1572)	-----
Conglomerate	4032 (-1656)	-----
Arbuckle	4102 (-1728)	-----
Rotary Total Depth	4113 (-1736)	-----

The #1 Sutor is a high well. On top of the Lansing formation (the principal producing horizon in this area), the #1 Sutor is

6' higher than a dry hole 1/2 mile North in the SE/4 SE/4 NW/4 Sec.31;

16' higher than a dry hole approximately 3/4 mile Southwest in the SE/4 SE/4 NE/4 Sec.1-10S-23W, and

13' lower than the K & E #1 Farrell approximately 1 mile Northeast in the SE/4 SE/4 NW/4 Sec.32-28-23W, recently completed as a producer in the Lansing formation.

On top of the Arbuckle formation, the #1 Sutor was not a particularly high well as it encountered approximately 80 feet of cherty conglomerate. It was, however, 11 feet higher than the dry hole 3/4 mile Southwest but was 81 feet lower than the K & E #1 Farrell, producer.

The following zones of porosity and shows of oil were observed in the Topeka formation:

3544-3548 - tan fossiliferous limestone, trace of vugular porosity.
No show.

3574-3582 - light tan, finely crystalline limestone, oolitic in part. Poor to fair porosity. No show.

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K & K #1 Sutor

The following zones of porosity and shows of oil were observed in the Lansing-Kansas City section:

3646-3682 (top zone) - light tan, finely crystalline to chalky limestone. Very poor porosity. No show.

3681-3690 (45' zone) - light tan, finely crystalline cherty limestone, trace dead black spotted staining.

3714-3724 (80' zone) - light tan, crystalline limestone. Poor spotted vugular porosity and poor to fair spotted staining.

3726-3736 (90' zone) - tan, oolitic limestone. Fair porosity. Poor spotted staining.

DET #1 - 3715-3737 - weak blow 30 minutes; weak intermittent blow 20 minutes; open 1 hour; recovered 150' muddy salt water. BHP 640#. (This test included both the 80' and 90' zones.)

3778-3784 (~140' zone)- light grey to tan, finely crystalline limestone. poor spotted vugular porosity. No show.

3790-3810 (160' zone) - tan, dense limestone with poor porosity and poor spotted oil staining. Some light tan crystalline limestone with fair spotted staining. No odor or free oil.

DET #2 - 3790-3810 - Very strong blow; gas to surface in 1½ hours; open 2 hours; recovered 1135' free oil. IFF 0#; FFP 360#; BHP 850#.

3814-3820 (180' zone)- light tan, finely crystalline to dense limestone. Poor porosity. Poor spotted oil staining.

DET #3 - 3814-3820 - weak blow 4 minutes; open 1 hour; recovered 40' drilling mud. BHP 0#.

3833-3846 (200' zone)- light tan to grey crystalline limestone. Poor porosity. Fair to good staining. Some free oil in wet samples. No odor.

DET #4 - 3827-3850 - weak blow 3 minutes; open 45 minutes; recovered 30' drilling mud. BHP 0#.

The following zones of porosity were observed in the Conglomerate section:

4033-4050 - vari-colored cherts and shales. Slight show of dead oil. Porosity questionable.

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EST #3 - 4027-4080 - weak blow 3 minutes; open 45 minutes; recovered 20' incl. BHP 480#.

The following zones of porosity were observed in the Arbuckle formation:

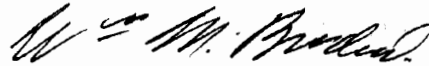
4104-4109 - light tan, coarsely crystalline dolomite, slightly oolitic in part; trace vugular porosity. No show.

A Halliburton Guard Log was run from 3500' to 4113', total depth; 5 $\frac{1}{2}$ " casing was set at 3900', and a Halliburton Gamma Ray and Neutron Log was run from 3200' to 3883' prior to perforating.

It is recommended that the 100' zone in the Lansing formation be perforated from 3802-12. As indicated by drill stem test #2 taken in that zone, commercial production should be obtained. All other zones in the Lansing-Kansas City group are indicated to be non-commercial as evidenced by sample examination, drill stem tests and electric log interpretation. However, future development in this area might find production in other zones in the Lansing-Kansas City group and, if so, these zones should be reviewed in the #1 Sutor prior to abandonment.

Attached to this report is a map of the immediate area surrounding the #1 Sutor showing development and geological tops.

Very truly yours,



Wm. M. Brodrick
Geological Engineer

21-9-22W

K & E Drilling, Inc.
 #1 Suter
 SW/4 SW/4 SE/4 Sec.31-22-22W
 Graham County, Kansas

RIG #2

FOOTAGE RECORD

DATE	DEPTH	FOOTAGE	REMARKS
4-14-55 (7:30 AM)	Rig up	234'	Set surface
4-15-55	W.O.C.	1661'	
4-16-55	1885'	750'	
4-17-55	2635'	415'	
4-18-55	3050'	285'	
4-19-55	3335'	223'	
4-20-55	3558'	152'	
4-21-55	3710'	83'	
4-22-55	3793'	36'	
4-23-55	3829'	81'	
4-24-55	3910'	130'	
4-25-55	4045'	68'	
4-26-55	4113'		T.D. 1:30 A.M.

BIT RECORD

NO.	MAKE	SIZE	TYPE	FROM	TO	FOOTAGE	REMARKS
1	Hughes	7-7/8	OSC 3J	234'	1885'	1661'	
2	"	"	OSC J	1885'	2390'	505'	
3	"	"	OSC	2390'	2630'	410'	
4	"	"	OSC	2630'	3222'	422'	
5	"	"	OWV	3222'	3558'	336'	
6	"	"	OWV	3558'	3710'	152'	
7	"	"	Barum	3710'	3810'	100'	
8	"	"	W7	3810'	3980'	170'	
9	"	"	W7	3980'	4050'	70'	
10	"	"	W7	4050'	4113'	63'	