

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

January 6, 1981

Gator Oil Company
2326 S. Congress Avenue
Suite 1-B
West Palm Beach, Florida 33406

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Boyce Lease, Well No. 1, located in Montgomery County, Kansas and submitted to our laboratory on November 6, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/mkf

4 c to West Palm Beach, Fl.
1 c to Caney, Ks.

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GENERAL INFORMATION & SUMMARY

Company Gator Oil Company Lease Boyce Well No. 1

Location 165° FSL & 1155° FWL NE $\frac{1}{4}$

Section 17 Twp. 34S Rge. 14E County Montgomery State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Bartlesville

Top of Core - - - - - 1270.0

Bottom of Core - - - - - 1278.3

Top of Sand - - - - - 1270.0

Bottom of Sand - - - - - (Tested) 1276.6

Total Feet of Permeable Sand - - - - - 6.0

Total Feet of Floodable Sand - - - - - 2.2

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	2.1	2.1
5 - 10	2.2	4.3
20 & Above	1.7	6.0

Average Permeability Millidarcys - - - - - 12.8

Average Percent Porosity - - - - - 15.5

Average Percent Oil Saturation - - - - - 39.6

Average Percent Water Saturation - - - - - 39.4

Average Oil Content, Bbls./A. Ft. - - - - - 475.

Total Oil Content, Bbls./Acre - - - - - 2,855.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 4.2

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 60.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 132.

Total Calculated Oil Recovery, Bbls./Acre - - - - -

See "Calculated Recovery"
Section

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This core was sampled and the samples sealed in plastic bags by a representative of the client. The well was drilled in non-virgin territory using fresh water mud as the circulating fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, <u>Feet</u>	<u>Description</u>
1270.0 - 1271.2	Brown slightly shaly sandstone.
1271.2 - 1272.9	Brown slightly calcareous sandstone.
1272.9 - 1273.5	Light brown and gray laminated slightly calcareous sandstone and shale.
1273.5 - 1276.6	Brown slightly calcareous shaly sandstone.
1276.6 - 1278.3	Gray shale.

LABORATORY FLOODING TESTS

The upper portion of the sand in this core responded to laboratory flooding tests, as a total recovery of 132 barrels of oil per acre was obtained from 2.2 feet of sand. The weighted average percent oil saturation was reduced from 41.3 to 37.1, or represents an average recovery of 4.2 percent. The weighted average effective permeability of the samples is

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2.89 millidarcys, while the average initial fluid production pressure is 27.5 pounds per square inch (See Table V).

CALCULATED RECOVERY

A study of the results of the laboratory testing indicates that efficient primary and waterflooding operations in the vicinity of this well should recover approximately 510 barrels of oil per acre. This is an average recovery of 233 barrels per acre foot from the 2.2 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.09
Reservoir water saturation, percent, estimated	25.0
Average porosity, percent	18.9
Oil saturation after flooding, percent	37.1
Performance factor, percent, estimated	50.0
Net floodable pay sand, feet	2.2

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Gator Oil Company Lease Boyce Well No. 1

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	1270.5	18.2	44	31	75	621	8.5	1.2	1.2	745	10.20
2	1271.5	19.7	38	33	71	581	24.	1.0	2.2	581	24.00
3	1272.5	15.1	33	47	80	387	47.	0.7	2.9	271	32.90
4	1273.7	14.7	58	29	87	661	1.6	0.5	3.4	331	0.80
5	1274.5	10.8	47	39	86	394	1.5	1.0	4.4	394	1.50
6	1275.5	13.7	31	52	83	330	6.6	1.0	5.4	330	6.60
7	1276.5	15.3	28	46	74	339	1.3	0.6	6.0	203	0.78

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Lease		Boyce		Well No.		1	
Gator Oil Company									
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.						
1270.0 - 1276.6	6.0	12.8	76.78						
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			
1270.0 - 1276.6	6.0	15.5	39.6	39.4	475	2,855			

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company			Gator Oil Company			Lease			Boyce			Well No.			1		
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.								
1	1270.5	18.0	44	614	6	84	38	52	530	87	1.80	30					
2	1271.5	20.0	38	590	2	31	36	60	559	202	4.20	25					
3	1272.5	14.8	33	379	0	0	33	65	379	206	11.57	20					
4	1273.7	14.8	58	666	0	0	58	30	666	0	Imp.	-					
5	1274.5	11.1	46	396	0	0	46	42	396	0	Imp.	-					
6	1275.5	13.6	31	327	0	0	31	53	327	0	Imp.	-					
7	1276.5	15.6	29	351	0	0	29	50	351	0	Imp.	-					

