July 15, 1950

7-34-17E

Mr. C. L. Hester
605 McBirney
Tulsa, Oklahoma

Gentlemen:

Enclosed herewith is the report of the partial analysis made on the Baker barrel core taken from the McDugin Lease, Well No. 10, Montgomery County, Kansas, and submitted to our laboratory on July 10, 1950.

In calculating the recovery for the sand within the vicinity of this well, an allowance was made for oil lost during coring; and it was assumed that the true water saturation of the sand is 40 percent and that the sand is not pressured up. Inasmuch as there was considerable core lost, the calculated recovery is naturally a minimum value.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:cc

McGugin 10

C. L. HESTER

CORE ANALYSIS REPORT

McGUGIN LEASE WELL NO. 10

MONTGOMERY COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

JULY 15, 1950

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company G. L. Hester Lease McDugin Well No. 10

Location

Section 7 (?) Twp. 34S (?) Rge. 17E (?) County Montgomery State Kansas

Name of Sand	Peru
Top of Core	341.00
Bottom of Core	354.00
Top of Sand	?
Bottom of Pay Sand	352.53
Total Feet of Permeable Sand	2.45

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 25	0.95	0.95
25 - 35	1.00	1.95
35 & above	0.50	2.45

Average Permeability, Millidarcys	31.02
Average Percent Porosity	16.76
Average Percent Oil Saturation	33.47
Average Percent Water Saturation	-
Average Oil Content, Bbls./A. Ft.	450.
Total Oil Content, Bbls./Acre	3,867.
Average Percent Oil Recovery by Laboratory Flooding Tests	9.98
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	145..
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	661.
Total Calculated Oil Recovery, Bbls./Acre	1,050.
Packer Setting, Feet	341.0
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	

Note: The above averages are for that part of the sand section extending from the packer setting to the top of the cement plug.

OIL FIELD RESEARCH LABORATORIES

LOG

Company C. L. Hester Lease McGugin Well No. 10

Depth Interval, Feet	Description
341.00 - 341.25	Loss - cuttings.
341.25 - 342.00	Brown fine grained micaceous shaley sandstone.
342.00 - 343.00	Brown fine grained micaceous sandstone.
343.00 - 343.70	Gray shale.
343.70 - 346.35	Brown fine grained micaceous sandstone.
346.35 - 348.00	Brown fine grained micaceous calcareous sandstone.
348.00 - 349.00	Loss - cuttings.
349.00 - 350.60	Brown fine grained micaceous slightly calcareous sandstone.
350.60 - 351.00	Brown fine grained micaceous calcareous sandstone.
351.00 - 351.35	Limestone.
351.35 - 351.70	Loss - cuttings.
351.70 - 351.80	Brown fine grained micaceous sandstone.
351.80 - 351.95	Loss - cuttings.
351.95 - 352.53	Brown fine grained micaceous calcareous sandstone.
352.53 - 353.40	Loss - cuttings.
353.40 - 353.75	Brown fine grained micaceous calcareous sandstone.
353.75 - 354.00	Loss - cuttings.

Oil Field Research Laboratories

SHOT RECOMMENDATION

Company O. L. Hester Lease McGugin Well No. 10

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Quarts
345.0 - 351.5	6.5	4.0	2.5	16.25

Recommended Packer Setting - 341.0 feet
Note: Plug hole back to 352.5 feet

Oil Field Research Laboratories

RESULTS OF PERMEABILITY TESTS

TABLE I

Company C. L. Hester Lease McGugin Well No. 10

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	342.92	50.	0.50	0.50	25.00
2	344.00	22.	0.50	1.00	11.00
3	344.40	31.	0.50	1.50	15.50
4	347.95	30.	0.50	2.00	15.00
5	351.25	22.	0.35	2.35	7.70
6	351.75	18.	0.10	2.45	1.80

