

OILFIELD RESEARCH LABORATORIES

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

November 11, 1982

Triple-I Energy Corporation
8100 Marty, Suite 117
Overland Park, Kansas 66204

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Nolin Lease, Well No. 26, located in Linn County, Kansas and submitted to our laboratory on November 5, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel
by A. D.

Sanford A. Michel

SAM/rmc

5 c to Overland Park, Kansas

- REGISTERED ENGINEERS -

CORE ANALYSIS - WATER ANALYSIS - REPRESSURING ENGINEERING - SURVEYING & MAPPING - PROPERTY EVALUATION & OPERATION

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GENERAL INFORMATION & SUMMARY

Company Triple-I Energy Corporation Lease Nolin Well No. 26
 Location _____
 Section 23 Twp. 19S Rge. 22E County Linn State Kansas

Elevation, Feet

Name of Sand.....	Bartlesville
Top of Core	646.0
Bottom of Core	656.5
Top of Sand (Tested)	647.3
Bottom of Sand	656.4
Total Feet of Permeable Sand	5.7
Total Feet of Floodable Sand	5.3

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0 - 6	0.4	0.4
70 - 90	2.5	2.9
127 - 189	2.8	5.7

Average Permeability Millidarcys	115.8
Average Percent Porosity	22.6
Average Percent Oil Saturation	44.0
Average Percent Water Saturation.....	25.1
Average Oil Content, Bbls./A. Ft.	770.
Total Oil Content, Bbls./Acre.....	4,391.
Average Percent Oil Recovery by Laboratory Flooding Tests.....	14.8
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	260.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	1,378.
Total Calculated Oil Recovery, Bbls./Acre.....	

See "Calculated Recovery"
Section

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The core was sampled and the samples sealed in plastic bags by a representative of the client.

FORMATION CORED

The detailed log of the formation cored is as follows:

<u>Depth Interval, Feet</u>	<u>Description</u>
646.0 - 646.5	Gray shale.
646.5 - 647.0	Brown sandstone (ground up).
647.0 - 647.3	Gray shale.
647.3 - 648.2	Brown sandstone containing a vertical fracture.
648.2 - 650.2	Alternate layers gray shale and brown sandstone containing a vertical fracture.
650.2 - 650.6	Grayish brown shaly sandstone containing a vertical fracture.
650.6 - 651.0	Gray shale containing a vertical fracture.
651.0 - 651.8	Brown sandstone containing a vertical fracture.
651.8 - 652.0	Gray shale.
652.0 - 652.2	Brown sandstone.
652.2 - 652.8	Gray shale.
652.8 - 656.4	Brown sandstone.
656.4 - 656.5	Gray shale.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 1,378 barrels of oil per acre was obtained from 5.3 feet of sand. The weighted average percent oil saturation was reduced from 44.9 to 30.1, or represents an average recovery of 14.8 percent. The weighted average effective permeability of the samples

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is 9.81 millidarcys, while the average initial fluid production pressure is 14.2 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 7 samples tested, 6 produced water and oil. This indicates that approximately 86 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 2,410 barrels of oil per acre. This is an average recovery of 454 barrels per acre foot from 5.3 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	23.1
Oil saturation after flooding, percent	30.1
Performance factor, percent, estimated	55.0
Net floodable sand, feet	5.3

RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Triple-I Energy Corporation Lease Nolin Well No. 26

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	647.6	23.3	41	31	72	741	89.	0.9	0.9	667	80.10
2	650.4	16.5	32	16	48	410	5.2	0.4	1.3	164	2.08
3	651.7	23.4	35	28	63	635	181.	0.8	2.1	508	144.80
4	653.5	25.4	43	25	68	847	188.	1.0	3.1	847	188.00
5	654.4	24.1	43	26	69	804	127.	1.0	4.1	804	127.00
6	655.4	20.8	51	22	73	823	71.	1.0	5.1	823	71.00
7	656.3	20.7	60	22	82	964	78.	0.6	5.7	578	46.80

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Triple-I Energy Corporation		Lease	Nolin		Well No.	26
	Depth Interval, Feet	Feet of Core Analyzed		Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
	647.3 - 656.4	5.7		115.8	659.78		
	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
	647.3 - 656.4	5.7	22.6	44.0	25.1	770	4,391

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Well No. 26

Nolin

Lease

Triple-I Energy Corporation

Company

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.
			%	Bbbls./A. Ft.	%	Bbbls./A. Ft.	% Oil	% Water			
1	647.6	23.1	41	735	12	215	29	63	208	3.37	20
2	650.4	17.0	31	409	0	0	31	17	0	Imp.	-
3	651.7	23.6	35	641	7	128	28	57	268	13.49	15
4	653.5	25.3	43	844	14	275	29	66	362	10.33	10
5	654.4	24.2	43	807	11	207	32	59	224	14.24	15
6	655.4	20.9	51	827	21	340	30	61	348	10.20	15
7	656.3	20.7	60	964	27	434	33	57	426	5.66	10

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.

