

December 21, 1950

Union Gas System, Inc.
Independence, Kansas

Gentlemen:

Attached hereto are the results of permeability and porosity tests made on the Cable Tool core taken from the Mustoe Lease, Well No. 40, Elk County, Kansas, and submitted to our laboratory on December 8, 1950.

Chautauque(?)
Very truly yours,

OIL FIELD RESEARCH LABORATORIES

Clayton A. Mattier

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TWP _____ RGE _____ SEC _____
Elk County, Kansas

OIL FIELD RESEARCH LABORATORIES

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Company Union Gas System Incorporated Lease Mustoe Well No. 40

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
659.60 - 661.00	- Gray fine grained micaceous sandstone.
661.00 - 662.50	- Loss.
662.50 - 680.00	- Gray fine grained micaceous sandstone.
680.00 - 680.35	- Gray fine grained micaceous slightly carbonaceous sandstone.
680.35 - 681.28	- Light brown fine grained micaceous sandstone.
681.28 - 681.55	- Light brown fine grained micaceous slightly carbonaceous sandstone.
681.55 - 683.85	- Light brown fine grained micaceous sandstone.

Oil Field Research Laboratories
RESULTS OF PERMEABILITY TESTS
TABLE I

Company Union Gas System Incorporated Base Mustoe Well No. 40

Sample No.	Depth, Feet	Permeability Millidarcys	Feet of Core		Permeability Capacity Ft. x Md.
			Ft.	Cum. Ft.	
1	659.85	21.	0.60	0.60	12.60
2	660.43	42.	0.50	1.10	21.00
3	660.95	33.	0.30	1.40	9.90
4	662.85	13.	0.70	2.10	9.10
5	663.50	9.2	0.50	2.60	4.60
6	663.95	28.	0.50	3.10	14.00
7	664.45	11.	0.45	3.55	4.95
8	664.86	27.	0.50	4.05	13.50
9	665.35	6.5	0.60	4.65	3.90
10	666.15	20.	0.65	5.30	13.00
11	666.65	12.	0.50	5.80	6.00
12	667.10	30.	0.40	6.20	12.00
13	667.50	60.	0.50	6.70	30.00
14	668.10	24.	0.55	7.25	13.20
15	668.60	14.	0.45	7.70	6.30
16	669.00	126.	0.40	8.10	50.40
17	669.45	128.	0.50	8.60	64.00
18	670.00	136.	0.50	9.10	68.00
19	670.45	170.	0.50	9.60	85.00
20	670.90	203.	0.60	10.20	121.80
21	671.65	175.	0.60	10.80	105.00
22	672.15	124.	0.50	11.30	62.00
23	672.63	171.	0.45	11.75	76.95
24	673.10	122.	0.50	12.25	61.00
25	673.60	307.	0.50	12.75	153.50
26	674.15	306.	0.55	13.30	168.30
27	674.65	57.	0.50	13.80	28.50
28	675.20	68.	0.50	14.30	34.00
29	675.65	95.	0.50	14.80	47.50
30	676.10	135.	0.60	15.40	81.00
31	676.85	73.	0.65	16.05	47.45
32	677.45	272.	0.55	16.60	149.60
33	678.00	254.	0.55	17.15	139.70
34	678.48	172.	0.45	17.60	77.40
35	678.85	136.	0.50	18.10	68.00
36	679.45	274.	0.50	18.60	137.00
37	680.00	143.	0.30	18.90	42.90
38	680.44	103.	0.35	19.25	36.05
39	680.95	317.	0.58	19.83	183.83
40	681.38	78.	0.27	20.10	21.06
41	681.86	158.	0.55	20.65	86.90
42	682.36	290.	0.40	21.05	116.00
43	682.56	301.	0.30	21.35	90.35
44	683.00	113.	0.45	21.80	50.85
45	683.50	165.	0.60	22.40	99.00

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TABLE II

RESULTS OF POROSITY TESTS

Company Union Gas System Incorporated Lease Mustoe Well No. 40

<u>Sample No.</u>	<u>Depth, Feet</u>	<u>Percent Porosity</u>
1	659.85	21.9
3	660.95	22.6
5	663.50	18.3
7	664.45	22.6
9	665.35	20.3
11	666.65	21.1
13	667.50	22.1
15	668.60	19.3
17	669.45	21.4
19	670.45	19.5
21	671.65	23.1
23	672.63	23.4
25	673.60	24.0
27	674.65	23.0
29	675.65	24.6
31	676.85	23.3
33	678.00	24.1
35	678.85	25.9
37	680.00	24.8
39	680.95	25.1
41	681.86	21.7
43	682.56	27.1
45	683.50	23.4

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TABLE III

SUMMARY OF PERMEABILITY & POROSITY TESTS

Company	<u>Union Gas System Incorporated</u>			Lease	<u>Mustoe</u>	Well No.	<u>40</u>
<u>Depth Interval, Feet</u>	<u>Feet of Core Analyzed</u>	<u>Average Air Permeability, Millidarcys</u>	<u>Permeability Capacity Ft. X Md.</u>	<u>Average Percent Porosity</u>			
659.60 - 668.80	7.70	22.60	174.05	21.03			
668.80 - 683.85	14.70	173.67	2,552.96	23.52			
659.60 - 683.85	22.40	121.74	2,727.01	22.67			