

EARLOUGHIER ENGINEERING
CORE SUMMARY

Company Kewanee Oil Company Lease Daniels Well No. 29

Location 2100 feet West, 1720 feet South of NE Corner

Section 4 Twp. 21-S Rge. 21-E County Anderson State Kansas

Formation Cored Squirrel Sand Type Core Rotary, 3-inch

Date Cored 6-29-48 Date Shot _____ Date Completed _____

Drillers' top of oil sand	658.3	ft.
Started coring, oil sand	661.3	"
Bottom of oil sand	679.3	"
Net feet of oil sand cored	9.6	"
Estimated net feet of oil sand	11.1	"
Bottom of core, sandy shale	682.0	"
Total cored	20.7	"
Feet analyzed	15.6	"

Depth measurements from top of 10-inch drive pipe.

*5) How many layers
2) the 1.5 net feet sand layer
3) average porosity of
sand layer*

Shot Record:

Set Packer 660.0 Feet

Depth, Feet		Feet	Shell Diameter	Quarts Per Foot	Quarts Total
From	To				
664.	679.	15	4"	2.5	37.5

Plug back to 679.0 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: This well is believed to be located near the west edge of the sand stringer; however, the core indicates a reasonably good sand section consisting of 9.6 net feet of oil sand between 661.3 and 679.3 feet. It was reported that the oil sand was topped at 658.3 feet and it has been assumed that 1.5 net feet of this drilled section is oil sand increasing the net feet of oil sand to 11.1 feet.

(Continued following page)

PERMEABILITY Average permeability is 13 millidarcys and values range from 1.3 to 35 millidarcys. Permeability capacity is 143 foot-millidarcys.

POROSITY Average porosity is 18.8 percent and values range from 15.1 to 23.6 percent.

PERCENT SATURATION The oil saturation is reasonably good throughout the sand section cored with the weighted average being 43 percent. Average core water saturation is 33 percent.

OIL CONTENT Average oil content is 623 barrels per acre-foot and values range from 380 to 860 barrels per acre-foot.

LABORATORY FLOODING TESTS Laboratory flooding tests yielded an average oil recovery of 357 barrels per acre-foot and average residual oil saturation was 18 percent.

CONCLUSIONS

1. Net feet of oil sand is 11.1 feet located between 658.3 and 679.3 feet. This includes an estimated 1.5 net feet of oil sand in the drilled section from 658.3 to 661.3 feet.
2. Although this well is believed to be located near the west edge of the sand stringer, the sand section is fairly well developed and indicated oil recovery relatively high.
3. Estimated oil recovery by water flooding is 334 barrels per acre-foot or 3,700 barrels per acre from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING

J. M. Robinson

J. M. Robinson, Engineer

EARLOUGHER ENGINEERING

RESULTS OF SATURATION TESTS

COMPANY Kewanoo Oil Company

WELL Daniols No. 29

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	661.5	16.6	30.	55.	85.	380.	0.6	0.6	230.
F- 1	662.6	18.3	34.	--	--	490.	0.8	1.4	390.
F- 2	664.5	23.6	47.	--	--	860.	1.0	2.4	860.
3	665.3	21.6	46.	22.	68.	780.	0.9	3.3	700.
F- 3	666.2	15.5	47.	--	--	560.	0.6	3.9	340.
4	667.6	12.1	30.	70.	100.	280.	0.4*		
F- 4	668.7	18.9	18.	--	--	270.	0.7*		
5	670.3	19.6	49.	25.	74.	740.	0.8	4.7	590.
F- 5	671.8	14.7	31.	--	--	350.	0.6*		
6	673.7	16.7	44.	36.	80.	560.	0.4	5.1	220.
F- 6	674.9	21.4	38.	--	--	630.	0.7	5.8	440.
7	676.0	19.1	47.	23.	70.	700.	1.1	6.9	770.
F- 7	677.0	15.1	37.	--	--	430.	1.5	8.4	640.
8	678.2	17.7	43.	34.	77.	600.	0.6	9.0	360.
F- 8	679.1	20.0	47.	--	--	730.	0.6	9.6	440.
F- 9	680.5	11.5	31.	--	--	280.	1.0*		
10	681.6	11.7	27.	73.	100.	250.	1.2*		

↑
- weighted Average
- per foot porosity

Methan
Temp = (Σ subsurface
res + product)
°F/100ft depth
61 F°

* Not included in cumulative feet of sand.
** Includes 1.5 feet of probable sand drilled.