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

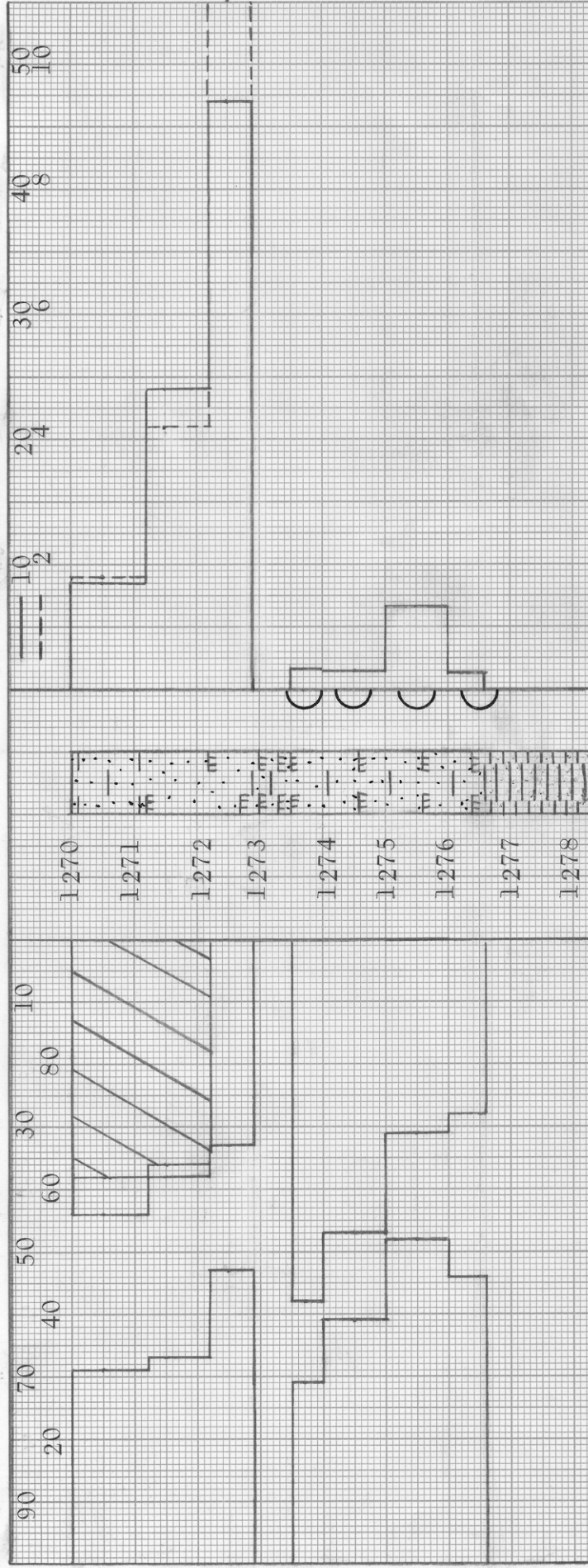
TABLE V

Company	Lease	Boyce	Well No.
Gator Oil Company			1
Depth Interval, Feet	1270.0 - 1276.6		
Feet of Core Analyzed	2.2		
Average Percent Porosity	18.9		
Average Percent Original Oil Saturation	41.3		
Average Percent Oil Recovery	4.2		
Average Percent Residual Oil Saturation	37.1		
Average Percent Residual Water Saturation	55.6		
Average Percent Total Residual Fluid Saturation	92.7		
Average Original Oil Content, Bbls./A. Ft.	604.		
Average Oil Recovery, Bbls./A. Ft.	60.		
Average Residual Oil Content, Bbls./A. Ft.	544.		
Total Original Oil Content, Bbls./Acre	1,327.		
Total Oil Recovery, Bbls./Acre	132.		
Total Residual Oil Content, Bbls./Acre	1,195.		
Average Effective Permeability, Millidarcys	2.89		
Average Initial Fluid Production Pressure, p.s.i.	27.5		

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

WATER SAT., ———→ OIL SAT., ———→ PERCENT

———— PERMEABILITY, IN MILLIDARCYS
----- EFFECTIVE PERMEABILITY TO WATER,
IN MILLIDARCYS



KEY:

- SHALY SANDSTONE
- LAMINATED CALCAREOUS SANDSTONE
- SHALE

IMPERMEABLE TO WATER

CALCAREOUS SANDSTONE

SHALY CALCAREOUS SANDSTONE

FLOODPOT RESIDUAL OIL SATURATION

GATOR OIL COMPANY

BOYCE LEASE

WELL NO. 1

MONTGOMERY COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY PERCENT	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY MILLIDARCYS	CALCULATED OIL RECOVERY BBLS./ACRE

GATOR OIL COMPANY

BOYCE LEASE

WELL NO. 1

MONTGOMERY COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY PERCENT	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY MILLIDARCS	CALCULATED OIL RECOVERY BBLs./ACRE

1270.0 - 1276.6	6.0	15.5	39.6	39.4	12.8	233
						(PRIMARY & WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JANUARY, 1981
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