

March 20, 1950

34-21-238
Mr. Claude Crowder
106 South Crawford
Fort Scott, Kansas

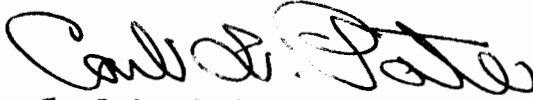
Gentlemen:

Enclosed herewith is the report of the partial analysis of the Keystone barrel core taken from the Burkhead Lease, Well No. 4, Linn County, Kansas, and submitted to our laboratory on March 14, 1950.

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

4
CLP:bb
c.c.

Carl L. Pate

CLAUDE CHOWDER

CORE ANALYSIS REPORT

BURKHEAD LEASE WELL NO. 4

LINN COUNTY, KANSAS

OIL FIELD RESEARCH LABORATORIES

CHANDLER, KANSAS

MARCH 20, 1950

Oil Field Research Laboratories

GENERAL INFORMATION AND SUMMARY

Company Claude Crowder Lease Burkhead Well No. 4

Location NE1 of NW1,

Section 34 Twp. 21 Rge. 23 County Linn State Kansas

Name of Sand Bartlesville

Top of Core 470.50

Bottom of Core 485.35

Top of Sand (according to driller) 468.50

Bottom of ^{Pay} Sand 480.90

Total Feet of Permeable Sand 8.92

Distribution of Permeable Sand:

Permeability Range Millidarcys	Feet	Cum. Ft.
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Average ^{Effective} Percent, Millidarcys 1.58

Average Percent Porosity 19.23

Average Percent Oil Saturation 41.96

Average Percent Water Saturation -

Average Oil Content, Bbls./A. Ft. 631.

Total Oil Content, Bbls./Acre 6,407.

Average Percent Oil Recovery by Laboratory Flooding Tests 10.87

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. 145.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre 1,293.

Total Calculated Oil Recovery, Bbls./Acre 1,450.

Packer Setting, Feet **Note:** The above averages are for that part 469.00
of the sand section extending from the
viscosity, Centipoises @ packer setting to the top of the cement
plug.

A. P. I. Gravity, degrees @ 60 °F

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LOG

Company Claude Crowder Lease Burkhead Well No. 4

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
470.50 - 471.78	- Brown fine grained micaceous sandstone.
471.78 - 472.33	- Brown fine grained slightly laminated micaceous sandstone.
472.33 - 472.90	- Brown fine grained micaceous sandstone.
472.90 - 473.60	- Brown fine grained micaceous slightly shaley sandstone.
473.60 - 474.70	- Brown fine grained micaceous sandstone.
474.70 - 474.80	- Sandy limestone.
474.80 - 478.13	- Brown fine grained micaceous sandstone.
478.13 - 478.28	- Brown fine grained micaceous shaley sandstone.
478.28 - 480.20	- Brown fine grained micaceous sandstone.
480.20 - 480.90	- Brown fine grained micaceous shaley sandstone.
480.90 - 481.15	- Dark fine grained micaceous carbonaceous sandstone.
481.15 - 481.35	- Laminated sandstone and shale.
481.35 - 481.70	- Brown fine grained laminated micaceous sandstone.
481.70 - 485.35	- Dark fine grained micaceous carbonaceous sandstone.

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SHOT RECOMMENDATION

Company Claude Crowder Lease Burkhead Well No. 4

Depth Interval, Feet	Feet of Sand	Size of Shell Inches	Qts./Ft.	Total Quarts
474.0 - 480.0	6.0	4 $\frac{1}{2}$	3.1	18.6

