

April 4, 1949

Deep Rock Oil Corporation
Tulsa, Oklahoma

Attention: Mr. T. F. Lawry

Gentlemen:

Enclosed herewith is the report of the partial analysis of the Keystone barrel core taken from the Miller Lease, Well No. UL-4, Franklin County, Kansas, and submitted to our laboratory on March 28, 1949.

Inasmuch as the sand within the vicinity of this well is pressured up, no calculated recovery value is given.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:ls
c.c. to Mr. Neil Henderson

DEEP ROCK OIL CORPORATION

CORE ANALYSIS REPORT

MILLER LEASE

WELL NO. ML-4

FRANKLIN COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

APRIL 4, 1949

Oil Field Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Deep Rock Oil Corporation Lease Miller Well No. ML-4

Location NB₂

Section 34 Twp. 16S Rge. 21E County Franklin State Kansas

Name of Sand	Squirrel
Top of Core	620.00
Bottom of Core	640.10
Top of Sand	?
Bottom of Sand Pay	633.00
Total Feet of Permeable Sand	11.87

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

Average Permeability Effective Permeability, Millidarcys	5.08
Average Percent Porosity	19.88
Average Percent Oil Saturation	46.42
Average Percent Water Saturation	55.73
Average Oil Content, Bbls./A. Ft.	742.
Total Oil Content, Bbls./Acre	10,586.
Average Percent Oil Recovery by Laboratory Flooding Tests	24.30
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	402.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	4,768.

Total Calculated Oil Recovery, Bbls./Acre

Casing Point
~~xxxxxx~~
~~xxxxxx~~

Note: The above averages are for that part of the sand section extending from the packer setting to the top of the cement plug. 620.0

Viscosity, Centipoises @

A. P. I. Gravity, degrees @ 60 °F

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LOG

Company Deep Rock Oil Corporation Lease Miller Well No. ML-4

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
620.00 - 621.00	- Brown fine grained micaceous sandstone.
621.00 - 630.02	- Dark brown fine grained micaceous sandstone.
630.02 - 630.15	- Gray sandy shale.
630.15 - 630.95	- Dark brown fine grained micaceous slightly shaley sandstone.
630.95 - 631.50	- Dark brown fine grained micaceous sandstone.
631.50 - 631.80	- Laminated shale&sandstone.
631.80 - 632.10	- Dark brown fine grained micaceous sandstone.
632.10 - 632.50	- Laminated sandstone and shale.
632.50 - 633.00	- Dark brown fine grained micaceous laminated sandstone.
633.00 - 633.90	- Gray sandy shale.
633.90 - 636.10	- Brown fine grained laminated micaceous sandstone.
636.10 - 636.87	- Gray sandy shale.
636.87 - 637.40	- Brown fine grained finely laminated micaceous sandstone.
637.40 - 638.50	- Finely laminated sandy shale.
638.50 - 640.10	- Gray shale.

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WROT RECOMMENDATION

Company Deep Rock Oil Corporation Lease Miller Well No. ML-4

<u>Depth Interval,</u> <u>Feet</u>	<u>Feet of</u> <u>Sand</u>	<u>Size of Shell,</u> <u>Inches</u>	<u>Qts./Ft.</u>	<u>Total Qts.</u>
623.0 - 633.0	10.0	3½	2.0	20.0

Recommended Casing Point - 620.0 feet.
Note: Plug hole back to 636.0 feet.

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RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Hiller Well No. HL-4

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-1	620.70	19.7	47.0	-	-	718	0.90	0.90	646
F-2	621.15	21.0	44.3	-	-	729	0.80	1.70	583
F-3	622.08	22.0	54.4	-	-	928	0.50	2.20	465
F-4	622.35	21.7	50.1	-	-	844	0.50	2.70	422
F-5	623.05	22.9	56.9	-	-	1,012	0.70	3.40	710
F-6	623.75	22.5	47.9	-	-	836	0.65	4.05	544
F-7	624.35	21.5	49.9	-	-	833	0.65	4.70	541
F-8	625.00	21.2	50.4	-	-	829	0.55	5.25	455
F-9	625.50	22.4	52.6	-	-	917	0.80	6.05	734
F-10	626.65	21.6	48.7	-	-	817	1.15	7.20	940
F-11	627.75	19.2	55.1	-	-	821	0.70	7.90	575
F-12	628.10	20.3	53.5	-	-	841	0.55	8.45	463
F-13	628.65	22.0	53.3	-	-	909	0.70	9.15	636
F-14	629.45	22.5	46.1	-	-	805	0.87	10.02	700
F-15	630.56	15.5	44.1	-	-	530	0.80	10.82	424
F-16	631.30	23.0	44.6	-	-	896	0.55	11.37	494
17	631.96	17.7	49.8	36.6	86.4	685	0.30	11.67	206
F-18	632.75	20.2	37.7	-	-	590	0.50	12.17	295
F-21	634.35	9.9	18.6	-	-	144	0.70	12.87	101
22	634.65	16.9	35.0	62.5	97.5	459	0.40	13.27	184
F-23	635.20	17.2	43.7	-	-	583	0.60	13.87	350
24	636.00	14.4	26.4	63.3	89.7	295	0.50	14.37	146
26	637.25	19.9	23.6	54.8	78.6	366	0.53	14.90	125

