

OIL FIELD RESEARCH LABORATORIES
CHANUTE, KANSAS

October 24, 1951

Hardesty & Schoonover
Richard Hotel
Garnett, Kansas

Gentlemen:

Enclosed herewith is the report of the partial analysis of the Cable Tool core taken from your Mehl Lease, Well No. KI-3, Linn County, Kansas, and submitted to our laboratory on October 15, 1951.

In calculating the recovery for the area represented by this core, an allowance was made for oil lost during coring, and it is assumed that the true water saturation of the sand is 35 percent and that the well was drilled in semi-virgin territory.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Clayton A. Nattier

CAN:sm
e.c.

32-19-22E

KI-3

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HARDESTY & SCHOONOVER

CORE ANALYSIS REPORT

KEHL LEASE WELL NO. KI-3

LINN COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

OCTOBER 24, 1951

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Hardesty & Schoonover Lease Kehl Well No. KI-3

Location NE $\frac{1}{4}$

Section 32 Twp. 19S Rge. 22E County Linn State Kansas

Name of Sand Bartlesville

Top of Core 657.40

Bottom of Core 676.00

Top of Sand 658.80

Bottom of ^{Pay}Sand 674.80

Total Feet of Permeable Sand **(Analyzed)** 9.60

Total Feet of ^{Good}Floodable Sand **(Analyzed)** 7.80

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
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Average ^{Effective} Permeability Millidarcys	10.89
Average Percent Porosity	20.50
Average Percent Oil Saturation	26.77
Average Percent Water Saturation	-
Average Oil Content, Bbls./A. Ft.	425.
Total Oil Content, Bbls./Acre	4,594.
Average Percent Oil Recovery by Laboratory Flooding Tests	4.81
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	82.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	636.
Total Calculated Oil Recovery, Bbls./Acre	3,450.
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

OIL FIELD RESEARCH LABORATORIES
CHANUTE, KANSAS

LOG

Company Hardesty & Schoenover Lease Kehl Well No. KI-3

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
657.40 - 658.80	- Sandy shale.
658.80 - 658.95	- Brown fine grained micaceous sandstone.
658.95 - 659.25	- Gray sandy shale.
659.25 - 659.90	- Brown fine grained micaceous sandstone.
659.90 - 660.25	- Light brown fine grained micaceous sandstone.
660.25 - 660.95	- Brown fine grained micaceous sandstone.
660.95 - 661.70	- Gray sandy shale.
661.70 - 663.95	- Brown fine grained micaceous sandstone.
663.95 - 664.45	- Finely laminated shaley sandstone.
664.45 - 665.35	- Finely laminated sandy shale.
665.35 - 667.55	- Brown fine grained micaceous sandstone.
667.55 - 667.80	- Brown fine grained micaceous shaley sandstone.
667.80 - 668.75	- Brown fine grained micaceous sandstone.
668.75 - 670.25	- Gray sandy shale.
670.25 - 671.85	- Brown fine grained micaceous sandstone.
671.85 - 672.90	- Gray sandy shale.
672.90 - 673.10	- Hard brown fine grained micaceous sandstone.
673.10 - 673.25	- Gray sandy shale.
673.25 - 673.90	- Hard brown fine grained micaceous carbonaceous sandstone.
673.90 - 674.05	- Hard brown fine grained micaceous calcareous carbonaceous sandstone.
674.05 - 674.80	- Hard brown fine grained micaceous carbonaceous sandstone.
674.80 - 675.05	- Hard brown fine grained micaceous carbonaceous calcareous sandstone.
675.05 - 675.00	- Hard brown fine grained micaceous carbonaceous sandstone.

