

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS - PHONE HE1-2650

April 4, 1968

116-25-10E

TEC Drilling Company, Inc.
P. O. Box 693
El Dorado, Kansas 67042

Gentlemen:

Enclosed herewith are the results of tests run on the Rotary cores taken from the Coffield Lease, Well No. 7, Woodson County, Kansas, and submitted to our laboratory on April 1, 1968.

These cores are from a virgin territory and were sampled and the samples sealed in tin cans by a representative of Oilfield Research Laboratories.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Carl L. Pate

CLP:bjo

5 c. - El Dorado, Kansas

Coffield 7

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company TEC Drilling Company, Inc. Lease Coffield Well No. 7

Location SE NW SW

Section 16 Twp. 25S Rge. 16E County Woodson State Kansas

Name of Sand - - - - - Upper Squirrel

Top of Core - - - - - 869.0

Bottom of Core - - - - - 893.0

Top of Sand - - - - - 870.5

Bottom of Sand - - - - - 890.8

Total Feet of Permeable Sand - - - - - 18.5

Total Feet of Floodable Sand - - - - -

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 1	6.3	6.3
1 - 5	4.6	10.9
5 - 10	2.0	12.9
10 & above	5.6	18.5

Average Permeability Millidarcys - - - - - 6.5

Average Percent Porosity - - - - - 16.9

Average Percent Oil Saturation - - - - - 48.7

Average Percent Water Saturation - - - - - 36.5

Average Oil Content, Bbls./A. Ft. - - - - - 651.

Total Oil Content, Bbls./Acre - - - - - 12,049.

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

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

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

Total Calculated Oil Recovery, Bbls./Acre - - - - -

Packer Setting, Feet - - - - -

Viscosity, Centipoises @ - - - - -

A. P. I. Gravity, degrees @ 60 °F - - - - -

Elevation, Feet - - - - -

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GENERAL INFORMATION & SUMMARY

Company TEC Drilling Company, Inc. Lease Coffield Well No. 7

Location SE NW SW

Section 16 Twp. 25S Rge. 16E County Woodson State Kansas

Name of Sand - - - - - Lower Squirrel

Top of Core - - - - - 909.0

Bottom of Core - - - - - 927.0

Top of Sand - - - - - 910.6

Bottom of ^{Day}Sand - - - - - 922.7

Total Feet of Permeable Sand - (Analyzed) - - - - - 14.0

Total Feet of Floodable Sand - - - - -

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 25	3.7	3.7
25 - 50	3.9	7.6
50 - 100	4.0	11.6
100 & above	2.4	14.0

Average Permeability Millidarcys - - - - - 47.7

Average Percent Porosity - - - - - 19.1

Average Percent Oil Saturation - - - - - 55.5

Average Percent Water Saturation - - - - - 23.1

Average Oil Content, Bbls./A. Ft. - - - - - 834.

Total Oil Content, Bbls./Acre - - - - - 12,508.

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

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

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

Total Calculated Oil Recovery, Bbls./Acre - - - - -

Packer Setting, Feet - - - - -

Viscosity, Centipoises @ - - 89° F. - - - - - 52.0

A. P. I. Gravity, degrees @ 60 °F - - - - -

Elevation, Feet - - - - -

OILFIELD RESEARCH LABORATORIES

- LOG -

Company TEC Drilling Company, Inc. Lease Coffield Well No. 7

Depth Interval, Feet	Description
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UPPER SAND

869.0 - 870.5 - Brown & gray finely laminated sandy shale.

870.5 - 877.2 - Gray & brown laminated shaly sandstone.

877.2 - 880.2 - Gray & brown shaly sandstone.

880.2 - 882.2 - Brown shaly sandstone.

882.2 - 884.8 - Alternate layers of shale and sandstone.

884.8 - 890.0 - Dark brown slightly shaly sandstone.

890.0 - 890.8 - Dark brown shaly sandstone.

890.8 - 893.0 - Sandy shale.

LOWER SAND

909.0 - 910.6 - Sandy shale.

910.6 - 922.0 - Dark brown slightly laminated shaly sandstone.

922.0 - 922.7 - Dark carbonaceous laminated shaly sandstone.

