

# OILFIELD RESEARCH LABORATORIES

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

January 20, 1982

Brown Exploration, Inc.  
P. O. Box N  
Sedan, Kansas 67361

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the R. C. Guy Lease, Well No. Brownie # 1, located in Chautauqua County, Kansas and submitted to our laboratory on January 16, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

A handwritten signature in black ink, appearing to read "Sanford A. Michel". The signature is fluid and cursive.

Sanford A. Michel

SAM/kas

5 c to Sedan, Kansas

- REGISTERED ENGINEERS -

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

**Oilfield Research Laboratories**  
**GENERAL INFORMATION & SUMMARY**

Company Brown Exploration, Inc. Lease R. C. Guy Well No. Brownie #1  
 Location 165' NSL & 165' EWL, SW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NE $\frac{1}{4}$   
 Section 12 Twp. 35S Rge. 9E County Chautauqua State Kansas

Elevation, Feet .....	
Name of Sand .....	Wayside
Top of Core .....	1550.0
Bottom of Core .....	1567.0
Top of Sand .....	1552.0
Bottom of Sand .....	1562.5
Total Feet of Permeable Sand .....	10.5
Total Feet of Floodable Sand .....	0.

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	6.5	6.5
2 - 7	4.0	10.5

Average Permeability Millidarcys .....	1.8
Average Percent Porosity .....	15.6
Average Percent Oil Saturation .....	20.6
Average Percent Water Saturation .....	65.1
Average Oil Content, Bbls./A. Ft. ....	250.
Total Oil Content, Bbls./Acre .....	2,622.
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 .....	-

The core was sampled by a representative of Oilfield Research Laboratories. Fresh water mud was used as a drilling fluid. The core was reported to be from a non-virgin area.

Since the core did not respond to flooding susceptibility tests, no calculated recovery is given.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
1550.0 - 1552.0	Gray shale.
1552.0 - 1555.0	Grayish light brown shaly sandstone.
1555.0 - 1562.5	Grayish light brown very shaly sandstone.
1562.5 - 1567.0	Gray slightly sandy shale.

## RESULTS OF SATURATION &amp; PERMEABILITY TESTS

TABLE 1-B

Company Brown Exploration, Inc. Lease R. C. Guy Well No. Brownie # 1

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation			Oil Content Bbbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water	Total			Ft.	Cum. Ft.		
1	1552.5	16.6	19	56	75	245	6.3	1.0	1.0	245	6.30
2	1553.5	15.7	29	50	79	353	2.8	1.0	2.0	353	2.80
3	1554.4	17.4	22	59	81	297	4.5	1.0	3.0	297	4.50
4	1555.3	15.4	19	73	92	227	0.44	1.0	4.0	227	0.44
5	1556.4	16.7	22	59	81	285	2.0	1.0	5.0	285	2.00
6	1557.5	15.2	23	59	82	271	0.96	1.0	6.0	271	0.96
7	1558.6	15.1	19	68	87	223	0.50	1.0	7.0	223	0.50
8	1559.5	15.3	17	71	88	202	0.63	1.0	8.0	202	0.63
9	1560.5	13.3	16	75	91	165	0.21	1.0	9.0	165	0.21
10	1561.5	15.2	20	76	96	236	0.34	1.5	10.5	354	0.51

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## SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.	Brownie #		
Brown Exploration, Inc.	R. C. Guy		1		
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
1552.0 - 1555.0	3.0	4.5	13.60		
1555.0 - 1562.5	7.5	0.70	5.25		
1552.0 - 1562.5	10.5	1.8	18.85		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
1552.0 - 1555.0	3.0	16.6	23.3	298	895
1555.0 - 1562.5	7.5	15.2	19.5	230	1,727
1552.0 - 1562.5	10.5	15.6	20.6	250	2,622

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## RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

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			
1	1552.5	16.7	19	246	0	0	19	58	26	0.30	35
2	1553.5	15.9	29	358	0	0	29	51	8	0.15	50
3	1554.4	16.9	23	302	0	0	23	59	30	0.37	35
4	1555.3	15.5	19	228	0	0	19	74	10	0.30	50
5	1556.4	16.5	22	282	0	0	22	60	0	Imp.	-
6	1557.5	15.4	23	275	0	0	23	60	0	Imp.	-
7	1558.6	15.0	19	221	0	0	19	69	0	Imp.	-
8	1559.5	15.5	17	204	0	0	17	72	0	Imp.	-
9	1560.5	13.8	15	161	0	0	15	76	8	0.08	40
10	1561.5	15.3	20	237	0	0	20	77	0	Imp.	-

Company Brown Exploration, Inc.
Lease R. C. Guy
Well No. Brownie # 1

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.

