EARLOUGHER ENGINEERING
PETROLEUM CONSULTANTS - CORE ANALYSES
3316 EAST 21ST STREET
TULSA, OKLAHOMA

April 8, 1953

Belleair Oil Corporation
281 Greenwich Avenue
Greenwich, Connecticut

Attention - Mr. George W. Cain

Re - Core Analysis
Barker Well No. 0-5
Sec. 4, T. 27-S., R. 18-E.
Neosho County, Kansas

Gentlemen:

Attached are results of analysis, together with profile and summary, covering core received from your above well.

Yours very truly

EARLOUGHER ENGINEERING

R. C. Earlougher, Engineer

JMR s
Encl - 1
cc - Lloyd Burton (2)

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CORE SUMMARY

Company Belleair Oil Corporation Lease Barker Well No. 0-5

Location 1260 feet West of Center line, 3300 feet North of South line

Section 4 Twp. 27-S. Rge. 18-E. County Neosho State Kansas

Formation Cored Bartlesville Type Core 3-inch Rotary

Date Cored 3-25-53 Date Shot ____ Coring Fluid Water

Depths:

Ground elevation	917.0 Feet
Started coring, shale	717.0 "
Top of oil sand	722.6 "
Bottom of oil sand	743.5 "
Net feet of oil sand	20.5
Coal	743.5-743.8 "
Bottom of core, shale	754.2 "
Total feet cored	37.2
Feet analyzed	21.8

Shot Record: Set Packer ____ Feet

Depth, Feet From	Depth, Feet To	Feet	Shell Diameter	Quarts Per Foot	Quarts Total

Set packer with bottom of cement at 721.0 feet.
Plug back with rock and lead wool to 728.0 feet.
Sand not shot.

Completion Data:

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

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

Remarks: The Bartlesville section was rotary cored from 717.0 to 754.2 feet and core was sampled by Belleair Oil Corporation. Coring was commenced and completed in shale.

Results of analyses indicate 20.5 net feet of oil sand which are summarized in five sections based on variance in oil saturation and permeability.

The top 6.1 net feet of sand summarized in sections one and two has an average oil saturation of 45 per cent and average core water saturation of 20 per cent. Average

(Continued following page)

permeability of this sand is 96 millidarcys and average porosity 21.1 per cent. Laboratory water flooding tests indicated a low average residual oil saturation of 14 per cent and an average oil recovery of 508 barrels per acre-foot.

Section three contains 7.4 net feet of highly permeable sand between depths 729.1 and 736.5 feet. This sand has an average oil saturation of 31 per cent and an average core water saturation of 55 per cent. Average permeability is 662 millidarcys and average porosity 26.3 per cent. Laboratory water flooding tests indicated an average residual oil saturation of 14 per cent and an average oil recovery of 342 barrels per acre-foot.

Sections four and five contain 7.0 net feet of highly permeable sand with very low oil saturation and high water saturation. The average permeability of sections four and five is 638 and 586 millidarcys respectively. The average porosity is 29.9 and 26.5 per cent respectively. Average oil saturation of section four is 21 per cent and of section five 24 per cent. Average core water saturation is 69 per cent in both sections. Laboratory water flooding tests yielded an average oil recovery of 184 barrels per acre-foot from section four and an average of 134 barrels per acre-foot from section five.

Estimated oil recovery by water flooding is 2900 barrels per acre from the area of which this core is representative. This relatively low recovery estimate is occasioned by the very high water saturation in the highly permeable sand in the lower part of the section.

It was recommended that this hole be plugged back with rock and lead wool to 728.0 feet thus shutting off the bottom 14.4 net feet of highly permeable oil sand. Also it was recommended the well be completed without shooting. This recommendation was based on the poor production history of Barker Well No. 0-21 the core from which indicated a somewhat similar sand condition.

On completion of coring the well was flowing water with some oil. Following the plug back the well was bailed dry and filled up to within 100 feet of the surface setting overnight. Five bailers of oil were bailed off the top.

