

OILFIELD RESEARCH LABORATORIES

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

January 12, 1981

Lincoln 77
8485 Kathy Lane
Lincoln, Nebraska 68526

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Gleue Lease, Well No. 3, located in Coffey County, Kansas and submitted to our laboratory on November 22, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

4 c to Lincoln, Nebraska
1 c to Topeka, Kansas

- REGISTERED ENGINEERS -

CORE ANALYSIS - WATER ANALYSIS - REPRESSURING ENGINEERING - SURVEYING & MAPPING - PROPERTY EVALUATION & OPERATION

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GENERAL INFORMATION & SUMMARY

Company Lincoln 77 Lease Gleue Well No. 3

Location NW - SE - SE

Section 28 Twp. 22S Rge. 16E County Coffey State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 1013.0

Bottom of Core - - - - - 1022.0

Top of Sand - - - - - (Analyzed) - - - 1013.0

Bottom of Sand - - - - - (Analyzed) - - - 1022.0

Total Feet of Permeable Sand - - - - - 9.0

Total Feet of Floodable Sand - - - - - 0.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
1.6 - 5.5	3.3	3.3
30 - 100	5.7	9.0

Average Permeability Millidarcys - - - - - 41.5

Average Percent Porosity - - - - - 16.9

Average Percent Oil Saturation - - - - - 56.5

Average Percent Water Saturation - - - - - 54.8

Average Oil Content, Bbls./A. Ft. - - - - - 753.

Total Oil Content, Bbls./Acre - - - - - 6,773.

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.

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The core was sampled in the laboratory approximately 2 days after it was taken.

The core did not respond to laboratory flooding susceptibility tests and therefore no calculated recovery values are given.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
1013.0 - 1013.8	Light brown and gray laminated slightly calcareous sandstone and shale.
1013.8 - 1015.0	Dark brown slightly calcareous sandstone.
1015.0 - 1018.6	Dark brown and gray laminated slightly calcareous sandstone and shale.
1018.6 - 1022.0	Gray and light brown laminated slightly calcareous shale and sandstone.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Lincoln 77 Lease Gleue 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	1013.3	19.0	48	5	53	708	99.	0.8	0.8	566	79.20
2	1014.5	19.6	56	3	59	852	84.	1.2	2.0	1022	100.80
3	1015.5	18.8	53	4	57	773	58.	1.0	3.0	773	58.00
4	1016.5	17.0	54	5	59	712	31.	1.0	4.0	712	31.00
5	1017.5	15.9	59	3	62	728	30.	1.0	5.0	728	30.00
6	1018.4	18.8	60	4	64	875	92.	0.7	5.7	612	64.40
7	1019.5	16.8	74	3	77	965	5.3	1.3	7.0	1255	6.89
8	1020.6	15.2	76	8	84	896	1.6	1.0	8.0	896	1.60
9	1021.5	11.7	23	15	38	209	1.9	1.0	9.0	209	1.90

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.				
Lincoln 77	Gleue	3				
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	Average Percent Oil Saturation	Average Percent Water Saturation	Total Oil Content Bbls./Acre
1013.0 - 1022.0	9.0	41.5	373.79	56.5	54.8	753
1013.0 - 1022.0	9.0			16.9		6,773

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

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	1013.3	18.6	49	707	0	0	49	42	30	0.60	30
2	1014.5	19.2	56	834	0	0	56	37	296	8.50	20
3	1015.5	18.5	55	789	0	0	55	35	28	0.45	30
4	1016.5	17.4	53	715	0	0	53	43	506	8.24	15
5	1017.5	16.4	60	763	0	0	60	37	517	8.79	15
6	1018.4	18.5	60	861	0	0	60	31	23	0.45	30
7	1019.5	16.7	73	946	0	0	73	8	0	Imp.	-
8	1020.6	15.2	76	896	0	0	76	10	0	Imp.	-
9	1021.5	12.0	21	196	0	0	21	18	0	Imp.	-

