REPORT

FOR

BELLEAIR OIL CORPORATION

ON

BARKER WELL NO. W-27

Copy Three Date 1-24-52

FARLOUGHER ENGINEERING
PETROLEUM CONSULTANTS - CORE ANALYSES
319 EAST FOURTH STREET
TULSA 3, OKLAHOMA

EARLOUGHER ENGINEERING
PETROLEUM CONSULTANTS - CORE ANALYSES
319 EAST FOURTH STREET
TULSA 3, OKLAHOMA

January 24, 1952

Belleair Oil Corporation
281 Greenwich Avenue
Greenwich, Connecticut

Attention - Mr. George W. Cain

Re - Core Analysis
Barker Well No. W-27
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 w
Encl - 1
cc - Lloyd Burton (2)

EARLOUGHER ENGINEERING

CORE SUMMARY

Company Belleair Oil Corporation Lease Barker Well No. W-27

Location 450 feet South, 330 feet West of Center

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

Formation Cored Bartlesville Sand Type Core Rotary, 3-inch

Date Cored 1-16-52 Date Shot 1-17-52 Coring Fluid Water

Depths:		
	Elevation, ground	918.0 Feet
	Started coring, oil pay sand	712.3 "
	Bottom of oil pay sand	743.9 "
	Net feet of oil pay sand cored	23.9 "
	Carbonaceous, limy oil sand	743.9 - 745.7 "
	Coal	746.6 - 747.0 "
	Bottom of core, shale	758.5 "
	Total cored	46.2 "
	Feet analyzed	31.1 "

Shot Record: Set Packer _____ Feet

Depth, Feet From	To	Feet	Shell Diameter	Quarts Per Foot	Quarts Total
718	721	3	3-1/2"	2.0	6.0
721	737	16	4-1/2"	3.2	51.2
737	744	7	3-1/2"	2.0	14.
					71.2

Set packer with bottom of cement at 713.0 feet.
Plug back to 744.0 feet.

Completion Data: * Before shot light showing and after shot had 2-1/2 barrels of oil and no water.

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 712.3 to 758.5 feet using water as coring fluid and the core sampled at the well by Earlougher Engineering. Coring was commenced in oil pay sand and stopped in shale.

This core shows 23.9 net feet of variable oil pay sand located in a broken section between depths 712.3 and 743.9 feet. At the base of the oil pay sand there are 1.8 net feet of carbonaceous, limy probably non-floodable oil sand showing high average residual oil saturation from 743.9 to 745.7 feet. Results of analysis are summarized in six separate sections with the oil pay sand in Sections 1 through 5 and carbonaceous,

(Continued following page)

limy probably non-floodable oil sand in Section 6. Sections 3 and 4 show low, average permeability and porosity and Section 1 relatively low average oil saturation. It was reported that the entire sand section bled oil when core was pulled.

PERMEABILITY Average permeability of the oil pay sand is 48 millidarcys with Sections 3 and 4 showing relatively low values of 9.4 and 1.5 millidarcys, respectively, compared to 82, 86 and 45 millidarcys for Sections 1, 2 and 5, respectively. Individual permeability values vary considerably ranging from 0.5 to 236 millidarcys. Permeability capacity is 1,137 foot-millidarcys. Average permeability of Section 6 is 18 millidarcys.

POROSITY Average porosity of the oil pay sand is 18.7 per cent with Sections 3 and 4 showing relatively low values of 16.2 and 13.3 per cent, respectively, compared to average values of 21.0, 20.9 and 19.3 per cent for Sections 1, 2 and 5, respectively. Individual porosity values range from a low of 11.7 to a high of 22.7 per cent. Average porosity of Section 6 is 18.3 per cent.