JMR s

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SUMMARY OF CORE ANALYSES DATA

COMPANY Belleair Oil Corporation LEASE Barker WELL NO. 0-5

Sec.	Formation	Depth, Ft.		Net Ft. of Sand	Avg. Por.	Avg. Core Saturation		Core Oil Content		Permeability		Flood Pot Residuals				Oil Recovery Bbl./Acre	
												Saturation		Oil Content			
		From	To			Oil	Water	Avg. B/A. Ft.	Total B/Ac.	Avg. Md.	Capacity Ft. x Md.	Oil	Water	B/A. Ft.	B/Ac.	Diff.	Flood Pot
	BARTLESVILLE																
1	Oil sand	722.6	724.2	1.6	17.5	25.	--	337.	540.	84.	135.	11.	63.	149.	240.	300.	300.
2	Oil sand	724.2	729.0	4.5	22.4	51.	20.	885.	3980.	100.	449.	15.	72.	261.	1180.	2800.	2490.
3	Oil sand	729.1	736.5	7.4	26.3	31.	55.	627.	4640.	662.	4899.	14.	77.	285.	2110.	2530.	2420.
4	Oil sand	736.5	741.0	4.5	29.9	21.	69.	485.	2180.	638.	2875.	13.	64.	301.	1360.	820.	760.
5	Oil sand	741.0	743.5	2.5	26.5	24.	69.	484.	1210.	586.	1464.	17.	62.	350.	880.	330.	210.
1&2	Oil sand	722.6	729.0	6.1	21.1	45.	20.	741.	4520.	96.	584.	14.	70.	233.	1420.	3100.	2790.
3-5	Oil sand	729.1	743.5	14.4	27.4	26.	62.	558.	8030.	640.	9238.	14.	71.	302.	4350.	3680.	3390.

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RESULTS OF SATURATION TESTS

COMPANY Belleair Oil Corporation WELL Barker No. 0-5

Sat. No.	Depth Feet	Porosity Per Cent	Per Cent Saturation			Avg. Oil Content Bbl./A. Ft.	Feet of Sand		Total Oil Content Bbl./Acre
			Oil	Water	Total		Ft.	Cum.	
1	717.5	14.2	21.	61.	82.	240.	0.4*		
3	719.8	13.5	29.	60.	89.	300.	0.5*		
5	722.2	13.4	40.	50.	90.	420.	0.4*		
6	723.5	17.5	25.	--	--	340.	1.6	1.6	540.
7	725.1	22.9	47.	19.	66.	840.	1.2	2.8	1,010.
8	726.3	22.4	40.	--	--	700.	1.1	3.9	770.
9	727.3	22.0	68.	20.	88.	1,150.	0.9	4.8	1,040.
10	728.5	22.4	51.	--	--	890.	1.3	6.1	1,160.
11	729.8	21.8	33.	49.	82.	560.	0.9	7.0	500.
12	730.9	23.0	35.	--	--	620.	1.2	8.2	750.
13	732.1	27.7	28.	56.	84.	590.	1.4	9.6	830.
14	733.3	25.2	26.	--	--	510.	1.1	10.7	560.
15	734.7	28.6	32.	62.	94.	720.	1.8	12.5	1,300.
16	735.9	29.0	31.	--	--	700.	1.0	13.5	700.
17	736.8	27.0	24.	68.	92.	510.	1.2	14.7	610.
18	738.2	31.7	21.	--	--	520.	1.0	15.7	520.
19	739.3	30.8	19.	69.	88.	460.	1.1	16.8	510.
20	740.4	30.5	19.	--	--	450.	1.2	18.0	540.
21	741.3	26.0	25.	69.	94.	510.	1.1	19.1	560.
22	742.4	31.8	20.	--	--	500.	0.7	19.8	350.
23	743.4	22.0	25.	69.	94.	430.	0.7	20.5	300.

* Not included in cumulative feet of sand.