922.7 - 927.0 - Brownish gray carbonaceous shaly sandstone.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company TEC Drilling Company, Inc. Lease Coffield Well No. 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.		
					UPPER SAND					
1	871.1	14.4	48	48	536	0.48	1.1	1.1	588	0.53
2	872.1	15.2	40	44	472	2.4	1.0	2.1	472	2.40
3	873.1	15.0	35	46	407	0.68	1.4	3.5	570	0.95
4	874.8	15.5	44	53	529	0.60	1.4	4.9	740	0.84
5	876.1	15.1	47	45	651	0.29	1.2	6.1	781	0.35
6	877.1	16.8	45	38	587	2.2	0.6	6.7	352	1.32
7	879.1	13.9	46	50	496	0.34	1.2	7.9	595	0.41
8	880.3	13.1	39	55	397	1.9	0.5	8.4	198	0.95
9	881.1	18.4	59	30	842	1.0	0.9	9.3	758	0.90
10	882.1	18.5	50	28	718	6.8	0.6	9.9	431	4.08
11	883.1	19.6	52	23	791	8.8	1.4	11.3	1107	12.32
12	884.1	19.8	47	25	722	10.	1.2	12.5	866	12.00
13	885.1	17.7	54	31	741	3.3	0.8	13.3	593	2.64
14	886.1	15.7	55	29	670	12.	1.0	14.3	670	12.00
15	887.1	17.0	59	25	778	19.	1.0	15.3	778	19.00
16	888.1	19.0	51	25	752	13.	1.0	16.3	752	13.00
17	889.1	20.9	55	27	892	25.	1.4	17.7	1248	35.00
18	890.1	16.7	53	35	687	3.1	0.8	18.5	550	2.48

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company TEC Drilling Company, Inc. Lease Coffield Well No. 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	Total			Ft.	Cum. Ft.		
						LOWER SAND					
19	911.1	18.8	62	14	76	904	55.	1.0	1.0	904	55.00
20	912.1	20.2	63	15	78	988	18.	1.1	2.1	1087	19.80
21	913.1	18.6	66	25	91	952	25.	1.0	3.1	952	25.00
22	914.1	19.9	56	23	79	865	30.	0.9	4.0	779	27.00
23	915.1	19.6	58	22	80	882	49.	1.0	5.0	882	49.00
24	916.1	22.7	57	14	71	1003	107.	1.0	6.0	1003	107.00
25	917.1	19.6	55	20	75	836	58.	1.0	7.0	836	58.00
26	918.1	19.2	65	17	82	968	25.	1.0	8.0	968	25.00
27	919.1	18.6	49	30	79	707	75.	1.0	9.0	707	75.00
28	920.1	20.9	64	13	77	1038	76.	1.0	10.0	1038	76.00
29	921.1	20.7	65	14	79	1043	101.	1.4	11.4	1461	141.40
30	922.1	18.6	60	25	85	866	11.	0.7	12.1	606	7.70
31	923.1	16.8	25	50	75	326	1.7	0.9	13.0	293	1.53
32	924.1	16.1	17	54	71	212	Imp.	1.0	14.0	212	0.00
33	925.1	15.7	64	19	83	780	0.58	1.0	15.0	780	0.58

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	TEC Drilling Company, Inc.		Lease	Coffield		Well No.	7
Depth Interval, Feet	Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.				
UPPER SAND							
870.5 - 881.6	9.3	0.93	8.65				
881.6 - 890.8	9.2	12.2	112.52				
870.5 - 890.8	18.5	6.5	121.17				
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	
870.5 - 881.6	9.3	15.2	UPPER SAND 44.6	45.8	546.	5,054.	
881.6 - 890.8	9.2	18.6	52.9	27.0	760.	6,995.	
870.5 - 890.8	18.5	16.9	48.7	36.5	651.	12,049.	

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SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	TEC Drilling Company, Inc.		Lease	Coffield		Well No.	7
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	
							Permeability Capacity Ft. x Md.
<u>LOWER SAND</u>							
910.6 - 922.7	12.1			55.0	665.90		
922.7 - 925.6	1.9			1.1	2.11		
910.6 - 925.6	14.0			47.7	668.01		
<u>LOWER SAND</u>							
910.6 - 922.7	12.1	19.8	60.2	18.9	928.	11,223.	
922.7 - 925.6	2.9	16.2	35.7	40.7	443.	1,285.	
910.6 - 925.6	15.0	19.1	55.5	23.1	834.	12,508.	

