OILFIELD RESEARCH LABORATORIES

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

March 15, 1982

M & M Drilling
Box 216
Mound City, Kansas 66056

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Jackson Lease, Well No. 1, located in Linn County, Kansas and submitted to our laboratory on March 10, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Mound City, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company M & M Drilling Lease Jackson Well No. 1

Location 165' NSL & 165' EWL SW¼

Section 4 Twp. 20S Rge. 23E County Linn State Kansas

Elevation, Feet	
Name of Sand	Peru
Top of Core	281.0
Bottom of Core	310.0
Top of Sand	281.0
Bottom of Sand	309.5
Total Feet of Permeable Sand	15.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	8.9	8.9
1 - 7	4.9	13.8
50 - 51	1.2	15.0

Average Permeability Millidarcys	5.3
Average Percent Porosity	15.5
Average Percent Oil Saturation	32.1
Average Percent Water Saturation	63.2
Average Oil Content, Bbls./A. Ft.	392.
Total Oil Content, Bbls./Acre	10,824.

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. The core was reported to be from a virgin area.

At the request of the client, several samples were subjected to flooding susceptibility tests. The results of these tests are given on Table IV.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
281.0 - 284.0	Grayish brown very shaly sandstone.
284.0 - 288.9	Brown shaly sandstone with gray shale partings.
288.9 - 290.1	Brown sandstone.
290.1 - 290.6	Light brown shaly sandstone.
290.6 - 293.2	Grayish brown very shaly sandstone.
293.2 - 294.6	Brown shaly sandstone.
294.6 - 298.0	Gray and brown laminated shale and sandstone.
298.0 - 298.3	Shale.
298.3 - 301.0	Grayish brown very shaly sandstone.
301.0 - 301.8	Brown very shaly sandstone.
301.8 - 302.4	Grayish brown very shaly sandstone.
302.4 - 302.7	Brown very shaly sandstone.
302.7 - 305.0	Grayish brown very shaly sandstone.
305.0 - 308.0	Brown very shaly sandstone.
308.0 - 308.7	Brown shaly sandstone with gray shale partings.
308.7 - 309.5	Gray shaly sandstone with brown sandstone partings.
309.5 - 310.0	Gray shale.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company M & M Drilling Lease Jackson 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	281.3	17.8	39	57	96	539	1.4	1.0	1.0	539	1.40
2	282.3	13.8	29	68	97	310	Imp.	1.0	2.0	310	0.00
3	283.7	15.1	18	77	95	211	0.27	1.0	3.0	211	0.27
4	284.7	10.9	40	56	96	338	Imp.	1.0	4.0	338	0.00
5	285.5	13.9	42	53	95	453	3.1	1.0	5.0	453	3.10
6	286.4	10.0	44	50	94	341	Imp.	1.0	6.0	341	0.00
7	287.6	16.1	25	73	98	312	0.34	1.0	7.0	312	0.34
8	288.5	16.9	35	60	95	459	0.61	0.9	7.9	413	0.55
9	289.5	23.6	41	41	82	750	50.	1.2	9.1	900	60.00
10	290.4	19.3	46	48	94	689	3.3	0.5	9.6	345	1.65
11	291.5	15.0	30	67	97	349	Imp.	1.4	11.0	489	0.00
12	292.5	16.2	22	75	97	277	Imp.	1.2	12.2	332	0.00
13	293.4	18.9	45	50	95	660	6.8	0.8	13.0	528	5.44
14	294.5	20.6	51	36	87	815	2.5	0.6	13.6	489	1.50
15	295.3	16.3	30	66	96	379	0.27	1.4	15.0	531	0.38
16	296.5	16.5	28	68	96	358	0.76	1.0	16.0	358	0.76
17	297.5	13.5	20	74	94	210	0.82	1.0	17.0	210	0.82
18	298.5	16.7	35	61	96	454	Imp.	0.7	17.7	318	0.00
19	299.3	16.1	35	63	98	437	Imp.	1.0	18.7	437	0.00
20	300.5	14.1	10	85	95	109	Imp.	1.0	19.7	109	0.00
21	301.5	15.5	35	59	94	421	0.98	0.8	20.5	337	0.78
22	302.5	15.9	37	57	94	456	Imp.	0.3	20.8	137	0.00
23	303.5	14.5	15	81	96	169	Imp.	1.3	22.1	220	0.00
24	304.6	13.0	13	84	97	131	Imp.	1.0	23.1	131	0.00
25	305.5	15.8	34	63	97	417	Imp.	1.0	24.1	417	0.00
26	306.4	14.7	42	56	98	479	0.39	1.0	25.1	479	0.39
27	307.6	14.6	51	47	98	578	1.5	1.0	26.1	578	1.50
28	308.5	12.9	37	60	97	370	Imp.	0.7	26.8	259	0.00
29	309.3	14.8	33	63	96	379	0.49	0.8	27.6	303	0.39

