OILFIELD RESEARCH LABORATORIES
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November 19, 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. 29, located in Linn County, Kansas and submitted to our laboratory on November 15, 1982.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

SAM/rmc

5 c to Overland Park, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Triple-I Energy Corporation Lease Nolin Well No. 29

Location

Section 23 Twp. 19S Rge. 22E County Linn State Kansas

Elevation, Feet	
Name of Sand	Cattleman
Top of Core	646.0
Bottom of Core	666.0
Top of Sand	647.4
Bottom of Sand	666.0
Total Feet of Permeable Sand	16.9
Total Feet of Floodable Sand	14.9

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
3 - 20	4.0	4.0
50 - 90	4.3	8.3
110 - 150	3.7	12.0
230 - 415	4.9	16.9

Average Permeability Millidarcys	144.3
Average Percent Porosity	22.2
Average Percent Oil Saturation	53.4
Average Percent Water Saturation	35.2
Average Oil Content, Bbls./A. Ft.	927.
Total Oil Content, Bbls./Acre	16,310.
Average Percent Oil Recovery by Laboratory Flooding Tests	22.1
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	396.
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	5,896.
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. The core was reported to be from a non-virgin area.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
646.0 - 647.4	Gray shale.
647.4 - 648.1	Alternate layers gray shale and brown sandstone.
648.1 - 649.0	Brown sandstone.
649.0 - 649.3	Gray shale.
649.3 - 650.0	Brown sandstone.
650.0 - 650.2	Gray shale.
650.2 - 653.2	Brown sandstone.
653.2 - 653.8	Grayish brown shaly sandstone.
653.8 - 655.2	Brown sandstone.
655.2 - 655.6	Gray shale.
655.6 - 662.0	Brown sandstone.
662.0 - 662.1	Gray shale.
662.1 - 664.0	Dark brown sandstone.
664.0 - 666.0	Grayish black (salt and pepper) slightly carbonaceous slightly shaly sandstone.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 5,896 barrels of oil per acre was obtained from 14.9 feet of sand. The weighted average percent oil saturation was reduced

from 54.4 to 32.3, or represents an average recovery of 22.1 percent. The weighted average effective permeability of the samples is 16.45 millidarcys, while the average initial fluid production pressure is 14.4 pounds per square inch (See Table V).

By observing the data given in Table IV, you will note that of the 19 samples tested, 16 produced water and oil. This indicates that approximately 84 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 6,440 barrels of oil per acre. This is an average recovery of 432 barrels per acre foot from 14.9 feet of floodable sand analyzed in this core.

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

Original formation volume factor, estimated	1.05
Reservoir water saturation, percent, estimated	15.0
Average porosity, percent	22.9
Oil saturation after flooding, percent	32.3
Performance factor, percent, estimated	50.0
Net floodable sand, feet	14.9

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Triple-I Energy Corporation Lease Nolin Well No. 29

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	647.5	14.0	42	52	94	456	Imp.	0.7	0.7	319	0.00
2	648.5	24.2	35	36	71	657	133.	0.9	1.6	591	119.70
3	649.6	19.0	43	46	89	634	52.	0.7	2.3	444	36.40
4	650.5	21.5	51	33	84	851	58.	1.0	3.3	851	58.00
5	651.5	22.9	52	46	98	924	62.	1.0	4.3	924	62.00
6	652.3	24.8	39	51	90	750	113.	1.0	5.3	750	113.00
7	653.3	17.9	52	43	95	722	3.5	0.6	5.9	433	2.10
8	654.4	21.2	70	26	96	1151	20.	1.4	7.3	1611	28.00
9	655.7	22.9	54	35	89	959	149.	0.8	8.1	767	119.20
10	656.6	22.9	68	26	94	1208	84.	0.6	8.7	725	50.40
11	657.5	21.0	45	32	77	733	89.	1.0	9.7	733	89.00
12	658.6	25.2	64	26	90	1251	280.	1.0	10.7	1251	280.00
13	659.5	25.7	58	33	91	1156	415.	1.0	11.7	1156	415.00
14	660.5	24.8	77	11	88	1481	346.	1.0	12.7	1481	346.00
15	661.6	23.3	56	40	96	1012	127.	1.0	13.7	1012	127.00
16	662.6	23.2	57	32	89	1026	384.	0.9	14.6	923	345.60
17	663.5	22.7	43	40	83	757	231.	1.0	15.6	757	231.00
18	664.6	21.2	50	29	79	822	9.4	1.0	16.6	822	9.40
19	665.5	19.6	50	43	93	760	6.3	1.0	17.6	760	6.30

