

EARLOUGHER ENGINEERING
CORE SUMMARY

Company Kewanee Oil Company Lease Daniels Well No. 31
 Location 2451 feet South, 1580 feet West of Center
 Section 4 Twp. 21-S Rge. 21-E County Anderson State Kansas
 Formation Cored Squirrel Sand Type Core No. 6 Baker Barrel
 Date Cored 8-29-48 Date Shot _____ Date Completed _____

Depths: Started coring, oil sand 670.0 ft.
 Bottom of oil sand 693.6 "
 Net feet of oil sand 13.1 "
 Bottom of core, shale, S.L.M. 705.0 "
 Total cored 35.0 "
 Feet analyzed 21.0 "

Shot Record:

Set Packer _____ Feet

Depth, Feet		Feet	Shell Diameter	Quarts Per Foot	Quarts Total
From	To				
674	693	19	4"	2.5	47.5

Set packer 671.0 feet.
 Plug back with cement to 694.0 feet.

Completion Data:

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

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

Remarks: Coring was commenced in oil sand at 670.0 feet and stopped in shale at 705.0 feet. Net feet of oil sand is 13.1 feet located in a broken section between 670 and 693.6 feet. The sand is quite shaly and it is believed this well is located near the east edge of the sand stringer.

PERMEABILITY Average permeability is 6.5 millidarcys and values range from 0.3 to 19 millidarcys. Permeability capacity is 85 foot-millidarcys.

POROSITY Average porosity is 19.6 percent and values range from 13.7 to 23.4 percent.

PERCENT SATURATION Average oil saturation is 19 percent and values are uniformly low throughout the section. Average core water saturation is 49 percent. It is believed that oil was lost from this core during coring, probably by gas expansion.

OIL CONTENT Average oil content is 282 barrels per acre-foot and values range from 210 to 350 barrels per acre-foot.

LABORATORY FLOODING TESTS No biscuits of sufficient size for flooding tests were obtained from this core.

CONCLUSIONS

1. Net feet of oil sand cored is 13.1 feet located in a broken section between 670.0 and 693.6 feet.
2. The oil saturation is low throughout the sand section and it is believed that oil was lost from this core during coring, probably by gas expansion.
3. It was reported that the hole filled up to within 100 feet of top with oil after shot which may indicate that the sand in this area may not have been drained effectively possibly due to the broken nature of the sand.
4. Estimated oil recovery by water flooding is 295 barrels per acre-foot or 3,900 barrels per acre from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING


J. M. Robinson, Engineer

EARLOUGHER ENGINEERING

RESULTS OF PERMEABILITY TESTS

COMPANY Kewanee Oil Company

WELL Daniels No.31

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	670.1	10.	0.8	0.8	8.0	19	681.1	6.2	0.7	9.7	4.3
2	670.7	0.8	0.2*			20	685.0	0.3	0.3*		
3	671.4	4.7	1.4	2.2	6.6	21	686.3	2.8	0.6	10.3	1.7
4	673.3	1.5	0.5	2.7	0.8	22	686.9	Imp.	1.4*		
5	673.7	2.3	0.5	3.2	1.2	23	688.4	15.	0.4	10.7	6.0
6	674.3	2.1	0.3	3.5	0.6	24	690.9	2.9	0.2	10.9	0.6
7	674.8	14.	0.9	4.4	13.	25	691.3	3.8	0.3	11.2	1.1
8	675.4	1.3	0.5	4.9	0.7	26	691.7	5.1	0.4	11.6	2.0
9	675.9	17.	0.4	5.3	6.8	27	692.1	3.1	0.3	11.9	1.0
10	676.6	5.2	0.2	5.5	1.0	28	692.8	0.8	0.6	12.5	0.5
11	677.1	10.	0.3	5.8	3.0	29	693.2	0.3	0.4	12.9	0.1
12	677.5	12.	0.5	6.3	6.0	29A	693.5	7.0	0.2	13.1	1.4
13	677.9	6.8	0.3	6.6	2.0	30	693.9	0.8	0.4	13.5	0.3
14	678.2	1.8	0.4	7.0	0.7	30A	694.7	Imp.	1.5	15.0	Imp.
15	679.1	11.	0.7	7.7	7.7	31	696.0	1.3	0.8	15.8	1.0
16	679.8	17.	0.3	8.0	5.1	32	697.0	1.0	1.0	16.8	1.0
17	680.2	19.	0.5	8.5	9.5	32A	698.2	0.1	1.7	18.5	0.2
18	680.7	11.	0.5	9.0	6.0	33	699.0	3.5	0.3	18.8	1.0

