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

June 30, 1981

McGinnis Enterprises
R R # 1, Box 99
Rantoul, Kansas 66079

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the McGinnis Lease, Well No. 20, located in Franklin County, Kansas and submitted to our laboratory on June 22, 1981.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Rantoul, Kansas

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GENERAL INFORMATION & SUMMARY

Company McGinnis Enterprises Lease McGinnis Well No. 20

Location NE¼

Section 32 Twp. 17S Rge. 21E County Franklin State Kansas

Elevation, Feet	
Name of Sand	Cattleman
Top of Core	765.0
Bottom of Core	774.0
Top of Sand (Tested)	765.2
Bottom of Sand	774.0
Total Feet of Permeable Sand	8.8
Total Feet of Floodable Sand	8.8

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
45 - 55	2.8	2.8
60 - 70	2.0	4.8
80 - 100	3.0	7.8
100 & Above	1.0	8.8

Average Permeability Millidarcys	72.5
Average Percent Porosity	21.6
Average Percent Oil Saturation	60.0
Average Percent Water Saturation	19.3
Average Oil Content, Bbls./A. Ft.	1,004.
Total Oil Content, Bbls./Acre	8,839.
Average Percent Oil Recovery by Laboratory Flooding Tests	25.1
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	419.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	3,683.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section

The core was sampled and the samples sealed in plastic bags by a representative of the client. Salt water mud was used as a drilling fluid. The core was reported to be from a semi-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
765.0 - 765.2	Grayish light brown shaly sandstone.
765.2 - 774.0	Dark brown slightly calcareous slightly carbonaceous sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 3,683 barrels of oil per acre was obtained from 8.8 feet of sand. The weighted average percent oil saturation was reduced from 60.0 to 34.9, or represents an average recovery of 25.1 percent. The weighted average effective permeability of the samples is 11.10 millidarcys, while the average initial fluid production pressure is 13.3 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 9 samples tested, 9 produced water and oil. This indicates that 100 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 3,720 barrels of oil per acre. This is an average recovery of 422 barrels per acre foot from 8.8 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.05
Reservoir water saturation, percent, estimated	15.0
Average porosity, percent	21.5
Oil saturation after flooding, percent	34.9
Performance factor, percent, estimated	55.0
Net floodable sand, feet	8.8

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company McGinnis Enterprises Lease McGinnis Well No. 20

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	765.7	21.6	55	26	81	922	44.	0.8	0.8	738	35.20
2	766.6	20.5	57	25	82	907	49.	1.0	1.8	907	49.00
3	767.5	20.5	61	22	83	970	54.	1.0	2.8	970	54.00
4	768.5	22.5	64	16	80	1117	62.	1.0	3.8	1117	62.00
5	769.4	22.8	59	18	77	1044	99.	1.0	4.8	1044	99.00
6	770.4	21.1	66	17	83	1080	65.	1.0	5.8	1080	65.00
7	771.5	22.2	58	19	77	999	101.	1.0	6.8	999	101.00
8	772.4	21.8	57	15	72	964	89.	1.0	7.8	964	89.00
9	773.5	21.2	62	17	79	1020	84.	1.0	8.8	1020	84.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company McGinnis Enterprises Lease McGinnis Well No. 20

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
765.2 - 774.0	8.8	72.5	638.20

Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
765.2 - 774.0	8.8	21.6	60.0	19.3	1,004	8,839

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company McGinnis Enterprises Lease McGinnis Well No. 20

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	Bbls./A. Ft.			
1	765.7	21.5	55	917	22	367	33	63	550	136	2.62	20
2	766.6	20.6	57	911	21	336	35	49	575	136	2.32	15
3	767.5	20.4	61	965	25	396	36	52	569	192	8.33	15
4	768.5	22.4	64	1112	25	434	39	57	678	366	14.16	10
5	769.4	22.7	59	1039	23	405	36	48	634	394	16.49	15
6	770.4	20.7	67	1076	34	546	33	52	530	234	10.49	15
7	771.5	22.3	58	1003	26	450	32	53	553	270	12.55	10
8	772.4	21.9	57	968	25	425	32	54	543	302	12.16	10
9	773.5	21.3	62	1025	24	397	38	42	628	406	19.11	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.

