



OILFIELD RESEARCH LABORATORIES

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

APR: 15-133-10925

June 27, 1978

Missouri Lead & Zinc Company
1705 North Walnut
Pittsburg, Kansas 66762

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Hiller Lease, Well No. 1, and submitted to our laboratory on June 23, 1978.

This core was sampled by a representative of the client.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Benjamin R. Pearman
Benjamin R. Pearman

BRP:cb
4 c to Pittsburg, Kansas
1 c to Chanute, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Missouri Lead & Zinc Co. Lease Hiller Well No. 1

Location _____

Section _____ Twp. _____ Rge. _____ County _____ State Kansas

Name of Sand	- - - - -	
Top of Core	(Received) - - - - -	167.0
Bottom of Core	(Received) - - - - -	207.0
Top of Sand	(Received) - - - - -	168.3
Bottom of Sand	(Received) - - - - -	207.0
Total Feet of Permeable Sand	- - - - -	39.7
Total Feet of Floodable Sand	- - - - -	

Distribution of Permeable Sand:
Permeability Range
Millidarcys

	Feet	Cum. Ft.
0 - 50	16.8	16.8
50 - 100	4.0	20.8
100 - 200	9.0	29.8
200 - 300	4.9	34.7
300 & Above	5.0	39.7

Average Permeability Millidarcys	157.4
Average Percent Porosity	20.4
Average Percent Oil Saturation	49.2
Average Percent Water Saturation	34.1
Average Oil Content, Bbls./A. Ft.	796.
Total Oil Content, Bbls./Acre	30,792.
Average Percent Oil Recovery by Laboratory Flooding Tests	
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	
Total Calculated Oil Recovery, Bbls./Acre	
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

OILFIELD RESEARCH LABORATORIES

- LOG -

Company Missouri Lead & Zinc Co. Lease Hiller Well No. 1

<u>Depth Interval, Feet</u>	<u>Description</u>
167.0 - 168.3	Gray sandy shale.
168.3 - 181.7	Dark brown sandstone.
181.7 - 188.0	Brown slightly shaly sandstone.
188.0 - 207.0	Light brown slightly shaly sandstone.

Gilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Missouri Lead & Zinc Company Lease Hiller 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	167.7	14.2	0	95	95	0	0.99	1.0	1.0	0	0.99
2	168.7	19.9	43	22	65	664	188.	0.8	1.8	531	150.40
3	169.6	22.4	41	25	66	713	259.	1.0	2.8	713	259.00
4	170.6	23.0	49	19	68	875	241.	1.0	3.8	875	241.00
5	171.6	24.9	53	12	65	1024	259.	0.9	4.7	922	233.10
6	172.5	23.3	61	14	75	1103	163.	1.0	5.7	1103	163.00
7	173.5	22.9	62	12	74	1102	314.	1.0	6.7	1102	314.00
8	174.6	26.1	69	10	79	1397	352.	1.0	7.7	1397	352.00
9	175.5	25.1	72	12	84	1402	60.	1.0	8.7	1402	60.00
10	176.5	24.2	67	10	77	1258	970.	1.0	9.7	1258	970.00
11	177.5	25.8	72	9	81	1441	728.	1.0	10.7	1441	728.00
12	178.5	24.9	61	16	77	1179	588.	1.0	11.7	1179	588.00
13	179.5	22.4	54	26	80	939	137.	1.0	12.7	939	137.00
14	180.5	24.1	55	24	79	1029	175.	1.0	13.7	1029	175.00
15	181.5	24.2	55	21	76	1033	203.	0.7	14.4	723	142.10
16	182.5	22.7	48	39	87	846	228.	1.3	15.7	1100	296.40
17	183.5	16.4	50	34	84	636	0.95	1.0	16.7	636	0.95
18	184.5	19.4	47	39	86	708	60.	1.0	17.7	708	60.00
19	185.5	19.4	45	39	84	677	49.	0.9	18.6	609	44.10
20	186.3	22.5	49	35	84	856	118.	1.0	19.6	856	118.00
21	187.5	18.3	32	39	71	454	33.	1.1	20.7	499	36.30
22	188.6	22.4	40	57	97	695	147.	1.0	21.7	695	147.00
23	189.5	19.6	40	49	89	608	92.	1.0	22.7	608	92.00
24	190.4	23.2	40	50	90	720	169.	1.0	23.7	720	169.00
25	191.6	16.9	48	46	94	631	37.	1.0	24.7	631	37.00
26	192.5	19.2	44	40	84	657	29.	1.0	25.7	657	29.00
27	193.5	17.5	48	39	87	653	35.	1.0	26.7	653	35.00
28	194.4	18.0	41	49	90	574	49.	0.9	27.6	517	44.10
29	195.4	17.7	39	46	85	537	57.	1.0	28.6	537	57.00
30	196.4	19.9	41	45	86	634	133.	1.1	29.7	697	146.30

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Missouri Lead & Zinc Company Lease Hiller 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.		
31	197.5	16.5	47	36	83	603	35.	1.0	30.7	603	35.00
32	198.4	16.9	47	43	90	618	28.	0.9	31.6	556	25.20
33	199.5	15.5	51	37	88	615	9.6	1.1	32.7	677	10.56
34	200.5	15.5	42	48	90	506	3.6	1.0	33.7	506	3.60
35	201.4	14.9	51	42	93	591	18.	0.9	34.6	532	16.20
36	202.3	15.9	45	50	95	556	11.	0.9	35.5	500	9.90
37	203.4	20.4	51	41	92	809	19.	1.1	36.6	890	20.90
38	204.4	17.9	48	47	95	668	119.	1.1	37.7	735	130.90
39	205.5	17.5	45	43	88	612	1.5	1.0	38.7	612	1.50
40	206.5	20.4	28	55	83	444	13.	1.0	39.7	444	13.00
	<u>3730.2</u>	<u>292.5</u>		<u>703</u>			<u>2248.04</u>				

