

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

November 18, 1981

Ram Gas & Oil
306 N. Walnut Street
Paola, Kansas 66071

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Ball Lease, Well No. 3, located in Linn County, Kansas and submitted to our laboratory on November 7, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/mkf

5 c to Paola, Ks.

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GENERAL INFORMATION & SUMMARY

Company Ram Gas & Oil Lease Ball Well No. 3
 Location _____
 Section 7 Twp. 21S Rge. 22E County Linn State Kansas

Elevation, Feet

Name of Sand.....

SQUIRREL

Top of Core

497.0

Bottom of Core

508.1

Top of Sand

497.0

Bottom of Sand

508.1

Total Feet of Permeable Sand

8.4

Total Feet of Floodable Sand

0.0

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 10

3.7

3.7

10 - 20

3.7

7.4

30 - 35

1.0

8.4

Average Permeability Millidarcys

12.3

Average Percent Porosity

16.0

Average Percent Oil Saturation

21.3

Average Percent Water Saturation

60.1

Average Oil Content, Bbls./A. Ft.

264.

Total Oil Content, Bbls./Acre

2,927.

Average Percent Oil Recovery by Laboratory Flooding Tests

0.

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

0.

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

0.

Total Calculated Oil Recovery, Bbls./Acre

0.

-2-

The core was sampled and the samples sealed in plastic bags by a representative of the client. Fresh water mud was used as a drilling fluid.

Since the core did not respond to flooding susceptibility tests, no calculated recovery is given.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, <u>Feet</u>	<u>Description</u>
497.0 - 498.2	Grayish brown shaly sandstone.
498.2 - 500.0	Light gray very shaly sandstone.
500.0 - 502.3	Light brown sandstone with intermittent micaceous partings.
502.3 - 502.8	Light grayish brown slightly shaly sandstone with micaceous partings.
502.8 - 505.1	Light brown slightly calcareous sandstone.
505.1 - 507.0	Gray and brown laminated shale and sandstone.
507.0 - 508.1	Light brown slightly calcareous sandstone.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Ram Gas & Oil Lease Ball Well No. 3

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	497.5	15.2	20	74	94	236	2.4	1.2	1.2	283	2.88
2	498.3	13.3	4	92	96	41	Imp.	0.8	2.0	33	0.00
3	499.5	15.5	1	87	88	12	1.2	1.0	3.0	12	1.20
4	500.6	17.7	22	55	77	302	9.6	1.0	4.0	302	9.60
5	501.4	18.4	25	52	77	357	11.	1.3	5.3	464	14.30
6	502.4	18.2	20	50	70	282	6.6	0.5	5.8	141	3.30
7	503.5	18.6	23	49	72	332	32.	1.0	6.8	332	32.00
8	504.4	18.9	20	47	67	293	15.	1.3	8.1	381	19.50
9	505.5	13.5	28	64	92	293	Imp.	0.9	9.0	264	0.00
10	506.4	6.6	32	61	93	164	Imp.	1.0	10.0	164	0.00
11	507.4	19.0	34	38	72	501	19.	1.1	11.1	551	20.90

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company		Ram Gas & Oil		Lease	Ball	Well No.	
							3
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Total Oil Content Bbls./Acre
497.0 - 508.1	8.4	16.0	21.3	60.1	12.3	103.68	
497.0 - 508.1	11.1	11.1					2,927