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company M & M Drilling Lease Jackson Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
281.0 - 288.9	4.9	1.2	5.66
288.9 - 300.0	6.5	10.9	70.55
300.0 - 309.5	3.6	0.85	3.06
281.0 - 309.5	15.0	5.3	79.27

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
281.0 - 288.9	7.9	14.3	34.0	61.8	369	2,917
288.9 - 300.0	10.8	17.3	33.0	61.0	457	4,937
300.0 - 309.5	8.9	14.5	29.3	67.1	334	2,970
281.0 - 309.5	27.6	15.5	32.1	63.2	392	10,824

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

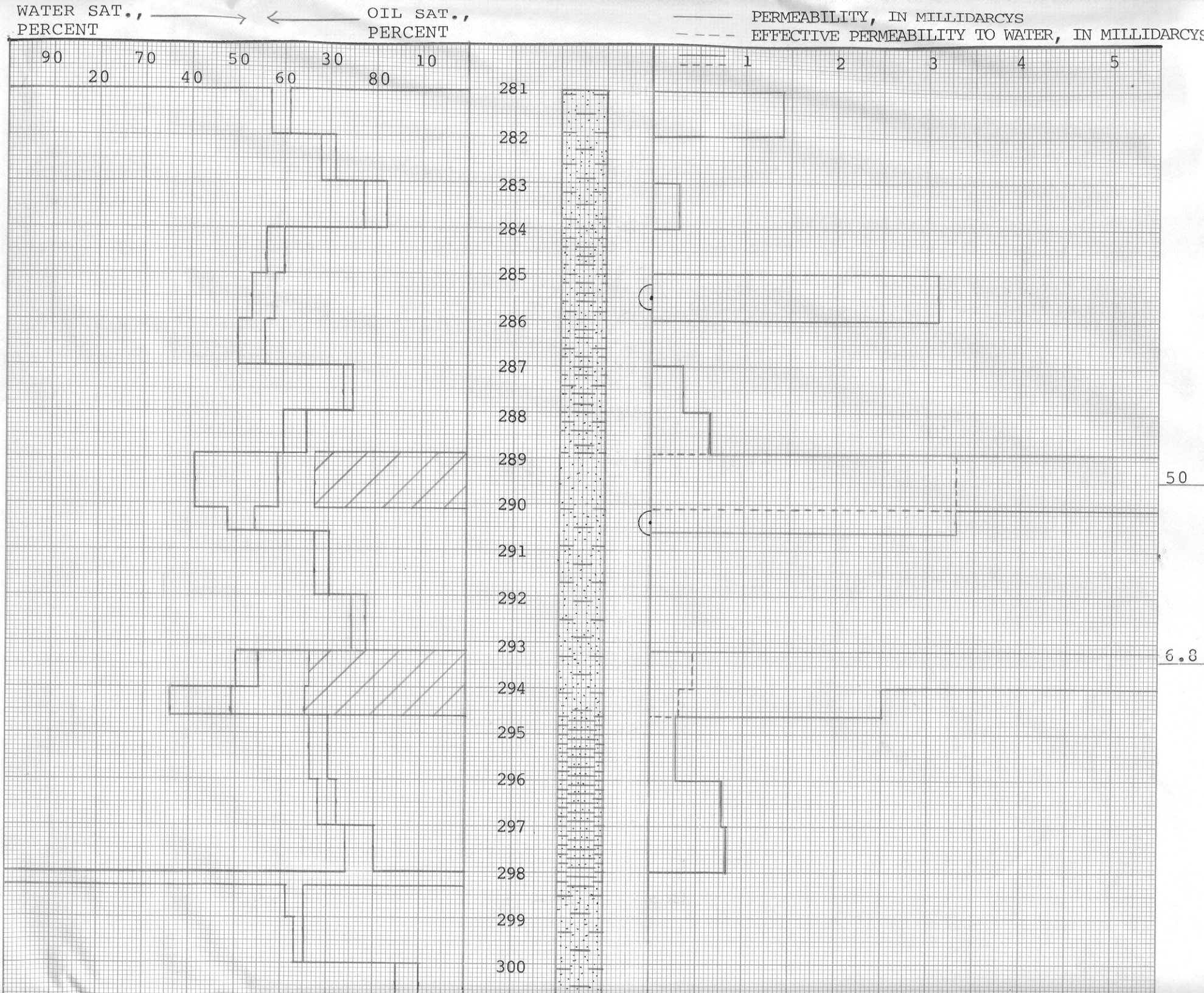
Company M & M Drilling Lease Jackson Well No. 1