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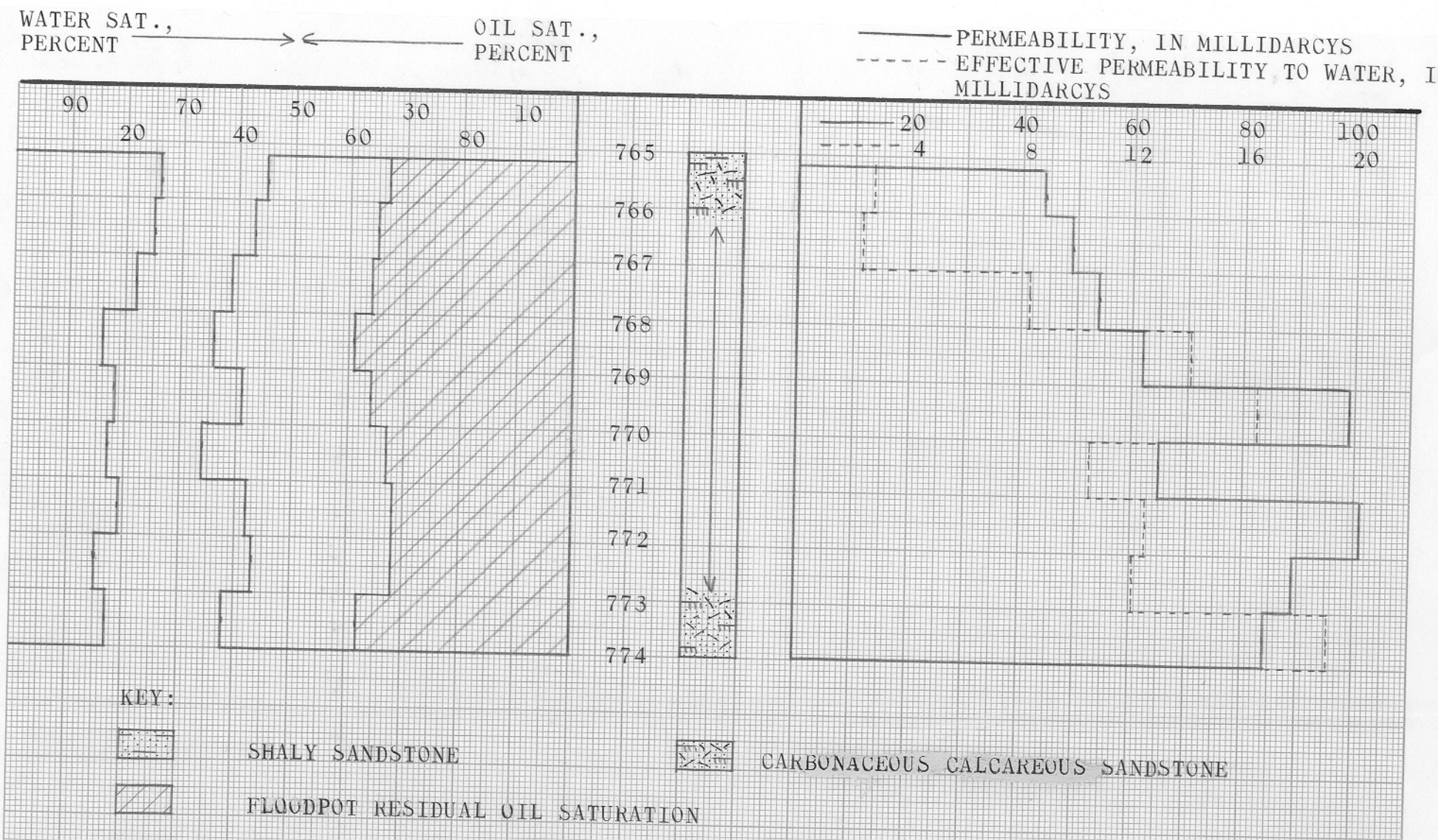
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company McGinnis Enterprises Lease McGinnis Well No. 20

Depth Interval, Feet	765.2 - 774.0
Feet of Core Analyzed	8.8
Average Percent Porosity	21.5
Average Percent Original Oil Saturation	60.0
Average Percent Oil Recovery	25.1
Average Percent Residual Oil Saturation	34.9
Average Percent Residual Water Saturation	52.0
Average Percent Total Residual Fluid Saturation	86.9
Average Original Oil Content, Bbls./A. Ft.	1,004.
Average Oil Recovery, Bbls./A. Ft.	419.
Average Residual Oil Content, Bbls./A. Ft.	585.
Total Original Oil Content, Bbls./Acre	8,833.
Total Oil Recovery, Bbls./Acre	3,683.
Total Residual Oil Content, Bbls./Acre	5,150.
Average Effective Permeability, Millidarcys	11.10
Average Initial Fluid Production Pressure, p.s.i.	13.3

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


WATER SAT., PERCENT
OIL SAT., PERCENT
90 70 50 30 10
20 40 60 80
765
766
767
768
769
770
771
772
773
774
PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
20 40 60 80 100
4 8 12 16 20
KEY:
SHALY SANDSTONE
CARBONACEOUS CALCAREOUS SANDSTONE
FLOODPOT RESIDUAL OIL SATURATION

Mc GINNIS ENTERPRISES

MC GINNIS LEASE

WELL NO. 20

FRANKLIN COUNTY, KANSAS

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
765.2 - 774.0	8.8	21.6	60.0	19.3	72.5	3720 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1981

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