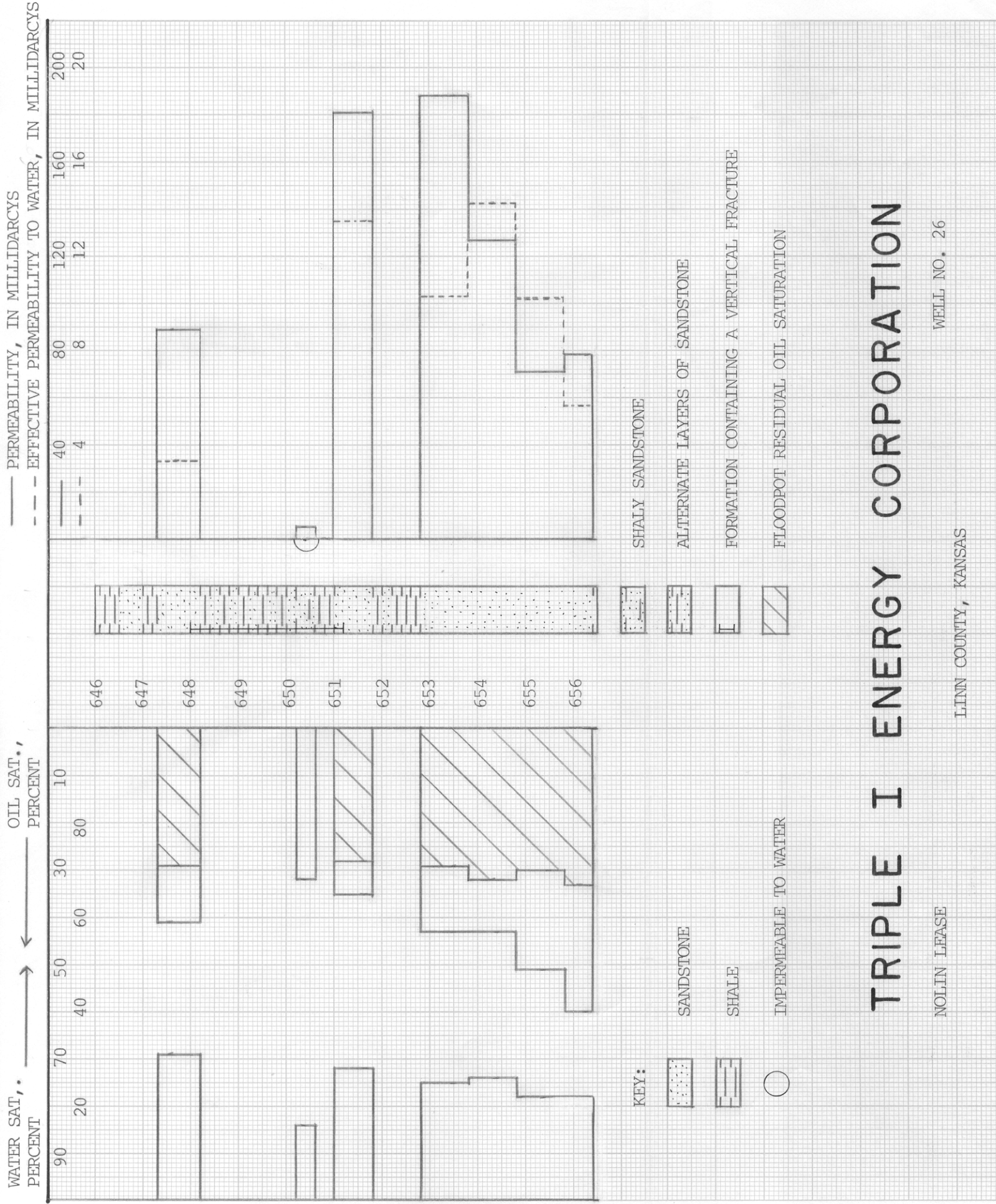
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SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company	Lease	Nolin	Well No.
Triple-I Energy Corporation			26
Depth Interval, Feet	647.3 - 656.4		
Feet of Core Analyzed	5.3		
Average Percent Porosity	23.1		
Average Percent Original Oil Saturation	44.9		
Average Percent Oil Recovery	14.8		
Average Percent Residual Oil Saturation	30.1		
Average Percent Residual Water Saturation	60.8		
Average Percent Total Residual Fluid Saturation	90.9		
Average Original Oil Content, Bbls./A. Ft.	798.		
Average Oil Recovery, Bbls./A. Ft.	260.		
Average Residual Oil Content, Bbls./A. Ft.	538.		
Total Original Oil Content, Bbls./Acre	4,230.		
Total Oil Recovery, Bbls./Acre	1,378.		
Total Residual Oil Content, Bbls./Acre	2,852.		
Average Effective Permeability, Millidarcys	9.81		
Average Initial Fluid Production Pressure, p.s.i.	14.2		

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



TRIPLE I ENERGY CORPORATION

NOLIN LEASE

LINN COUNTY, KANSAS

WELL NO. 26

TRIPLE I ENERGY CORPORATION

NOLIN LEASE

WELL NO. 26

LINN 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
647.3 - 656.4	5.7	22.6	44.0	25.1	115.8	2410 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
NOVEMBER, 1982
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