OILFIELD RESEARCH LABORATORIES

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

March 26, 1980

Wells-Battlestein Oil & Gas, Inc.
7700 San Felipe Blvd.
Houston, Texas 77002

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from Richey Lease, Well No. 4, Neosho County, Kansas and submitted to our laboratory on March 5, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/kas
5 c to Houston, Texas
1 c to Chanute, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Wells-Battlestein Oil & Gas, Inc. Lease Richey Well No. 4

Location 210'FWL & 1965' FSL SW¼

Section 4 Twp. 28S Rge. 19E County Neosho State Kansas

Elevation, Feet - -

Name of Sand - Bartlesville

Top of Core - 611.0

Bottom of Core - 638.5

Top of Sand - (Tested) - 613.0

Bottom of Sand - (Tested) - 636.0

Total Feet of Permeable Sand - (Tested) - 12.0

Total Feet of Floodable Sand - (Tested) - 0.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	3.0	3.0
5 - 10	4.0	7.0
20 - 30	3.0	10.0
30 - 50	2.0	12.0

Average Permeability Millidarcys - 15.2

Average Percent Porosity - 17.3

Average Percent Oil Saturation - 29.7

Average Percent Water Saturation - 40.0

Average Oil Content, Bbls./A. Ft. - 388.

Total Oil Content, Bbls./Acre - 4,656.

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 - 0

The core was sampled and the samples sealed in plastic bags by a representative of the client. Fresh water mud was used as a drilling fluid.

Since the core did not respond to floodpot testing, no calculated recovery is given.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
611.0 - 618.0	Grayish light brown sandstone.
618.0 - 629.2	Gray laminated sandstone and shale.
629.2 - 637.0	Brown shaly sandstone.
637.0 - 638.5	Gray sandy shale.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Wells-Battlestein Oil & Gas, Inc. Lease Richey Well No. 4

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	613.4	21.1	10	45	55	164	31.	1.0	1.0	164	31.00
2	614.5	18.8	17	32	49	248	27.	1.0	2.0	248	27.00
3	615.5	17.2	17	37	54	227	28.	1.0	3.0	227	28.00
4	616.5	18.6	18	37	55	260	44.	1.0	4.0	260	44.00
5	617.5	18.3	18	36	54	256	20.	1.0	5.0	256	20.00
6	618.5	14.1	28	46	74	306	2.8	1.0	6.0	306	2.80
7	629.5	17.8	47	25	72	649	7.5	1.0	7.0	649	7.50
8	631.5	15.6	41	43	84	496	2.8	1.0	8.0	496	2.80
9	632.5	18.2	46	34	80	650	5.6	1.0	9.0	650	5.60
10	633.5	15.8	33	58	91	405	5.0	1.0	10.0	405	5.00
11	634.5	15.5	37	52	89	445	2.4	1.0	11.0	445	2.40
12	635.5	16.1	44	35	79	550	6.0	1.0	12.0	550	6.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Wells-Battlestein Oil & Gas, Inc. Lease Richey Well No. 4

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
613.0 - 619.0	6.0	25.5	152.80
629.2 - 636.0	6.0	4.9	29.30
613.0 - 636.0	12.0	15.2	182.10

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
613.0 - 619.0	6.0	18.0	18.0	38.8	244	1,461
629.2 - 636.0	6.0	16.5	41.3	41.2	533	3,195
613.0 - 636.0	12.0	17.3	29.7	40.0	388	4,656

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Wells-Battlestein Oil & Gas, Inc. Lease Richey Well No. 4

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	Bbls./A. Ft.			
1	613.4	19.6	11	168	0	0	11	87	168	401	7.50	20
2	614.5	18.6	17	245	0	0	17	81	245	149	2.32	20
3	615.5	17.7	16	220	0	0	16	76	220	115	1.80	20
4	616.5	18.4	18	257	0	0	18	79	257	187	3.37	25
5	617.5	18.6	17	245	0	0	17	78	245	110	2.70	20
6	618.5	14.6	27	306	0	0	27	63	306	0	Imp.	-
7	629.5	17.5	47	638	0	0	47	44	638	0	Imp.	-
8	631.5	15.9	40	493	0	0	40	52	493	0	Imp.	-
9	632.5	17.9	46	638	0	0	46	40	638	0	Imp.	-
10	633.5	16.0	33	410	0	0	33	64	410	14	0.15	40
11	634.5	15.9	37	456	0	0	37	58	456	0	Imp.	-
12	635.5	15.9	44	543	0	0	44	47	543	14	0.15	45

Notes: cc—cubic centimeter.