Oil Field Research Laboratories

SUMMARY OF PERMEABILITY TESTS

TABLE II

Company G. L. Hester Lease McGugin Well No. 10

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity, Ft. x Md.
342.50 - 344.70	1.50	34.33	51.50
347.50 - 351.80	0.95	25.79	24.50
341.00 - 352.50	2.45	31.02	76.00

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company C. L. Hester Lease McGuglin Well No. 10

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.	
1	341.55	12.8	12.3	-	-	122	0.75	0.75	92
2	342.40	23.8	35.7	-	-	662	1.00	1.75	662
4	344.10	21.0	46.6	51.7	98.3	760	1.00	2.75	760
5	345.30	17.7	25.9	-	-	356	0.90	3.65	320
6	345.85	14.9	26.5	-	-	306	0.75	4.40	230
7	346.55	11.3	21.6	-	-	190	0.65	5.05	124
8	347.35	15.3	40.5	-	-	482	1.00	6.05	482
10	349.40	16.6	40.1	-	-	517	1.60	7.65	827
11	350.84	10.9	37.4	-	-	316	0.40	8.05	126
13	352.23	16.1	35.5	-	-	445	0.58	8.63	258
14	353.55	13.9	40.3	-	-	436	0.35	8.98	153
							Total	- - - - -	4,034

Oil Field Research Laboratories

SUMMARY OF SATURATION TESTS

TABLE IV

Company C. L. Hester Lease McCugin Well No. 10

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbls./A. Ft.	Total Oil Content Bbls./Acre
341.05-347.00	5.05	17.60	29.45	-	433	2,188
347.00-353.75	3.93	15.39	39.26	-	470	1,846
341.00-352.50	8.60	16.76	33.47	-	450	3,867

Oil Field Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company C. L. Hester Lease McCugin Well No. 10

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	[redacted] Effective Permeability, Millidarcys	Initial Fluid Production Pressure Lbs./Sq. In.
			Percent	Bbls./A. Ft.	Percent	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	341.55	12.8	12.3	122	0.0	0	12.3	76.3	122	0	Imp.	50+
2	342.40	23.8	35.7	662	16.6	308	19.1	70.7	354	82	10.78	10
5	345.30	17.7	25.9	356	0.0	0	25.9	64.8	356	4.5	0.104	40
6	345.85	14.9	26.5	306	0.0	0	26.5	62.4	306	4	0.097	40
7	346.55	11.3	21.6	190	0.0	0	21.6	65.2	190	0	Imp.	50+
8	347.35	15.3	40.5	482	9.9	118	30.6	65.4	364	121.5	6.67	15
10	349.40	16.6	40.1	517	9.8	126	30.3	64.1	391	161	11.45	10
11	350.84	10.9	37.4	316	3.7	31	33.7	61.9	285	16	0.402	35
13	352.23	16.1	35.5	445	3.1	39	32.4	64.0	406	52	0.840	20
14	353.55	13.9	40.3	436	0.0	0	40.3	52.5	436	239	2.87	5

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.

Oil Field Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company C. L. Hester Lease McGuglin Well No. 10

Depth Interval, Feet	341.00 - 352.50
Feet of Core Analyzed	4.55
Average Percent Porosity	17.36
Average Percent Original Oil Saturation	38.44
Average Percent Oil Recovery	9.98
Average Percent Residual Oil Saturation	28.46
Average Percent Residual Water Saturation	65.63
Average Percent Total Residual Fluid Saturation	94.09
Average Original Oil Content, Bbls./A. Ft.	514.
Average Oil Recovery, Bbls./A. Ft.	145.
Average Residual Oil Content, Bbls./A. Ft.	369.
Total Original Oil Content, Bbls./Acre	2,341.
Total Oil Recovery, Bbls./Acre	661.
Total Residual Oil Content, Bbls./Acre	1,680.
Average Effective Permeability, Millidarcys	7.99
Average Initial Fluid Production Pressure, p.s.i.	18.0

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