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

August 27, 1982

Austin Exploration Company
c/o Alcock Production Company
R. R. # 1, Box 45
Chanute, Kansas 66720

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the C. Smith Lease, Well No. 1, located in Neosho County, Kansas and submitted to our laboratory on August 23, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/rmc

5 c to Chanute, Kansas

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GENERAL INFORMATION & SUMMARY

Company Austin Exploration Company Lease C. Smith Well No. 1

Location

Section 1 Twp. 17S Rge. 30E County Neosho State Kansas

Elevation, Feet	
Name of Sand	Lower Bartlesville
Top of Core	890.0
Bottom of Core	911.0
Top of Sand	890.0
Bottom of Sand (tested)	910.3
Total Feet of Permeable Sand	19.5
Total Feet of Floodable Sand	7.0

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 4	6.9	6.9
4 - 8	3.2	10.1
8 - 12	3.4	13.5
12 - 23	6.0	19.5

Average Permeability Millidarcys	9.2
Average Percent Porosity	18.2
Average Percent Oil Saturation	35.5
Average Percent Water Saturation	39.4
Average Oil Content, Bbls./A. Ft.	497.
Total Oil Content, Bbls./Acre	10,099.
Average Percent Oil Recovery by Laboratory Flooding Tests	3.7
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	57.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	398.
Total Calculated Oil Recovery, Bbls./Acre	See "Calculated Recovery" Section

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.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
890.0 - 891.0	Brown shaly sandstone.
891.0 - 895.0	Brown sandstone.
895.0 - 896.0	Brown slightly shaly sandstone.
896.0 - 897.0	Grayish brown very shaly sandstone with micaceous partings.
897.0 - 899.0	Brown slightly shaly sandstone.
899.0 - 899.8	Grayish light brown slightly calcareous very shaly sandstone.
899.8 - 901.0	Brown shaly sandstone with micaceous partings.
901.0 - 903.0	Brown sandstone.
903.0 - 904.0	Grayish brown shaly micaceous sandstone.
904.0 - 905.0	Brown slightly shaly sandstone with micaceous parting
905.0 - 907.6	Grayish black slightly carbonaceous shaly sandstone.
907.6 - 909.0	Brown slightly shaly sandstone with scattered fine gray shale partings.
909.0 - 910.3	Grayish brown shaly sandstone.
910.3 - 911.0	Grayish brown very shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests as a total recovery of 398 barrels of oil per acre was obtained from 7.0 feet of sand. The weighted average percent oil saturation was reduced

from 33.3 to 29.6 , or represents an average recovery of 3.7 percent. The weighted average effective permeability of the samples is 0.82 millidarcys, while the average initial fluid production pressure is 40.7 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 20 samples tested, 7 produced water and oil, and 1 produced water only. This indicates that approximately 35 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

It would appear from a study of the core data, that efficient primary and waterflood operations in the vicinity of this well should recover approximately 2,180 barrels of oil per acre. This is an average recovery of 311 barrels per acre foot from 7.0 feet of floodable sand analyzed in this core.

These recovery values were calculated using the following data and assumptions:

Original formation volume factor, estimated	1.07
Reservoir water saturation, percent, estimated	25.0
Average porosity, percent	19.8
Oil saturation after flooding, percent	29.6
Performance factor, percent, estimated	50.0
Net floodable sand, feet	7.0

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Austin Exploration Company Lease C. Smith Well No. 1