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RESULTS OF SATURATION TESTS

TABLE III

Company **Hardesty & Schoonover** Lease **Kohl** Well No. **KI-3**

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.	
2	658.57	24.2	27.5	-	-	518	0.15	0.15	78
3	659.83	23.9	22.5	-	-	417	0.65	0.80	271
4	660.78	24.3	26.5	-	-	500	0.70	1.50	350
5	661.78	19.8	22.1	-	-	339	0.50	2.00	170
6	662.58	23.2	27.7	-	-	499	0.90	2.90	449
7	663.57	21.3	37.8	-	-	626	0.85	3.75	533
9	665.61	22.9	23.9	-	-	424	0.65	4.40	276
10	666.40	23.3	22.5	-	-	407	0.90	5.30	366
11	667.49	24.5	21.6	-	-	410	0.65	5.95	266
12	668.48	20.6	30.0	-	-	480	0.95	6.90	456
13	670.38	17.6	29.9	-	-	408	0.60	7.50	243
14	671.33	21.5	28.5	-	-	442	1.00	8.50	442
15	672.97	23.3	28.8	-	-	520	0.20	8.70	104
16	674.98	16.9	28.0	-	-	367	0.90	9.60	330
17	675.01	16.0	28.5	-	-	354	0.25	9.85	89
18	675.92	9.4	24.0	-	-	178	0.95	10.80	169
							Total -	- - - - -	- 4,594

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SUMMARY OF SATURATION TESTS

TABLE IV

Company Hardisty & Schoenover Lease Kohl Well No. KI-3

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
658.80-663.95	3.75	22.69	28.11	-	494	1,851
665.35-668.75	3.15	22.67	24.89	-	433	1,364
670.25-676.00	3.90	16.64	27.00	-	354	1,379
658.80-676.00	10.80	20.50	26.77	-	425	4,594

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RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Hardesty & Schoonover Lease Kehl Well No. KI-3

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.
			Percent	Bbls./A. Ft.	Percent	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
2	658.87	24.2	27.5	518	4.7	88	22.8	66.0	430	187	24.80	5
3	659.83	23.9	22.5	417	1.3	24	21.2	64.8	393	264	16.28	5
4	660.78	24.3	26.5	500	5.7	108	20.8	67.5	392	214	22.99	5
5	661.78	19.8	22.1	339	4.0	61	18.1	66.1	278	181	9.81	5
6	662.58	23.2	27.7	499	4.1	74	23.6	68.5	425	99	12.61	5
7	663.57	21.3	37.8	626	10.8	179	27.0	65.7	447	111	2.12	15
9	665.61	22.9	23.9	424	2.6	46	21.3	66.2	378	116	11.58	5
10	666.40	23.3	22.5	407	0.0	0	22.5	68.8	407	120	11.05	5
11	667.49	24.5	21.6	410	0.6	11	21.0	67.2	399	215	15.22	5
12	668.48	20.6	30.0	480	4.1	66	25.9	68.7	414	133	13.52	5
13	670.38	17.6	29.9	408	3.5	48	26.4	69.0	360	53	1.70	20
14	671.33	21.5	26.5	442	7.3	122	19.2	71.5	320	134	4.70	10
15	672.97	23.3	28.8	520	8.3	150	20.5	67.6	370	126	2.24	10
16	674.98	16.9	28.0	367	0.0	0	28.0	63.4	367	50	1.39	20
17	675.01	16.0	28.5	354	0.0	0	28.5	61.5	354	0	Imp.	50 ⁺
18	675.92	9.4	24.0	178	0.0	0	24.0	40.0	178	0	Imp.	50 ⁺

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	Lease				Well No.
Hardesty & Schoonover	Kahl				KI-3
Depth Interval, Feet	658.80 - 663.95	665.35 - 669.75	670.25 - 673.10	658.80-673.10	
Feet of Core Analyzed	3.75	2.25	1.80	7.80	
Average Percent Porosity	22.62	22.40	20.44	22.09	
Average Percent Original Oil Saturation	22.13	25.87	27.89	27.43	
Average Percent Oil Recovery	5.44	2.67	6.17	4.61	
Average Percent Residual Oil Saturation	22.89	23.20	21.72	22.62	
Average Percent Residual Water Saturation	66.64	67.64	70.22	67.76	
Average Percent Total Residual Fluid Saturation	89.33	90.84	91.94	90.38	
Average Original Oil Content, Bbls./A. Ft.	494.	444.	440.	467.	
Average Oil Recovery, Bbls./A. Ft.	95.	44.	101.	52.	
Average Residual Oil Content, Bbls./A. Ft.	399.	400.	339.	385.	
Total Original Oil Content, Bbls./Acre	1,851.	1,090.	791.	3,642.	
Total Oil Recovery, Bbls./Acre	355.	100.	181.	636.	
Total Residual Oil Content, Bbls./Acre	1,496.	990.	610.	3,096.	
Average Effective Permeability, Millidarcys	12.92	13.47	3.43	10.69	
Average Initial Fluid Production Pressure, p.s.i.	6.7	5.0	13.3	7.9	

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