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*Not included in cumulative feet of sand.

SUMMARY

	DEPTH FEET		FEET OF SAND	AVERAGE PERMEABILITY	CAPACITY FT. X MD.
	FROM	TO			
1	670.0	693.6	13.1	6.5	85.
2	693.6	699.3	5.7	0.6	3.5

EARLOUGHER ENGINEERING

RESULTS OF SATURATION TESTS

COMPANY Kewanee Oil Company

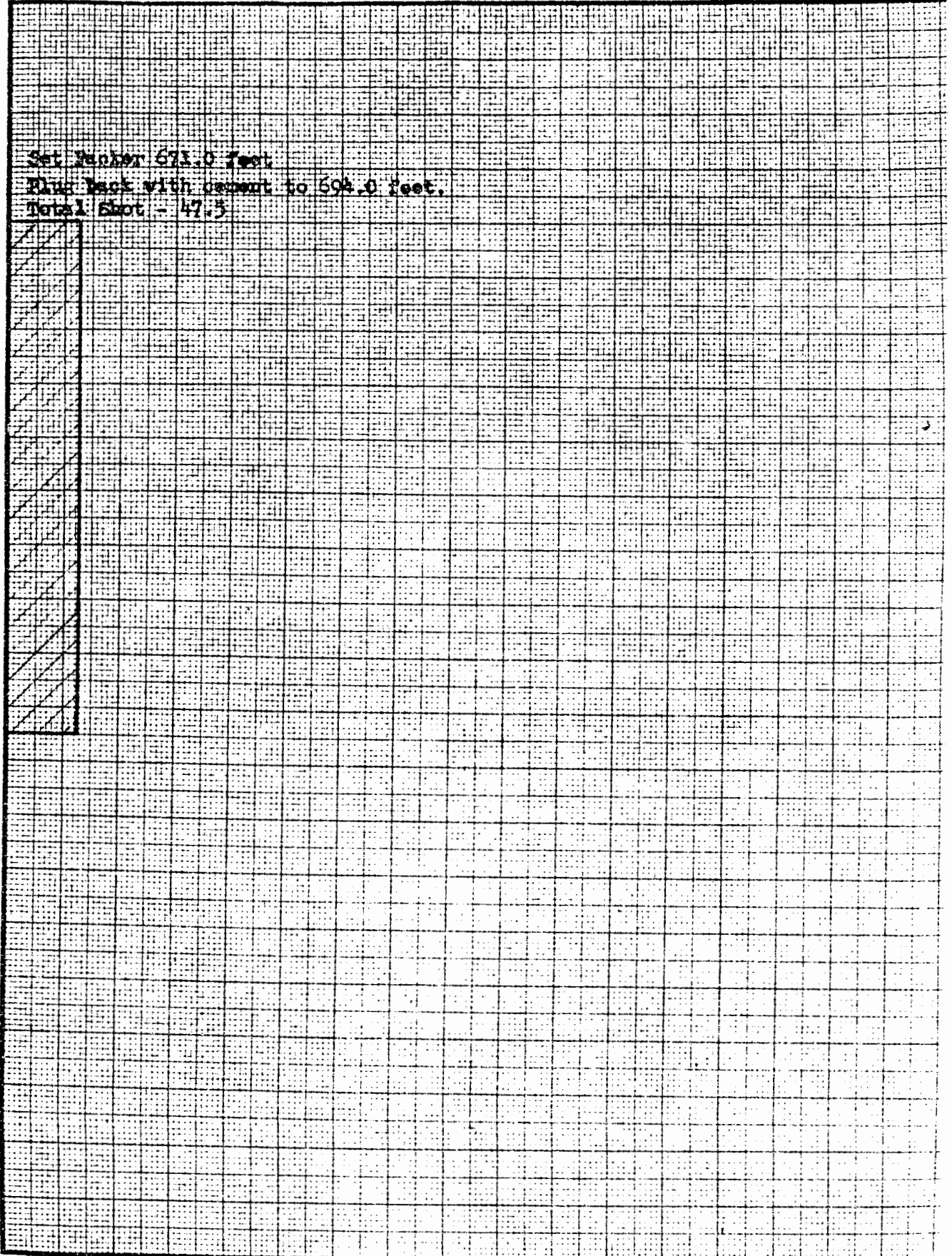
WELL Daniels No. 31

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	670.9	14.0	30.	67.	97.	330.	0.8	0.8	260.
2	671.7	13.7	20.	66.	86.	210.	1.4	2.2	290.
3	673.1	17.4	22.	44.	66.	300.	0.5	2.7	150.
4	674.1	17.8	18.	49.	67.	250.	0.8	3.5	200.
5	675.6	22.0	16.	40.	56.	270.	1.4	4.9	380.
6	676.9	22.1	18.	43.	61.	310.	0.9	5.8	280.
7	677.7	22.6	13.	40.	53.	240.	0.8	6.6	190.