Well No. 3

Lease Gleue

Lincoln 77

Company

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

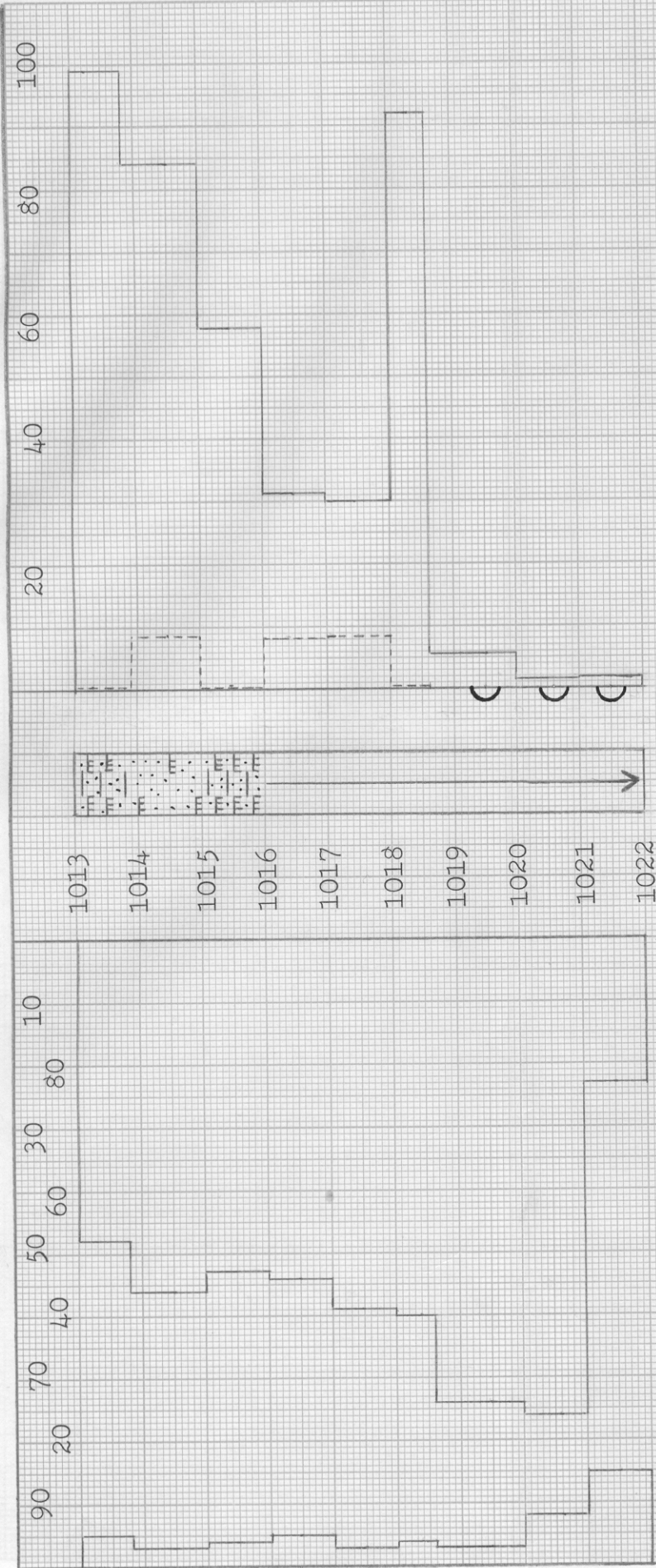
**—Determined by passing water through sample which still contains residual oil.

WATER SAT., PERCENT

OIL SAT., PERCENT

PERMEABILITY, IN MILLIDARCYS

EFFECTIVE PERMEABILITY TO WATER, IN MDS



KEY:

Calcareous Sandstone

Laminated Calcareous Sandstone and Shale

Impermeable to Water

LINCOLN 77

GLEUE LEASE

WELL NO. 3

COFFEY COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY MILLIDARCS	CALCULATED OIL RECOVERY BBLs./ACRE
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1013.0 - 1022.0	9.0	16.9	56.5	54.8	41.5	-
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(PRIMARY AND WATERFLOODING)

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 CHANUTE, KANSAS
 JANUARY, 1981

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