

EARLOUGHER ENGINEERING  
CORE SUMMARY

Company Kewanee Oil Company Lease Kretzmer Well No. 28  
 Location 2255 feet North of South Line, 720 feet East of West Line .  
 Section 33 Twp. 20-S Rge. 21-E County Anderson State Kansas  
 Formation Cored Squirrel Sand Type Core Rotary, 3-inch  
 Date Cored 10-29-48 Date Shot \_\_\_\_\_ Date Completed \_\_\_\_\_

Depths:

Started coring, shale	589.9 ft.
Top of sand section	597.0 "
Top of oil sand	600.6 "
Bottom of oil sand	628.0 "
Net feet of oil sand	11.6 "
Bottom of core, shale	630.9 "
Total cored	41.0 "
Feet analyzed	24.7 "

Shot Record: Plug back to 628.0 feet. Set Packer 598.0 Feet

Depth, Feet		Feet	Shell Diameter	Quarts Per Foot	Quarts Total
From	To				
601	614	13	4"	2.5	32.5
614	620	6	2-1/2"	1.0	6.0
620	628	8	4"	2.5	<u>20.0</u>
					58.5

Completion Data:

Hrs. well stood after coring \_\_\_\_\_; Feet Fluid in Hole \_\_\_\_\_ (Oil \_\_\_\_\_ Water \_\_\_\_\_)

Clean-out time, hrs. \_\_\_\_\_; Initial production, bbls. day \_\_\_\_\_ (Oil \_\_\_\_\_ Water \_\_\_\_\_)

Remarks: This core shows 11.6 net feet of good oil sand occurring in thin streaks throughout a shale section between depths 600.6 and 628.0 feet. The main oil sand occurs in the upper part of the section between 600.6 and 613.5 feet.

PERMEABILITY Average permeability is 14 millidarcys and values range from 2.5 to 62 millidarcys. Permeability capacity is 164 foot-millidarcys.

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POROSITY Average porosity is 19.4 percent and values range from 13.1 to 24.6 percent.

PERCENT SATURATION Average oil saturation is 43 percent and average water saturation 31 percent.

OIL CONTENT Average oil content is 642 barrels per acre-foot and values range from 380 to 890 barrels per acre-foot.

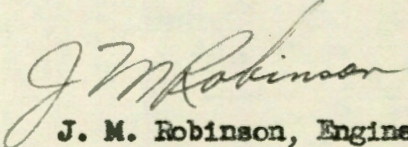
LABORATORY FLOODING TESTS Laboratory flooding tests yielded an average oil recovery of 326 barrels per acre-foot and average residual oil saturation was 21 percent.

CONCLUSIONS

1. Net feet of oil sand is 11.6 feet located in a broken section between 600.6 and 628.0 feet. The major part of the oil sand lies at the top of the section between 600.6 and 613.5 feet.
2. It was reported that this well made approximately 25 barrels of oil per day after shot indicating that this area has probably been affected by flood water.
3. Estimated oil recovery by water flooding is 293 barrels per acre-foot or 3,400 barrels per acre from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING

  
J. M. Robinson, Engineer

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# EARLOUGHER ENGINEERING

## RESULTS OF SATURATION TESTS

COMPANY Kewanee Oil Company

WELL Kretchmer No. 28

Sat. No.	Depth Feet	Porosity Per Cent	PER CENT SAT.			Avg. Oil Content Bbls./A. Ft.	FT. OF SAND		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum.	
1	597.7	9.7	30.	70.	100.	220.	0.6*		
F- 1	598.6	6.4	56.	-	-	280.	0.5*		
2	599.9	12.1	36.	64.	100.	340.	0.9*		
F- 2	600.7	16.6	40.	-	-	520.	0.3	0.3	160.
3	601.7	21.3	46.	21.	67.	760.	0.9	1.2	680.
F- 3	602.7	20.9	35.	-	-	570.	0.7	1.9	400.
4	603.3	19.8	43.	29.	72.	660.	0.9	2.8	590.
F- 4	605.4	20.1	49.	-	-	760.	0.8	3.6	610.
5	606.2	24.1	40.	21.	61.	760.	0.7	4.3	530.
F- 5	607.0	21.1	26.	-	-	420.	0.6	4.9	250.
6	608.0	13.1	52.	48.	100.	530.	0.7	5.6	370.
F- 6	608.8	15.4	48.	-	-	570.	0.7	6.3	470.
7	609.5	19.5	42.	38.	82.	640.	0.5	6.8	320.
F- 7	610.2	24.0	48.	-	-	890.	0.5	7.3	450.
8	610.8	24.6	40.	23.	63.	750.	0.5	7.8	380.
9	611.4	11.1	29.	71.	100.	250.	0.9*		
F- 8	612.4	20.3	42.	-	-	660.	1.3	9.1	860.
F-11	615.0	11.6	26.	-	-	230.	1.7*		
12	616.3	8.3	33.	67.	100.	220.	1.2*		
13	618.0	8.0	29.	71.	100.	180.	0.9*		
14	619.2	7.7	27.	73.	100.	160.	2.0*		
F-12	620.8	13.6	36.	-	-	380.	0.6	9.7	230.
15	622.1	17.5	38.	38.	76.	520.	1.2	10.9	620.
16	624.5	8.4	35.	65.	100.	230.	1.3*		
17	626.9	9.2	38.	52.	100.	340.	0.6*		
F-13	627.7	20.1	49.	-	-	760.	0.7	11.6	530.

\*Not included in cumulative feet of sand.

### SUMMARY

DEPTH FEET		FEET OF SAND	AVG. POROSITY	AVG. OIL SAT.	AVG. WATER SAT.	AVG. OIL CONTENT BBLs./A. FT.	TOTAL OIL CONTENT BBLs./ACRE
FROM	TO						
600.6	628.0	11.6	19.4	43.	31.	642.	7450.

EARLOUGHER ENGINEERING

RESULTS OF PERMEABILITY TESTS

COMPANY **Kewanee Oil Company**

WELL **Kretchmer No. 28**

Sample No.	Depth Feet	Permeability Millidarcys	FEET OF SAND		Capacity Ft. X Md.	Sample No.	Depth Feet	Permeability Millidarcys	FEET OF SAND		Capacity Ft. X Md.
			Ft.	Cum. Ft.					Ft.	Cum. Ft.	
1	597.0	Imp.	0.5*			25	611.1	Imp.	0.4*		
2	598.0	Imp.	0.6*			26	611.7	0.2	0.6*		
3	598.9	Imp.	0.5*			27	612.1	0.7	0.3*		
4	599.6	0.5	0.4*			28	612.6	9.0	0.6	8.4	5.4
5	600.1	0.2	0.5*			29	613.0	11.	0.7	9.1	7.7
6	600.5	0.1	0.3*			30	613.5	0.6	0.4*		0.2
7	601.0	Imp.	0.4*			31	614.3	0.1	0.5*		0.1
8	601.5	13.	0.8	0.8	10.	32	614.8	0.2	0.8*		0.2
9	601.9	3.9	0.4	1.2	1.6	33	615.3	Cracked			
10	602.5	0.2	0.3*			34	615.9	Imp.	0.5*		
11	602.9	28.	0.7	1.9	20.	35	616.6	Imp.	0.7*		
12	603.6	13.	0.6	2.5	7.8	36	617.7	Imp.	0.9*		
13	604.1	4.3	0.3	2.8	1.3	37	618.8	Imp.	0.9*		
14	605.2	2.5	0.4	3.2	1.0	38	619.5	Imp.	1.1*		
15	605.7	4.2	0.4	3.6	1.7	39	620.5	0.1	0.3	9.4	0.1
16	606.0	25.	0.7	4.3	18.	40	621.0	0.3	0.3	9.7	0.1
17	606.7	9.8	0.6	4.9	5.9	41	621.9	0.2	0.4	10.1	0.1
18	607.3	0.8	0.3*			42	622.4	2.0	0.8	10.9	1.6
19	607.7	0.1	0.2*			43	624.8	Imp.	0.7*		
20	608.6	0.2	0.1*			44	625.2	0.1	0.6*		0.1
21	609.1	3.4	1.4	6.3	4.8	45	626.7	0.2	0.6*		0.1
22	609.6	20.	0.5	6.8	10.	46	627.4	6.0	0.2	11.1	1.2
23	610.0	48.	0.5	7.3	24.	47	627.9	22.	0.5	11.6	11.
24	610.5	62.	0.5	7.8	31.						