SSF°

SUMMARY

6 x 1 + 55

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						
661.3	679.3	9.6	18.8	43.	33.	623.	5,980.
658.3	679.3	11.1**	18.8	43.	33.	623.	6,920.

① Base case
② carbon
③ A

no. of patterns.

viscosity of gas vs.
Temp.

EARLOUGHIER ENGINEERING

RESULTS OF PERMEABILITY TESTS

DMPANY Kewanee Oil Company

WELL Daniels No. 29

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	661.3	20.	0.3	0.3	6.0	16	671.5	0.7	0.2*		
2	661.8	2.2	0.3	0.6	0.7	17	672.0	Imp.	0.4*		
3	662.4	8.2	0.3	0.9	2.5	18	673.5	2.1	0.4	5.1	0.8
4	663.0	21.	0.5	1.4	11.	19	674.6	1.5	0.7*		
5	663.4	Imp.	0.8*			20	675.1	24.	0.7	5.8	17.
6	664.2	35.	0.5	1.9	18.	21	675.7	22.	0.5	6.3	11.
7	664.8	27.	0.5	2.4	14.	22	676.2	17.	0.6	6.9	10.
8	665.1	16.	0.4	2.8	6.4	23	676.7	2.9	0.5	7.4	1.5
9	665.7	5.8	0.5	3.3	2.9	24	677.3	4.3	0.6	8.0	2.6
10	666.6	2.2	0.6	3.9	1.3	25	677.8	1.3	0.4	8.4	0.5
11	667.9	Imp.	0.4*			26	678.4	5.7	0.6	9.0	3.4
12	668.3	Imp.	0.6*			27	678.9	15.	0.6	9.6	9.0
13	669.1	6.7	0.7*			28	680.2	0.4	1.0*		
14	669.4	10.	0.3	4.2	3.0	29	681.3	Imp.	1.2*		
15	670.5	5.0	0.5	4.7	2.5						

* Not included in cumulative feet of sand.
 ** Includes 1.5 feet of probable sand drilled.

SUMMARY

	DEPTH FEET		FEET OF SAND	AVERAGE PERMEABILITY	CAPACITY FT. X MD.
	FROM	TO			
1	661.3	679.3	9.6	13.	124.
1	658.3	679.3	11.1**	13.	143.

CARLOUGHER ENGINEERING

RESULTS OF LABORATORY FLOODING TESTS

LEASE **Daniels**

WELL NO. **29**

Oil Content B./A. Ft.	Max. Press. Psi.	Water Thru c.c.	Time Min.	FLOOD POT RESIDUALS			OIL RECOVERY B./A. Ft.	
				Oil Sat.	Water Sat.	Oil Content B./A. Ft.	Diff. %	Flood Pot
0.	40.	247.	555.	18.	65.	250.		238.
0.	40.	11,332.	615.	10.	55.	190.		666.
0.	40.	18.	555.	25.	74.	300.		260.
0.	40.	Trace	495.	15.	61.	220.		45.
0.	40.	18.	615.	25.	75.	290.		55.
0.	40.	1,817.	615.	17.	60.	280.		346.
0.	40.	994.	615.	18.	64.	210.		221.
0.	40.	1,189.	615.	21.	63.	320.		413.
0.	40.	34.	555.	23.	81.	200.		77.

SUMMARY

OIL CONTENT	PERMEABILITY		FLOOD POT RESIDUALS				OIL RECOVERY	
	Total Bbl./Ac.	Avg. Mds.	Capacity Ft. x Md.	Saturation		Oil Content		Diff.
			Oil	Water	B./A. Ft.	Bbl./Ac.		
5,950.	13.	124.	18.	64.	232.	2,580.	3,470.	3,430.
6,920.	13.	143.	18.	64.	262.	2,910.	4,010.	3,960.

sand drilled.

oil recovery plus flood pot residual.
 saturation sample minus flood pot residual oil content for flood sample.

Drilled, probable gas

END PROBE AT 660.0 FEET.

