

OIL SHALE ASSAY

for

GULF MINERAL RESOURCES COMPANY

BZ-33

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
 DALLAS, TEXAS

PAGE NO. 1

GULF MINERAL RESOURCES COMPANY FORMATION :
 BZ-33 DLG. FLUID :
 LOCATION :
 STATE :

DATE : 10-01-82
 FILE NO. : 3808-05-513
 ANALYSTS : EW, CM, RG
 ELEVATION:

OIL SHALE ASSAY

		ASTM D 3904-80									
		8	4	7	5	10	6	7	11		
SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE		
1.	180.9 -182.0	1.8	0.7	4.8	2.0	0.920	96.5	0.8	NIL (NONE)		
2.	182.0 -183.0	1.0	0.4	4.9	2.0	0.920	96.9	0.6	NIL (NONE)		
3.	183.0 -184.0	3.0	1.1	3.6	1.5	0.920	97.3	0.1	NIL (NONE)		
4.	184.0 -185.0	11.0	4.2	4.8	2.0	0.913	92.8	1.0	NIL (NONE)		
5.	185.0 -186.0	11.0	4.2	4.7	2.0	0.910	92.4	1.4	NIL (NONE)		
6.	186.0 -187.0	24.9	9.4	7.2	3.0	0.908	85.9	1.7	NIL (NONE)		
7.	187.0 -188.0	13.7	5.3	5.5	2.3	0.917	90.9	1.5	NIL (NONE)		
8.	188.0 -189.0	9.7	3.7	3.4	1.4	0.921	93.8	1.1	NIL (NONE)		
9.	189.0 -190.0	11.6	4.5	5.4	2.2	0.927	92.4	0.9	NIL (NONE)		
10.	190.0 -191.0	11.2	4.3	7.1	3.0	0.923	92.0	0.7	NIL (NONE)		
11.	191.0 -192.0	23.6	9.1	5.3	2.2	0.927	85.9	2.8	NIL (NONE)		
12.	192.0 -193.0	18.5	7.2	2.6	1.1	0.930	89.2	2.5	NIL (NONE)		
13.	193.0 -194.0	33.0	12.7	4.6	1.9	0.926	82.3	3.0	NIL (NONE)		
14.	194.0 -195.0	26.7	10.4	4.6	1.9	0.933	85.4	2.3	NIL (NONE)		
15.	195.0 -196.0	17.8	6.9	4.6	1.9	0.934	89.1	2.1	NIL (NONE)		
16.	196.0 -197.0	13.7	5.3	3.7	1.5	0.936	91.4	1.7	NIL (NONE)		
17.	197.0 -198.0	10.9	4.2	3.4	1.4	0.934	92.6	1.7	NIL (NONE)		
18.	198.0 -199.0	20.8	8.1	4.5	1.9	0.930	87.7	2.3	NIL (NONE)		
19.	199.0 -200.0	13.6	5.2	3.6	1.5	0.927	91.5	1.8	NIL (NONE)		
20.	200.0 -201.0	9.7	3.8	3.2	1.3	0.930	93.3	1.6	NIL (NONE)		
21.	201.0 -202.0	10.9	4.3	6.7	2.8	0.934	91.1	1.8	NIL (NONE)		
22.	202.0 -203.0	9.6	3.7	3.9	1.6	0.928	92.8	1.9	NIL (NONE)		
23.	203.0 -204.0	7.8	3.0	4.0	1.7	0.926	94.1	1.3	NIL (NONE)		
24.	204.0 -205.0	9.9	3.8	4.1 ✓	1.7	0.927	93.0	1.4	NIL (NONE)		
25.	205.0 -206.0	36.4	14.1	5.6	2.3	0.929	80.7	2.8	NIL (NONE)		

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
 DALLAS, TEXAS

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GULF MINERAL RESOURCES COMPANY FORMATION :
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DATE : 10-01-82
 FILE NO. : 3808-OS-513
 ANALYSTS : EW, CM, RG
 ELEVATION:

OIL SHALE ASSAY

ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE
26.	206.0 -207.0	21.5	8.3	4.5	1.9	0.925	87.6	2.2	NIL (NONE)
27.	207.0 -208.0	18.8	7.2	4.4	1.8	0.919	88.8	2.1	NIL (NONE)
28.	208.0 -209.0	24.4	9.4	4.5	1.9	0.921	86.5	2.3	NIL (NONE)
29.	209.0 -210.0	38.4	14.7	4.9	2.0	0.917	79.6	3.6	NIL (NONE)
30.	210.0 -211.0	39.2	15.0	5.3	2.2	0.915	78.8	4.1	SLIGHT
31.	211.0 -212.0	57.4	21.8	8.8	3.7	0.909	68.4	6.2	MEDIUM
32.	212.0 -213.0	74.2	28.3	10.0	4.2	0.913	60.4	7.2	MEDIUM
33.	213.0 -214.0	58.8	22.3	7.7	3.2	0.910	68.6	5.9	SLIGHT
34.	214.0 -215.0	44.8	17.0	5.9	2.4	0.907	75.5	5.1	SLIGHT
35.	215.0 -216.0	41.5	15.9	6.2	2.6	0.916	77.9	3.7	NIL (NONE)
36.	216.0 -217.0	16.6	6.4	3.5	1.5	0.925	90.1	2.0	NIL (NONE)
37.	217.0 -218.0	21.4	8.2	3.5	1.5	0.919	88.2	2.1	NIL (NONE)
38.	218.0 -219.0	30.6	11.7	4.0	1.7	0.914	83.5	3.2	NIL (NONE)
39.	219.0 -220.0	13.6	5.2	3.9	1.6	0.915	91.4	1.8	NIL (NONE)
40.	220.0 -221.0	24.3	9.3	2.5	1.0	0.918	87.7	1.9	NIL (NONE)
41.	221.0 -222.0	5.3	2.0	3.8	1.6	0.920	94.3	2.1	NIL (NONE)
42.	222.0 -223.0	31.4	11.9	11.6	4.8	0.907	82.4	0.9	NIL (NONE)
43.	223.0 -224.0	22.0	8.5	4.9	2.0	0.920	87.3	2.2	NIL (NONE)
44.	224.0 -225.0	23.3	9.0	3.5	1.5	0.923	87.7	1.9	NIL (NONE)
45.	225.0 -226.0	11.7	4.5	4.5	1.9	0.925	91.9	1.7	NIL (NONE)
46.	226.0 -227.0	32.9	12.7	6.6	2.7	0.927	81.4	3.1	NIL (NONE)
47.	227.0 -228.0	15.7	6.1	4.3	1.8	0.929	90.1	2.1	NIL (NONE)
48.	228.0 -229.0	11.4	4.4	3.7	1.6	0.922	92.2	1.8	NIL (NONE)
49.	229.0 -230.0	15.6	6.0	5.3	2.2	0.916	91.1	0.7	NIL (NONE)
50.	230.0 -231.0	38.3	14.5	5.7	2.4	0.911	79.7	3.4	NIL (NONE)

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

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ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE
51.	231.0 -232.0	23.9	9.1	3.8	1.6	0.912	86.9	2.4	NIL (NONE)
52.	232.0 -233.0	21.9	8.3	4.1	1.7	0.913	87.8	2.2	NIL (NONE)
53.	233.0 -234.0	24.5	9.4	3.9	1.6	0.919	86.6	2.4	NIL (NONE)
54.	234.0 -235.0	9.5	3.7	11.0	4.6	0.925	90.6	1.2	NIL (NONE)
55.	235.0 -236.0	9.5	3.7	4.5	1.9	0.923	93.1	1.4	NIL (NONE)
56.	236.0 -237.0	11.2	4.3	4.8	2.0	0.925	91.7	1.9	NIL (NONE)
57.	237.0 -238.0	16.2	6.2	4.7	2.0	0.921	90.1	1.7	NIL (NONE)
58.	238.0 -239.0	7.1	2.7	4.0	1.7	0.926	94.2	1.4	NIL (NONE)
59.	239.0 -240.0	4.0	1.5	3.5	1.5	0.920	96.2	0.8	NIL (NONE)
60.	240.0 -241.0	9.8	3.8	3.0	1.3	0.925	93.6	1.3	NIL (NONE)
61.	241.0 -242.0	9.5	3.7	6.1	2.5	0.926	92.9	0.9	NIL (NONE)
62.	242.0 -243.0	19.8	7.7	5.1	2.1	0.925	87.8	2.4	NIL (NONE)
63.	243.0 -244.0	7.6	2.9	4.0	1.7	0.923	94.5	0.9	NIL (NONE)
64.	244.0 -245.0	21.1	8.2	3.7	1.5	0.927	88.3	2.0	NIL (NONE)
65.	245.0 -246.0	3.3	1.3	6.3	2.6	0.920	95.4	0.6	NIL (NONE)
66.	246.0 -247.0	5.5	2.1	6.4	2.7	0.920	94.5	0.7	NIL (NONE)
67.	247.0 -248.0	14.2	5.5	5.3	2.2	0.928	90.8	1.5	NIL (NONE)
68.	248.0 -249.0	16.7	6.5	13.8	5.8	0.934	85.7	2.1	NIL (NONE)
69.	249.0 -250.0	4.9	1.9	5.0	2.1	0.920	95.4	0.6	NIL (NONE)
70.	250.0 -251.0	4.0	1.5	6.3	2.6	0.920	95.1	0.8	NIL (NONE)
71.	251.0 -252.0	5.4	2.1	8.1	3.4	0.920	93.9	0.6	NIL (NONE)
72.	252.0 -253.0	5.3	2.0	3.8	1.6	0.920	95.8	0.6	NIL (NONE)
73.	253.0 -254.0	2.7	1.1	7.7	3.2	0.919	95.3	0.4	NIL (NONE)
74.	254.0 -255.0	3.0	1.1	6.6	2.8	0.920	95.8	0.3	NIL (NONE)
75.	255.0 -256.0	11.9	4.6	5.7	2.4	0.931	91.7	1.3	NIL (NONE)

