OILFIELD RESEARCH LABORATORIES

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

June 26, 1982

Sand Dollar Energy Corporation
10 West 14th
P.O. Box 183
Chanute, Kansas 66720

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Morton Lease, Well No. 85, located in Wilson County, Kansas and submitted to our laboratory on June 23, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/dlb

5 c to Chanute, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Sand Dollar Energy Corporation Lease Morton Well No. 85

Location 825' FEL & 495' FSL

Section 24 Twp. 28S Rge. 15E County Wilson State Kansas

Elevation, Feet	
Name of Sand	Lower Bartlesville
Top of Core	980.0
Bottom of Core	998.0
Top of Sand	980.0
Bottom of Sand	989.4
Total Feet of Permeable Sand	9.4
Total Feet of Floodable Sand	5.1

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 1	1.0	1.0
5 - 15	2.3	3.3
20 - 35	2.0	5.3
50 - 65	2.0	7.3
85 - 90	2.1	9.4

Average Permeability Millidarcys	39.7
Average Percent Porosity	15.8
Average Percent Oil Saturation	33.9
Average Percent Water Saturation	46.3
Average Oil Content, Bbls./A. Ft.	413.
Total Oil Content, Bbls./Acre	3,879.
Average Percent Oil Recovery by Laboratory Flooding Tests	4.3
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	52.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	266.
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. Salt water mud was used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
980.0 - 984.0	Brown sandstone.
984.0 - 985.0	Grayish brown very shaly sandstone.
985.0 - 985.5	Brown slightly shaly sandstone.
985.5 - 988.6	Brown sandstone.
988.6 - 989.4	Brownish black shaly sandstone.
989.4 - 998.0	Gray shale containing three vertical fractures.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 266 barrels of oil per acre was obtained from 5.1 feet of sand. The weighted average percent oil saturation was reduced from 36.2 to 31.9, or represents an average recovery of 4.3 percent. The weighted average effective permeability of the samples is 3.79 millidarcys, while the average initial fluid production pressure is 19.0 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 10 samples tested, 5 produced water and oil, and 3 produced water only. This indicates that approximately 50 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 1,020 barrels of oil per acre. This is an average recovery of 199 barrels per acre foot from 5.1 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.07
Reservoir water saturation, percent, estimated	35.0
Average porosity, percent	16.2
Oil saturation after flooding, percent	31.9
Performance factor, percent, estimated	55.0
Net floodable sand, feet	5.1

Oilfield Research Laboratories

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Sand Dollar Energy Corporation Lease Morton Well No. 85

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	980.5	19.7	27	47	74	413	52.	1.0	1.0	413	52.00
2	981.6	17.0	32	40	72	422	32.	1.0	2.0	422	32.00
3	982.6	17.6	31	43	74	423	22.	1.0	3.0	423	22.00
4	983.4	15.7	35	56	91	426	11.	1.0	4.0	426	11.00
5	984.6	14.6	20	45	65	227	0.31	1.0	5.0	227	0.31
6	985.4	14.7	27	59	86	308	8.0	0.5	5.5	154	4.00
7	986.4	15.1	39	39	78	459	87.	1.0	6.5	459	87.00
8	987.5	15.1	43	47	90	504	90.	1.1	7.6	554	99.00
9	988.4	14.3	42	49	91	466	62.	1.0	8.6	466	62.00
10	989.3	13.5	40	44	84	419	5.2	0.8	9.4	335	4.16

Oilfield Research Laboratories

SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Sand Dollar Energy Corporation Lease Morton Well No. 85

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
980.0 - 985.5	5.5	22.1	121.31
985.5 - 989.4	3.9	64.7	252.16
980.0 - 989.4	9.4	39.7	373.47

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
980.0 - 985.5	5.5	16.7	28.8	47.4	375	2,065
985.5 - 989.4	3.9	14.6	41.1	44.8	465	1,814
980.0 - 989.4	9.4	15.8	33.9	46.3	413	3,879

Oilfield Research Laboratories

RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Sand Dollar Energy Corporation Lease Morton Well No. 85

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	980.5	19.5	27	408	0	0	27	56	408	92	1.57	30
2	981.6	17.1	32	425	3	40	29	59	385	202	3.45	25
3	982.6	17.7	31	426	2	27	29	57	399	288	3.75	20
4	983.4	15.6	35	424	5	61	30	63	363	210	3.60	15
5	984.6	15.1	19	223	0	0	19	46	223	0	Imp.	-
6	985.4	14.8	27	310	0	0	27	70	310	64	0.97	35
7	986.4	15.2	39	460	4	47	35	53	413	182	2.70	25
8	987.5	15.3	43	510	7	83	36	55	427	366	5.32	10
9	988.4	14.3	42	466	0	0	42	54	466	282	3.37	15
10	989.3	13.6	40	422	0	0	40	45	422	0	Imp.	-