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Well No. 3

Ball

Lease

Ram Gas & Oil

Company

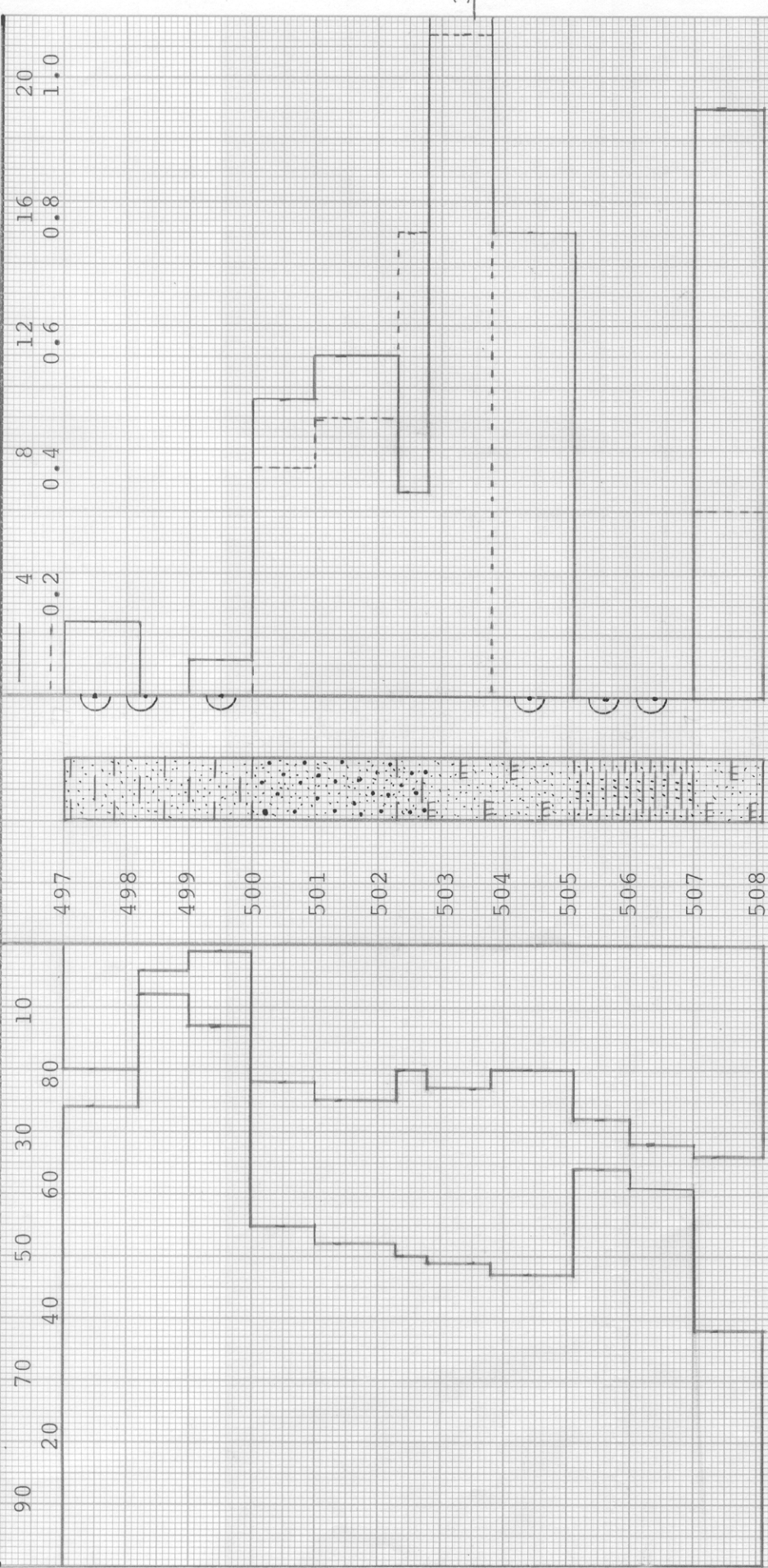
Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation		Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water			
1	497.5	14.9	21	248	0	0	21	73	0	Imp.	-
2	498.3	13.2	4	42	0	0	4	92	0	Imp.	-
3	499.5	15.5	1	12	0	0	1	88	0	Imp.	-
4	500.6	18.0	21	299	0	0	21	59	16	0.37	50
5	501.4	18.5	25	366	0	0	25	54	12	0.45	50
6	502.4	18.1	20	287	0	0	20	66	42	0.75	40
7	503.5	18.4	23	335	0	0	23	55	48	1.07	35
8	504.4	18.8	20	298	0	0	20	49	0	Imp.	-
9	505.6	14.0	27	299	0	0	27	65	0	Imp.	-
10	506.4	7.1	31	174	0	0	31	62	0	Imp.	-
11	507.4	18.6	35	516	0	0	35	40	14	0.30	40

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.

WATER SAT. / OIL SAT. / PERCENT
 --- EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCY



KEY:

MICACEOUS SANDSTONE

SHALY SANDSTONE

CALCAREOUS SANDSTONE

LAMINATED SANDSTONE AND SHALE

MICACEOUS SHALY SANDSTONE

IMPERMEABLE TO WATER

RAM GAS & OIL

BALL LEASE
 LINN COUNTY, KANSAS
 WELL NO. 3

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLs. / ACRE
497.0 - 508.1	11.1	16.0	21.3	60.1	12.3	-
OILFIELD RESEARCH LABORATORIES CHANUTE, KANSAS NOVEMBER, 1981						
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