OILFIELD RESEARCH LABORATORIES

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4-25-21E

May 2, 1959

Southeastern Company
c/o Mr. D. E. Blocksome
Sears Roebuck & Company
Topeka, Kansas

Gentlemen:

Enclosed herewith is the report of the partial analysis of the Cable Tool core taken from the Bartlett Lease, Well No. I-21, Allen County, Kansas, and submitted to our laboratory on April 23, 1959.

From a study of the enclosed data, it is evident that an efficient water-flood will recover approximately 655 barrels of oil per acre from the upper sand and 1,135 from the lower sand.

This core was sampled and the samples were sealed in cans by a representative of our laboratory.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. Pate

Carl L. Pate

Bartlett I-21

CLP:cs

1 c. to Mr. Dave Ludlum

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GENERAL INFORMATION & SUMMARY

Company Southeastern Company Lease Bartlett Well No. I-21

Location E½, NW¼

Section 4 Twp. 25S Rge. 21E County Allen State Kansas

Name of Sand - - - - - - - UPPER SAND - - - - - - -	Bartlesville
Top of Core -	743.2
Bottom of Core - - - - - - - - - - - - - - - - - - -	755.9
Top of Sand -	743.2
Bottom of Sand - - - - - - - - - - - - - - - - - - -	755.9
Total Feet of Permeable Sand - - - - - - - - - - - - - - - - -	8.7
Total Feet of Floodable Sand - - - - - - - - - - - - - - - - -	3.9

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.

Effective Average Permeability Millidarcys - - - - - - - - - - - - - - - -	3.57
Average Percent Porosity - - - - - - - - - - - - - - - - - -	18.7
Average Percent Oil Saturation - - - - - - - - - - - - - - - - -	26.4
Average Percent Water Saturation - - - - - - - - - - - - - - - -	-
Average Oil Content, Bbls./A. Ft. - - - - - - - - - - - - - - - -	386.
Total Oil Content, Bbls./Acre - - - - - - - - - - - - - - - - -	4,126.
Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - - -	3.4
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - -	59.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - - -	172.
Total Calculated Oil Recovery, Bbls./Acre - - - - - - - - - - - - - -	655.
Packer Setting, Feet -	744.
Viscosity, Centipoises @ - - - - - - - - - - - - - - - - - - -	
A. P. I. Gravity, degrees @ 60 °F - - - - - - - - - - - - - - - -	
Elevation, Feet -	

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GENERAL INFORMATION & SUMMARY

Company Southeastern Company Lease Bartlett Well No. I-21

Location E½, NW¼

Section 4 Twp. 25S Rge. 21E County Allen State Kansas

Name of Sand - - - - - - - - LOWER SAND - - - - - - -	Bartlesville
Top of Core -	763.0
Bottom of Core - - - - - - - - - - - - - - - - - - -	778.8
Top of Sand -	767.2
Bottom of Sand - - - - - - - - - - - - - - - - - - -	777.3
Total Feet of Permeable Sand - - - - - - - - - - - - - - - -	9.9
Total Feet of Floodable Sand - - - - - - - - - - - - - - -	7.7

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.

Effective Average Permeability Millidarcys - - - - - - - - - - - - - - -	9.00
Average Percent Porosity - - - - - - - - - - - - - - - - -	20.8
Average Percent Oil Saturation - - - - - - - - - - - - - - - -	28.2
Average Percent Water Saturation - - - - - - - - - - - - - - -	-
Average Oil Content, Bbls./A. Ft. - - - - - - - - - - - - - - -	451.
Total Oil Content, Bbls./Acre - - - - - - - - - - - - - - - -	4,466.
Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - - -	2.3
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - -	35.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - - -	272.
Total Calculated Oil Recovery, Bbls./Acre - - - - - - - - - - - - -	1,135.
Packer Setting, Feet - - - - - - - - - - - - - - - - - - -	744.
Viscosity, Centipoises @ - - - - - - - - - - - - - - - - - -	
A. P. I. Gravity, degrees @ 60 °F - - - - - - - - - - - - - - -	
Elevation, Feet -	

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SHOT RECOMMENDATION

Company Southeastern Company Lease Bartlett Well No. I-21

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Qts.
		UPPER SAND		
747.0 - 754.5	7.5	3½	2.0	15.0
		LOWER SAND		
771.0 - 775.0	4.0	3½	2.0	8.0

Recommended Packer Setting 744.0'

Note: Plug hole back to 776.0'

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LOG

Company Southeastern Company Lease Bartlett Well No. I-21

Depth Interval, Feet	Description
	UPPER SAND
743.2 - 745.0	Brown medium grained micaceous slightly carbonaceous slightly calcareous sandstone.
745.0 - 752.8	Brown medium grained micaceous sandstone.
752.8 - 755.9	Hard brown fine grained micaceous calcareous sandstone.
755.9 - 763.0	Shale (drilled with tools).
	LOWER SAND
763.0 - 763.5	Gray shale.
763.5 - 764.0	Gray shaley sandstone.
764.0 - 767.2	Gray sandy shale.
767.2 - 773.2	Brown fine grained micaceous slightly laminated carbonaceous sandstone.
773.2 - 773.4	Hard brown shale.
773.4 - 777.3	Brown fine grained micaceous slightly laminated carbonaceous sandstone.
777.3 - 778.8	Coal.