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

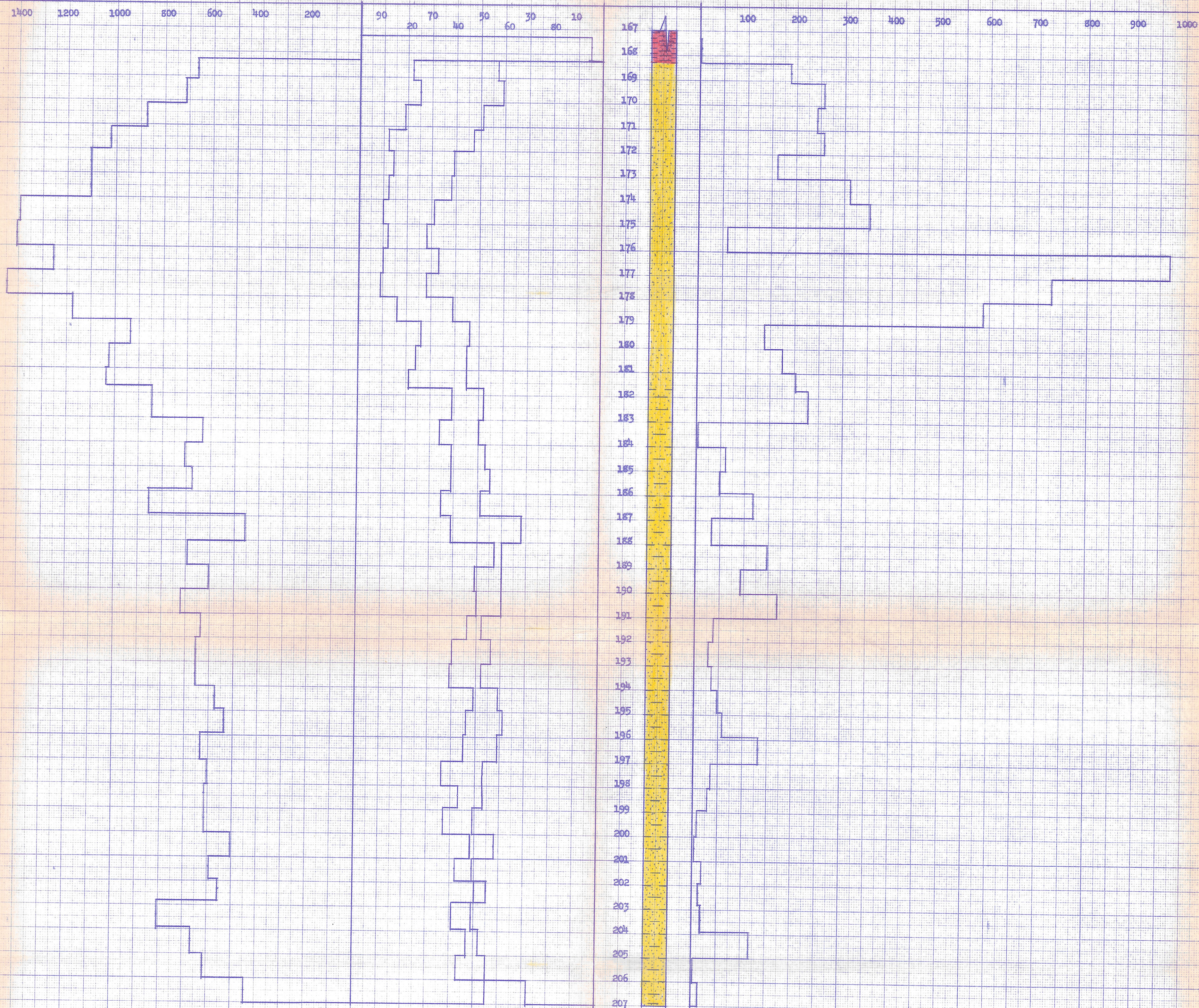
Company Missouri Lead & Zinc Company Lease Hiller Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
168.3 - 183.0	14.7	327.1	4809.00
183.0 - 198.9	15.9	67.7	1075.95
198.9 - 207.0	8.1	25.5	206.56
168.3 - 207.0	38.7	157.4	6091.51

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
168.3 - 183.0	14.7	23.7	57.6	18.4	1,069	15,714
183.0 - 198.9	15.9	19.0	43.5	42.8	640	10,182
198.9 - 207.0	8.1	17.3	45.2	45.2	604	4,896
168.3 - 207.0	38.7	20.4	49.2	34.1	796	30,792

OIL CONTENT,
BBLs./A. FT.WATER SAT.,
PERCENTOIL SAT.,
PERCENT

AIR PERMEABILITY, IN MILLIDARCYs



KEY:

SANDY SHALE

SANDSTONE

SHALY SANDSTONE

MISSOURI LEAD & ZINC COMPANY
HILLER LEASE

WELL NO. 1

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION, PERCENT	AVG. WATER SATURATION, PERCENT	AVG. OIL CONTENT, BBLs./A. FT.	TOTAL OIL CONTENT, BBLs./A. FT.	AVG. AIR PERMEABILITY, MILLIDARCYs
168.3 - 183.0	14.7	23.7	57.6	18.4	1,069	15,714	327.1
183.0 - 198.9	15.9	19.0	43.5	42.8	640	10,182	67.7
198.9 - 207.0	8.1	17.3	45.2	45.2	604	4,896	25.5
168.3 - 207.0	38.7	20.4	49.2	34.1	796	30,792	157.4