

13-21-875
August 31, 1949

Deep Rock Oil Corporation
Tulsa, Oklahoma

Attention: Mr. T. F. Laury

Gentlemen:

Enclosed herewith is the report of the partial analysis made on the Keystone barrel core taken from the Ewing Lease, Well No. U-29, Anderson County, Kansas, and submitted to our laboratory on August 18, 1949.

In calculating the recovery for the sand within the vicinity of this well, no allowance was made for oil lost during coring; and, of course, it is assumed that the sand is not pressured up.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Fato

CLF:ce

c.c. to Mr. Neil Henderson
Mr. Jack McQueeney

DEEP ROCK OIL CORPORATION

CORE ANALYSIS REPORT

BRING LEASE

WELL NO. U-52

ANDERSON COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANDLER, KANSAS

AUGUST 31, 1942

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Deep Rock Oil Corporation Lease Hving Well No. U-29

Location 660' North of South Line and 1420' East of West Line,

Section 13-14 Twp. 21 Rge. 20 County Anderson State Kansas

Name of Sand	Squirrel
Top of Core	675.40
Bottom of Core	722.20
Top of Broken Sand	697.10
Bottom of Sand	720.50
Total Feet of Permeable Sand	9.92

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

Average Permeability ^{Effective} Permeability, Millidarcys	0.498
Average Percent Porosity	16.40
Average Percent Oil Saturation	35.57
Average Percent Water Saturation	46.89
Average Oil Content, Bbls./A. Ft.	458.
Total Oil Content, Bbls./Acre	8,844.
Average Percent Oil Recovery by Laboratory Flooding Tests	7.65
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	108.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	1,072.
Total Calculated Oil Recovery, Bbls./Acre	750.

Packer Setting, Feet	Note: The above averages are for that part of the sand section extending from the packer setting to the top of the cement plug.	698.0
Viscosity, Centipoises @		
A. P. I. Gravity, degrees @ 60 °F		

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Company Deep Rock Oil Corporation Lease Ewing Well No. U-29

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
676.40 - 677.90	- Gray sandy shale.
677.90 - 679.60	- Gray shale.
679.60 - 681.34	- Gray sandy shale.
681.34 - 683.15	- Brown fine grained laminated micaceous sandstone.
683.15 - 686.00	- Gray sandy shale.
686.00 - 686.40	- Brown fine grained micaceous sandstone.
686.40 - 688.21	- Gray sandy shale.
688.21 - 689.12	- Brown fine grained laminated micaceous sandstone.
689.12 - 689.90	- Gray sandy shale.
689.90 - 690.50	- Brown fine grained laminated micaceous sandstone.
690.50 - 690.85	- Laminated sandstone and shale.
690.85 - 691.40	- Brown fine grained laminated micaceous sandstone.
691.40 - 691.70	- Laminated sandstone and shale.
691.70 - 692.10	- Brown fine grained laminated micaceous sandstone.
692.10 - 692.40	- Gray sandy shale.
692.40 - 692.80	- Laminated shale sandstone.
692.80 - 693.60	- Laminated sandstone and shale.
693.60 - 694.52	- Gray sandy shale.
694.52 - 694.90	- Gray shale.
694.90 - 695.72	- Gray sandy shale.
695.72 - 696.43	- Brown fine grained laminated micaceous sandstone.
696.43 - 697.10	- Laminated sandstone and shale.
697.10 - 698.00	- Brown fine grained laminated micaceous sandstone.

698.00 - 698.90 - Finely laminated shale and sandstone.
698.90 - 699.10 - Gray shale.
699.10 - 699.82 - Gray sandy shale.
699.82 - 699.95 - Brown fine grained micaceous sandstone.
699.95 - 700.56 - Laminated shaley sandstone.
700.56 - 701.30 - Gray sandy shale.
701.30 - 703.90 - Laminated sandstone and shale.
703.90 - 705.30 - Brown fine grained laminated micaceous sandstone.
705.30 - 706.21 - Brown fine grained slightly laminated micaceous sandstone.
706.21 - 706.31 - Gray shale.
706.31 - 708.00 - Brown fine grained micaceous sandstone.
708.00 - 710.90 - Brown fine grained laminated micaceous sandstone.
710.90 - 711.49 - Brown fine grained micaceous sandstone.
711.49 - 712.80 - Gray sandy shale.
712.80 - 714.65 - Brown fine grained finely laminated micaceous sandstone.
714.65 - 715.35 - Brown fine grained laminated micaceous sandstone.
715.35 - 718.85 - Brown fine grained finely laminated micaceous sandstone.
718.85 - 720.50 - Brown fine grained micaceous sandstone.
720.50 - 722.80 - Gray shale.