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RESULTS OF SATURATION TESTS

TABLE II

Company Southeastern Company Lease Bartlett Well No. I-21

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water	Total		Ft.	Cum. Ft.	
				UPPER SAND					
1	743.5	17.2	31	-	-	414	0.8	0.8	331
2	744.5	16.7	41	-	-	532	1.0	1.8	532
4	746.5	18.8	28	-	-	409	1.0	2.8	409
5	747.5	23.5	23	-	-	419	1.0	3.8	419
7	749.5	24.1	30	-	-	561	1.0	4.8	561
8	750.5	23.2	22	-	-	396	1.0	5.8	396
9	751.5	16.9	29	-	-	380	1.0	6.8	380
10	752.5	12.8	21	-	-	209	0.8	7.6	167
11	753.5	16.1	24	-	-	300	1.2	8.8	360
12	754.5	14.4	16	-	-	179	1.0	9.8	179
13	755.5	21.6	26	-	-	436	0.9	10.7	392
				LOWER SAND					
14	767.5	19.2	27	-	-	402	0.8	11.5	322
15	768.5	17.7	31	-	-	425	1.0	12.5	425
16	769.5	20.5	28	-	-	445	1.0	13.5	445
17	770.5	19.0	31	-	-	457	1.0	14.5	457
18	771.5	20.4	32	-	-	506	1.0	15.5	506
19	772.5	20.9	26	-	-	422	1.2	16.7	506
20	773.5	20.7	28	-	-	449	0.6	17.3	269
21	774.5	22.6	27	-	-	473	1.0	18.3	473
22	775.5	22.2	25	-	-	431	1.0	19.3	431
23	776.5	23.2	27	-	-	486	1.3	20.6	632
							Total-	- - - - - -	-8,592

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Southeastern Company Lease Bartlett Well No. I-21

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
			UPPER SAND			
743.2 - 755.9	10.7	18.7	26.4	-	386	4,126
			LOWER SAND			
767.2 - 777.3	9.9	20.8	28.2	-	451	4,466

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Southeastern Company Lease Bartlett Well No. I-21

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
						UPPER SAND						
1	743.5	17.2	31	414	0	0	31	66	414	10	0.320	40
2	744.5	16.7	41	532	0	0	41	54	532	2	0.133	50
4	746.5	18.8	28	409	0	0	28	70	409	7	0.140	35
5	747.5	23.5	23	419	0	0	23	70	419	12	0.346	30
7	749.5	24.1	30	561	7	131	23	69	430	150	8.58	15
8	750.5	23.2	22	396	0	0	22	70	396	37	1.21	20
9	751.5	16.9	29	380	2	26	27	69	354	12	0.424	30
10	752.5	12.8	21	209	0	0	21	76	209	0	Imp.	50+
11	753.5	16.1	24	300	0	0	24	74	300	67	-	10
12	754.5	14.4	16	179	0	0	16	79	179	8	0.249	35
13	755.5	21.6	26	436	1	17	25	65	419	63	1.50	20
						LOWER SAND						
14	767.5	19.2	27	402	2	30	25	65	372	93	9.52	15
15	768.5	17.7	31	425	2	27	29	68	398	81	2.93	20
16	769.5	20.5	28	445	1	16	27	67	429	191	5.35	10
17	770.5	19.0	31	457	5	74	26	69	383	174	3.87	15
18	771.5	20.4	32	506	4	63	28	68	443	167	11.00	10
19	772.5	20.9	26	422	0	0	26	69	422	110	13.81	5
20	773.5	20.7	28	449	1	16	27	70	433	26	0.647	30
21	774.5	22.6	27	473	2	35	25	71	438	138	12.31	10
22	775.5	22.2	25	431	0	0	25	73	431	88	17.90	5
23	776.5	23.2	27	486	1	18	26	64	468	100	19.92	10

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Southeastern Company Lease Bartlett Well No. I-21

	UPPER SAND	LOWER SAND
Depth Interval, Feet	749.0 - 755.9	767.2 - 777.3
Feet of Core Analyzed	2.9	7.7
Average Percent Porosity	20.8	20.6
Average Percent Original Oil Saturation	28.4	27.9
Average Percent Oil Recovery	3.4	2.3
Average Percent Residual Oil Saturation	25.0	25.6
Average Percent Residual Water Saturation	67.8	67.6
Average Percent Total Residual Fluid Saturation	92.8	93.2
Average Original Oil Content, Bbls./A. Ft.	459.	457.
Average Oil Recovery, Bbls./A. Ft.	59.	35.
Average Residual Oil Content, Bbls./A. Ft.	400.	422.
Total Original Oil Content, Bbls./Acre	1,333.	3,527.
Total Oil Recovery, Bbls./Acre	172.	272.
Total Residual Oil Content, Bbls./Acre	1,161.	3,255.
Average Effective Permeability, Millidarcys	3.57	9.00
Average Initial Fluid Production Pressure, p.s.i.	21.7	15.0

NOTE: Only those samples which recovered oil were used in calculating the above averages.