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	890.3	17.4	34	45	79	459	2.4	1.0	1.0	459	2.40
2	891.5	20.8	28	31	59	452	21.	1.0	2.0	452	21.00
3	892.3	18.1	26	41	67	365	18.	1.0	3.0	365	18.00
4	893.5	21.8	36	35	71	609	22.	1.0	4.0	609	22.00
5	894.4	21.8	33	36	69	558	19.	1.0	5.0	558	19.00
6	895.4	20.0	29	40	69	450	8.9	1.0	6.0	450	8.90
7	896.5	14.7	30	44	74	342	0.29	1.0	7.0	342	0.29
8	897.3	16.3	41	40	81	519	7.1	1.0	8.0	519	7.10
9	898.4	20.8	32	34	66	516	8.9	1.0	9.0	516	8.90
10	899.3	7.3	38	54	92	215	Imp.	0.8	9.8	172	0.00
11	900.3	15.0	41	46	87	477	5.8	1.2	11.0	572	6.96
12	901.5	19.6	37	40	77	563	21.	1.0	12.0	563	21.00
13	902.5	19.9	29	35	64	448	13.	1.0	13.0	448	13.00
14	903.6	18.4	36	42	78	514	2.0	1.0	14.0	514	2.00
15	904.7	14.7	45	50	95	513	6.6	1.0	15.0	513	6.60
16	905.3	18.6	44	30	74	635	1.2	1.0	16.0	635	1.20
17	906.5	18.1	47	28	75	660	3.8	1.0	17.0	660	3.80
18	907.5	18.7	40	38	78	580	3.6	0.6	17.6	348	2.16
19	908.5	19.5	37	30	67	560	8.9	1.4	19.0	784	12.46
20	909.4	20.5	30	50	80	477	1.8	1.3	20.3	620	2.34

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Austin Exploration Company Lease C. Smith Well No. 1

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
890.0 - 896.0	6.0	15.2	91.30
896.0 - 905.0	8.2	8.0	65.85
905.0 - 910.3	5.3	4.1	21.96
890.0 - 910.3	19.5	9.2	179.11

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
890.0 - 896.0	6.0	20.0	31.0	38.0	482	2,893
896.0 - 905.0	9.0	16.5	36.6	42.6	462	4,159
905.0 - 910.3	5.3	19.2	38.8	35.4	575	3,047
890.0 - 910.3	20.3	18.2	35.5	39.4	497	10,099

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Austin Exploration Company Lease C. Smith Well No. 1

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	890.3	17.2	34	454	3	40	31	47	414	10	0.15	50
2	891.5	20.7	28	450	2	32	26	51	418	26	0.56	35
3	892.3	17.9	26	361	0	0	26	43	361	0	Imp.	-
4	893.5	21.7	36	606	4	67	32	50	539	24	0.37	35
5	894.4	21.6	33	553	4	67	29	61	486	162	3.75	30
6	895.4	19.9	29	448	2	31	27	55	417	6	0.30	50
7	896.5	15.2	29	342	0	0	29	46	342	0	Imp.	-
8	897.3	16.2	41	515	0	0	41	40	515	0	Imp.	-
9	898.4	20.6	32	511	0	0	32	36	511	50	0.94	30
10	899.3	7.6	37	218	0	0	37	55	218	0	Imp.	-
11	900.3	15.1	41	480	0	0	41	44	480	0	Imp.	-
12	901.5	19.4	37	557	6	90	31	54	467	24	0.33	35
13	902.5	20.4	28	443	0	0	28	55	443	0	Imp.	-
14	903.6	18.2	36	508	5	71	31	51	437	4	0.30	50
15	904.7	14.6	45	510	0	0	45	50	510	0	Imp.	-
16	905.3	18.1	45	632	0	0	45	29	632	0	Imp.	-
17	906.5	18.0	47	656	0	0	47	28	656	0	Imp.	-
18	907.5	18.6	40	577	0	0	40	39	577	0	Imp.	-
19	908.5	19.0	38	560	0	0	38	29	560	0	Imp.	-
20	909.4	20.6	30	479	0	0	30	52	479	0	Imp.	-

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.