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PAGE NO. 4

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ELEVATION:

OIL SHALE ASSAY

ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE
76.	256.0 -257.0	3.0	1.1	4.1	1.7	0.920	96.5	0.6	NIL (NONE)
77.	257.0 -258.0	2.2	0.8	5.6	2.4	0.920	96.5	0.3	NIL (NONE)
78.	258.0 -259.0	3.9	1.5	3.6	1.5	0.920	96.4	0.6	NIL (NONE)
79.	259.0 -260.0	11.5	4.5	3.6	1.5	0.932	92.9	1.2	NIL (NONE)
80.	260.0 -261.0	7.0	2.7	3.8	1.6	0.929	94.7	1.0	NIL (NONE)
81.	261.0 -262.0	16.6	6.4	5.0	2.1	0.920	89.9	1.6	NIL (NONE)
82.	262.0 -263.0	7.0	2.7	5.1	2.1	0.917	93.8	1.4	NIL (NONE)
83.	263.0 -264.0	7.9	3.0	6.8	2.8	0.914	93.1	1.1	NIL (NONE)
84.	264.0 -265.0	8.1	3.1	5.9	2.4	0.919	93.1	1.3	NIL (NONE)
85.	265.0 -266.0	2.9	1.1	9.1	3.8	0.920	94.1	1.0	NIL (NONE)
86.	266.0 -267.0	5.6	2.1	7.9	3.3	0.920	93.6	1.0	NIL (NONE)
87.	267.0 -268.0	4.4	1.7	7.0	2.9	0.920	94.4	0.9	NIL (NONE)
88.	268.0 -269.0	6.6	2.5	8.1	3.4	0.926	92.7	1.4	NIL (NONE)
89.	269.0 -270.0	5.3	2.0	5.5	2.3	0.920	94.5	1.2	NIL (NONE)
90.	270.0 -271.0	6.2	2.4	9.3	3.9	0.921	92.7	1.0	NIL (NONE)
91.	271.0 -272.0	4.3	1.6	4.7	2.0	0.920	94.7	1.7	NIL (NONE)
92.	272.0 -273.0	1.4	0.5	9.2	3.8	0.920	94.4	1.2	NIL (NONE)
93.	273.0 -274.0	5.9	2.3	9.2	3.8	0.920	92.7	1.2	NIL (NONE)
94.	274.0 -275.0	14.8	5.7	7.6	3.2	0.918	89.6	1.5	NIL (NONE)
95.	275.0 -276.0	10.4	4.0	9.9	4.1	0.916	90.6	1.3	NIL (NONE)
96.	276.0 -277.0	8.4	3.2	9.3	3.9	0.920	91.9	1.0	NIL (NONE)
97.	277.0 -278.0	4.8	1.9	7.4	3.1	0.926	94.3	0.7	NIL (NONE)
98.	278.0 -279.0	5.6	2.2	13.2	5.5	0.930	91.4	1.0	NIL (NONE)
99.	279.0 -280.0	16.5	6.4	1.1	0.4	0.927	92.1	1.1	NIL (NONE)
100.	280.0 -281.0	16.7	6.4	0.7	0.3	0.928	91.7	1.6	NIL (NONE)

