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This report should have
been in Mainline USA's name

Mainline USA

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Ottawa, Ks. 66067

OILFIELD RESEARCH LABORATORIES

CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

October 17, 1980

McGown Drilling
Attn: Phil Kerbrat
Mainline USA
c/o Anderson, Byrd & Richeson
2nd & Main, Box 7
Ottawa, Kansas 66067

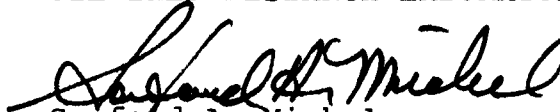
Gentlemen:

Enclosed herewith is the report of the analysis of
the rotary core taken from the Medlin Lease, Well No. 1,
located in Miami County, Kansas and submitted to our
laboratory on August 1, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/ks

3 c to Ottawa, Kansas

- REGISTERED ENGINEERS -

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

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GENERAL INFORMATION & SUMMARY

Company McGown Drilling Lease Medlin Well No. 1

Location -

Section - Twp - Rge - County Miami State Kansas

Elevation, Feet -

Name of Sand - Peru

Top of Core - 354.0

Bottom of Core - 373.4

Top of Sand - 354.0

Bottom of Sand - 373.1

Total Feet of Permeable Sand - 14.4

Total Feet of Floodable Sand - 6.3

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 10	4.0	4.0
10 - 20	4.0	8.0
20 - 40	3.3	11.3
40 - 60	1.9	13.2
60 & Above	1.2	14.4

Average Permeability Millidarcys - 31.6

Average Percent Porosity - 17.1

Average Percent Oil Saturation - 37.5

Average Percent Water Saturation - 34.6

Average Oil Content, Bbls./A. Ft. - 512.

Total Oil Content, Bbls./Acre - 7634.

Average Percent Oil Recovery by Laboratory Flooding Tests - 6.4

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - 98.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - 616.

Total Calculated Oil Recovery, Bbls./Acre - See "Calculated Recovery" Section

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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.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
354.0 - 355.8	Grayish brown slightly calcareous shaly sandstone.
355.8 - 357.0	Light brown and gray laminated slightly calcareous sandstone and shale.
357.0 - 358.0	Brown slightly calcareous sandstone.
358.0 - 358.5	Brown and gray laminated calcareous sandstone and shale.
358.5 - 358.9	Hard gray limestone.
358.9 - 359.8	Brown and gray laminated calcareous sandstone and shale.
359.8 - 360.6	Brown calcareous sandstone.
360.6 - 361.5	Brown and gray laminated calcareous sandstone and shale.
361.5 - 364.2	Brown slightly calcareous sandstone.
368.0 - 369.1	Brown slightly calcareous sandstone.
369.1 - 373.1	Brown and gray laminated slightly calcareous sandstone and shale.
373.1 - 373.4	Hard gray limestone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 616 barrels of oil per acre was obtained from 6.3 feet of sand. The weighted average percent oil saturation was reduced from 45.5 to 39.1, or represents an average recovery of 6.4 percent. The weighted average effective permeability of the samples is 2.55 millidarcys, while the average initial fluid production pressure is 26.7 pounds per square inch (See Table V).

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By observing the data given in Table IV, you will note that of the 15 samples tested, 6 produced water and oil, and 4 samples produced water only. This indicates that approximately 40 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 2140 barrels of oil per acre. This is an average recovery of 340 barrels per acre foot from 6.3 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.03
Reservoir water saturation, percent, estimated	15.0
Average porosity, percent	20.2
Oil saturation after flooding, percent	39.1
Performance factor, percent, estimated	50.0
Net floodable sand, feet	6.3

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company McGown Drilling Lease Medlin Well No. 1