8	678.4	16.2	20.	58.	78.	260.	0.4	7.0	100.
9	679.5	22.9	19.	38.	57.	330.	0.7	7.7	230.
10	680.9	23.4	19.	35.	54.	350.	2.0	9.7	700.
11	684.8	11.8	26.	74.	100.	230.	0.3*		
12	686.1	16.2	20.	53.	73.	250.	0.6	10.3	150.
13	687.1	12.5	25.	75.	100.	240.	1.4*		
14	688.2	20.0	19.	43.	62.	290.	0.4	10.7	120.
15	690.6	15.5	16.	72.	88.	190.	0.5*		
16	691.5	16.2	19.	48.	67.	240.	1.2	11.9	290.
17	692.6	14.4	27.	62.	89.	300.	1.0	12.9	300.
18	693.5	19.2	20.	49.	69.	300.	0.2	13.1	60.
19	694.7	12.3	15.	85.	100.	140.	1.9	15.0	270.
20	695.8	16.8	11.	70.	81.	150.	0.8	15.8	120.
21	696.7	13.7	9.4	84.	93.	100.	1.0	16.8	100.
23	698.2	12.2	14.	86.	100.	140.	1.7	18.5	240.
24	699.2	15.8	19.	63.	82.	240.	0.3	18.8	70.

