

September 23, 1949

20-20-22E

Deep Rock Oil Corporation  
Tulsa, Oklahoma

Attention: Mr. F. F. Lawry

Gentlemen:

Enclosed herewith is the report of the partial analysis made on the Keystone barrel core taken from the Cox Lease, Well No. G-3, Linn County, Kansas, and submitted to our laboratory on September 16, 1949.

In calculating the recovery for the sand within the vicinity of this well, an allowance was made for oil lost during coring; and it is assumed that the true water saturation of the sand is 37 percent.

Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Carl L. Fete

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

Cox G-3

DEEP ROCK OIL CORPORATION

CORE ANALYSIS REPORT

COX LEASE

WELL NO. G-7

LINN COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANUTE, KANSAS

SEPTEMBER 23, 1949

# Oil Field Research Laboratories

## GENERAL INFORMATION & SUMMARY

Company Deep Rock Oil Corporation Lease Cox Well No. G-3  
 Location 1000 feet North of South Line & 440 feet East of West Line  
 Section 20 Twp. 20S Rge. 22E County Linn State Kansas

Name of Sand		Squirrel
Top of Core		560.00
Bottom of Core		600.70
Top of Sand		562.63
Bottom of Sand		595.50
Total Feet of Permeable Sand		20.20
Distribution of Permeable Sand:		
Permeable Range	Feet	Cum. Ft.
Millidarcys		

<b>Effective</b>		
Average Permeability, Millidarcys		3.56
Average Percent Porosity		20.74
Average Percent Oil Saturation		31.79
Average Percent Water Saturation		67.08
Average Oil Content, Bbls./A. Ft.		528.
Total Oil Content, Bbls./Acre		16,540.
Average Percent Oil Recovery by Laboratory Flooding Tests		5.37
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.		90.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre		1,827.
Total Calculated Oil Recovery, Bbls./Acre		3,000.
Packer Setting, Feet		563.0
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.

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LOG

Company Deep Rock Oil Corporation Lease Cox Well No. C-1

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
560.00 - 560.70	- Brown fine grained slightly laminated micaceous sandstone.
560.70 - 562.63	- Brown fine grained laminated micaceous slightly shaley sandstone.
562.63 - 565.50	- Brown fine grained slightly laminated micaceous sandstone.
565.50 - 566.00	- Finely laminated shale and sandstone.
566.00 - 568.05	- Gray sandy shale.
568.05 - 570.30	- Brown fine grained slightly laminated micaceous shaley sandstone.
570.30 - 570.90	- Laminated shale and sandstone.
570.90 - 574.10	- Brown fine grained micaceous slightly shaley sandstone.
574.10 - 575.00	- Brown fine grained laminated micaceous shaley sandstone.
575.00 - 576.20	- Brown fine grained laminated micaceous sandstone.
576.20 - 578.60	- Finely laminated shale and sandstone.
578.60 - 579.30	- Brown fine grained micaceous sandstone.
579.30 - 579.70	- Finely laminated shale and sandstone.
579.70 - 581.80	- Brown fine grained micaceous sandstone.
581.80 - 582.10	- Brown fine grained slightly laminated micaceous sandstone.
582.10 - 583.20	- Brown fine grained micaceous sandstone.
583.20 - 583.40	- Laminated shale and sandstone.
583.40 - 584.10	- Brown fine grained micaceous sandstone.
584.10 - 587.05	- Brown fine grained slightly laminated micaceous sandstone.
587.05 - 588.60	- Brown fine grained micaceous sandstone.
588.60 - 589.45	- Brown fine grained slightly laminated micaceous sandstone.
589.45 - 591.75	- Brown fine grained micaceous sandstone.
591.75 - 593.70	- Brown fine grained slightly laminated micaceous sandstone.

593.70 - 594.00 - Finely laminated shale and sandstone.

594.00 - 595.50 - Brown fine grained micaceous slightly carbonaceous sandstone.

595.50 - 595.75 - Finely laminated carbonaceous shale and sandstone.

595.75 - 597.20 - Brown fine grained micaceous sandstone.

597.20 - 597.70 - Brown fine grained slightly laminated micaceous carbonaceous sandstone.

597.70 - 598.40 - Brown fine grained micaceous slightly carbonaceous sandstone.

598.40 - 599.70 - Brown fine grained micaceous sandstone.

599.70 - 600.70 - Coal and shale (discarded at well).