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CORE LABORATORIES, INC.
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DALLAS, TEXAS

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OIL SHALE ASSAY

ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE
101.	281.0 -282.0	3.4	1.3	10.5	4.4	0.920	93.3	1.0	NIL (NONE)
102.	282.0 -283.0	0.4	0.2	13.2	5.5	0.920	93.6	0.7	NIL (NONE)
103.	283.0 -284.0	0.7	0.3	13.0	5.4	0.920	93.7	0.7	NIL (NONE)
104.	284.0 -285.0	0.6	0.2	6.8	2.8	0.920	96.4	0.6	NIL (NONE)
105.	285.0 -286.0	0.3	0.1	13.2	5.5	0.920	93.7	0.6	NIL (NONE)
106.	286.0 -287.0	0.1	0.1	14.0	5.8	0.920	93.6	0.6	NIL (NONE)
107.	287.0 -288.0	1.4	0.5	13.6	5.7	0.920	93.0	0.8	NIL (NONE)
108.	288.0 -289.0	0.3	0.1	12.4	5.2	0.920	94.4	0.3	NIL (NONE)
109.	289.0 -290.0	8.8	3.4	4.1	1.7	0.920	94.2	0.7	NIL (NONE)
110.	290.0 -291.0	3.2	1.2	8.5	3.6	0.920	94.5	0.7	NIL (NONE)
111.	291.0 -292.0	7.2	2.8	7.6	3.2	0.920	93.3	0.8	NIL (NONE)
112.	292.0 -293.0	9.3	3.6	4.3	1.8	0.920	94.2	0.4	NIL (NONE)
113.	293.0 -294.0	12.9	5.0	2.5	1.0	0.929	93.1	0.8	NIL (NONE)
114.	294.0 -295.0	12.6	4.9	1.2	0.5	0.926	93.2	1.4	NIL (NONE)
115.	295.0 -296.0	14.0	5.4	2.9	1.2	0.924	92.1	1.3	NIL (NONE)
116.	296.0 -297.0	16.0	6.2	1.6	0.6	0.929	92.7	0.5	NIL (NONE)
117.	297.0 -298.0	16.5	6.4	0.9	0.4	0.924	92.6	0.7	NIL (NONE)
118.	298.0 -299.0	14.4	5.6	0.5	0.2	0.926	92.9	1.3	NIL (NONE)
119.	299.0 -300.0	14.7	5.7	0.5	0.2	0.925	93.0	1.1	NIL (NONE)
120.	300.0 -301.0	13.5	5.2	0.5	0.2	0.928	93.9	0.7	NIL (NONE)
121.	301.0 -302.0	14.3	5.5	5.2	2.2	0.924	91.2	1.2	NIL (NONE)
122.	302.0 -303.0	11.9	4.6	1.1	0.5	0.925	92.2	2.7	NIL (NONE)
123.	303.0 -304.0	12.8	5.0	5.3	2.2	0.926	92.0	0.9	NIL (NONE)
124.	304.0 -305.0	11.5	4.4	3.5	1.4	0.920	92.5	1.7	NIL (NONE)
125.	305.0 -306.0	9.6	3.7	3.4	1.4	0.920	93.5	1.4	NIL (NONE)