Total - - 10,811

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SUMMARY OF SATURATION TESTS

TABLE IV

Company <u>Deep Rock Oil Corporation</u>		Lease <u>Miller</u>		Well No. <u>ML-4</u>		
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
620.00-630.02	10.02	21.46	50.41	-	840	8,414
630.15-637.40	4.88	16.86	35.43	55.77	491	2,397
620.00-636.00	14.27	19.88	46.42	55.73	742	10,586

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RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Deep Rock Oil Corporation Lease Miller Well No. M-4

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.			
1	620.70	19.7	47.0	718	25.9	396	21.1	76.4	328	39	0.943	10
2	621.15	21.0	44.8	729	24.1	392	20.7	71.7	337	30	0.751	10
3	622.08	22.0	54.4	928	31.7	541	22.7	75.8	387	102	5.18	5
4	622.35	21.7	50.1	844	31.6	532	18.5	78.2	312	118	5.34	5
5	623.03	22.9	56.9	1,012	28.8	512	28.1	68.0	500	98	4.49	5
6	623.75	22.5	47.9	836	24.3	424	23.6	69.6	412	58	3.39	10
7	624.35	21.5	49.9	833	28.5	476	21.4	72.4	357	84	4.77	5
8	625.00	21.2	50.4	829	31.6	520	18.8	74.6	309	109	6.48	5
9	625.50	22.4	52.8	917	31.3	543	21.5	71.7	374	36	11.29	10
10	626.65	21.6	48.7	817	16.1	270	32.6	63.5	547	64	4.86	15
11	627.75	19.2	55.1	821	23.1	344	32.0	66.0	477	102	5.27	10
12	628.10	20.3	53.5	841	26.9	423	26.6	72.2	418	80	9.43	10
13	628.85	22.0	53.3	909	26.2	447	27.1	63.5	462	67	8.94	5
14	629.45	22.5	46.1	805	21.0	367	25.1	71.6	438	56	10.78	5
15	630.56	15.5	44.1	630	13.0	186	31.1	66.7	374	8	0.116	30
16	631.30	23.0	44.6	896	26.8	478	17.8	73.1	318	57	3.83	10
18	632.75	20.2	37.7	590	12.1	189	25.6	67.8	401	14	0.433	15
21	634.35	9.9	18.8	144	0.0	0	18.8	75.0	144	0	Imp.	50+
23	635.20	17.2	43.7	583	0.0	0	43.7	56.3	583	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.
Salt water was used to flood out these samples.

Oil Field Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	Deep Rock Oil Corporation	Lease	Miller	Well No.	ML-4
Depth Interval, Feet	620.00 - 630.02	630.15 - 633.00	620.00 - 636.00		
Feet of Core Analyzed	10.02	1.85	11.87		
Average Percent Porosity	21.47	19.03	21.09		
Average Percent Original Oil Saturation	50.42	42.48	49.18		
Average Percent Oil Recovery	25.68	16.86	24.30		
Average Percent Residual Oil Saturation	24.74	25.62	24.88		
Average Percent Residual Water Saturation	70.56	68.92	70.30		
Average Percent Total Residual Fluid Saturation	95.30	94.54	95.18		
Average Original Oil Content, Bbls./A. Ft.	840.	625.	807.		
Average Oil Recovery, Bbls./A. Ft.	428.	261.	402.		
Average Residual Oil Content, Bbls./A. Ft.	412.	364.	403.		
Total Original Oil Content, Bbls./Acre	8,413.	1,157.	9,570.		
Total Oil Recovery, Bbls./Acre	4,285.	463.	4,768.		
Total Residual Oil Content, Bbls./Acre	4,128.	674.	4,802.		
Average Effective Permeability, Millidarcys	5.77	130	5.08		
Average Initial Fluid Production Pressure, p.s.i.	7.9	18.3	9.7		

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