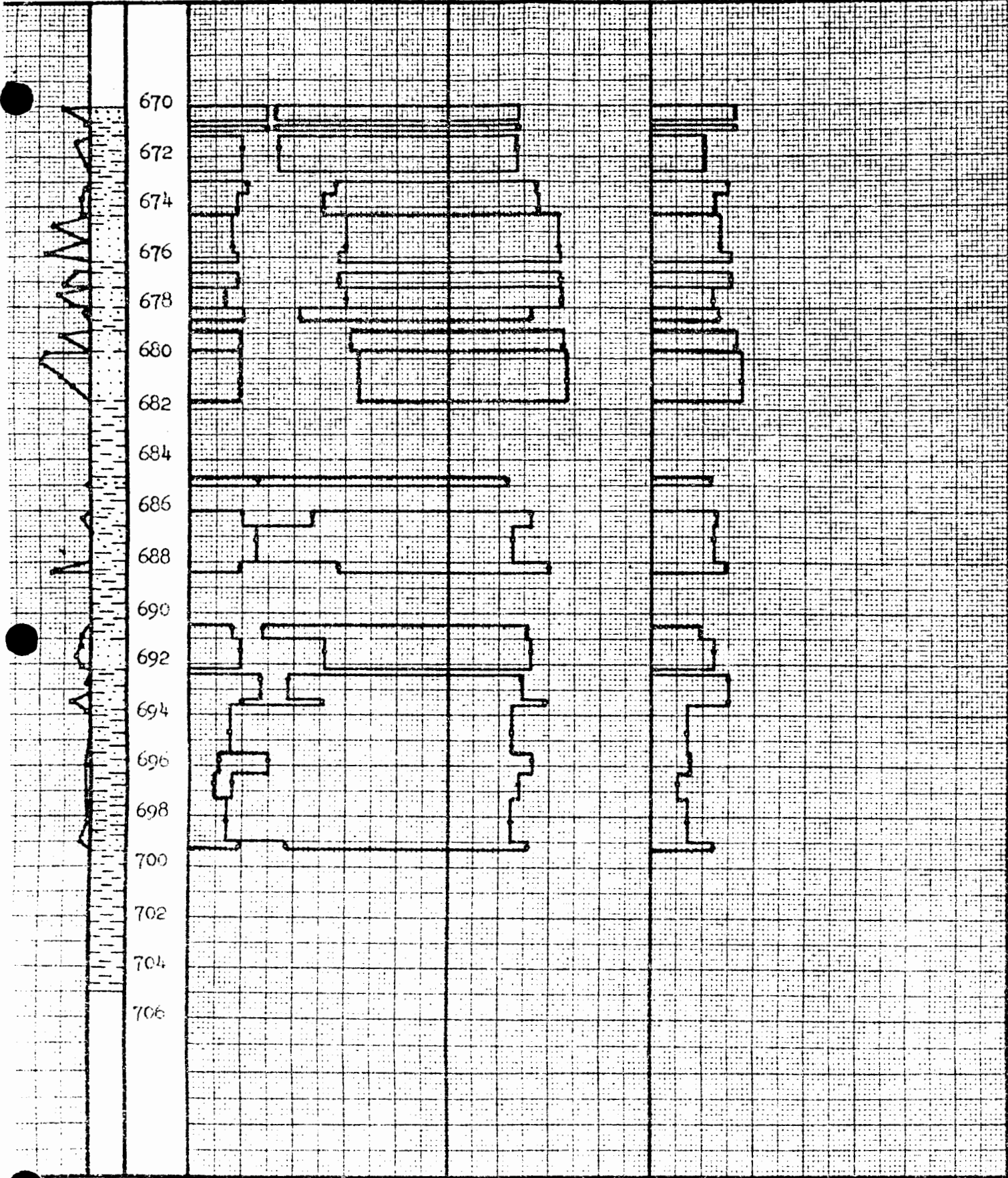
*Not included in cumulative feet of sand.

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						
670.0	693.6	13.1	19.6	19.	49.	282.	3,700.
693.6	699.3	5.7	13.3	14.	78.	140.	800.



Sec.	Sand	Depth, Feet		Net Ft. of Sand	Avg Por	Average Core Sat		Core Oil Content	
		From	To			Oil	Water	Avg B / A Ft.	Total Bbl / Ac.
1	Squirrel	670.0	693.6	13.1	19.6	19.	49.	282.	3,700.
2	Squirrel	693.6	699.3	5.7	13.3	14.	78.	140.	800.



Capacity Ft. x Md.	Fluid Pot. Residuals		
	Saturation Oil	Water	Oil Content Bbl. / Ac.
85.			
3.5			

COMPANY **Kewanee Oil Company**
 LEASE **Daniels** WELL NO **31**
 LOCATION **2451'S., 1580'W. of Center**
 SEC **4** T **21-S** R **21-E** COUNTY **Anderson**
 STATE **Kansas** DATE **9-16-48**