REPORT

FOR

BELLEAIR OIL CORPORATION

ON

BARKER WELL NO. W-33

For Input Waterwell

Copy Four Date 10-23-51

EARLOUGHER ENGINEERING

PETROLEUM CONSULTANTS - CORE ANALYSES

315 EAST FOURTH STREET

TULSA 3, OKLAHOMA

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

October 23, 1951

Belleair Oil Corporation
44 Wall Street
Room 1009
New York City 5, New York

Attention - Mr. George W. Cain

Re - Core Analysis
Barker Well No. W-33
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-33

Location 1,340 feet South, 660 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 10-9-51 Date Shot 10-10-51 Coring Fluid Water

Depths:

Elevation, ground	927.0 Feet
Started coring, shale	722.0 "
Top of oil sand	732.8 "
Bottom of oil sand	761.6 "
Net feet of oil sand	26.5 "
Black sand	761.6 - 762.4 "
Coal	762.4 - 762.7 "
Bottom of core, coal	762.7 "
Total cored	40.7 "
Feet analyzed	27.8 "

Shot Record: Set Packer ____ Feet

Depth, Feet From	To	Feet	Shell Diameter	Quarts Per Foot	Quarts Total
739	749	10	3-1/2"	2.0	20.0

Set packer with bottom of cement at 734.0 feet.
Plug back to 760.0 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: The Bartlesville section was cored with rotary drill from 722.0 to 762.7 feet using water as coring fluid and the core sampled at the well by Earlougher Engineering. Coring was commenced in shale and stopped in coal below the sand.

This core shows 26.5 net feet of watered-out oil sand located in a somewhat broken section between depths 732.8 and 761.6 feet. The oil sand is summarized in three separate sections with Section 3 showing higher average permeability and porosity and higher average core water saturation than Sections 1 and 2. Also, Section 1 shows

(Continued following page)

somewhat lower average oil saturation than Section 2. The depleted sand condition is very comparable to that shown by core from Barker Well O-23 to the north.

PERMEABILITY Average permeability of the oil sand is 205 millidarcys with Section 3 showing a high 348 millidarcys compared to average values of 85 and 109 millidarcys for Sections 1 and 2, respectively. Individual permeability values vary considerably and range from 21 to 578 millidarcys. Permeability capacity is 5,425 foot-millidarcys.

POROSITY Average porosity of the oil sand is 22.5 per cent with Section 3 showing 24.1 per cent and Sections 1 and 2, 21.9 and 21.4 per cent, respectively. Individual porosity values range from 19.8 to 25.9 per cent with one relatively low value of 17.4 per cent.

PER CENT SATURATION The oil sand has an average oil saturation of 21 per cent with individual Sections 1, 2 and 3 showing average values of 18, 23 and 20 per cent, respectively. Average core water saturation is 70 per cent with Section 3 showing a high 78 per cent compared to average values of 69 and 64 per cent for Sections 1 and 2, respectively.

OIL CONTENT The oil sand has an average oil content of 374 barrels per acre-foot with individual values ranging from 280 to 480 barrels per acre-foot.

LABORATORY FLOODING TESTS Laboratory water flooding tests indicated an average oil recovery of only 83 barrels per acre-foot or a total oil recovery of 2,180 barrels per acre based on 26.5 net feet of oil sand. Average indicated oil recovery from Section 1 was a low 18 barrels per acre-foot compared to average values of 104 and 75 barrels per acre-foot from Sections 2 and 3, respectively. Average residual oil saturation was 17 per cent and permeability to water was generally high.

CONCLUSIONS

1. This core shows 26.5 net feet of watered-out oil sand located in a somewhat broken section between depths 732.8 and 761.6 feet.

2. Average oil saturation is 21 per cent, average core water saturation 70 per cent, average porosity 22.5 per cent and average permeability 205 millidarcys.

3. Total indicated flood pot oil recovery was 2,180 barrels per acre and average residual oil saturation was 17 per cent.

4. No oil recovery by water flooding in the field is indicated from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING

J. M. Robinson, Engineer

JL w

EARLOUGHER ENGINEERING

SUMMARY OF CORE ANALYSES DATA

COMPANY Belleair Oil Corporation LEASE Barker WELL NO. W-33

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
1	Bartlesville	732.8	735.8	2.8	21.9	18.	69.	307.	860.	85.	238.	17.	82.	289.	810.	50.	20.
2	Bartlesville	735.9	750.7	12.8	21.4	23.	64.	387.	4,950.	109.	1,396.	17.	76.	283.	3,630.	1,320.	1,450.
3	Bartlesville	750.7	761.6	10.9	24.1	20.	78.	375.	4,080.	348.	3,791.	16.	75.	300.	3,270.	810.	1,020.
1-3	Bartlesville	732.8	761.6	26.5	22.5	21.	70.	374.	9,890.	205.	5,425.	17.	76.	291.	7,710.	2,180.	2,490.