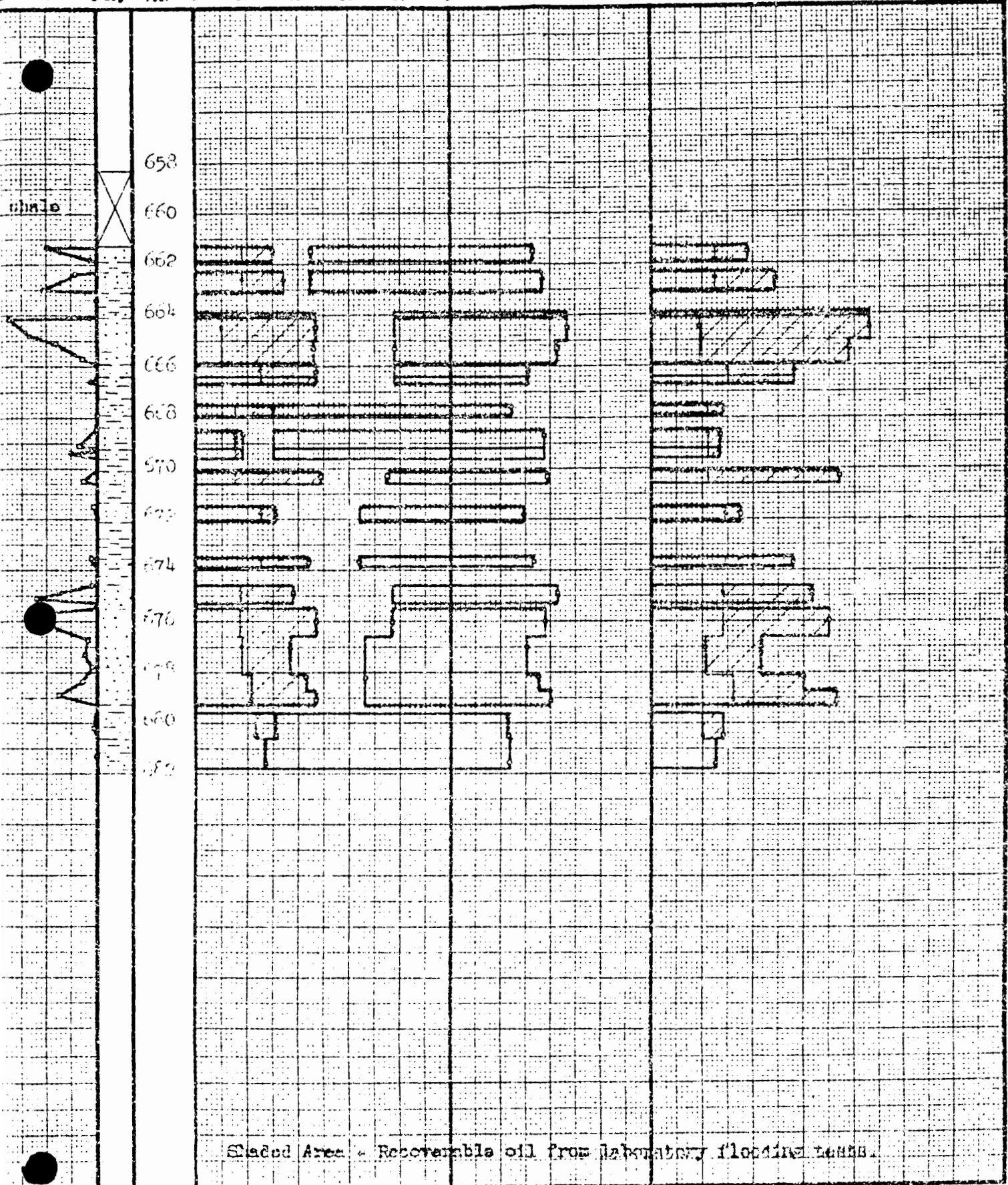
Plug back to 470.0 FEET.

TOTAL SHUT - 57.0 Gals



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 BM / A
1	Squirrel	661.3	679.3	9.6	18.8	43.	33.	623.	5,98
1	Squirrel	658.3	679.3	11.1**	18.8	43.	33.	623.	6,92

** Includes 1.5 feet of probable sand drilled.



Shaded Area - Recoverable oil from laboratory flooding tests.

Log No.	Capacity Ft. x MI	Fluid Properties			
		Saturation Oil	Water	Oil Content R. A. D.	Oil Content R. A. C.
1.	104.	10.	04.	200.	0.50V.
2.	11.	10.	04.	200.	0.010.

COMPANY KEWANEE OIL COMPANY
 LEASE DEWETS WELL NO 19
 LOCATION 2100' W., 17° 0' S., of NE Corner
 SEC 4 T 21-S-R 01-COUNTY Anderson
 STATE Kansas DATE 7-6-44