PER CENT SATURATION The oil pay sand has an average oil saturation of 41 per cent with Section 1 showing 30 per cent and Sections 2, 3, 4 and 5 showing 43, 41, 41 and 46 per cent, respectively. Average core water saturation is 43 per cent. Average oil saturation and average core water saturation of the carbonaceous, limy probably non-floodable oil sand in Section 6 is 43 and 49 per cent, respectively. It was reported that the entire sand section bled oil when core was pulled and there is some indication that the sand may have been somewhat enriched by accidental water encroachment.

OIL CONTENT The oil pay sand has an average oil content of 600 barrels per acre-foot; however, individual values vary considerably from 350 to 780 barrels per acre-foot. Average oil content of Section 6 is 605 barrels per

acre-foot.

LABORATORY FLOODING TESTS Laboratory water flooding tests indicated an average oil recovery of 333 barrels per acre-foot or a total oil recovery of 7,970 barrels per acre based on 23.9 net feet of oil pay sand. Average residual oil saturation was 18 per cent. Permeability to water was erratic and followed the pattern of the air permeability being low in Sections 3 and 4 and generally high in Sections 1, 2 and 5. Indicated oil recovery from the one sample of the carbonaceous, limy oil sand tested in Section 6 was 146 barrels per acre-foot. Permeability to water was fair; however, average residual oil saturation was a high 34 per cent.

CONCLUSIONS

1. This core shows 23.9 net feet of variable oil pay sand located in a broken section between depths 712.3 and 743.9 feet. Coring was commenced in oil pay sand.

2. Average oil saturation is 41 per cent, average core water saturation 43 per cent, average porosity 18.7 per cent and average permeability 48 millidarcys.

3. Total indicated flood pot oil recovery was 7,970 barrels per acre and average residual oil saturation was 18 per cent.

4. Carbonaceous, limy probably non-floodable oil sand showing a high residual oil saturation of 34 per cent was cored from 743.9 to 745.7 feet.

5. There is some indication that the sand section has been somewhat enriched by accidental water encroachment.

6. Estimated oil recovery by water flooding in the field is 285 barrels per

acre-foot or 6,800 barrels per acre from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING

J. M. Robinson

J. M. Robinson, Engineer

JL w

EARLOUGHER ENGINEERING

SUMMARY OF CORE ANALYSES DATA

COMPANY Belleair Oil Corporation LEASE Barker WELL NO. W-27

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 Pay Sand	712.3	715.8	3.5	21.0	30.	47.	488.	1,710.	82.	288.	16.	73.	261.	910.	800.	1,000.
2	Oil Pay Sand	715.8	720.7	4.9	20.9	43.	41.	690.	3,380.	86.	420.	18.	73.	292.	1,430.	1,950.	1,950.
3	Mica.Oil Pay	720.7	725.4	4.7	16.2	41.	49.	513.	2,410.	9.4	44.	22.	78.	277.	1,300.	1,110.	1,200.
4	Very Sh.Oil Py	725.4	730.7	2.3	13.3	41.	39.	426.	980.	1.5	3.5	24.	76.	248.	570.	410.	370.
5	Oil Pay Sand	735.4	743.9	8.5	19.3	46.	39.	691.	5,870.	45.	381.	17.	72.	255.	2,170.	3,700.	3,650.
6	Carb. Limy Oil	743.9	745.7	1.8	18.3	43.	49.	605.	1,090.	18.	32.	34.	66.	483.	870.	220.	260.
1-6	Oil Sand	712.3	745.7	25.7	18.7	41.	43.	601.	15,440.	45.	1,169.	19.	73.	282.	7,250.	8,190.	8,430.
1-5	Oil Pay Sand	712.3	743.9	23.9	18.7	41.	43.	600.	14,350.	48.	1,137.	18.	74.	267.	6,380.	7,970.	8,170.