Recommended Packer Setting - 469.0 feet
Note: Plug hole back to 481.0 feet

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RESULTS OF SATURATION TESTS

TABLE III

Company Claude Crowder Lease Burkhead Well No. 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		Ft.	Cum. Ft.	
1	470.95	19.8	43.3	-	666	1.28	1.28	855
2	472.08	19.2	37.2	-	555	1.12	2.40	622
3	473.29	16.5	35.9	-	461	0.70	3.10	323
4	474.12	20.0	44.2	-	688	1.10	4.20	757
5	474.91	19.0	50.7	-	748	0.70	4.90	524
6	476.09	18.9	41.0	-	617	1.10	6.00	680
7	477.12	19.8	42.0	-	645	1.00	7.00	645
8	478.02	19.1	40.9	53.0	606	0.53	7.53	321
8A	478.35	19.1	36.4	-	541	0.52	8.05	282
9	479.06	20.0	45.5	-	708	1.40	9.45	990
10	480.28	18.5	40.5	-	583	0.70	10.15	408
11	481.51	17.9	35.2	-	489	0.35	10.50	171
12	482.72	19.3	63.5	-	954	1.40	11.90	1,335
13A	483.50	18.4	56.1	-	801	0.70	12.60	560
13	484.08	20.0	58.0	38.3	900	0.70	13.30	630
14	485.02	18.8	51.4	-	751	0.85	14.15	640
Total					-	-	-	9,743

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SUMMARY OF SATURATION TESTS

TABLE IV

Company	Claude Crowder	Lease	Burkhead	Well No.	4	
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
470.50-480.90	10.15	19.23	41.96	-	631	6,407
481.35-485.35	4.00	19.05	56.20	-	834	3,336
469.00-481.00	10.15	19.23	41.96	-	631	6,407

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RESULTS OF LABORATORY FLOODING TESTS

TABLE V

Company Claude Crowder Lease Burkhead Well No. 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	470.95	19.8	43.3	666	9.3	143	34.0	60.9	523	87	2.80	20
2	472.08	19.2	37.2	555	2.0	30	35.2	55.6	525	14	0.271	30
3	473.29	16.5	35.9	461	0.0	0	35.9	63.6	461	1	0.117	50
4	674.12	20.0	44.2	688	14.2	221	30.0	63.5	467	40	1.46	20
5	674.91	19.0	50.7	748	17.2	254	33.5	62.6	494	151	5.42	15
6	676.09	18.9	41.0	617	7.6	112	34.4	64.0	505	72	1.26	10
7	477.12	19.8	42.0	646	8.2	126	33.8	57.6	519	48	0.968	20
8A	478.35	19.1	36.4	541	2.6	39	33.8	57.2	502	6.5	0.318	35
9	479.06	20.0	45.5	708	14.2	221	31.3	61.2	487	51	1.45	25
10	480.28	18.5	40.5	583	7.5	108	33.0	61.7	475	9	0.336	30
11	481.51	17.9	35.2	489	0.0	0	35.2	56.0	489	0	Imp.	50+
12	482.72	19.3	63.5	954	0.0	0	63.5	24.8	954	0	Imp.	50+
13A	483.50	18.4	56.1	801	0.0	0	56.1	28.0	801	0	Imp.	50+
14	485.02	18.8	51.4	751	0.0	0	51.4	38.5	751	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.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE VI

Company	Claude Crowder	Lease	Burkhead	Well No.
				4
Depth Interval, Feet	469.00 - 481.00			
Feet of Core Analyzed	8.92			
Average Percent Porosity	19.46			
Average Percent Original Oil Saturation	43.99			
Average Percent Oil Recovery	10.87			
Average Percent Residual Oil Saturation	33.12			
Average Percent Residual Water Saturation	60.63			
Average Percent Total Residual Fluid Saturation	93.75			
Average Original Oil Content, Bbls./A. Ft.	647.			
Average Oil Recovery, Bbls./A. Ft.	145.			
Average Residual Oil Content, Bbls./A. Ft.	502.			
Total Original Oil Content, Bbls./Acre	5,770.			
Total Oil Recovery, Bbls./Acre	1,293.			
Total Residual Oil Content, Bbls./Acre	4,477.			
Average Effective Permeability, Millidarcys	1.58			
Average Initial Fluid Production Pressure, p.s.i.	22.8			

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