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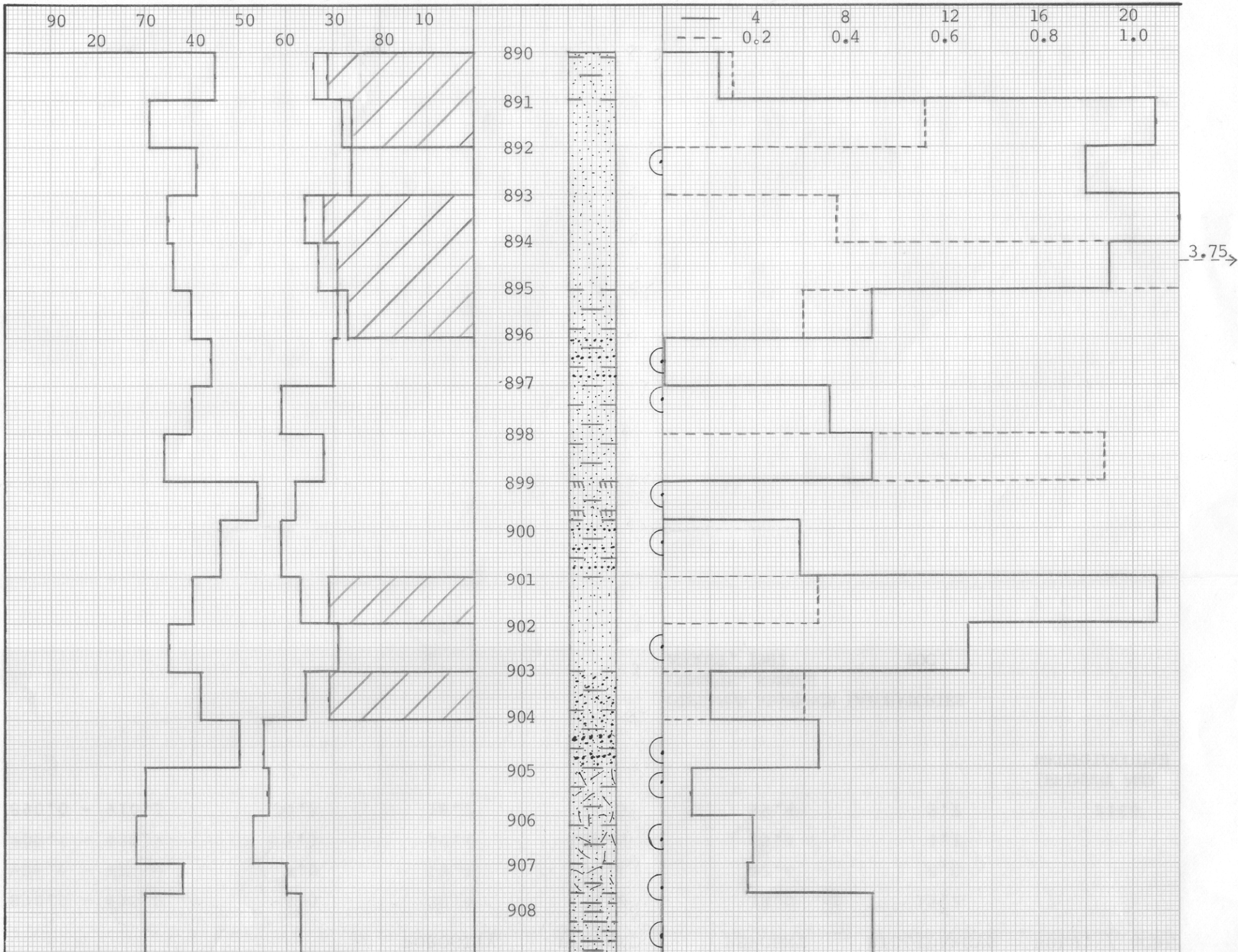
SUMMARY OF LABORATORY FLOODING TESTS

