

EARLOUGHER ENGINEERING

PETROLEUM CONSULTANTS - CORE ANALYSES

3316 EAST 21<sup>ST</sup> STREET

TULSA, OKLAHOMA

February 1, 1955

Belleair Oil Corporation  
281 Greenwich Avenue  
Greenwich, Connecticut

Attention - Mr. George W. Cain

Re - Core Analysis  
Barker Well No. O-11  
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 tw  
Encl 1  
cc - Lloyd Burton (2)

## EARLOUGHER ENGINEERING

## CORE SUMMARY

Company Belleair Oil Corporation Lease Barker Well No. 0-11Location 530 feet West of Center Line, 3050 feet North of South LineSection 4 Twp. 27-S Rge. 18-E County Neosho State KansasFormation Cored Bartlesville Sand Type Core 3-Inch RotaryDate Cored 1-27-55 Date Shot 1-28-55 Coring Fluid Water

Depths:	Started coring, gas sand	704.0 Feet
	Top of depleted oil sand	711.3 "
	Top of oil pay sand	718.3 "
	Bottom of oil pay sand	732.2 "
	Coal	741.8 - 742.2 "
	Bottom of core, shale	746.6 "
	Net feet of gas sand cored	5.3 "
	Net feet of depleted oil sand	5.5 "
	Net feet of oil pay sand	8.2 "
	Total cored	42.6 "
	Feet analyzed	19.0 "

Shot Record: Set Packer \_\_\_\_\_ Feet

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

Set packer with bottom of cement at	720.0 Feet
Plug back to	732.0 "
Sand-oil treatment.	

## 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 cored with rotary drill from 704.0 to 746.6 feet using water as coring fluid and core sampled at the well by Belleair Oil Corporation. Coring was commenced in gas sand and stopped in shale.

Results of analyses indicate 5.3 net feet of gas sand cored from 704.0 to 711.0 feet represented by section 1, 5.5 net feet of depleted oil sand from 711.3 to 717.7 feet contained in section 2 and 8.2 net feet of oil pay sand from 718.3 to 732.2 feet as summarized in sections 3 and 4. There is definite indication that the area represented by this core has been materially affected by water encroachment.

(Continued following page)

PERMEABILITY Average permeability of the oil pay sand is 16 millidarcys with individual values ranging from 0.3 to 78 millidarcys. Permeability capacity is 135 foot-millidarcys. Average permeability of the respective sections 1 and 2 is 21 and 31 millidarcys.

POROSITY Average porosity of the oil pay sand is 18.6 per cent and individual values range from 15.0 to 22.8 per cent. Average porosity of sections 1 and 2 is 20.7 and 21.5 per cent respectively.

PER CENT SATURATION The oil pay sand has an average oil saturation of 44 per cent and average core water saturation of 33 per cent. Average oil saturation of sections 1 and 2 is 14 and 24 per cent respectively and average core water saturation 67 and 52 per cent respectively. It is probable that this immediate area has been somewhat enriched by water encroachment.

OIL CONTENT Average oil content of the oil pay sand is 630 barrels per acre-foot and individual values range from 400 to 890 barrels per acre-foot. Average oil content of sections 1 and 2 is 223 and 393 barrels per acre-foot respectively.

LABORATORY FLOODING TESTS Laboratory water flooding tests indicated an average oil recovery of 324 barrels per acre-foot or a total oil recovery of 2650 barrels per acre based on 8.2 net feet of oil pay sand. Average residual oil saturation was 21 per cent and permeability to water was generally good.

Average indicated oil recovery from sections 1 and 2 was 14 and 159 barrels per acre-foot respectively and average residual oil saturation 13 and 14 per cent respectively.

CONCLUSIONS

1. Net feet of oil pay sand is 8.2 from 718.3 to 732.2 feet.
2. Average oil saturation is 44 per cent and average core water saturation 33 per cent. Average permeability is 16 millidarcys and average porosity 18.6 per cent.
3. Total indicated flood pot oil recovery was 2650 barrels per acre and average residual oil saturation was 21 per cent.
4. Gas sand was cored from 704.0 to 711.0 feet and depleted oil sand from 711.3 to 717.7 feet.
5. It is probable that this immediate area has been affected by water encroachment.
6. Estimated oil recovery by water flooding in the field is 239 barrels per acre-foot or 1700 barrels per acre from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING

  
J. M. Robinson, Engineer

JL tw



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## RESULTS OF SATURATION TESTS

COMPANY Belleair Oil Corporation

WELL Barker No. 0-11

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	704.2	20.2	12.	67.	79.	190.	1.5	1.5	290.
3	707.2	20.3	15.	67.	82.	230.	1.6	3.1	370.
F-4	709.2	22.2	13.	--	--	230.	0.8	3.9	180.
5	710.2	20.6	15.	67.	77.	240.	1.4	5.3	340.
F-6	711.7	21.6	21.	--	--	350.	0.7	6.0	250.
7	713.7	21.4	20.	54.	74.	330.	1.6	7.6	530.
F-8	714.6	23.5	24.	--	--	440.	1.1	8.7	480.
9	716.2	21.0	24.	50.	74.	400.	1.0	9.7	400.
F-10	717.2	19.8	29.	--	--	450.	1.1	10.8	500.
11	718.7	18.1	51.	32.	83.	720.	0.5	11.3	360.
F-12	719.7	18.2	42.	--	--	590.	1.5	12.8	900.
13	720.8	19.9	45.	24.	69.	690.	0.6	13.4	410.
F-14	722.2	19.9	51.	--	--	780.	1.1	14.5	860.
15	723.2	15.0	34.	52.	86.	400.	1.8	16.3	720.
F-16	724.8	22.8	50.	--	--	890.	1.0	17.3	890.
17	725.8	21.1	42.	23.	65.	690.	0.6	17.9	410.
F-18	731.8	17.9	40.	34.	74.	550.	1.1	19.0	610.

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RESULTS OF LABORATORY FLOODING TESTS

COMPANY Belleair Oil Corporation

LEASE

Barker

WELL NO. O-11

Sample No.	Depth	Porosity	Perm. Approx.	Before Flooding 1/			Max. Pres. 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-4	709.2	22.2	42.	13.	--	230.	40/70.	11,268.	435.	13.	76.	230.	3.
F-6	711.7	21.6	19.	21.	--	350.	70.	7,958.	1035.	13.	73.	220.	130.
F-8	714.6	23.5	44.	24.	--	440.	70.	9,028.	1095.	13.	66.	230.	212.
F-10	717.2	19.8	19.	29.	--	450.	70.	15,801.	1035.	16.	81.	240.	207.
F-12	719.7	18.2	3.0	42.	--	590.	70.	151.	1095.	23.	66.	320.	265.
F-14	722.2	19.9	10.	51.	--	780.	70.	4,593.	1095.	19.	70.	290.	485.
F-16	724.8	22.8	40.	50.	--	890.	70.	31,500.	1095.	17.	70.	300.	594.
F-18	731.8	17.9	4.0	43.	--	600.	70.	171.	1095.	30.	61.	410.	193.