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RESULTS OF LABORATORY FLOODING TESTS

COMPANY Belleair Oil Corporation LEASE Barker WELL NO. 0-5

Sample No.	Depth	Porosity	Perm. Approx.	Before Flooding 1/			Max. Press. Psi.	Water Through C.C.	Time Min.	Flood Pot Residual			Flood Pot Oil Recovery Bbl./A. Ft.	
				Oil Sat.	Water Sat.	Oil Content Bbl./A. Ft.				Oil Sat.	Water Sat.	Oil Content Bbl./A. Ft.		
F-6	723.5	17.5	95.	25.	--	340.	40.	1,138.	615.	11.	63.	150.	190.	
F-8	726.3	22.4	121.	40.	--	700.	20.	2,604.	675.	14.	64.	240.	461.	
F-10	728.5	22.4	93.3	51.	--	890.	40.	7,060.	675.	15.	79.	250.	644.	
F-12	730.9	23.0	230.	35.	--	620.	40.	17,382.	615.	16.	83.	280.	337.	
F-14	733.3	25.2	295.	26.	--	510.	40.	11,664.	615.	11.	81.	210.	297.	
F-16	735.9	29.0	344.	31.	--	700.	40.	12,608.	435.	15.	67.	350.	350.	
F-18	738.2	31.7	312.	21.	--	520.	20.	11,437.	675.	13.	62.	320.	198.	
F-20	740.4	30.5	833.	19.	--	450.	20.	23,630.	675.	13.	65.	310.	140.	
F-22	742.4	31.8	1160.	20.	--	500.	10-40.	15,701.	535.	17.	62.	420.	83.	

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1/ Unless otherwise noted, oil content and saturation before flooding equals flood pot oil recovery plus flood pot residual.

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RESULTS OF PERMEABILITY TESTS

COMPANY Belleair Oil Corporation WELL Barker No. 0-5

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	717.3	1.0	0.4*			25	731.2	166.	0.4	8.2	66.
2	717.8	IMP	0.7*			26	731.8	514.	0.7	8.9	360.
3	718.5	IMP	0.4*			27	732.4	910.	0.7	9.6	637.
4	719.0	IMP	0.5*			28	733.0	1,060.	0.6	10.2	636.
5	719.5	0.1	0.2*			29	733.6	212.	0.5	10.7	106.
6	719.9	1.0	0.3*			30	734.0	1,010.	0.5	11.2	505.
7	720.8	0.7	0.2*			31	734.5	955.	0.7	11.9	668.
8	721.6	0.8	0.1*			32	735.0	1,990.	0.6	12.5	1,195.
9	722.0	1.5	0.4*			33	735.7	371.	0.5	13.0	186.
10	722.5	0.3	0.2*			34	736.4	318.	0.5	13.5	159.
11	723.3	110.	0.8	0.8	88.	35	737.2	229.	0.7	14.2	160.
12	723.8	59.	0.8	1.6	47.	36	737.6	199.	0.5	14.7	100.
13	724.4	115.	0.5	2.1	58.	37	738.0	299.	0.5	15.2	150.
14	724.9	93.	0.3	2.4	28.	38	738.5	795.	0.5	15.7	398.
15	725.4	78.	0.4	2.8	31.	39	739.1	936.	0.6	16.3	562.
16	726.0	117.	0.6	3.4	70.	40	739.6	955.	0.5	16.8	478.
17	726.6	125.	0.5	3.9	63.	41	740.2	737.	0.6	17.4	442.
18	727.0	93.	0.9	4.8	84.	42	740.7	976.	0.6	18.0	585.
19	727.8	20.	0.1	4.9	2.0	43	741.1	100.	0.3	18.3	30.
20	728.3	93.	0.9	5.8	84.	44	741.6	584.	0.8	19.1	467.
21	728.9	95.	0.3	6.1	29.	45	742.2	1,190.	0.4	19.5	476.
22	729.3	151.	0.9	7.0	136.	46	742.7	1,140.	0.3	19.8	342.
23	730.1	168.	0.3	7.3	50.	47	743.1	212.	0.7	20.5	149.
24	730.7	389.	0.5	7.8	195.						

* Not included in cumulative feet of sand.