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	354.6	16.5	23	59	82	294	3.8	1.0	1.0	294	3.80
2	355.6	15.3	8	87	95	95	1.2	0.8	1.8	76	0.96
3	356.8	14.8	36	28	64	413	1.2	1.2	3.0	496	1.44
4	357.4	14.2	40	46	86	441	20.	1.0	4.0	441	20.00
5	358.4	17.2	31	55	86	414	Imp.	0.5	4.5	207	0.00
6	359.5	12.7	37	58	95	365	13.	0.9	5.4	329	11.70
7	360.4	20.6	54	44	98	863	56.	0.8	6.2	690	44.80
8	361.4	17.7	54	44	98	742	38.	0.9	7.1	668	34.20
9	362.2	20.3	42	41	83	661	21.	1.5	8.6	793	25.20
10	363.2	23.8	46	18	64	849	158.	1.2	9.8	1019	189.60
11	368.6	22.2	27	13	40	465	54.	1.1	10.9	512	59.40
12	369.4	18.2	42	9	51	593	28.	0.9	11.8	534	25.20
13	370.6	17.2	44	10	54	587	6.4	1.0	12.8	587	6.40
14	371.4	19.7	39	29	68	596	20.	1.0	13.8	596	20.00
15	372.5	10.2	45	19	64	356	11.	1.1	14.9	392	12.10

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	McGown Drilling	Lease	Medlin	Well No.	1
	Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	
	354.0 - 359.8	4.9	7.7	37.90	
	359.8 - 373.1	9.5	43.9	416.90	
	354.0 - 373.1	14.4	31.6	454.80	
	Depth Interval, Feet	Feet of Core Analyzed	Average Percent Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
	354.0 - 359.8	5.4	14.9	29.9	53.3
	359.8 - 373.1	9.5	18.4	41.8	24.0
	354.0 - 373.1	14.9	17.1	37.5	34.6
				341	1,843
				610	5,791
				512	7,634

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company McGown Drilling Lease Medlin Well No. 1

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	354.6	16.1	24	300	0	0	24	60	300	0	Imp.	-
2	355.6	15.4	8	96	0	0	8	87	96	0	Imp.	-
3	356.8	15.0	36	419	0	0	36	30	419	0	Imp.	-
4	357.4	13.8	41	439	0	0	41	47	439	0	Imp.	-
5	358.4	17.2	31	414	0	0	31	55	414	0	Imp.	-
6	359.5	12.9	37	370	0	0	37	59	370	9	0.15	40
7	360.4	20.5	54	859	7	111	47	51	748	157	2.77	25
8	361.4	17.9	54	750	17	236	37	61	514	184	3.00	20
9	362.2	20.2	42	658	4	63	38	60	595	143	2.62	30
10	363.2	23.7	46	846	5	92	41	56	754	408	4.20	15
11	368.6	22.4	27	469	0	0	27	58	469	326	7.66	15
12	369.4	18.3	42	596	5	71	37	61	525	87	1.35	35
13	370.6	17.2	44	587	0	0	44	51	587	74	0.97	25
14	371.4	19.6	39	593	3	46	36	58	547	63	0.97	35
15	372.5	10.4	45	363	0	0	45	53	363	14	0.15	45

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	McGown Drilling	Lease	Medlin	Well No.	1
Depth Interval, Feet	359.8 - 373.1				
Feet of Core Analyzed	6.3				
Average Percent Porosity	20.2				
Average Percent Original Oil Saturation	45.5				
Average Percent Oil Recovery	6.4				
Average Percent Residual Oil Saturation	39.1				
Average Percent Residual Water Saturation	58.1				
Average Percent Total Residual Fluid Saturation	97.2				
Average Original Oil Content, Bbls./A. Ft.	714.				
Average Oil Recovery, Bbls./A. Ft.	98.				
Average Residual Oil Content, Bbls./A. Ft.	616.				
Total Original Oil Content, Bbls./Acre	4,494.				
Total Oil Recovery, Bbls./Acre	616.				
Total Residual Oil Content, Bbls./Acre	3,878.				
Average Effective Permeability, Millidarcys	2.55				
Average Initial Fluid Production Pressure, p.s.i.	26.7				

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