OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

February 18, 1967

Chet Mason
c/o Duct-O-Wire Company
3495 Lakewood Boulevard
Long Beach, California

Dear Sir:

Enclosed herewith is the report of the analysis of the Rotary core taken from the Mason-Lockridge Lease, Well No. 1, Bourbon County, Kansas, and submitted to our laboratory on February 14, 1967.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman

BRP:rf

5 c. - Joe Rolls

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Chet Mason Lease Mason-Lockridge Well No. 1

Location 210' WEL & 635' SNL, SW NW NW NE

Section 33 Twp. 25S Rge. 23E County Bourbon State Kansas

Name of Sand	Peru
Top of Core	136.0
Bottom of Core	158.0
Top of Sand (Analyzed)	136.0
Bottom of Sand	146.6
Total Feet of Permeable Sand	10.6
Total Feet of Floodable Sand	0.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
3 - 5	3.4	3.4
5 - 10	4.2	7.6
10 - 23	3.0	10.6

Average Permeability Millidarcys	9.8
Average Percent Porosity	17.4
Average Percent Oil Saturation	46.0
Average Percent Water Saturation	43.0
Average Oil Content, Bbls./A. Ft.	627.
Total Oil Content, Bbls./Acre	7,281.
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	
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

Fresh water mud was used as the circulating fluid while taking this core. The core was sampled and the samples sealed in cans by a representative of Oilfield Research Laboratories. The well was drilled in virgin territory.

-FORMATION CORED-

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
136.0 - 137.4	Light brown, laminated, slightly calcareous, shaly sandstone.
137.4 - 146.6	Brown, slightly calcareous sandstone.
146.6 - 158.0	Gray sandy shale.

Coring was started at a depth of 136.0 feet in sandstone and completed at 158.0 feet in sandy shale. This core shows a total of 10.6 feet of sandstone. For the most part, the pay is made up of brown, slightly calcareous sandstone.

-PERMEABILITY-

The weighted average permeability of the core is 9.8 millidarcys (See Table III). By observing the data given on the coregraph, it is noticeable that the sand has a rather irregular permeability profile. The permeability varies from impermeable to a maximum of 23. millidarcys.

-PERCENT SATURATION & OIL CONTENT-

The sand in this core shows a good weighted average percent oil saturation, namely, 46.0. The weighted average percent water saturation of the core is 43.0 (See Table III). This gives an overall weighted average total fluid saturation of 89.0 percent.

The weighted average oil content is 627 barrels per acre foot. The total oil content, as shown by this core, is 7,281 barrels per acre (See Table III).

LABORATORY FLOODING TESTS

The sand in this core failed to respond to laboratory flooding tests.

By observing the data given in Table IV, you will note that of the 12 samples tested, none produced water or oil. The tests also show that the sand has no effective permeability to water.

CONCLUSION

Based on the results of the laboratory tests, the low permeability and shallow depth of the sand, it appears that a well completed in the reservoir represented by this core would not be a commercial success.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Chet Mason Lease Mason-Lockridge 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	136.1	16.7	48	50	98	621	3.5	0.6	0.6	372	2.10
2	137.1	17.4	50	48	98	674	3.2	0.8	1.4	539	2.56
3	138.1	16.4	51	40	91	648	7.7	1.2	2.6	777	9.24
4	139.1	15.6	32	49	81	387	4.2	1.0	3.6	387	4.20
5	140.1	16.0	50	42	92	619	8.9	1.0	4.6	619	8.90
6	141.1	17.6	48	36	84	654	9.4	1.0	5.6	654	9.40
7	142.1	16.0	53	39	92	657	11.	1.0	6.6	657	11.00
8	143.1	17.5	50	46	96	678	22.	1.0	7.6	678	22.00
9	144.1	19.5	55	32	87	831	4.0	1.0	8.6	831	4.00
10	145.1	19.2	52	33	85	774	7.6	1.0	9.6	774	7.60
11	146.1	21.6	47	27	74	787	23.	1.0	10.6	787	23.00
12	147.1	15.6	17	79	96	206	Imp.	1.0	11.6	206	0.00
								Total--------		7,281	

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Chet Mason Lease Mason-Lockridge Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
136.0 - 147.6	10.6	9.8	104.00

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
136.0 - 147.6	11.6	17.4	46.0	43.0	627	7,281

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Chet Mason Lease Mason-Lockridge 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	136.1	16.5	49	626	0	0	49	50	626	0	Imp.	-
2	137.1	17.4	50	674	0	0	50	47	674	0	Imp.	-
3	138.1	16.7	50	646	0	0	50	42	646	0	Imp.	-
4	139.1	15.7	31	377	0	0	31	52	377	0	Imp.	-
5	140.1	16.3	51	644	0	0	51	44	644	0	Imp.	-
6	141.1	17.6	50	681	0	0	50	38	681	0	Imp.	-
7	142.1	16.5	52	665	0	0	52	43	665	0	Imp.	-
8	143.1	17.6	49	668	0	0	49	49	668	0	Imp.	-
9	144.1	19.2	55	819	0	0	55	35	819	0	Imp.	-
10	145.1	19.2	52	774	0	0	52	33	774	0	Imp.	-
11	146.1	21.4	48	796	0	0	48	31	796	0	Imp.	-
12	147.1	15.1	16	187	0	0	16	81	187	0	Imp.	-

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.