W

EARLOUGHER ENGINEERING

RESULTS OF SATURATION TESTS

COMPANY Belleair Oil Corporation WELL Barker No. W-33

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	733.6	22.7	17.	65.	82.	310.	0.9	0.9	280.
F-2	734.6	20.9	17.	--	--	280.	1.1	2.0	310.
3	735.6	22.3	19.	73.	92.	340.	0.8	2.8	270.
F-4	736.5	17.4	31.	--	--	420.	1.2	4.0	500.
5	738.5	20.6	31.	57.	88.	490.	0.9	4.9	440.
F-6	739.6	22.1	20.	--	--	340.	1.4	6.3	480.
7	741.0	22.5	23.	58.	81.	400.	1.4	7.7	560.
F-8	742.4	23.4	24.	--	--	430.	1.3	9.0	560.
9	743.8	23.2	17.	65.	82.	300.	1.9	10.9	570.
F-10	745.7	22.0	20.	--	--	340.	0.8	11.7	270.
11	746.5	19.4	14.	86.	100.	220.	0.5*		
F-12	747.7	21.5	20.	--	--	330.	1.2	12.9	400.
13	748.8	19.9	25.	75.	100.	390.	1.4	14.3	550.
F-14	750.0	19.8	31.	--	--	480.	1.3	15.6	620.
15	751.0	23.6	21.	79.	100.	380.	1.1	16.7	420.
F-16	752.0	23.8	21.	--	--	380.	1.2	17.9	460.
17	753.3	23.2	20.	75.	95.	360.	0.8	18.7	290.
F-18	754.4	24.5	19.	--	--	370.	1.1	19.8	410.
19	755.5	25.9	19.	75.	94.	370.	1.2	21.0	440.
F-20	756.6	25.0	19.	--	--	370.	1.3	22.3	480.
21	757.6	24.7	19.	81.	100.	360.	1.1	23.4	400.
F-22	758.8	23.2	19.	--	--	340.	1.0	24.4	340.
23	759.8	22.9	20.	79.	99.	350.	1.3	25.7	460.
F-24	761.0	23.2	27.	--	--	480.	0.8	26.5	380.
25	761.9	17.8	63.	37.	100.	870.	0.8*		

* Not included in cumulative feet of sand.

W

EARLOUGHER ENGINEERING

RESULTS OF LABORATORY FLOODING TESTS

COMPANY Belleair Oil Corporation LEASE Barker WELL NO. W-33

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	734.6	20.9	75.	17.	--	280.	40.	10,272.	435.	17.	82.	270.	7.	
F-4	736.5	17.4	80.	31.	--	420.	40.	206.	555.	22.	68.	290.	134.	
F-6	739.6	22.1	133.	20.	--	340.	40.	14,964.	615.	17.	82.	280.	64.	
F-8	742.4	23.4	110.	24.	--	430.	40.	4,359.	615.	16.	71.	290.	139.	
F-10	745.7	22.0	119.	20.	--	340.	40.	9,787.	555.	17.	80.	300.	35.	
F-12	747.7	21.5	63.	20.	--	330.	40.	2,258.	615.	13.	75.	210.	121.	
F-14	750.0	19.8	110.	31.	--	480.	40.	4,758.	555.	19.	81.	290.	188.	
F-16	752.0	23.8	240.	21.	--	380.	40.	1,272.	555.	13.	73.	230.	152.	
F-18	754.4	24.5	300.	19.	--	370.	40.	16,727.	735.	15.	80.	290.	77.	
F-20	756.6	25.0	400.	19.	--	370.	20-40.	14,144.	675.	17.	79.	320.	48.	
F-22	758.8	23.2	368.	19.	--	340.	20-40.	14,307.	735.	16.	76.	290.	51.	
F-24	761.0	23.2	340.	27.	--	480.	20-40.	15,791.	675.	19.	68.	340.	139.	

W

1/ Initial oil and water 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-33

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	727.2	0.2	0.3*			28	748.0	81.	0.3	13.2	24.
2	732.9	51.	0.2	0.2	10.	29	748.6	81.	0.5	13.7	41.
3	733.3	34.	0.3	0.5	10.	30	749.1	73.	0.6	14.3	44.
4	733.8	88.	0.4	0.9	35.	31	749.7	167.	0.7	15.0	117.
5	734.3	78.	0.6	1.5	47.	32	750.2	46.	0.6	15.6	28.
6	734.8	73.	0.5	2.0	37.	33	750.8	562.	0.5	16.1	281.
7	735.3	124.	0.8	2.8	99.	34	751.3	355.	0.6	16.7	213.
8	735.9	93.	0.3	3.1	28.	35	751.9	289.	0.5	17.2	145.
9	736.3	97.	0.4	3.5	39.	36	752.4	184.	0.7	17.9	129.
10	737.0	30.	0.5	4.0	15.	37	753.1	237.	0.4	18.3	95.
11	738.7	36.	0.9	4.9	32.	38	753.6	263.	0.4	18.7	105.
12	739.4	146.	0.5	5.4	73.	39	754.1	246.	0.5	19.2	123.
13	739.9	102.	0.4	5.8	41.	40	754.6	320.	0.6	19.8	192.
14	740.3	237.	0.5	6.3	119.	41	755.2	548.	0.6	20.4	329.
15	740.8	70.	0.4	6.7	28.	42	755.8	578.	0.6	21.0	347.
16	741.3	38.	0.4	7.1	15.	43	756.3	454.	0.6	21.6	272.
17	741.8	139.	0.4	7.5	56.	44	756.9	215.	0.3	21.9	65.
18	742.1	21.	0.2	7.7	4.2	45	757.4	70.	0.4	22.3	28.
19	742.7	169.	0.7	8.4	118.	46	758.0	316.	0.7	23.0	221.
20	743.3	194.	0.6	9.0	116.	47	758.5	368.	0.4	23.4	147.
21	744.0	208.	0.9	9.9	187.	48	759.0	364.	0.6	24.0	218.
22	744.8	104.	1.0	10.9	104.	49	759.5	457.	0.4	24.4	183.
23	745.9	121.	0.5	11.4	61.	50	760.1	434.	0.8	25.2	347.
24	746.2	231.	0.3	11.7	69.	51	760.6	566.	0.5	25.7	283.
25	746.7	0.5	0.5*			52	761.2	85.	0.8	26.5	68.
26	747.1	29.	0.5	12.2	15.	53	761.7	0.8	0.4*		
27	747.5	31.	0.7	12.9	22.	54	762.2	4.9	0.4*		

* Not included in cumulative feet of sand.

W