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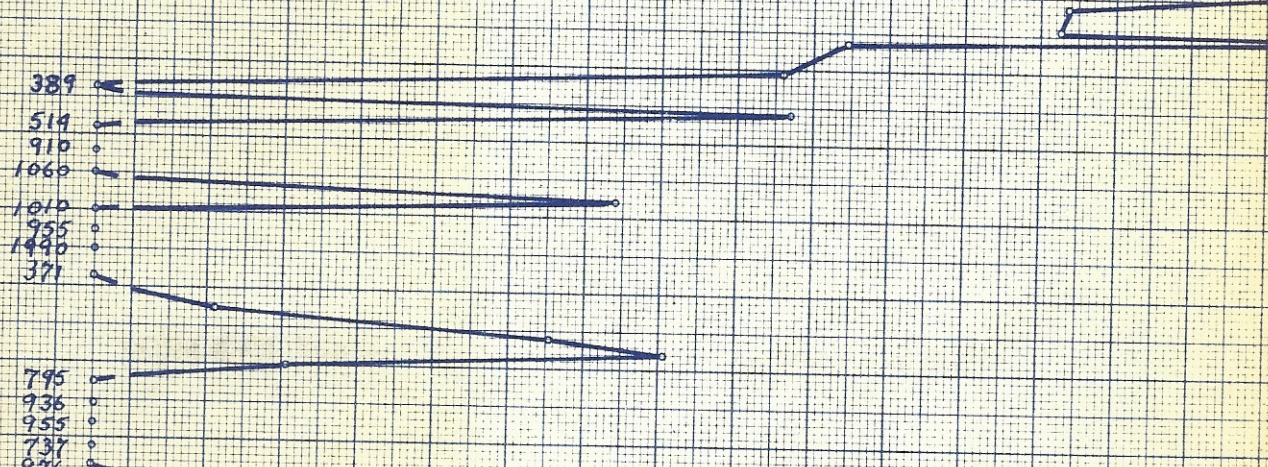
BARKER 0—5
20 740.3 40.6
21) 741.2 41.5
22) 742.3 42.6
23) 743.2 43.5
17) 736.7 37.0
18) 738.1 38.4
19) 739.2 39.5
15) 734.6 34.9
16) 735.8 36.1
END OF lat CORE 736.7
12) 730.8 34.1
13) 732.0 32.3
14) 733.2 34.5
9) 727.2 27.5
10) 728.4 28.7
11) 729.7 30.0
7) 725.0 25.3
8) 726.2 26.5
4) 720.9 21.2
5) 722.1 22.4
6) 723.4 23.7
1) 717.4 17.7
2) 718.6 18.9
3) 719.7 20.0

Recommended Shot, Qts./Ft.