Oilfield Research Laboratories

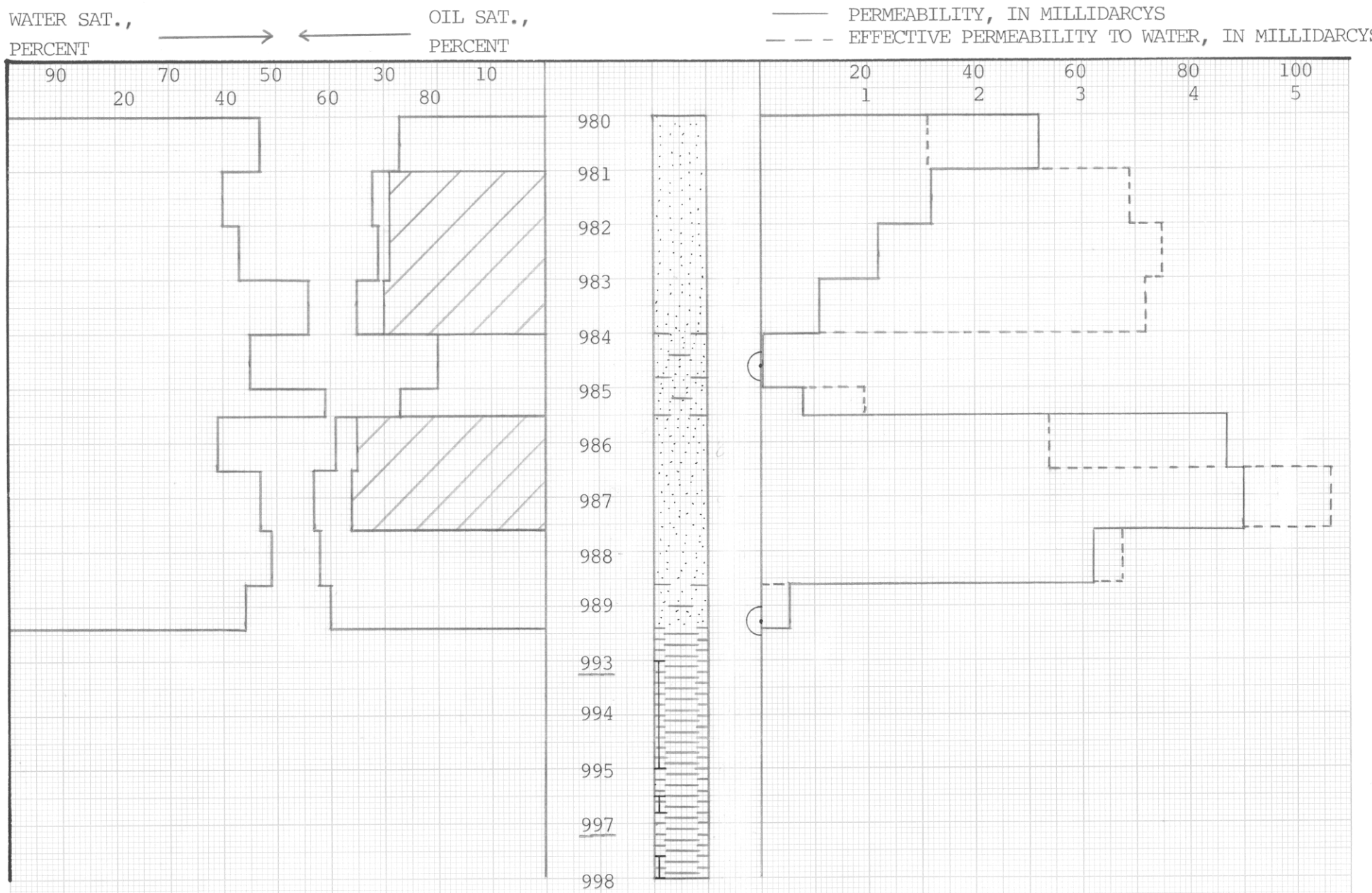
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Sand Dollar Energy Corporation Lease Morton Well No. 85

Depth Interval, Feet	980.0 - 985.5	985.5 - 989.4	980.0 - 989.4
Feet of Core Analyzed	3.0	2.1	5.1
Average Percent Porosity	16.8	15.2	16.2
Average Percent Original Oil Saturation	32.6	41.1	36.2
Average Percent Oil Recovery	3.3	5.6	4.3
Average Percent Residual Oil Saturation	29.3	35.5	31.9
Average Percent Residual Water Saturation	59.7	54.0	57.4
Average Percent Total Residual Fluid Saturation	89.0	89.5	89.3
Average Original Oil Content, Bbls./A. Ft.	425.	486.	450.
Average Oil Recovery, Bbls./A. Ft.	43.	66.	52.
Average Residual Oil Content, Bbls./A. Ft.	382.	420.	398.
Total Original Oil Content, Bbls./Acre	1,275.	1,021.	2,296.
Total Oil Recovery, Bbls./Acre	128.	138.	266.
Total Residual Oil Content, Bbls./Acre	1,147.	883.	2,030.
Average Effective Permeability, Millidarcys	3.60	4.07	3.79
Average Initial Fluid Production Pressure, p.s.i.	20.0	17.5	19.0

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
20 40 60 80 100
1 2 3 4 5
980
981
982
983
984
985
986
987
988
989
993
994
995
997
998
KEY:
SANDSTONE
SHALE
IMPERMEABLE TO WATER
SHALY SANDSTONE
FORMATION CONTAINING A VERTICAL FRACTURE
FLOODPOT RESIDUAL OIL SATURATION

KEY:


SANDSTONE


SHALE


IMPERMEABLE TO WATER


SHALY SANDSTONE


FORMATION CONTAINING A VERTICAL FRACTURE


FLOODPOT RESIDUAL OIL SATURATION

SAND DOLLAR ENERGY CORPORATION

MORTON LEASE WELL NO. 85

WILSON 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
980.0 - 985.5	5.5	16.7	28.8	47.4	22.1	
985.5 - 989.4	3.9	14.6	41.1	44.8	64.7	
980.0 - 989.4	9.4	15.8	33.9	46.3	39.7	1020 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JUNE, 1982 PDC