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SHOT RECOMMENDATION

Company Deep Rock Oil Corporation Lease Swing Well No. D-22

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Quarts
<u>705.0 - 719.5</u>	<u>14.5</u>	<u>3$\frac{1}{2}$</u>	<u>2.0</u>	<u>29.0</u>

Recommended Packer Setting - 692.0 feet
Note: Plug hole back to 720.5 feet

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RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Living Well No. U-29

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.	
F-2	681.60	14.4	33.5	-	-	375	0.86	0.86	322
F-7	682.60	16.2	35.3	-	-	445	0.95	1.81	423
F-9	688.68	14.3	35.6	-	-	395	0.91	2.72	360
11	690.30	13.6	32.6	47.4	80.0	344	0.60	3.32	206
F12	691.20	19.2	23.5	-	-	350	0.55	3.87	193
F13	691.90	14.1	19.6	-	-	215	0.40	4.27	86
F14	692.60	15.9	38.7	-	-	478	0.40	4.67	191
F15	693.40	12.7	22.1	-	-	218	0.80	5.47	174
F16	696.00	13.7	24.4	-	-	260	0.71	6.18	185
20	697.50	18.0	49.3	35.0	84.3	690	0.90	7.08	620
F21	698.40	14.9	29.7	-	-	343	0.90	7.98	308
F23	702.10	13.8	30.8	-	-	330	1.20	9.18	396
F26	702.85	13.8	30.2	-	-	324	1.40	10.58	454
F27	704.10	17.9	40.9	-	-	570	0.70	11.28	399
F28	705.00	18.1	36.8	-	-	516	0.70	11.98	362
F29	705.80	19.3	36.0	-	-	540	0.91	12.89	491
F30	706.65	19.3	38.4	-	-	576	0.79	13.68	455
F31	707.60	18.8	34.6	-	-	505	0.90	14.58	454
32	708.50	18.8	37.6	35.4	73.0	550	0.90	15.48	495
F33	709.35	14.9	32.0	-	-	370	0.90	16.38	333
34	710.25	14.6	34.7	57.8	92.5	394	1.10	17.48	433

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation

Lease Living

Well No. U-29

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.	
F35	711.10	18.7	42.6	-	-	618	0.59	18.07	764
F37	712.40	16.2	37.6	-	-	697	0.65	18.72	724
F38	713.25	13.6	30.3	-	-	326	0.85	19.57	277
F39	714.10	18.3	35.4	56.9	87.2	505	0.95	20.52	480
F40	714.81	17.3	41.5	37.9	73.3	557	0.73	21.25	407
F41	716.00	15.3	35.4	-	-	426	1.02	22.27	435
F42	716.90	14.8	35.2	-	-	404	0.95	23.22	384
F43	717.80	15.4	33.9	45.2	79.1	406	0.95	24.17	386
F44	718.65	16.9	32.8	-	-	429	0.55	24.72	236
F45	719.53	18.2	48.1	-	-	681	0.95	25.67	667
F46	720.11	16.4	36.5	-	-	464	0.70	26.37	724
Total							Total		11,604

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SUMMARY OF SATURATION TESTS

TABLE IV

Company	Deep Rock Oil Corporation	Lease	Being	Well No.	U-29	
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
661.34-696.43	7.08	15.21	32.49	39.93	390	2,760
696.00-711.49	10.99	16.52	34.66	47.66	450	4,944
712.20-720.50	8.30	16.24	36.77	46.33	470.	3,900
696.00-720.50	19.29	16.40	35.57	46.69	436	6,644

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Company Deep Rock Oil Corporation Lease 1