1/

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

BARKER 0-11

7040  
7043

7055  
7058

7070  
7073

7090  
7093

7100  
7103

7115  
7118

7135  
7138

7144  
7147

7165  
7168

7171  
7174

7185  
7188

7195  
7198

7207  
7210

7225  
7228

7235  
7238

7247  
7250

7257  
7260

End of  
Core  
7268

7311  
7310

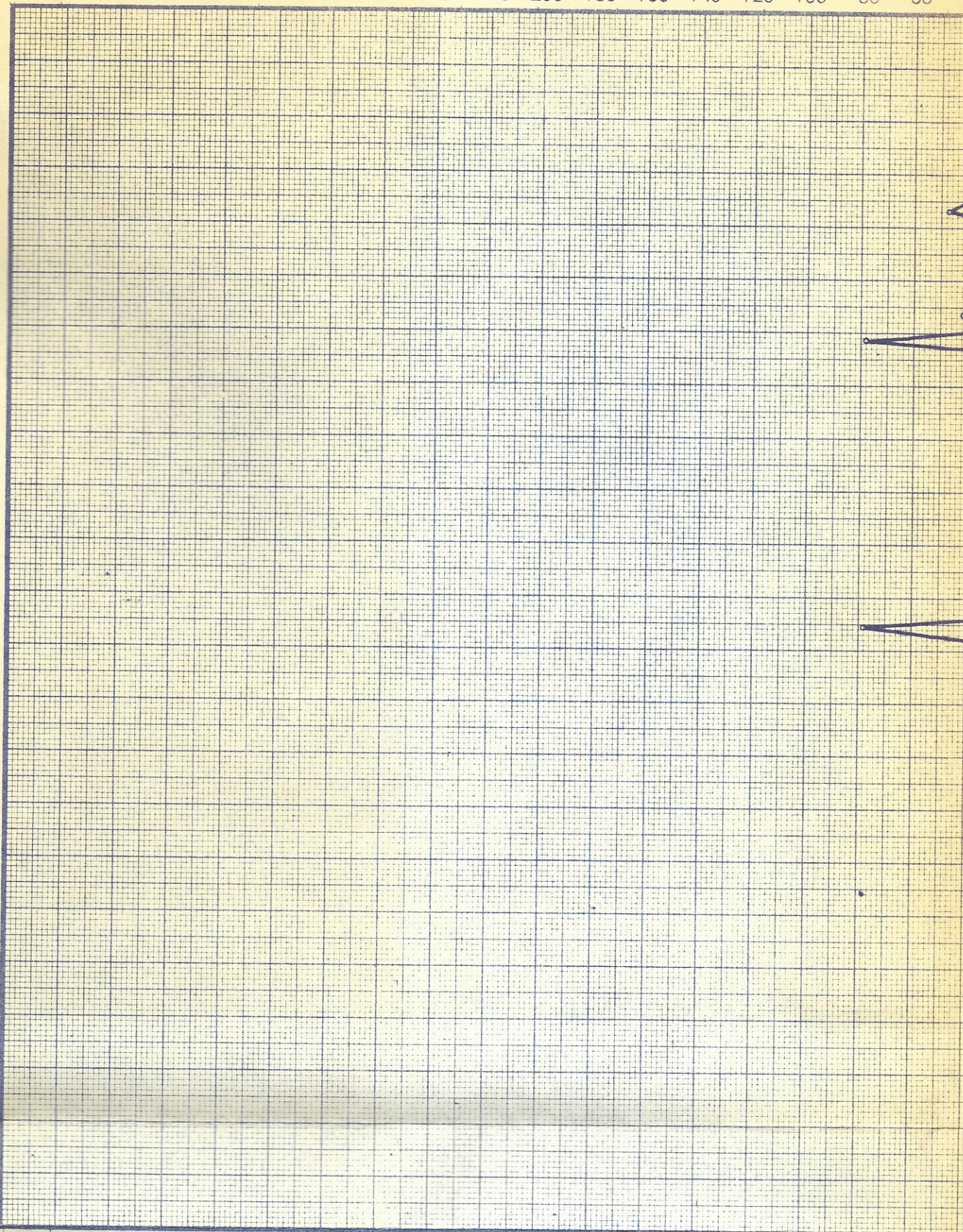
7356

7386

7416

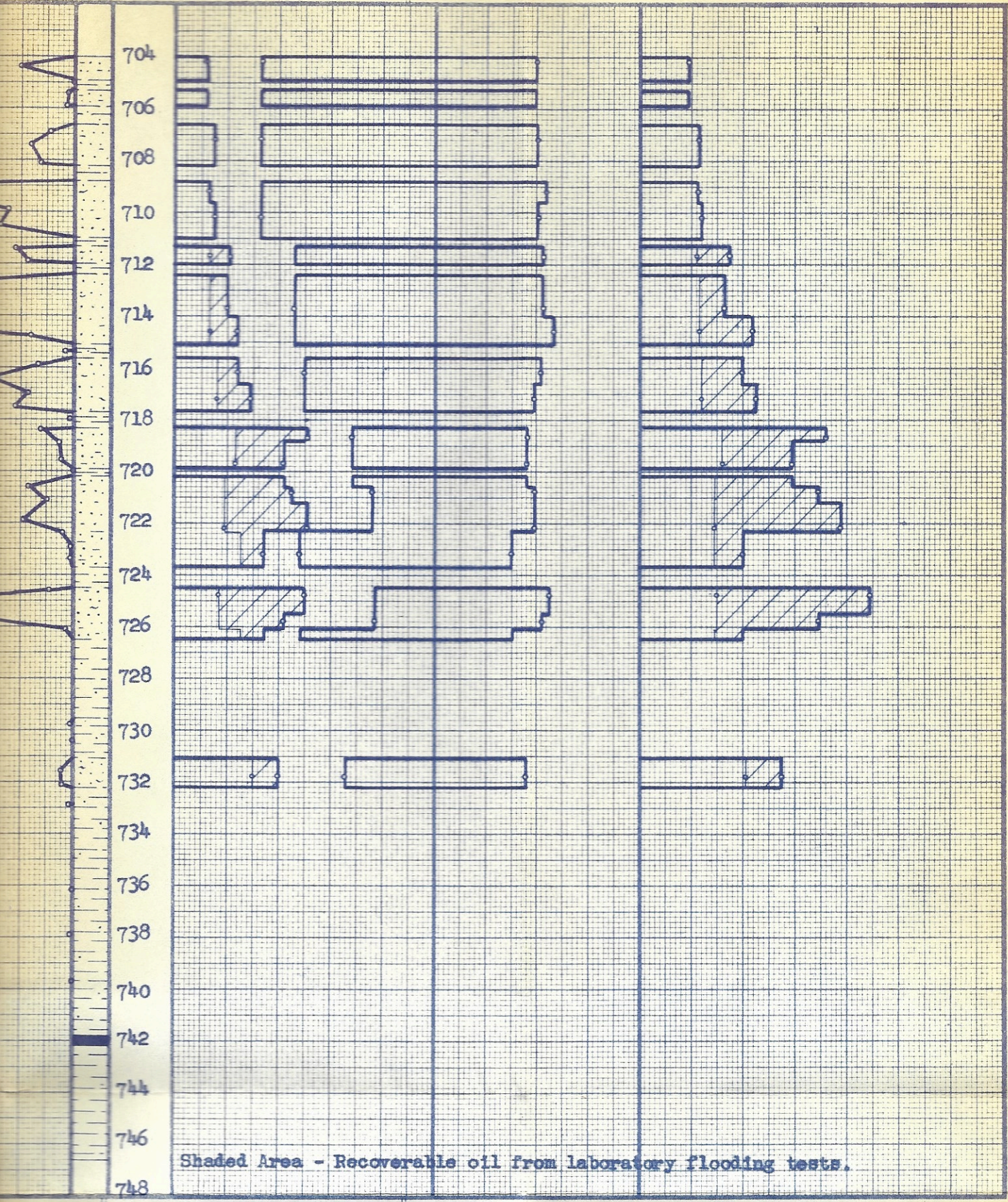
27  
Discards  
T.D. 7449

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



Sec.	Sand	Depth, Feet		Net Ft. of Sand	Avg. Por.	Average Core Sat.		Core Oil Content		A M
		From	To			Oil	Water	Avg. B./A.Ft.	Total Bbl./Ac.	
	<u>BARTLESVILLE</u>									
1	Gas Sand	704.0	711.0	5.3**	20.7	14.	67.	223.	1,180.	21
2	Depleted Oil Sd.	711.3	717.7	5.5	21.5	24.	52.	393.	2,160.	31
