

OILFIELD RESEARCH LABORATORIES

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

December 4, 1980

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

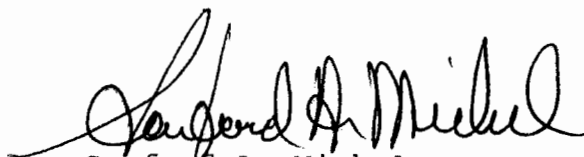
Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Harbison Lease, Well No. S-7, located in Miami County, Kansas and submitted to our laboratory on September 25, 1980.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES


Sanford A. Michel

SAM/kas

4 c to Paola, Kansas

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GENERAL INFORMATION & SUMMARY

Company Scimitar Resources, Ltd. Lease Harbison Well No. S-7

Location -

Section 31 Twp. 17S Rge. 22E County Miami State Kansas

Elevation, Feet - - - - -

Name of Sand - - - - - Peru

Top of Core - - - - - 306.5

Bottom of Core - - - - - 318.0

Top of Sand - - - - - 306.5

Bottom of Sand - - - - - 318.0

Total Feet of Permeable Sand - - - - - 9.4

Total Feet of Floodable Sand - - - - - 2.8

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 10

4.8

4.8

10 - 20

1.6

6.4

30 - 50

1.0

7.4

70 - 110

2.0

9.4

Average Permeability Millidarcys - - - - - 29.5

Average Percent Porosity - - - - - 17.9

Average Percent Oil Saturation - - - - - 29.7

Average Percent Water Saturation - - - - - 58.2

Average Oil Content, Bbls./A. Ft. - - - - - 417.

Total Oil Content, Bbls./Acre - - - - - 4,424.

Average Percent Oil Recovery by Laboratory Flooding Tests - - - - - 4.1

Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft. - - - - - 70.

Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre - - - - - 197.

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>
306.5 - 307.0	Grayish light brown very calcareous shaly sandstone.
307.0 - 310.8	Brown slightly calcareous sandstone.
310.8 - 311.7	Brown and gray laminated slightly calcareous sandstone and shale.
311.7 - 312.2	Brown slightly calcareous sandstone.
312.2 - 312.9	Hard grayish light brown very calcareous sandstone.
312.9 - 313.3	Brown and gray laminated slightly calcareous sandstone and shale.
313.3 - 314.1	Brown slightly calcareous sandstone.
314.1 - 318.0	Brown and gray laminated slightly calcareous sandstone and shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 197 barrels of oil per acre was obtained from 2.8 feet of sand. The weighted average percent oil saturation was reduced from 35.9 to 31.8, or represents an average recovery of 4.1 percent. The weighted average effective permeability of the samples is 4.33 millidarcys, while the average initial fluid production pressure is 25.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 12 samples tested, 3 produced water and oil, and 1 sample produced water only. This indicates that approximately 25 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 930 barrels of oil per acre. This is an average recovery of 333 barrels per acre foot from 2.8 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	25.0
Average porosity, percent	20.9
Oil saturation after flooding, percent	31.8
Performance factor, percent, estimated	50.0
Net floodable sand, feet	2.8

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Scimitar Resources, Ltd. Lease Harbison Well No. S-7

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			Ft.	Cum. Ft.		
1	306.7	19.5	27	55	409	Imp.	0.5	0.5	205	0.00
2	307.5	22.3	33	46	571	78.	1.0	1.5	571	78.00
3	308.5	22.9	42	33	746	110.	1.0	2.5	746	110.00
4	309.5	22.5	25	43	436	39.	1.0	3.5	436	39.00
5	310.5	16.6	32	64	412	20.	0.8	4.3	330	16.00
6	311.5	15.6	27	70	327	7.8	0.9	5.2	294	7.02
7	312.5	15.0	12	84	140	Imp.	0.7	5.9	98	0.00
8	313.5	15.7	17	78	207	13.	0.8	6.7	166	10.40
9	314.5	16.3	44	53	556	0.23	0.9	7.6	500	0.21
10	315.5	15.0	25	67	291	6.1	1.0	8.6	291	6.10
11	316.5	14.8	39	56	448	6.8	1.0	9.6	448	6.80
12	317.5	16.8	26	61	339	3.3	1.0	10.6	339	3.30

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Scimitar Resources, Ltd.	Lease	Harbison	Well No.	S-7
	Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.	
	306.5 - 310.8	3.8	64.0	243.00	
	310.8 - 318.0	5.6	6.0	33.83	
	306.5 - 318.0	9.4	29.5	276.83	

	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 Bbbs./Acre
	306.5 - 310.8	4.3	21.1	32.4	46.7	532	2,288
	310.8 - 318.0	6.3	15.6	27.9	66.0	339	2,136
	306.5 - 318.0	10.6	17.9	29.7	58.2	417	4,424

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company		Scimitar Resources, Ltd.		Lease		Harbison		Well No.		S-7	
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	306.7	19.6	27	411	0	0	27	56	0	Imp.	-
2	307.5	22.3	33	571	3	52	30	65	293	10.11	10
3	308.5	22.8	42	743	7	124	35	61	290	11.10	15
4	309.5	23.0	24	428	0	0	24	68	72	1.20	30
5	310.5	16.7	32	415	2	26	30	66	10	1.00	50
6	311.5	15.5	27	325	0	0	27	70	0	Imp.	-
7	312.5	14.5	13	146	0	0	13	83	0	Imp.	-
8	313.5	16.1	16	200	0	0	16	79	0	Imp.	-
9	314.5	16.3	44	556	0	0	44	53	0	Imp.	-
10	315.5	14.8	25	287	0	0	25	68	0	Imp.	-
11	316.5	15.0	39	454	0	0	39	57	0	Imp.	-
12	317.5	16.3	27	341	0	0	27	63	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	Scimitar Resources, Ltd.	Lease	Harbison	Well No.
				S-7
Depth Interval, Feet	306.5 - 310.8			
Feet of Core Analyzed	2.8			
Average Percent Porosity	20.9			
Average Percent Original Oil Saturation	35.9			
Average Percent Oil Recovery	4.1			
Average Percent Residual Oil Saturation	31.8			
Average Percent Residual Water Saturation	63.9			
Average Percent Total Residual Fluid Saturation	95.7			
Average Original Oil Content, Bbls./A. Ft.	588.			
Average Oil Recovery, Bbls./A. Ft.	70.			
Average Residual Oil Content, Bbls./A. Ft.	518.			
Total Original Oil Content, Bbls./Acre	1,646.			
Total Oil Recovery, Bbls./Acre	197.			
Total Residual Oil Content, Bbls./Acre	1,449.			
Average Effective Permeability, Millidarcys	4.33			
Average Initial Fluid Production Pressure, p.s.i.	25.0			

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