

OIL FIELD RESEARCH LABORATORIES
CHANUTE, KANSAS

April 26, 1961

Deep Rock Oil Corporation
Atlas Life Building
Tulsa, Oklahoma

Attention: Mr. T. F. Lawry

Gentlemen:

Enclosed herewith is the report of the analysis of the Cable Tool Core taken from the Gingrich Lease, well No. G-15, Franklin County, Kansas and submitted to our laboratory on April 19, 1961.

In calculating the recovery for the area represented by this core, no allowance was made for oil lost during coring and it was assumed that the sand is not pressured up. The reason why the calculated recovery is much lower than the flood pot recovery is due to the wide variation in effective permeability. Chances are considerable additional oil could be recovered by using proper selective plugging in the later stages of flood.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Clayton A. Mattier

CAM:cam

c.c. to Mr. Neil Henderson.

DEEP ROCK OIL CORPORATION

CORE ANALYSIS REPORT

GINGRICH LEASE WELL NO. G-13

FRANKLIN COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

APRIL 28, 1951

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Deep Rock Oil Corporation Lease Gingrich Well No. 3-15

Location _____

Section 29 Twp. 16 Rge. 21 County Franklin State Kansas

Name of Sand	Squirrel
Top of Core	585.10
Bottom of Core	622.60
Top of Sand ^{Pay}	585.55
Bottom of Sand ^{Pay}	612.00
Total Feet of Permeable Sand	25.15

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

Average ^{Effective} Permeability Millidarcys	1.95
Average Percent Porosity	19.98
Average Percent Oil Saturation	42.87
Average Percent Water Saturation	43.99
Average Oil Content, Bbls./A. Ft.	666.
Total Oil Content, Bbls./Acre	22,617.
Average Percent Oil Recovery by Laboratory Flooding Tests	14.64
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	234.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	5,889.
Total Calculated Oil Recovery, Bbls./Acre	1,750.
Packer Setting, Feet	-
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	

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CHANUTE, KANSAS

LOG

Company Deep Rock Oil Corporation Lease Gingrich Well No. G-15

<u>Depth Interval, Feet</u>	<u>Description</u>
585.10 - 585.55	- Light brown fine grained micaceous sandstone.
585.55 - 596.60	- Brown fine grained micaceous sandstone.
596.60 - 597.40	- Limestone.
597.40 - 612.00	- Brown fine grained micaceous sandstone.
612.00 - 613.82	- Brown fine grained micaceous slightly shaley sandstone.
613.82 - 614.25	- Brown fine grained micaceous sandstone.
614.25 - 615.50	- Brown fine grained finely laminated micaceous shaley sandstone.
615.50 - 615.70	- Brown fine grained micaceous sandstone.
615.70 - 621.60	- Brown fine grained finely laminated micaceous shaley sandstone.
621.60 - 622.60	- Brown fine grained carbonaceous micaceous sandstone.

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SHOT RECOMMENDATION

Company Deep Rock Oil Corporation Lease Gingrich Well No. G-15

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Quarts
590.5 - 593.5	3.0	2½	1.0	3.0
593.5 - 611.5	<u>18.0</u>	4½	3.1	<u>55.8</u>
Total	21.0			58.8

Recommended Packer Setting 585.5 feet.

Note: Apparently this well was shot before the above shot recommendation was reported.

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RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Cingrich Well No. Q-15

Sat. No.	Depth, Feet	Effective Porosity Percent	Percent Saturation		Oil Content, Bbls./A. Ft.	Feet of Core		Total Oil Content Bbls./Acre
			Oil	Water		Ft.	Cum. Ft.	
F-1A	586.04	22.7	32.2	-	567	1.05	1.05	596
F-1	587.15	19.0	31.6	-	665	0.80	1.85	972
F-2	587.90	17.8	31.1	52.0	430	1.30	3.15	560
F-3	589.60	16.3	40.2	-	509	1.30	4.45	661
F-4	596.80	22.2	43.1	48.9	702	1.10	5.55	816
F-5	591.70	24.1	40.0	-	763	1.20	6.75	915
F-6	593.00	19.8	46.0	-	706	1.50	8.25	1,060
F-7	594.60	17.2	44.2	-	590	1.70	9.95	1,001
F-8	597.90	20.7	52.3	-	816	0.90	10.85	1,754
F-9	598.70	20.5	54.6	-	868	1.60	12.45	1,390
F-10	600.85	21.6	51.6	37.8	865	2.00	14.45	1,730
F-11	602.00	20.2	54.4	36.5	852	1.60	16.05	1,761
F-12	604.10	20.9	51.5	-	873	1.30	17.35	1,081
F-13	605.40	20.3	48.5	41.0	763	1.50	18.85	1,148
F-14	606.70	21.4	43.8	-	728	1.60	20.45	1,161
F-15	609.10	19.6	43.2	-	656	1.50	21.95	1,985
F-16	609.80	19.8	42.7	46.2	656	0.95	22.90	624
F-17	610.90	19.6	40.6	-	617	1.65	24.55	1,020
F-18	612.60	20.4	42.8	45.4	677	1.00	25.55	1,677

RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Gingrich Well No. 6-15

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.	
20	613.40	21.1	42.0	45.9	87.9	687	0.82	26.37	564
F-20A	613.90	15.2	42.9	-	-	506	0.43	26.80	218
F-21	614.50	20.9	36.9	-	-	598	1.25	28.05	748
F-22	615.80	19.7	40.1	-	-	611	0.50	28.55	706
F-23	616.65	20.7	35.7	-	-	573	1.10	29.65	630
F-24	617.90	18.2	37.2	-	-	525	1.70	31.75	892
25	619.90	19.2	36.2	48.3	84.5	599	1.80	33.15	970
F-26	621.50	18.4	33.0	-	-	671	0.80	33.95	377
Total							total	- - - -	22,617

Note: "A" samples were taken from the core after it was received in the laboratory.