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery	
			Percent	Bbls./A. Ft.	Percent	Bbls./A
2	681.60	14.4	33.5	375	0.0	0
3	682.60	16.2	35.3	445	0.6	8
9	688.68	14.3	35.6	395	0.0	0
11	690.30	18.4	31.5	470	4.8	88
12	691.30	19.2	23.5	350	0.7	10
13	691.90	14.1	19.6	215	0.0	0
14	692.60	15.9	38.7	478	3.4	42
15	693.40	12.7	22.1	218	0.0	0
16	696.00	13.7	24.4	260	0.0	0
21	698.40	14.9	29.7	343	2.2	25
25	702.10	13.8	30.8	330	0.0	0
26	702.85	13.8	30.2	324	0.0	0
27	704.10	17.9	40.9	570	6.0	84
28	705.00	18.1	36.8	516	5.5	77
29	705.80	19.3	36.0	540	6.0	90
30	706.65	19.3	38.4	576	9.4	141
31	707.60	18.8	34.6	505	8.5	124
33	709.35	14.9	32.0	370	0.0	0
34	710.25	14.5	31.7	356	0.0	0
35	711.10	18.7	42.6	618	7.8	113
37	712.40	16.2	37.6	497	4.4	78
38	713.25	16.6	28.9	373	6.2	80
40	714.61	17.3	41.5	557	15.8	212
41	716.00	15.5	35.4	426	0.0	0
42	716.99	14.8	35.2	404	0.0	0
43	717.80	15.8	35.8	440	0.0	0
44	718.65	16.9	32.8	429	5.9	77
45	719.53	18.2	48.1	681	16.4	232
46	721.11	16.4	36.5	464	3.2	41

Notes: - cc - cul
*Volume
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Research Laboratories
LABORATORY FLOODING TESTS
TABLE V

Well No. U-29

Ft.	Residual Saturation			Volume of Water Recovered cc*	Permeability, Millidarcys		Initial Fluid Production Pressure Lbs./Sq. In.
	% Oil	% Water	Bbls./A. Ft.		Dry	Effective	
	33.5	65.0	375			Imp.	
	34.7	63.2	437	4		0.129	40
	35.6	62.5	395	0		Imp.	50 +
	26.7	66.7	382	17		0.588	30
	22.8	71.4	340	4		0.327	45
	19.6	72.0	215	0		Imp.	50 +
	35.3	63.2	434	6		0.271	35
	22.1	75.0	218	0		Imp.	50 +
	24.4	66.8	260	0		Imp.	50 +
	27.5	53.7	318	3		0.258	45
	30.8	59.8	330	2		0.166	50
	30.2	63.6	324	0		Imp.	50 +
	34.9	63.5	484	15		0.153	25
	31.3	64.2	439	12		0.364	35
	30.0	62.1	450	25		1.01	25
	29.0	65.5	435	25		1.24	25
	26.1	69.1	381	12		0.449	30
	32.0	66.0	370	1		0.162	50
	31.7	65.3	384	0		Imp.	50 +
	34.8	65.9	505	25		0.995	25
	33.2	65.9	419	11		0.457	30
	22.7	70.9	293	12		0.365	30
	25.7	72.1	345	6		0.294	30
	35.4	61.3	426	1		0.152	50
	35.2	62.5	404	0		Imp.	50 +
	35.8	58.3	440	3		0.086	40
	26.9	67.8	352	6		0.308	45
	31.7	65.7	449	23		0.358	15
	33.3	60.4	423	0		0.003	50

*mic centimeter
of water recovered at the time
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	Deep Rock Oil Corporation	Lease	Living	Well No.
				U-29
Depth Interval, Feet	682.20-692.80	698.00-711.49	712.20-720.50	698.00-720.50
Feet of Core Analyzed	2.50	5.69	4.43	9.62
Average Percent Porosity	17.36	18.09	17.00	18.60
Average Percent Original Oil Saturation	32.36	36.54	38.08	37.23
Average Percent Oil Recovery	2.12	6.41	9.19	7.63
Average Percent Residual Oil Saturation	30.24	30.13	28.89	29.56
Average Percent Residual Water Saturation	65.76	65.10	67.18	66.03
Average Percent Total Residual Fluid Saturation	96.00	95.23	96.07	95.61
Average Original Oil Content, Bbls./A. Ft.	436.	516.	509.	513.
Average Oil Recovery, Bbls./A. Ft.	34.	92.	128.	108.
Average Residual Oil Content, Bbls./A. Ft.	402.	424.	381.	405.
Total Original Oil Content, Bbls./Acre	1,089.	2,835.	2,254.	5,089.
Total Oil Recovery, Bbls./Acre	84.	507.	565.	1,072.
Total Residual Oil Content, Bbls./Acre	1,005.	2,328.	1,689.	4,017.
Average Effective Permeability, Millidarcys	0.305	0.657	0.200	0.498
Average Initial Fluid Production Pressure, p.s.i.	37.5	30.0	33.3	31.5

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