OIL CONTENT
BBLS./A. FT.

WATER SAT.,
PERCENT

OIL SAT.,
PERCENT

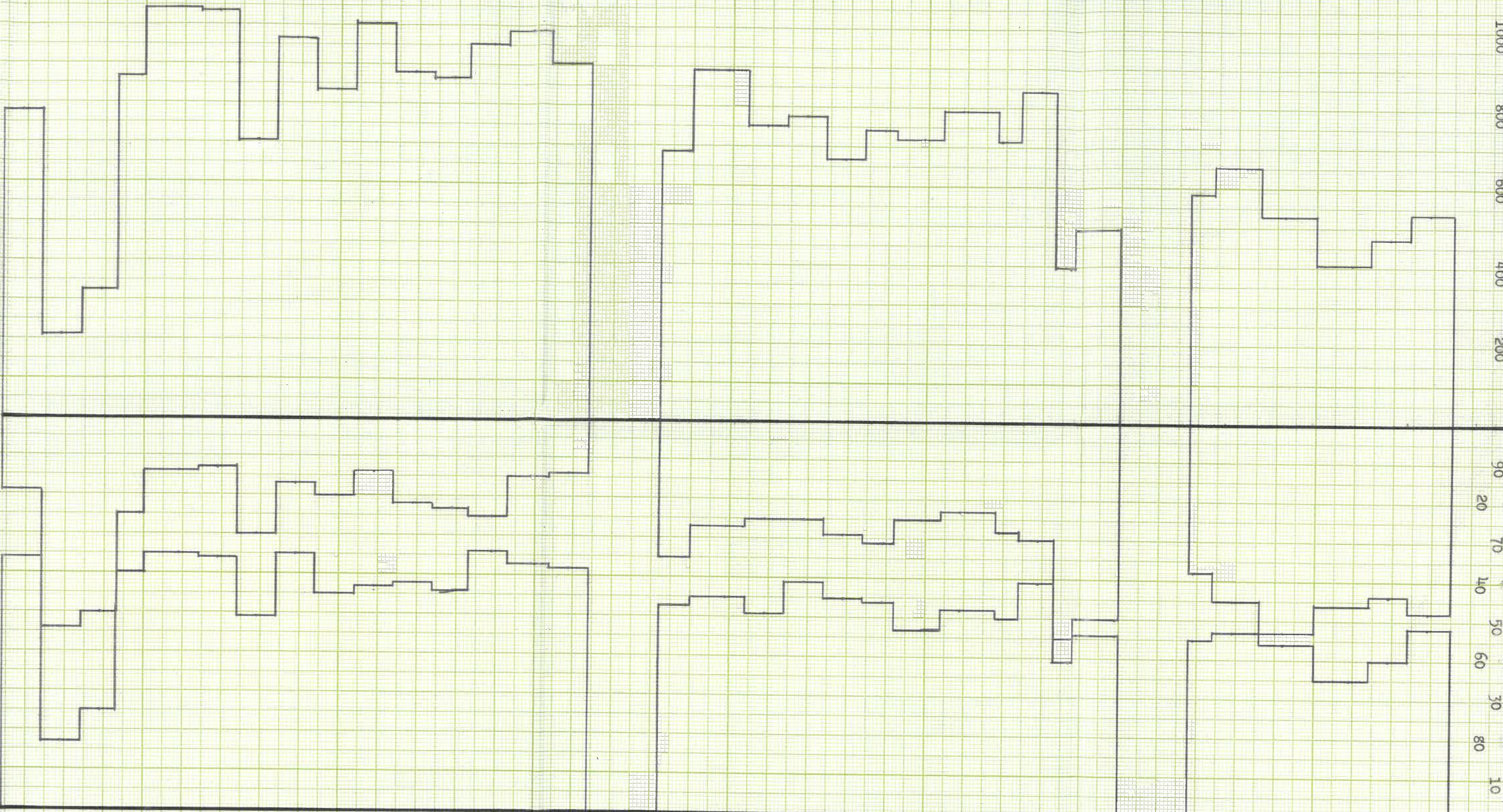
1000 800 600 400 200

90 20 70 40 50 60 30 80 10

10 20

UPPER 5

LOWER 5



KEY:

SHALY SANDSTONE

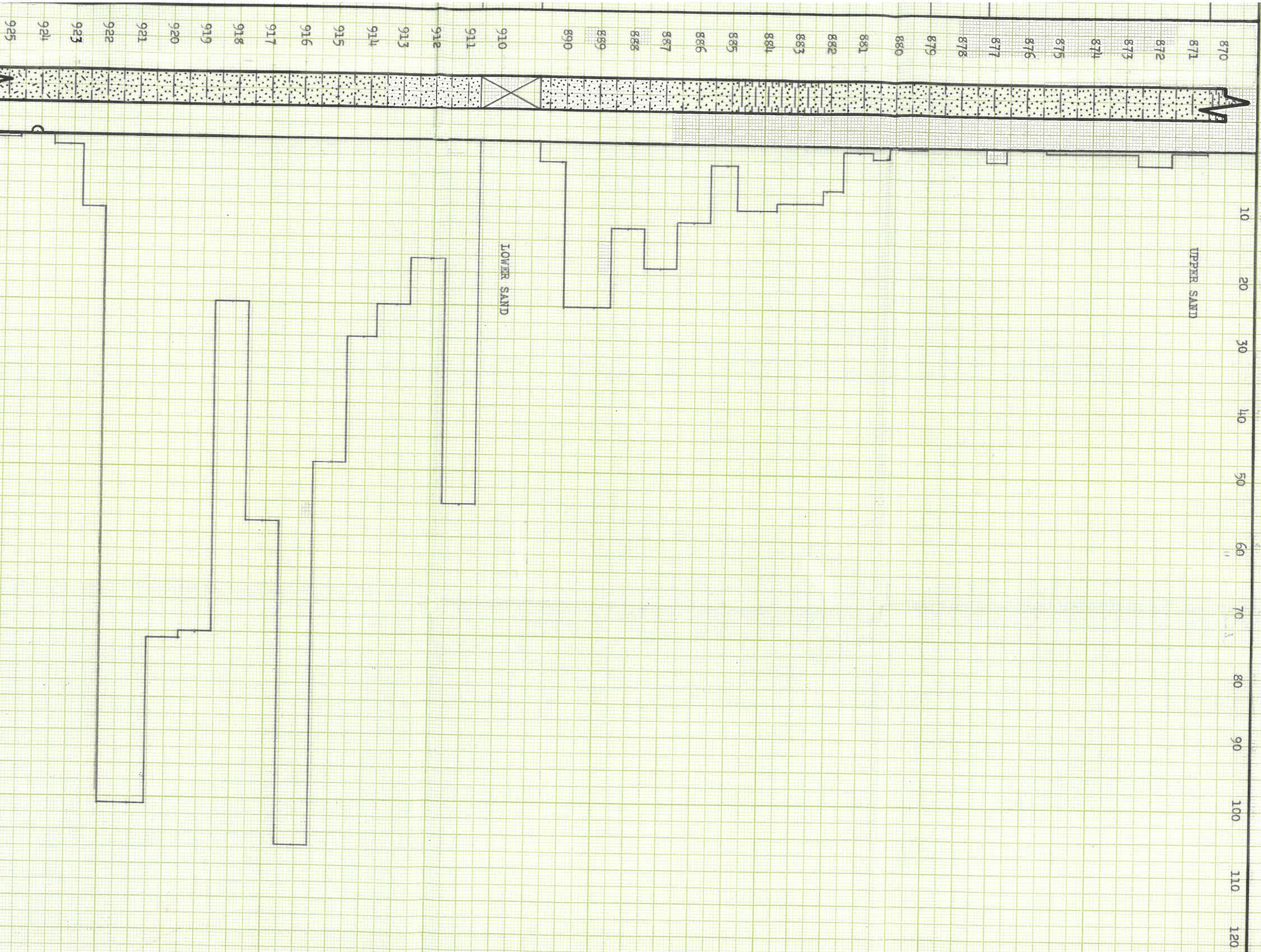
CARBONACEOUS SHALY SANDSTONE

ALTERNATE LAYERS OF SANDSTONE & SHALE

SANDY SHALE

TFC DRILLING COMP

AIR PERMEABILITY, MILLIDARCYs