W

EARLOUGHER ENGINEERING

RESULTS OF SATURATION TESTS

COMPANY Belleair Oil Corporation WELL Barker No. W-27

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	713.2	21.4	25.	58.	83.	420.	1.2	1.2	500.
2	714.2	21.6	33.	--	--	550.	1.2	2.4	660.
3	715.3	19.9	32.	35.	67.	500.	1.1	3.5	550.
F-4	716.3	21.8	42.	--	--	710.	0.8	4.3	570.
5	717.3	17.7	56.	41.	97.	770.	1.1	5.4	850.
F-6	718.2	20.5	43.	--	--	690.	0.8	6.2	550.
7	719.2	22.7	34.	41.	75.	600.	1.2	7.4	720.
F-8	720.1	22.1	40.	--	--	690.	1.0	8.4	690.
9	721.2	16.4	37.	57.	94.	480.	1.0	9.4	480.
F-10	722.2	17.0	43.	--	--	570.	1.2	10.6	680.
11	723.2	15.1	45.	47.	92.	530.	0.9	11.5	480.
F-12	724.2	15.3	40.	--	--	470.	0.8	12.3	380.
13	725.2	17.1	37.	44.	81.	490.	0.8	13.1	390.
F-14	726.3	11.7	39.	--	--	350.	1.0	14.1	350.
15	728.2	13.2	51.	39.	90.	520.	0.5	14.6	260.
F-16	730.0	15.4	38.	--	--	460.	0.8	15.4	370.
17	731.5	12.1	23.	77.	100.	220.	1.6*		
F-18	733.5	11.7	26.	--	--	240.	1.5*		
19	735.0	10.7	28.	72.	100.	220.	1.6*		
F-20	736.2	19.0	52.	--	--	760.	1.2	16.6	910.
21	737.2	17.1	51.	34.	85.	670.	1.3	17.9	870.
F-22	738.2	21.6	43.	--	--	720.	1.0	18.9	720.
23	739.2	19.1	52.	35.	87.	780.	1.0	19.9	780.
F-24	740.2	16.6	46.	--	--	590.	0.9	20.8	530.
25	741.2	20.7	48.	40.	88.	780.	0.9	21.7	700.
F-26	742.3	20.2	43.	--	--	670.	1.1	22.8	740.
27	743.4	20.6	35.	46.	81.	560.	1.1	23.9	620.
F-28	744.7	17.0	45.	--	--	600.	1.2	25.1	720.
29	745.3	20.8	38.	49.	87.	620.	0.6	25.7	370.
F-30	746.3	15.9	36.	--	--	450.	0.7*		

* Not included in cumulative feet of sand.

W

EARLOUGHER ENGINEERING

RESULTS OF LABORATORY FLOODING TESTS

COMPANY Belleair Oil Corporation **LEASE** Barker **WELL NO.** W-27

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-2	714.2	21.6	89.	33.	--	550.	20-40.	12,708.	555.	16.	73.	260.	285.	
F-4	716.3	21.8	190.	42.	--	710.	20-40.	14,816.	495.	13.	73.	210.	497.	
F-6	718.2	20.5	52.	43.	--	690.	40.	21,269.	555.	18.	74.	280.	407.	
F-8	720.1	22.1	90.	40.	--	690.	40.	13,828.	555.	23.	71.	400.	291.	
F-10	722.2	17.0	10.	43.	--	570.	40.	180.	555.	20.	79.	260.	311.	
F-12	724.2	15.3	6.0	40.	--	470.	40.	237.	555.	23.	77.	270.	198.	
F-14	726.3	11.7	0.2	39.	--	350.	40.	35.	555.	24.	76.	220.	132.	
F-16	730.0	15.4	1.0	38.	--	460.	40.	26.	555.	23.	75.	270.	192.	
F-18	733.5	11.7	0.2	26.	--	240.	40.	-0-	675.	26.	74.	240.	+	
F-20	736.2	19.0	6.0	52.	--	760.	40.	1,325.	735.	18.	73.	270.	489.	
F-22	738.2	21.6	55.	43.	--	720.	40.	16,576.	615.	14.	73.	240.	479.	
F-24	740.2	16.6	3.0	46.	--	590.	40.	771.	675.	21.	66.	270.	319.	
F-26	742.3	20.2	70.	43.	--	670.	20-40.	9,681.	615.	15.	77.	240.	429.	
F-28	744.7	17.0	12.	45.	--	600.	40.	1,097.	615.	34.	73.	450.	146.	
F-30	746.3	15.9	2.0	36.	--	450.	40.	64.	615.	34.	58.	420.	33.	

