



OILFIELD RESEARCH LABORATORIES

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November 4, 1980

Scimitar Resources, Ltd.
104 South Silver
P. O. Box 221
Paola, Kansas 66071

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Louis Schendel Lease, Well No. S-1, located in Miami County, Kansas and submitted to our laboratory on August 12, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/ks

4 c to Paola, Kansas

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GENERAL INFORMATION & SUMMARY

Company Scimitar Resources, Ltd. Lease Louis Schendel Well No. S-1

Location NW¹/₄

Section 24 Twp. 16S Rge. 21E County Miami State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Squirrel

Top of Core - - - - - 671.0

Bottom of Core - - - - - 679.7

Top of Sand - - - - - 671.0

Bottom of Sand - - - - - 679.7

Total Feet of Permeable Sand - - - - - 6.3

Total Feet of Floodable Sand - - - - - 3.1

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 5	2.2	2.2
5 - 10	2.8	5.0
10 - 20	1.3	6.3

Average Permeability Millidarcys - - - - - 6.2

Average Percent Porosity - - - - - 15.9

Average Percent Oil Saturation - - - - - 34.3

Average Percent Water Saturation - - - - - 51.0

Average Oil Content, Bbls./A. Ft. - - - - - 435.

Total Oil Content, Bbls./Acre - - - - - 3,525.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 6.3

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 85.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 265.

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:

<u>Depth Interval, Feet</u>	<u>Description</u>
671.0 - 672.2	Brown shaly sandstone.
672.2 - 672.8	Brown sandstone.
672.8 - 673.7	Brown slightly shaly sandstone.
673.7 - 674.3	Gray sandy shale.
674.3 - 676.2	Brown slightly shaly sandstone.
676.2 - 676.9	Brown sandstone.
676.9 - 679.7	Grayish brown shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 265 barrels of oil per acre was obtained from 3.1 feet of sand. The weighted average percent oil saturation was reduced from 38.8 to 32.5, or represents an average recovery of 6.3 percent. The weighted average effective permeability of the samples is 0.95 millidarcys, while the average initial fluid production pressure is 38.3 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 8 samples tested, 3 produced water and oil, and 1 sample produced water only. This indicates that approximately 38 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 950 barrels of oil per acre. This is an average recovery of 307 barrels per acre foot from 3.1 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.05
Reservoir water saturation, percent, estimated	20.0
Average porosity, percent	18.1
Oil saturation after flooding, percent	32.5
Performance factor, percent, estimated	50.0
Net floodable sand, feet	3.1

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Scimitar Resources, Ltd. Lease Louis Schendel Well No. S-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	671.3	19.4	33	29	62	497	3.0	1.2	1.2	596	3.60
2	672.5	10.8	22	74	96	184	11.	0.6	1.8	110	6.60
3	673.5	12.4	24	70	94	231	7.4	0.9	2.7	208	6.66
4	674.5	18.5	44	36	80	632	7.2	0.9	3.6	569	6.48
5	675.3	15.9	41	44	85	506	5.1	1.0	4.6	506	5.10
6	676.5	19.5	46	28	74	696	15.	0.7	5.3	487	10.50
7	677.5	15.0	24	72	96	279	0.22	1.0	6.3	279	0.22
8	679.5	14.9	37	57	94	428	Imp.	1.8	8.1	770	0.00

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Lease	Well No.	S-1		
Scimitar Resources, Ltd.	Louis Schendel		S-1		
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
671.0 - 679.7	6.3	6.2	39.16		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre
671.0 - 679.7	8.1	34.3	51.0	435	3,525

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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	671.3	19.4	33	497	2	30	31	60	12	0.43	35
2	672.5	11.0	22	188	0	0	22	74	0	Imp.	-
3	673.5	12.7	24	236	0	0	24	70	3	0.23	50
4	674.5	18.4	44	628	10	143	34	58	35	1.78	35
5	675.3	16.1	41	512	8	100	33	51	14	0.83	45
6	676.5	19.5	46	696	0	0	46	30	0	Imp.	-
7	677.5	15.4	23	275	0	0	23	73	0	Imp.	-
8	679.5	15.1	37	433	0	0	37	57	0	Imp.	-

Company Scimitar Resources, Ltd.

Lease Louis Schendel

Well No. S-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.

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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Scimitar Resources, Ltd.	Lease	Louis Schendel	Well No.	S-1
Depth Interval, Feet	671.0 - 679.7				
Feet of Core Analyzed	3.1				
Average Percent Porosity	18.1				
Average Percent Original Oil Saturation	38.8				
Average Percent Oil Recovery	6.3				
Average Percent Residual Oil Saturation	32.5				
Average Percent Residual Water Saturation	56.5				
Average Percent Total Residual Fluid Saturation	89.0				
Average Original Oil Content, Bbls./A. Ft.	539.				
Average Oil Recovery, Bbls./A. Ft.	85.				
Average Residual Oil Content, Bbls./A. Ft.	454.				
Total Original Oil Content, Bbls./Acre	1,673.				
Total Oil Recovery, Bbls./Acre	265.				
Total Residual Oil Content, Bbls./Acre	1,408.				
Average Effective Permeability, Millidarcys	0.95				
Average Initial Fluid Production Pressure, p.s.i.	38.3				

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