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company Triple-I Energy Corporation Lease Nolin Well No. 29

Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.
647.4 - 653.8	5.2	75.2	391.20
653.8 - 666.0	11.7	174.9	2046.90
647.4 - 666.0	16.9	144.3	2438.10

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
647.4 - 653.8	5.9	21.2	44.8	43.5	731	4,312
653.8 - 666.0	11.7	22.7	57.8	31.0	1,025	11,998
647.4 - 666.0	17.6	22.2	53.4	35.2	927	16,310

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RESULTS OF LABORATORY FLOODING TESTS

TABLE IV

Company Triple-I Energy Corporation Lease Nolin Well No. 29

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	647.5	14.5	41	461	0	0	41	53	461	0	Imp.	-
2	648.5	24.3	35	660	5	94	30	57	566	446	21.55	15
3	649.6	19.1	43	637	14	207	29	63	430	248	4.60	20
4	650.5	21.4	51	847	16	266	35	52	581	12	0.20	35
5	651.5	23.0	52	928	19	339	33	65	589	292	5.40	15
6	652.3	24.9	39	753	11	212	28	64	541	414	18.56	10
7	653.3	18.0	52	726	13	182	39	57	544	149	1.75	20
8	654.4	21.3	70	1157	40	661	30	68	496	260	5.10	10
9	655.7	23.0	54	964	21	375	33	58	589	358	7.90	10
10	656.6	22.9	68	1208	37	657	31	65	551	408	15.99	10
11	657.5	20.8	45	726	13	210	32	58	516	26	0.60	25
12	658.6	25.3	64	1256	30	589	34	58	667	186	28.99	10
13	659.5	25.7	58	1156	28	558	30	63	598	198	32.49	10
14	660.5	24.9	77	1487	42	811	35	56	676	256	38.98	10
15	661.6	23.4	56	1017	25	454	31	66	563	402	13.99	10
16	662.6	23.1	57	1021	20	358	37	54	663	256	25.19	10
17	663.5	22.8	43	761	10	177	33	51	584	244	36.49	10
18	664.6	21.7	49	825	0	0	49	30	825	0	Imp.	-
19	665.5	19.5	50	756	0	0	50	44	756	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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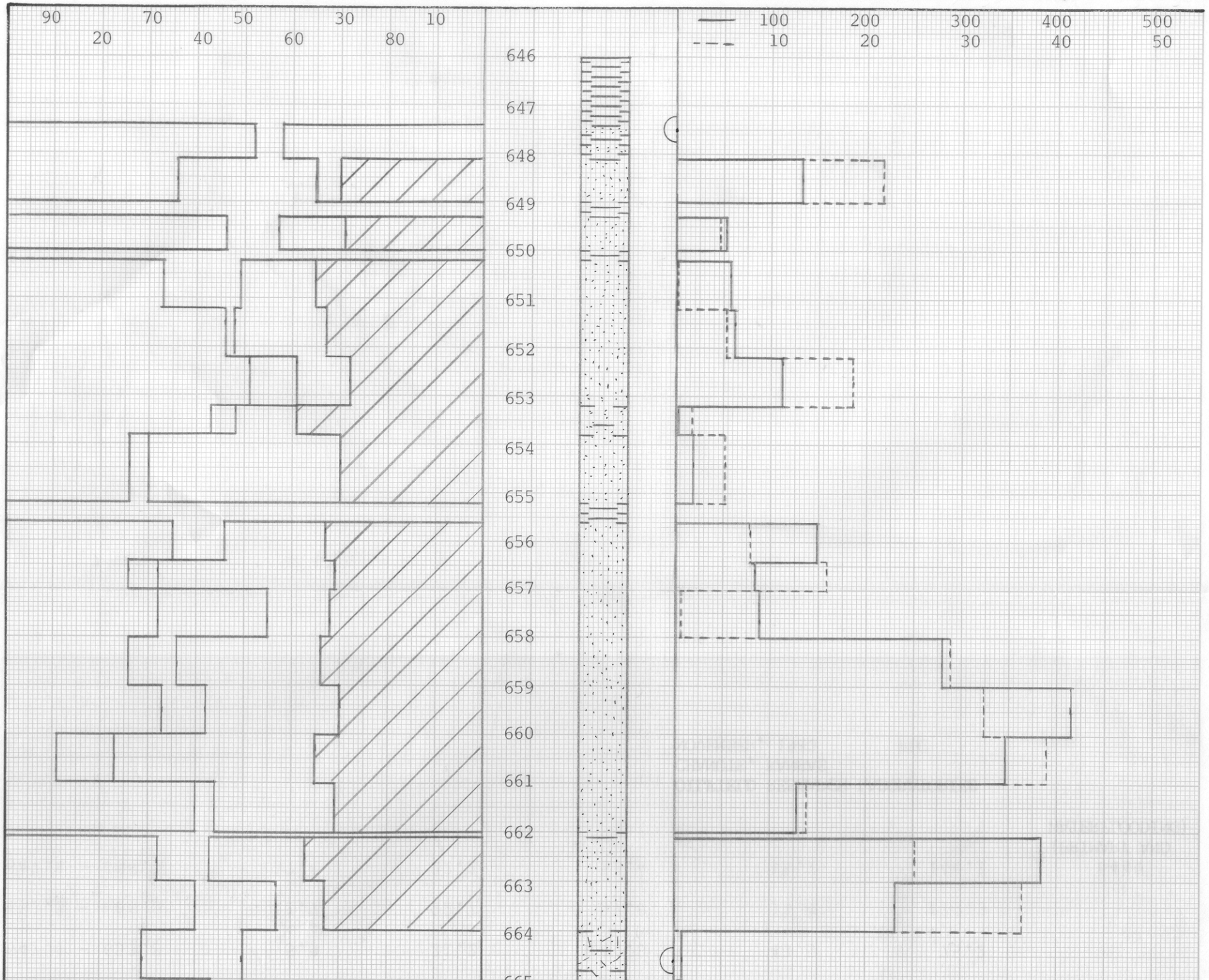
SUMMARY OF LABORATORY FLOODING TESTS