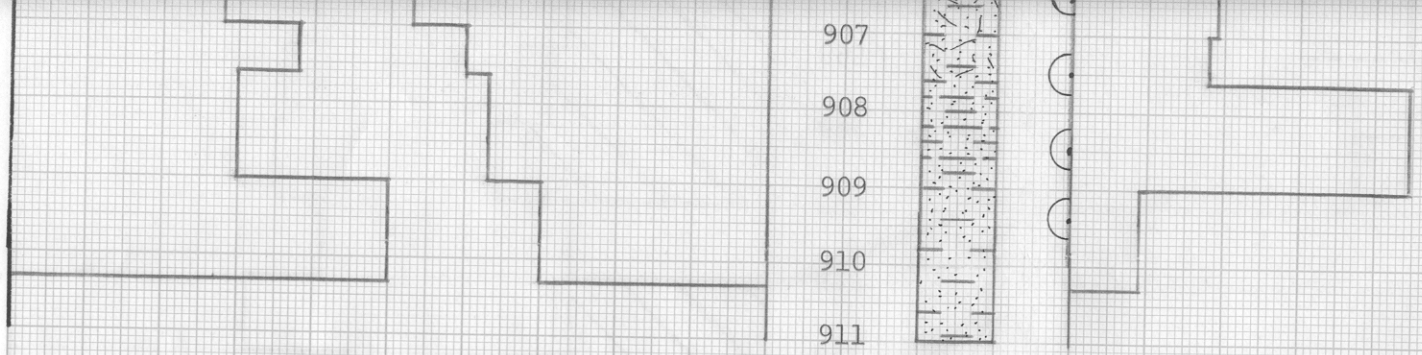
TABLE V

Company Austin Exploration Company Lease C. Smith Well No. 1

Depth Interval, Feet	890.0 - 896.0	896.0 - 905.0	890.0 - 905.0
Feet of Core Analyzed	5.0	2.0	7.0
Average Percent Porosity	20.2	18.8	19.8
Average Percent Original Oil Saturation	32.0	36.5	33.3
Average Percent Oil Recovery	3.0	5.5	3.7
Average Percent Residual Oil Saturation	29.0	31.0	29.6
Average Percent Residual Water Saturation	52.8	52.5	52.7
Average Percent Total Residual Fluid Saturation	81.8	83.5	82.3
Average Original Oil Content, Bbls./A. Ft.	502.	533.	511.
Average Oil Recovery, Bbls./A. Ft.	47.	81.	57.
Average Residual Oil Content, Bbls./A. Ft.	455.	452.	454.
Total Original Oil Content, Bbls./Acre	2,511.	1,065.	3,576.
Total Oil Recovery, Bbls./Acre	237.	161.	398.
Total Residual Oil Content, Bbls./Acre	2,274.	904.	3,178.
Average Effective Permeability, Millidarcys	1.03	0.315	0.82
Average Initial Fluid Production Pressure, p.s.i.	40.0	42.5	40.7

NOTE: Only those samples which recovered oil were used in calculating the above averages.


WATER SAT., PERCENT
OIL SAT., PERCENT
PERMEABILITY, IN MILLIDARCYS
EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
90 70 50 30 10
20 40 60 80
4 8 12 16 20
0.2 0.4 0.6 0.8 1.0
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
3.75



KEY:

- SANDSTONE
- SHALY SANDSTONE
- SHALY MICACEOUS SANDSTONE
- IMPERMEABLE TO WATER
- SHALY SANDSTONE WITH SHALE PARTINGS
- SHALY SANDSTONE WITH MICACEOUS PARTINGS
- CARBONACEOUS SHALY SANDSTONE
- SHALY CALCAREOUS SANDSTONE
- FLOODPOT RESIDUAL OIL SATURATION

AUSTIN EXPLORATION COMPANY

C. SMITH LEASE

WELL NO. 1

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
890.0 - 896.0	6.0	20.0	31.0	38.0	15.2	
896.0 - 905.0	9.0	16.5	36.6	42.6	8.0	
905.0 - 910.3	5.3	19.2	38.8	35.4	4.1	
890.0 - 910.3	20.3	18.2	35.5	39.4	9.2	2180 (PRIMARY AND WATERFLOODING)

OIFLIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
AUGUST, 1982

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