3	Oil Pay Sand	718.3	726.5	7.1	18.7	44.	33.	641.	4,550.	18
4	Mica. Oil Sand	<u>731.1</u>	<u>732.2</u>	<u>1.1</u>	<u>17.9</u>	<u>40.</u>	<u>34.</u>	<u>550.</u>	<u>610.</u>	<u>3</u>
3-4	Oil Sand	718.3	732.2	8.2	18.6	44.	33.	630.	5,160.	16

20 0 Fm. Log Depth Feet Percent Oil Sat. 80 60 40 20 0 Percent Water Sat. 40 20 0 Percent Porosity 10 20 30 0 Oil Content, Bbls./A.Ft. 200 400 600 800 1000 1200



Permeability Capacity Ft. x Md.	Flood Pot Residuals			
	Saturation		Oil Content	
	Oil	Water	B / A.Ft.	Bbl. / Ac.
109.	13.	76.	209.	1,110.
170.	14.	73.	234.	1,290.
131.	20.	69.	290.	2,060.
4.1	30.	61.	410.	450.
135.	21.	68.	306.	2,510.

COMPANY BELLEAIR OIL CORPORATION  
 LEASE BARKER WELL NO. 0-11  
 LOCATION 530'W. of C.L., 3050'N. of S. Line  
 SEC 4 T 27-S R 18-E COUNTY Neosho  
 STATE Kansas DATE 1-31-55  
 EARLOUGHER ENGINEERING TULSA, OKLAHOMA