TABLE V

Company Triple-I Energy Corporation Lease Nolin Well No. 29

Depth Interval, Feet	647.4 - 653.8	653.8 - 666.0	647.4 - 666.0
Feet of Core Analyzed	5.2	9.7	14.9
Average Percent Porosity	22.2	23.3	22.9
Average Percent Original Oil Saturation	45.2	59.4	54.4
Average Percent Oil Recovery	13.1	26.9	22.1
Average Percent Residual Oil Saturation	32.1	32.5	32.3
Average Percent Residual Water Saturation	59.7	59.9	59.9
Average Percent Total Residual Fluid Saturation	91.8	92.4	92.2
Average Original Oil Content, Bbls./A. Ft.	770.	1,076.	969.
Average Oil Recovery, Bbls./A. Ft.	222.	489.	396.
Average Residual Oil Content, Bbls./A. Ft.	548.	587.	573.
Total Original Oil Content, Bbls./Acre	4,003.	10,437.	14,440.
Total Oil Recovery, Bbls./Acre	1,156.	4,740.	5,896.
Total Residual Oil Content, Bbls./Acre	2,847.	5,697.	8,544.
Average Effective Permeability, Millidarcys	9.20	20.34	16.45
Average Initial Fluid Production Pressure, p.s.i.	19.2	11.5	14.4

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
100 200 300 400 500
10 20 30 40 50
646
647
648
649
650
651
652
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654
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656
657
658
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662
663
664

KEY:

SANDSTONE

SHALE

IMPERMEABLE TO WATER

SHALY SANDSTONE

CARBONACEOUS SHALY SANDSTONE

ALTERNATE LAYERS OF SANDSTONE AND SHALE

FLOODPOT RESIDUAL OIL SATURATION

TRIPLE I ENERGY CORPORATION

NOLIN LEASE

WELL NO. 29

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
647.4 - 653.8	5.9	21.2	44.8	43.5	75.2	
653.8 - 666.0	11.7	22.7	57.8	31.0	174.9	
647.4 - 666.0	17.6	22.2	53.4	35.2	144.3	6440 (PRIMARY AND WATERFLOODING)

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
NOVEMBER, 1982 PDC