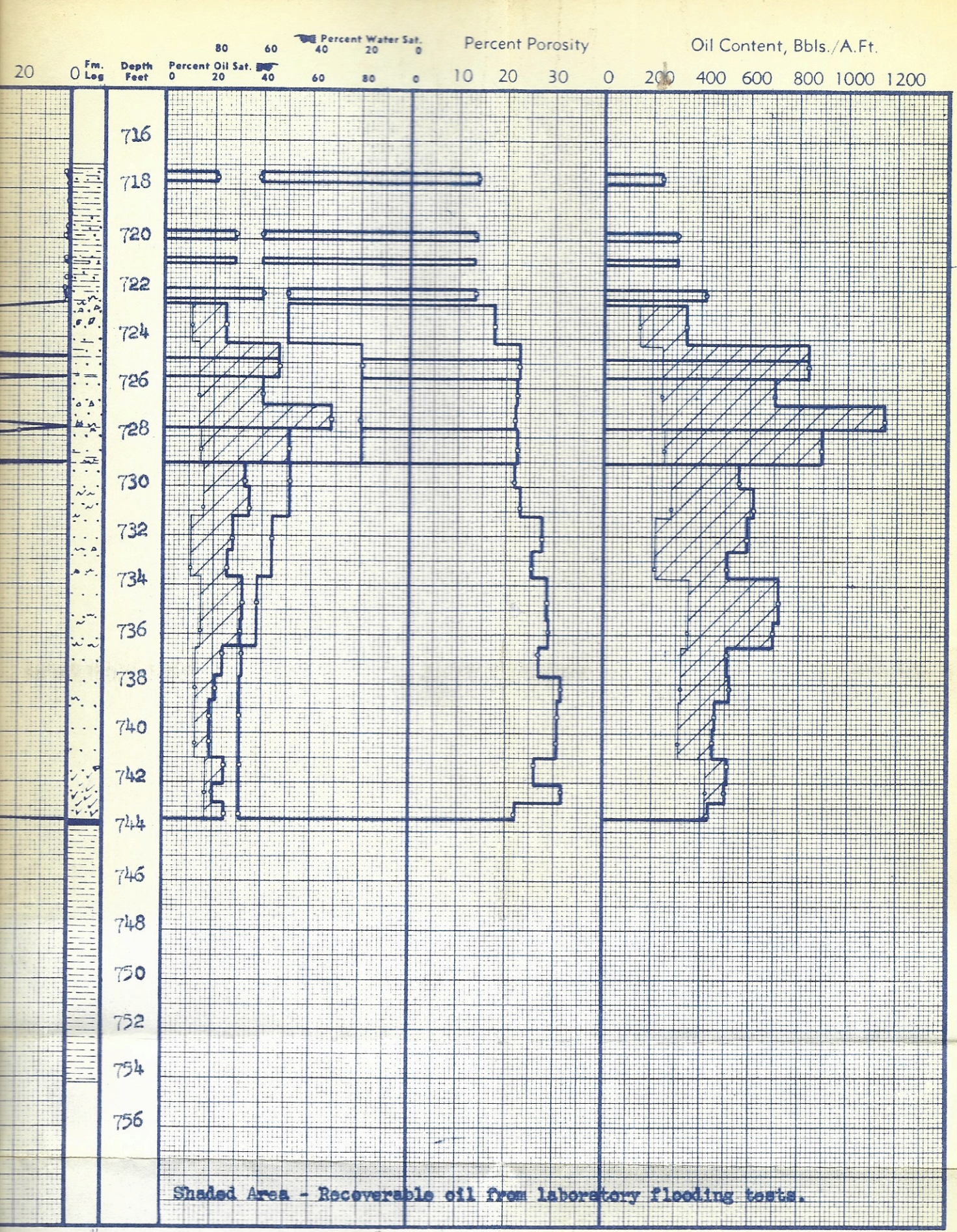
Permeability, Millidarcys

0 2 4 340 320 300 280 260 240 220 200 180 160 140 120 100 80 60

Set packer with bottom of cement at 721.0 feet.
Plug back with rock and lead wool to 728.0 feet.
Sand not shot.



Sec.	Sand	Depth, Feet From	Depth, Feet To	Net Ft. of Sand	Avg. Por.	Average Core Sat. Oil	Average Core Sat. Water	Core Oil Content Avg. B./A.Ft.	Core Oil Content Total Bbl./Ac.	Av Mc
	BARTLESVILLE									
1	Oil sand	722.6	724.2	1.6	17.5	25.	-	337.	540.	8
2	Oil sand	724.2	729.0	4.5	22.4	51.	20.	885.	3,980.	10
3	Oil sand	729.1	736.5	7.4	26.3	31.	55.	627.	4,640.	66
4	Oil sand	736.5	741.0	4.5	29.9	21.	69.	485.	2,180.	63
5	Oil sand	741.0	743.5	2.5	26.5	24.	69.	484.	1,210.	58
1&2	Oil sand	722.6	729.0	6.1	21.1	45	20			



Permeability	Flood Pot Residuals			
Capacity Ft. x Md.	Saturation		Oil Content	
	Oil	Water	B./A.Ft.	Bbl./Ac.
135.	11.	63.	149.	240.
449.	15.	72.	261.	1,180.
4,899.	14.	77.	285.	2,110.
2,875.	13.	64.	301.	1,360.
1,464.	17.	62.	350.	880.
584.	14.	70.	233.	1,420.

COMPANY HELLEAIR OIL CORPORATION
LEASE BARKER WELL NO. 0-5
LOCATION 1260' W.of C.L., 3300' N.of S.L.
SEC. 4 T. 27-S R. 18-E COUNTY Neosho
STATE Kansas DATE 3-30-53

EARLOUGHER ENGINEERING TULSA, OKLAHOMA