



OILFIELD RESEARCH LABORATORIES

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

March 17, 1982

Mid America Energy Company, Inc.
Box 569
Lebanon, Missouri 65536

Gentlemen:

Enclosed herewith are the results of tests run on the rotary core taken from the Stockebrand Lease, Well No. 15, located in Woodson County, Kansas.

The core was sampled and sealed in plastic bags by a representative of the client and was submitted to our laboratory on March 15, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas

5 c to Lebanon, Missouri

- REGISTERED ENGINEERS -

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

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Mid America Energy Co., Inc. Lease Stockebrand Well No. 15
 Location 490' WEL & 540' SNL NE $\frac{1}{4}$
 Section 3 Twp. 24S Rge. 16E County Woodson State Kansas

Elevation, Feet		
Name of Sand.....	Upper Squirrel	Lower Squirrel
Top of Core	977.0	1024.0
Bottom of Core	988.0	1029.0
Top of Sand	977.8	1024.6
Bottom of Sand (Tested)	988.0	* 1027.8
Total Feet of Permeable Sand	6.3	2.4

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
	<u>UPPER SQUIRREL SAND</u>	
0 - 2	3.0	3.0
7 - 11	2.0	5.0
38 - 40	1.3	6.3
	<u>LOWER SQUIRREL SAND</u>	
0 - 6	1.4	1.4
50 - 55	1.0	2.4

Average Permeability Millidarcys	11.8	25.2
Average Percent Porosity	14.1	17.2
Average Percent Oil Saturation	37.6	49.9
Average Percent Water Saturation	42.4	24.3
Average Oil Content, Bbls./A. Ft.	428.	665.
Total Oil Content, Bbls./Acre	3,984.	1,595.

OILFIELD RESEARCH LABORATORIES

LOGName Mid America Energy Company, Inc.Lease Stockebrand Well No. 15

<u>Depth Interval, Feet</u>	<u>Description</u>
<u>UPPER SQUIRREL SAND</u>	
977.0 - 977.8	Gray slightly calcareous shale.
977.8 - 980.0	Grayish light brown slightly calcareous very shaly sandstone containing a vertical fracture.
980.0 - 980.9	Grayish brown calcareous shaly sandstone.
980.9 - 981.2	Gray limestone.
981.2 - 982.0	Grayish brown slightly calcareous very shaly sandstone containing a vertical fracture.
982.0 - 982.6	Light gray calcareous very shaly sandstone.
982.6 - 984.2	Grayish brown shaly sandstone.
984.2 - 984.7	Grayish brown slightly shaly sandstone.
984.7 - 986.0	Brown sandstone.
986.0 - 987.0	Dark brown slightly shaly sandstone.
987.0 - 988.0	Very dark brown sandstone.
<u>LOWER SQUIRREL SAND</u>	
1024.0 - 1024.6	Gray limestone.
1024.6 - 1025.2	Grayish brown calcareous shaly sandstone.
1025.2 - 1026.0	Gray shale.
1026.0 - 1026.8	Grayish brown slightly shaly sandstone.
1026.8 - 1027.8	Brown sandstone.
1027.8 - 1028.7	Brown and gray laminated sandstone and shale.
1028.7 - 1029.0	Gray shale.

Oilfield Research Laboratories
RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Mid America Energy Company, Inc. Lease Stokebrand Well No. 15

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.		
						UPPER SQUIRREL SAND					
1	978.5	13.1	16	46	62	163	Imp.	1.2	1.2	196	0.00
2	979.5	12.4	14	69	83	135	Imp.	1.0	2.2	135	0.00
3	980.5	9.7	36	42	78	271	0.22	0.9	3.1	244	0.20
4	981.5	9.5	32	46	78	236	Imp.	0.8	3.9	189	0.00
5	982.7	14.2	36	50	86	397	1.8	0.6	4.5	238	1.08
6	983.5	14.3	33	49	82	366	1.3	1.0	5.5	366	1.30
7	984.5	16.7	42	34	76	544	6.3	0.5	6.0	272	3.15
8	985.5	19.0	40	43	83	590	39.	1.3	7.3	767	50.70
9	986.5	15.3	60	32	92	712	7.8	1.0	8.3	712	7.80
10	987.5	15.7	71	12	83	865	10.	1.0	9.3	865	10.00
						LOWER SQUIRREL SAND					
11	1024.8	11.3	54	27	81	473	3.4	0.6	0.6	284	2.04
12	1026.6	17.4	43	29	72	580	5.4	0.8	1.4	464	4.32
13	1027.5	20.6	53	19	72	847	54.	1.0	2.4	847	54.00

Oilfield Research Laboratories
SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Mid America Energy Company, Inc.	Lease	Stockebrand	Well No.	15
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
UPPER SQUIRREL SAND					
977.8 - 982.0	0.9	0.22	0.20		
982.6 - 988.0	5.4	13.7	74.03		
977.8 - 988.0	6.3	11.8	74.23		
LOWER SQUIRREL SAND					
1024.6 - 1027.8	2.4	25.2	60.36		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Total Oil Content Bbls./Acre
UPPER SQUIRREL SAND					
977.8 - 982.0	3.9	11.4	23.4	51.0	764
982.6 - 988.0	5.4	16.1	47.9	36.3	3,220
977.8 - 988.0	9.3	14.1	37.6	42.4	3,984
LOWER SQUIRREL SAND					
1024.6 - 1027.8	2.4	17.2	49.9	24.3	1,595

PERMEABILITY, IN MILLIDARCYS

WATER SAT., PERCENT ← OIL SAT., PERCENT