\*Not included in cumulative feet of sand.

SUMMARY

DEPTH FEET		FEET OF SAND	AVERAGE PERMEABILITY	CAPACITY FT. X MD.
FROM	TO			
600.6	628.0	11.6	14.	164.

CO. 10, 255' N. of S. 1/4, T20' N. of R. 10' W.  
 33, 20-50 21-3 COUNTY Anderson  
 DATE 11-22-40  
 EARLOUGHER ENGINEERING TULSA, OKLAHOMA

RESULTS  
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RESULTS OF LABORATORY FLOODING TESTS

COMPANY **Kewanee Oil Company**

LEASE **Kretchner**

WELL NO. **28**

Sec. No.	Depth Feet	Porosity Per Cent	PER CENT SAT.	
			Oil	Water
1	598.6	6.4	56.	40.
1	600.7	16.6	40.	-
1	602.7	20.9	35.	-
1	605.4	20.1	49.	-
1	607.0	21.1	26.	-
1	608.8	15.4	48.	-
1	610.2	24.0	48.	-
1	612.4	20.3	42.	-
1	615.0	11.6	26.	-
1	620.8	13.6	36.	-
1	627.7	20.1	49.	-

Sample No.	Depth	Porosity	Perm. Approx.	BEFORE FLOODING 1/			Max. Press. Psi.	Water Thru c.c.	Flow Time Min.	FLOOD POT RESIDUALS			OIL RECOVERY B./A. Ft.	
				Oil Sat.	Water Sat.	Oil Content B./A. Ft.				Oil Sat.	Water Sat.	Oil Content B./A. Ft.	Diff. 2/	Flood Pot
				F- 1	598.6	6.4				-0-	56.	-	280.	40.
F- 2	600.7	16.6	-0-	40.	-	520.	40.	1573.	1700.	27.	73.	270.		250.
F- 3	602.7	20.9	27.	35.	-	570.	40.	9246.	1700.	16.	67.	250.		315.
F- 4	605.4	20.1	3.0	49.	-	760.	40.	6171.	1700.	21.	72.	330.		427.
F- 5	607.0	21.1	3.0	26.	-	420.	40.	488.	1640.	16.	62.	260.		164.
F- 6	608.8	15.4	2.0	48.	-	570.	40.	1287.	1640.	28.	72.	330.		237.
F- 7	610.2	24.0	53.	48.	-	890.	40.	47275.	1580.	12.	72.	230.		659.
F- 8	612.4	20.3	6.0	42.	-	660.	40.	2473.	1700.	20.	66.	310.		352.
F-11	615.0	11.6	-0-	26.	-	230.	40.	9.	1236.	23.	77.	210.		19.*
F-12	620.8	13.6	-0-	36.	-	380.	40.	35.	855.	26.	74.	270.		112.
F-13	627.7	20.1	16.	49.	-	760.	40.	4804.	915.	20.	74.	320.		439.

\*Not included in cumulative feet of sand.

SUMMARY

Sec.	DEPTH, FEET		Net Ft. of Sand	Avg. Por.	Average Core Sat.		CORE OIL CONTENT		PERMEABILITY		FLOOD POT RESIDUALS				OIL RECOVERY Bbl./Ac.	
	From	To			Oil	Water	Avg. B./A. Ft.	Total Bbl./Ac.	Avg. Mds.	Capacity Ft. x Md.	Saturation		Oil Content		Diff.	Flood Pot
	Oil	Water			Oil	Water	B./A. Ft.	Bbl./Ac.	Oil	Water	B./A. Ft.	Bbl./Ac.				
	600.6	628.0	11.6	19.4	43.	31.	642.	7450.	14.	164.	21.	70.	316.	3660.	3790.	3810.

REMARKS: 1/ Unless otherwise noted, oil content and saturation before flooding equals flood pot oil recovery plus flood pot residual.  
2/ Oil recovery as B./A. Ft. Diff. equals B./A. Ft. oil content from adjacent saturation sample minus flood pot residual oil content for flood sample.

FROM 600.6 TO 628.0 DEPTH FEET  
OF SAND 11.6 PERCENT AVERAGE POROSITY