WATER SAT., PERCENT → <

OIL SAT., PERCENT ←

90 70 50 30 10  
20 40 60 80

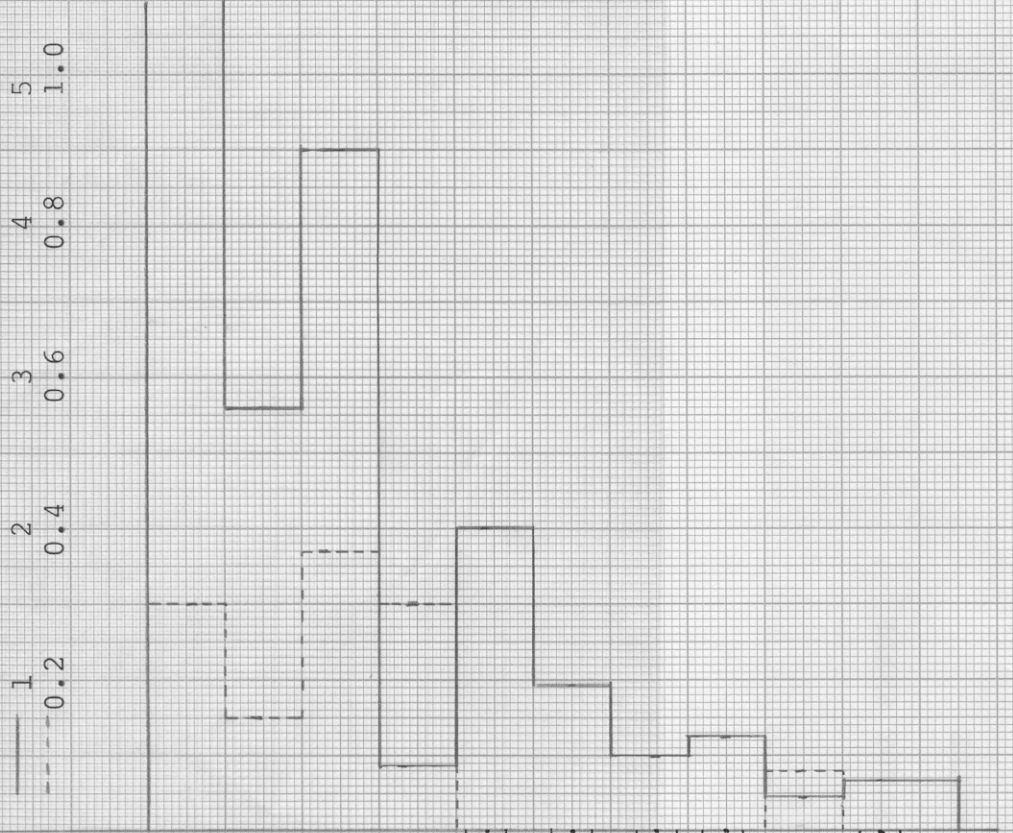
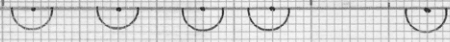
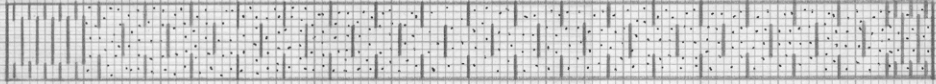
1550 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1567

PERMEABILITY, IN MILLIDARCYS

1 2 3 4 5  
0.2 0.4 0.6 0.8 1.0

EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS

6.3



KEY:



SHALY SANDSTONE



IMPERMEABLE TO WATER



SHALE



SANDY SHALE

# BROWN EXPLORATION, INC.

R. C. GUY LEASE

WELL NO. BROWNIE # 1

CHAUTAQUA COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCS	CALCULATED OIL RECOVERY BBLs. / ACRE
1552.0 - 1555.0	3.0	16.6	23.3	55.0	4.5	
1555.0 - 1562.5	7.5	15.2	19.5	69.2	0.70	
1552.0 - 1562.5	10.5	15.6	20.6	65.1	1.8	-

OILFIELD RESEARCH LABORATORIES  
 CHANUTE, KANSAS  
 JANUARY, 1982