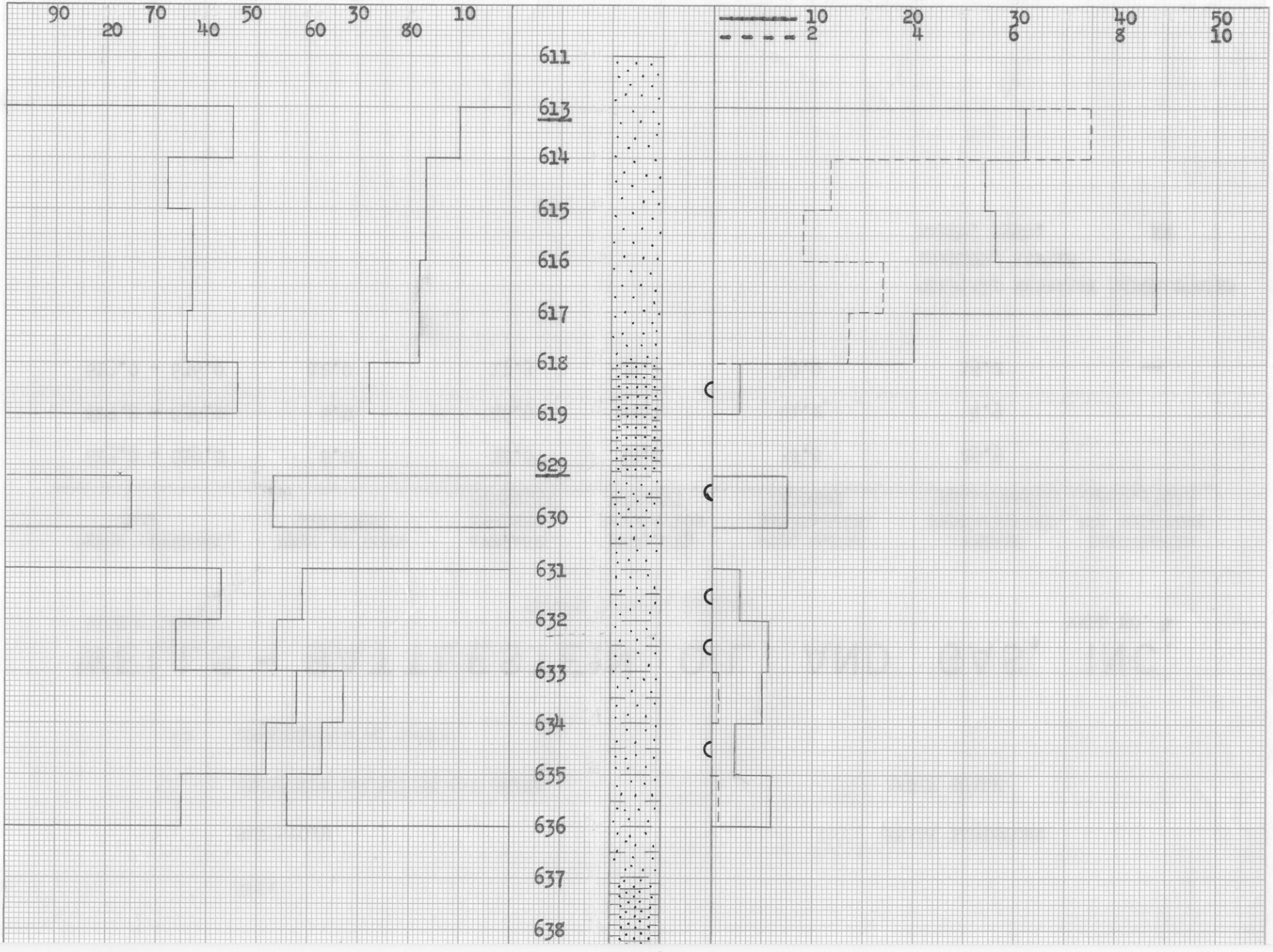
*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

WATER SAT., PERCENT ——> <—— OIL SAT., PERCENT

——— PERMEABILITY, IN MILLIDARCYS

– – – – – EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS



KEY:

SANDSTONE

SHALY SANDSTONE

LAMINATED SANDSTONE AND SHALE

SANDY SHALE

IMPERMEABLE TO WATER

WELLS - BATTLESTEIN OIL AND GAS, INC.

RICHEY LEASE

WELL NO. 4

NEOSHO COUNTY, KANSAS

DEPTH INTERVAL, FEET	FEET OF CORE ANALYZED	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS	CALCULATED OIL RECOVERY BBLS./ACRE
613.0 - 619.0	6.0	18.0	18.0	38.8	25.5	
629.2 - 636.0	6.0	16.5	41.3	41.2	4.9	
613.0 - 636.0	12.0	17.3	29.7	40.0	15.2	---

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CHANUTE, KANSAS
MARCH, 1980. HR