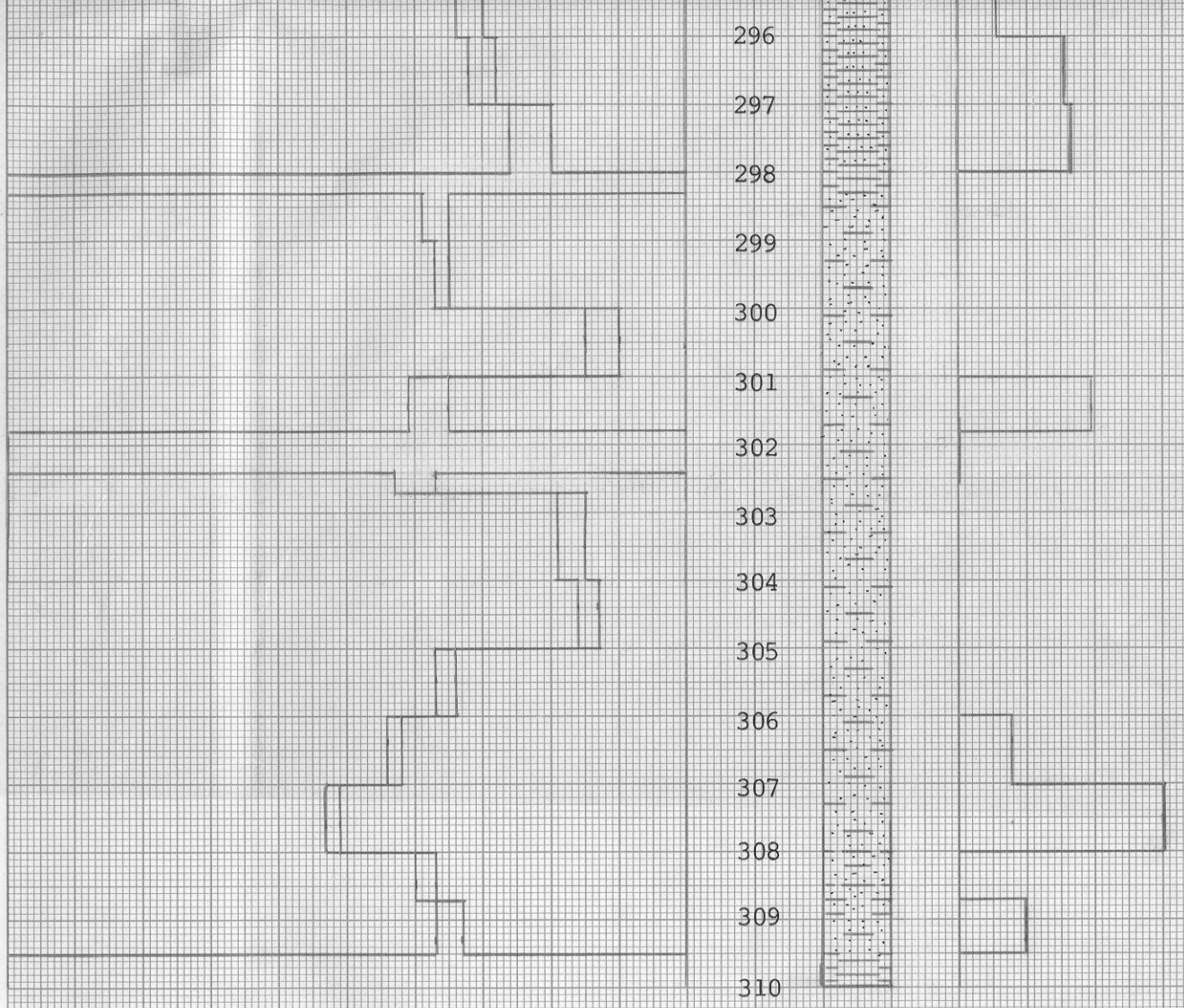
Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
5	285.5	14.1	42	459	0	0	42	53	459	0	Imp.	-
9	289.5	23.7	41	754	8	147	33	62	607	172	3.30	35
10	290.4	19.1	46	682	0	0	46	47	682	0	Imp.	-
13	293.4	19.0	45	663	11	162	34	62	501	6	0.45	35
14	294.5	20.5	51	811	16	254	35	56	557	4	0.30	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.


WATER SAT., PERCENT
OIL SAT., PERCENT
90
70
50
30
10
20
40
60
80
PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
1
2
3
4
5
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
50
6.8



KEY:

SANDSTONE

SHALE

IMPERMEABLE TO WATER

SHALY SANDSTONE WITH SHALE PARTINGS

LAMINATED SANDSTONE AND SHALE

FLOODPOT RESIDUAL OIL SATURATION

M & M DRILLING

JACKSON LEASE

WELL NO. 1

M & M DRILLING

JACKSON LEASE — WELL NO. 1

LINN 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
281.0 - 288.9	7.9	14.3	34.0	61.8	1.2	
288.9 - 300.0	10.8	17.3	33.0	61.0	10.9	
300.0 - 309.5	8.9	14.5	29.3	67.1	0.85	
281.0 - 309.5	27.6	15.5	32.1	63.2	5.3	

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CHANUTE, KANSAS
MARCH, 1982

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