

OILFIELD RESEARCH LABORATORIES

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

October 9, 1980

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

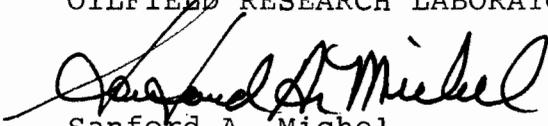
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary cores taken from the Ledford Lease, Well No. S-5, Miami County, Kansas and submitted to our laboratory on July 17, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/ks
4 c to Paola, Kansas

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. The core was reported to be from a virgin area.

Since only the Peru sand portion of the core responded to flooding susceptibility tests, a calculated recovery is given for the Peru sand only.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
	<u>PERU SAND</u>
318.0 - 319.5	Hard grayish brown calcareous shaly sandstone.
319.5 - 319.9	Brown and gray laminated calcareous sandstone and shale.
319.9 - 320.5	Gray sandy shale.
320.5 - 321.0	Brown calcareous sandstone.
321.0 - 323.2	Grayish brown slightly calcareous very shaly sandstone.
323.2 - 324.1	Light brown slightly calcareous sandstone.
324.1 - 326.9	Grayish brown very shaly sandstone.
326.9 - 328.0	Gray sandy shale.

SQUIRREL SAND

475.0 - 476.0	Gray sandy shale.
476.0 - 477.5	Brown slightly shaly sandstone.
479.0 - 480.0	Grayish brown very shaly sandstone.
481.0 - 484.0	Grayish brown very shaly sandstone.

LABORATORY FLOODING TESTS

PERU SAND

The Peru sand in this core responded to laboratory flooding tests, as a total recovery of 44 barrels of oil per acre was obtained from 0.9 feet of sand. The weighted average percent oil saturation was reduced from 37.0 to 33.0, or represents an average recovery of 4.0 percent.

The weighted average effective permeability of the samples is 6.00 millidarcys, while the average initial fluid production pressure is 20.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 9 samples tested, 1 produced water and oil, and 1 sample produced water only. This indicates that approximately 11 percent of the sand represented by these samples is floodable pay sand.

CALCULATED RECOVERY

PERU SAND

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 130 barrels of oil per acre. This is an average recovery of 143 barrels per acre foot from 0.9 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.03
Reservoir water saturation, percent, estimated	45.0
Average porosity, percent	15.7
Oil saturation after flooding, percent	33.0
Performance factor, percent, estimated	55.0
Net floodable sand, feet	0.9

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Scimitar Resources Limited Lease Ledford Well No. S-5

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	318.8	13.5	36	61	97	<u>PERU SAND</u> 377	1.8	1.5	1.5	566	2.70
2	319.7	16.6	42	47	89	541	11.	0.4	1.9	325	6.60
3	320.7	14.7	34	63	97	388	29.	0.5	2.4	194	14.50
4	321.7	13.6	33	64	97	348	0.32	1.0	3.4	348	0.32
5	322.5	12.3	55	41	96	525	Imp.	1.2	4.6	630	0.00
6	323.5	15.8	37	57	94	454	28.	0.9	5.5	409	25.20
7	324.6	13.9	5	86	91	54	0.73	1.0	6.5	54	0.73
8	325.4	13.2	4	89	93	41	Imp.	1.0	7.5	41	0.00
9	326.8	12.8	44	32	76	437	Imp.	0.8	8.3	350	0.00
						<u>SQUIRREL SAND</u>					
10	476.5	19.0	50	32	82	737	9.2	1.5	1.5	1106	13.80
11	479.7	19.8	30	31	61	461	1.6	1.0	2.5	461	1.60
12	481.6	15.7	44	45	89	536	0.21	1.5	4.0	804	0.32
13	483.2	15.1	43	47	90	504	Imp.	1.5	5.5	756	0.00

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Scimitar Resources Limited	Lease	Ledford	Well No.	S-5
Depth Interval, Feet	318.0 - 326.9	5.3	9.4	50.05	
Feet of Core Analyzed	5.3				
	<u>PERU SAND</u>				
Depth Interval, Feet	476.0 - 484.0	4.0	3.9	15.72	
Feet of Core Analyzed	4.0				
	<u>SQUIRREL SAND</u>				
Depth Interval, Feet	318.0 - 326.9	14.2	62.2	351	2,917
Feet of Core Analyzed	8.3				
	<u>PERU SAND</u>				
Depth Interval, Feet	476.0 - 484.0	17.2	39.5	569	3,127
Feet of Core Analyzed	5.5				
	<u>SQUIRREL SAND</u>				

Oilfield Research Laboratories

SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Scimitar Resources Limited	Lease	Ledford	Well No.	S-5
Depth Interval, Feet	<u>PERU SAND</u> 318.0 - 326.9				
Feet of Core Analyzed	0.9				
Average Percent Porosity	15.7				
Average Percent Original Oil Saturation	37.0				
Average Percent Oil Recovery	4.0				
Average Percent Residual Oil Saturation	33.0				
Average Percent Residual Water Saturation	62.0				
Average Percent Total Residual Fluid Saturation	95.0				
Average Original Oil Content, Bbls./A. Ft.	451.				
Average Oil Recovery, Bbls./A. Ft.	49.				
Average Residual Oil Content, Bbls./A. Ft.	402.				
Total Original Oil Content, Bbls./Acre	406.				
Total Oil Recovery, Bbls./Acre	44.				
Total Residual Oil Content, Bbls./Acre	362.				
Average Effective Permeability, Millidarcys	6.00				
Average Initial Fluid Production Pressure, p.s.i.	20.0				

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