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SUMMARY OF SATURATION TESTS

TABLE IV

Company	Deep Rock Oil Corporation	Lease	Cincinnati	Well No.		
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
585.55-595.50	9.95	19.66	39.45	50.53	601	5,981
597.40-612.00	14.60	20.50	48.41	51.59	771	11,254
612.00-621.60	9.60	19.51	37.37	62.63	573	5,382
585.55-621.60	33.95	19.98	42.87	57.13	666	22,617

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RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Deep Rock Oil Corporation Lease Gingrich Well No. G-15

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.			
1A	586.04	22.7	32.2	567	5.4	95	26.8	69.7	472	70	5.79	20
1	587.15	19.0	31.6	465	0.0	0	31.6	63.3	465	0	Imp.	50+
2A	587.70	18.2	30.9	436	21.9	41	28.0	67.8	395	9	0.255	40
3	589.60	16.3	40.2	509	7.8	99	32.4	64.8	410	4	0.194	35
4A	590.50	22.2	42.1	725	10.2	176	31.9	63.9	549	138	7.86	15
5	591.70	24.1	40.8	763	15.8	296	25.0	65.0	467	101	12.40	10
6	593.00	19.8	51.0	783	23.5	361	27.5	68.0	422	5	0.405	20
7	594.60	17.2	44.2	590	12.2	163	32.0	66.7	427	12	0.286	35
8	597.90	20.7	52.3	838	31.2	500	21.1	72.2	338	51	1.22	20
9	598.70	20.5	54.6	868	25.8	410	28.8	66.6	458	23	0.629	15
10A	601.13	21.7	52.1	877	32.1	540	20.0	72.2	337	112	2.65	15
12	602.80	20.4	52.8	835	24.3	383	28.5	70.0	452	33	0.851	20
13	604.10	20.9	51.5	833	24.9	403	26.6	70.5	430	25	0.804	20
14A	605.80	20.9	45.8	742	16.0	259	29.8	63.1	483	64	1.20	20
15	606.70	21.4	43.8	726	8.7	144	35.1	61.9	582	7	0.249	30
16	609.10	19.6	43.2	656	6.2	94	37.0	58.9	562	41	0.919	15
18	610.90	19.6	40.6	617	55.0	76	35.6	59.3	541	22	0.376	15
19A	612.83	21.0	41.3	675	0.0	0	41.3	51.7	675	0	Imp.	50+
20A	613.90	15.2	42.9	506	0.0	0	42.9	37.6	506	0	Imp.	50+
21	614.50	20.9	36.9	598	1.1	18	35.8	59.7	580	0	Imp. 0.001	50
22	615.80	19.7	40.1	611	0.0	0	40.1	53.8	611	0	Imp.	50+
23	616.65	20.7	35.7	573	0.5	8	35.2	60.2	565	6	0.158	40
24	617.90	18.2	37.2	525	0.0	0	37.2	61.0	525	0	Imp.	50+
25A	620.15	19.3	35.0	524	0.0	0	35.0	55.0	524	0	Imp.	50+
26	621.50	18.4	33.0	471	0.0	0	33.0	52.9	471	2	0.210	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.
"A" samples were taken from the core after it was received in the laboratory.

Oil Field Research Laboratories
SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	Deep Rock Oil Corporation	Lease	O'ingrich	Well No	4-15
Depth Interval, Feet	585.55-595.50	597.40-612.00	614.25-617.30	585.55-617.30	
Feet of Core Analyzed	9.15	13.65	2.35	25.15	
Average Percent Porosity	19.75	20.66	20.81	20.34	
Average Percent Original Oil Saturation	40.77	48.39	36.42	44.50	
Average Percent Oil Recovery	11.56	19.07	0.85	14.64	
Average Percent Residual Oil Saturation	29.21	29.32	35.57	29.86	
Average Percent Residual Water Saturation	66.50	65.69	59.91	65.55	
Average Percent Total Residual Fluid Saturation	95.71	95.21	95.48	95.41	
Average Original Oil Content, Bbls./A. Ft.	624.	777.	586.	703.	
Average Oil Recovery, Bbls./A. Ft.	180.	309.	14.	234.	
Average Residual Oil Content, Bbls./A. Ft.	444.	468.	572.	469.	
Total Original Oil Content, Bbls./Acre	5,713.	10,595.	1,378.	17,686.	
Total Oil Recovery, Bbls./Acre	1,649.	4,208.	32.	5,889.	
Total Residual Oil Content, Bbls./Acre	4,064.	6,387.	1,346.	11,797.	
Average Effective Permeability, Millidarcys	7.42	1.30	9.074	1.95	
Average Initial Fluid Production Pressure, psi	25.0	18.9	45.0	24.2	

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