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ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT. %	WATER GAL/TON	WATER WT. %	OIL GRAV.	SHALE WT. %	GAS PLUS LOSS WT. %	TENDENCY TO COKE
126.	306.0 -307.0	9.8	3.7	3.3	1.4	0.920	94.1	0.8	NIL (NONE)
127.	307.0 -308.0	8.3	3.2	6.3	2.6	0.920	92.6	1.6	NIL (NONE)
128.	308.0 -309.0	4.2	1.6	4.5	1.9	0.920	95.0	1.5	NIL (NONE)
129.	309.0 -310.0	12.2	4.7	1.4	0.6	0.928	93.5	1.2	NIL (NONE)
130.	310.0 -311.0	15.9	6.2	4.0	1.7	0.926	90.9	1.3	NIL (NONE)
131.	311.0 -312.0	12.7	4.9	4.7	2.0	0.925	91.2	2.0	NIL (NONE)
132.	312.0 -313.0	16.9	6.5	0.4	0.2	0.927	91.1	2.2	NIL (NONE)
133.	313.0 -314.0	14.2	5.5	4.9	2.0	0.927	90.8	1.7	NIL (NONE)
134.	314.0 -315.0	14.8	5.7	3.4	1.4	0.928	91.7	1.1	NIL (NONE)
135.	315.0 -316.0	12.0	4.6	4.6	1.9	0.930	92.3	1.1	NIL (NONE)
136.	316.0 -317.0	3.6	1.4	5.0	2.1	0.920	95.9	0.7	NIL (NONE)
137.	317.0 -318.0	0.9	0.3	12.8	5.4	0.920	93.6	0.7	NIL (NONE)
138.	318.0 -319.0	0.5	0.2	15.2	6.3	0.920	92.8	0.7	NIL (NONE)
139.	319.0 -320.0	0.4	0.1	10.6	4.4	0.920	94.8	0.6	NIL (NONE)
140.	320.0 -321.0	0.3	0.1	8.5	3.5	0.920	95.9	0.4	NIL (NONE)
141.	321.0 -322.0	1.0	0.4	6.9	2.9	0.920	94.4	2.3	NIL (NONE)
142.	322.0 -323.0	0.5	0.2	9.6	4.0	0.920	94.9	0.9	NIL (NONE)
143.	323.0 -324.0	0.5	0.2	9.1	3.8	0.920	95.4	0.7	NIL (NONE)
144.	324.0 -325.0	0.7	0.3	8.3	3.5	0.920	95.8	0.5	NIL (NONE)
145.	325.0 -326.0	0.3	0.1	12.5	5.2	0.920	93.9	0.8	NIL (NONE)
146.	326.0 -327.0	0.4	0.2	11.8	4.9	0.920	94.4	0.5	NIL (NONE)
147.	327.0 -328.0	0.5	0.2	11.3	4.7	0.920	94.7	0.4	NIL (NONE)
148.	328.0 -329.0	0.4	0.1	10.0	4.2	0.920	95.3	0.4	NIL (NONE)
149.	329.0 -330.0	0.7	0.3	12.4	5.2	0.920	94.3	0.3	NIL (NONE)
150.	330.0 -331.0	0.8	0.3	16.4	6.9	0.920	92.1	0.7	NIL (NONE)

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CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

PAGE NO. 7

GULF MINERAL RESOURCES COMPANY FORMATION :
BZ-33 DLG. FLUID :
LOCATION :
STATE :

DATE : 10-01-82
FILE NO. : 3808-05-513
ANALYSTS : EW, CM, RG
ELEVATION:

OIL SHALE ASSAY

ASTM D 3904-80

SAMPLE NO.	DEPTH	OIL GAL/TON	OIL WT.%	WATER GAL/TON	WATER WT.%	OIL GRAV.	SHALE WT.%	GAS PLUS LOSS WT.%	TENDENCY TO COKE
151.	331.0 -332.0	0.5	0.2	14.3	6.0	0.920	93.2	0.7	NIL (NONE)
152.	332.0 -333.0	0.3	0.1	13.4	5.6	0.920	93.9	0.3	NIL (NONE)
153.	333.0 -334.0	1.0	0.4	13.3	5.6	0.920	93.8	0.3	NIL (NONE)
154.	334.0 -335.0	0.7	0.3	12.8	5.3	0.920	93.5	0.9	NIL (NONE)
155.	335.0 -336.0	0.6	0.2	13.8	5.7	0.920	93.1	0.9	NIL (NONE)
156.	336.0 -337.0	0.2	0.1	13.4	5.6	0.920	93.7	0.6	NIL (NONE)
157.	337.0 -338.0	2.9	1.1	9.0	3.8	0.920	94.6	0.6	NIL (NONE)
158.	338.0 -339.0	0.9	0.4	11.1	4.6	0.920	94.2	0.9	NIL (NONE)
159.	339.0 -340.0	1.1	0.4	8.1	3.4	0.920	95.5	0.8	NIL (NONE)
160.	340.0 -341.0	7.5	2.9	3.2	1.3	0.939	94.9	0.8	NIL (NONE)

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