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**SHOT RECOMMENDATION**

Company Deep Rock Oil Corporation Lease Cox Well No. 6-3

<u>Depth Interval, Feet</u>	<u>Feet of Sand</u>	<u>Size of Shell Inches</u>	<u>Qts./Ft.</u>	<u>Total Quarts</u>
568.0 - 594.0	26	3/4	2.0	52.0

Recommended Packer Setting-563.0  
Note: Plug hole back to-597.5

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**RESULTS OF PERMEABILITY TESTS**  
**TABLE I**

Company Deep Rock Oil Corporation Lease Cox Well No. 4-3

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	569.56	9.0	0.45	0.45	4.05
2	569.95	9.5	0.55	1.00	5.23
3	574.20	23.	0.40	1.40	9.20
4	574.74	11.	0.50	1.90	5.50
5	576.30	Imp.	0.40	2.30	0.00
6	577.40	Imp.	0.50	2.80	0.00

## Oil Field Research Laboratories

### RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Cox Well No. 0-3

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.	
F-1	560.60	21.0	36.4	-	-	594	0.70	0.70	426
F-2	561.85	19.4	34.8	-	-	524	1.93	2.63	1,001
F-3	563.50	21.2	38.0	-	-	626	1.37	4.00	860
F-4	564.60	20.8	32.3	-	-	522	1.50	5.50	784
F-5	565.65	15.3	24.1	-	-	286	0.50	6.00	143
F-8	568.70	20.9	26.8	62.9	89.7	436	1.25	7.25	545
F-9	569.75	19.5	31.4	65.1	96.5	476	1.00	8.25	476
F-10	570.75	15.0	25.2	-	-	294	0.60	8.85	176
F-11	571.40	20.3	33.4	-	-	527	1.50	10.35	790
F-12	573.05	21.7	36.7	50.0	84.7	584	1.10	11.45	642
F-13	574.00	22.5	34.9	-	-	610	0.60	12.05	366
F-14	574.90	15.2	22.5	-	-	266	0.90	12.95	240
F-15	575.90	18.0	24.5	74.6	99.1	342	1.20	14.15	410
F-16	576.74	18.3	12.3	81.0	93.3	175	1.10	15.25	192
F-17	577.80	21.2	13.4	78.6	92.0	221	1.30	16.55	288
F-18	579.20	24.1	32.9	-	-	616	0.70	17.25	431
F-19	580.55	23.9	40.1	-	-	746	2.10	19.35	1,570
F-20	581.95	19.3	28.0	-	-	419	0.30	19.65	126
F-21	583.10	21.9	37.1	-	-	631	1.10	20.75	695

Oil Field Research Laboratories

RESULTS OF SATURATION TESTS

TABLE III

Company Deep Rock Oil Corporation Lease Box Well No. 1-3

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.	
F-22	584.00	20.8	37.5	-	-	606	0.70	21.45	425
F-23	585.15	19.2	29.0	-	-	473	1.70	23.15	735
F-24	586.45	18.3	32.8	-	-	673	1.25	24.40	840
F-25	587.64	21.9	34.5	-	-	587	1.55	25.95	910
F-26	589.10	21.8	30.8	-	-	522	0.85	26.80	444
F-27	590.00	22.8	41.2	-	-	730	1.15	27.95	840
F-28	591.15	22.3	44.5	-	-	771	1.15	29.10	886
F-29	592.35	21.0	31.1	-	-	507	1.25	30.35	674
F-30	593.60	21.8	31.8	-	-	539	0.70	31.05	377
F-31	594.30	22.2	39.1	50.9	90.0	675	0.80	31.85	500
F-32	595.35	22.2	40.5	-	-	699	0.70	32.55	489
F-33	596.45	22.2	32.5	-	-	559	1.45	34.00	810
F-34	597.35	17.5	26.9	-	-	265	0.50	34.50	183
F-35	598.25	20.9	29.3	-	-	476	0.70	35.20	333
F-36	599.35	23.5	29.6	-	-	541	1.30	36.50	705
							Total -	- - - - -	19,302

**Oil Field Research Laboratories**

**SUMMARY OF SATURATION TESTS**

**TABLE IV**

Company Deep Rock Oil Corporation Lease Cox Well No. 6-3

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
560.00-566.00	6.00	20.00	34.20	-	534	3,204
568.05-578.60	10.55	19.47	25.36	68.93	391	4,125
578.60-599.70	19.95	21.67	34.63	50.88	600	11,973
563.00-597.50	31.30	20.74	31.79	67.08	528	16,540

RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Deep Rock Oil Corporation

Lease Cox

Well No. 0-5

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Permeability, Millidarcys		Initial Fluid Production Pressure Lbs./Sq. In.
			Percent	Bbbs./A. Ft.	Percent	Bbbs./A. Ft.	% Oil	% Water	Bbbs./A. Ft.		Dry**	Effective	
1	560.60	21.0	36.4	594	1.3	21	36.1	64.3	573	86		2.76	20
2	561.85	19.4	34.8	524	0.0	0	34.8	63.0	524	3		0.141	45
3	563.50	21.2	38.0	626	5.5	91	32.5	63.9	535	11		0.879	35
4	564.60	20.8	32.3	522	5.5	89	26.8	72.2	433	21		0.691	25
5	565.65	15.3	24.1	286	0.0	0	24.1	74.1	286	1		0.089	50
10	570.75	15.0	25.2	294	0.0	0	25.2	71.0	294	3		0.065	40
11	571.40	20.3	33.4	527	0.0	0	33.4	64.1	527	7		0.445	40
12	573.05	19.8	35.1	541	4.6	71	30.5	63.9	470	9		0.252	30
13	574.00	22.5	34.9	610	0.6	10	34.3	64.3	600	5		1.45	25
14	574.90	15.2	22.5	266	0.0	0	22.5	69.5	266	0		Imp.	50 +
18	579.20	24.1	32.9	616	1.9	36	31.0	67.5	580	111		14.70	15
19	580.55	23.9	40.1	746	9.2	171	30.9	65.4	575	92		1.76	20
20	581.95	19.3	28.0	419	1.8	27	26.2	72.1	392	7		0.365	35
21	583.10	21.9	37.1	631	7.1	121	30.0	69.5	510	143		4.64	10
22	584.00	20.8	37.5	606	8.7	141	28.8	64.0	465	208		4.01	10
23	585.15	19.2	29.0	433	5.0	75	24.0	72.5	358	34		1.02	10
24	586.45	18.3	32.8	673	4.3	61	28.5	71.0	612	7		0.010	25
25	587.64	21.9	34.5	587	6.5	145	26.0	73.3	442	183		17.2	5
26	589.10	21.8	30.8	522	4.3	73	26.5	71.1	449	29		1.22	20
27	590.00	22.8	41.2	730	4.5	80	36.7	62.7	650	176		5.95	10
28	591.15	22.3	44.5	771	5.7	99	38.8	50.0	672	27.5		3.10	50
29	592.35	21.0	31.1	507	1.1	18	30.0	67.3	489	23		0.860	20
30	593.60	21.8	31.8	539	4.2	71	27.6	71.4	468	67		5.55	10
31	594.30	20.9	42.2	686	4.4	72	37.8	59.7	614	25		1.24	15
32	595.35	22.2	40.5	699	5.5	95	35.0	60.0	604	16		1.49	10
33	596.45	22.2	32.5	559	0.0	0	32.5	65.6	559	182		7.38	5
34	597.35	17.5	26.9	365	0.0	0	26.9	69.0	365	3		0.112	40
35	598.25	20.9	39.3	476	0.0	0	29.3	68.3	476	53		1.15	10
36	599.35	23.5	29.6	541	0.0	0	29.6	68.8	541	89		5.87	10

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				Cox	Well No.
Deep Rock Oil Corporation					Cox	G-3
Depth Interval, Feet	560.00-565.50	572.40-574.10	578.60-595.50	563.00-597.50		
Feet of Core Analyzed	3.57	1.70	16.00	20.20		
Average Percent Porosity	20.98	20.76	21.57	21.43		
Average Percent Original Oil Saturation	35.30	35.13	35.94	35.70		
Average Percent Oil Recovery	4.68	9.24	5.58	5.37		
Average Percent Residual Oil Saturation	30.62	31.89	30.36	30.33		
Average Percent Residual Water Saturation	67.39	64.00	66.68	66.71		
Average Percent Total Residual Fluid Saturation	98.01	95.89	97.04	97.04		
Average Original Oil Content, Bbls./A. Ft.	576.	565.	622.	610.		
Average Oil Recovery, Bbls./A. Ft.	76.	49.	95.	90.		
Average Residual Oil Content, Bbls./A. Ft.	500.	516.	527.	520.		
Total Original Oil Content, Bbls./Acre	2,057.	961.	9,956.	12,326.		
Total Oil Recovery, Bbls./Acre	273.	84.	1,519.	1,827.		
Total Residual Oil Content, Bbls./Acre	1,784.	877.	8,437.	10,499.		
Average Effective Permeability, Millidarcys	1.17	0.68	4.30	3.56		
Average Initial Fluid Production Pressure, p.s.i.	26.7	27.5	17.7	20.0		

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