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

EARLOUGHER ENGINEERING

RESULTS OF PERMEABILITY TESTS

COMPANY Belleair Oil Corporation WELL Barker No. W-27

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	712.4	29.	0.3	0.3	8.7	33	730.3	2.4	0.8	15.4	1.9
2	712.9	115.	0.5	0.8	68.	34	730.7	0.3	0.3*		
3	713.4	112.	0.4	1.2	45.	35	731.2	0.1	0.3*		
4	713.9	92.	0.6	1.8	55.	36	731.7	0.1	0.6*		
5	714.4	85.	0.6	2.4	51.	37	732.2	Imp.	0.4*		
6	715.0	62.	0.5	2.9	31.	38	732.7	0.2	0.7*		
7	715.5	48.	0.6	3.5	29.	39	733.2	0.1	0.8*		
8	716.0	135.	0.4	3.9	54.	40	734.7	0.1	1.6*		
9	716.5	236.	0.4	4.3	94.	41	735.5	27.	0.2	15.6	5.4
10	717.0	35.	0.5	4.8	18.	42	735.9	2.5	0.4	16.0	1.0
11	717.5	33.	0.6	5.4	20.	43	736.4	12.	0.6	16.6	7.2
12	717.9	72.	0.6	6.0	43.	44	736.9	1.9	0.4	17.0	0.8
13	718.4	32.	0.2	6.2	6.4	45	737.4	10.	0.5	17.5	5.0
14	718.9	75.	0.8	7.0	60.	46	737.9	31.	0.4	17.9	12.
15	719.4	71.	0.4	7.4	28.	47	738.4	73.	0.6	18.5	44.
16	719.8	149.	0.5	7.9	75.	48	738.9	70.	0.4	18.9	28.
17	720.3	44.	0.5	8.4	22.	49	739.4	24.	1.0	19.9	24.
18	720.9	14.	0.4	8.8	5.6	50	739.9	1.0	0.2	20.1	0.2
19	721.4	11.	0.6	9.4	6.6	51	740.4	6.6	0.7	20.8	4.6
20	722.0	8.9	0.6	10.0	5.3	52	740.9	27.	0.5	21.3	14.
21	722.5	12.	0.6	10.6	7.2	53	741.4	75.	0.4	21.7	30.
22	722.9	7.7	0.4	11.0	3.1	54	742.0	83.	0.7	22.4	58.
23	723.4	5.2	0.5	11.5	2.6	55	742.5	59.	0.4	22.8	24.
24	723.9	7.4	0.4	11.9	3.0	56	743.1	79.	0.5	23.3	40.
25	724.4	3.4	0.4	12.3	1.4	57	743.6	138.	0.6	23.9	83.
26	724.9	11.	0.8	13.1	8.8	58	744.0	41.	0.3	24.2	12.
27	725.4	0.5	0.5	13.6	0.3	59	744.4	10.	0.4	24.6	4.0
28	726.0	0.5	0.5	14.1	0.3	60	744.9	13.	0.3	24.9	3.9
29	727.3	1.5	0.3*			61	745.1	3.3	0.2	25.1	0.7
30	727.9	0.2	0.1*			62	745.6	18.	0.6	25.7	11.
31	728.4	1.9	0.5	14.6	1.0	63	746.0	13.	0.7*		
32	729.8	0.3	0.3*								

* Not included in cumulative feet of sand.

W