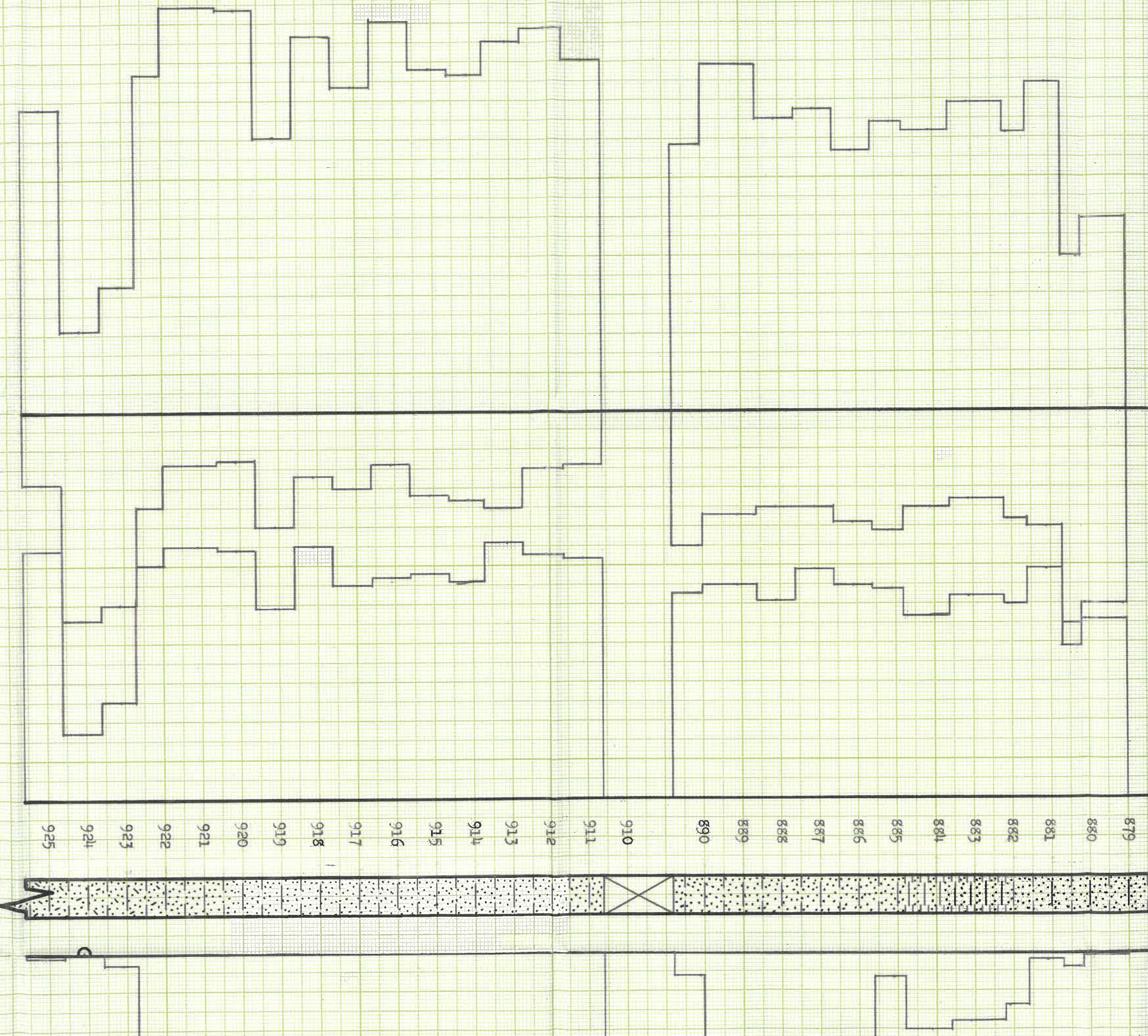
UPPER SAND

LOWER SAND

LAYERS OF SANDSTONE & SHALE

IMPERMEABLE TO AIR

BREAK



KEY:

SHALY SANDSTONE

CARBONACEOUS SHALY SANDSTONE

ALTERNATE LAYERS OF SANDSTONE & SHALE

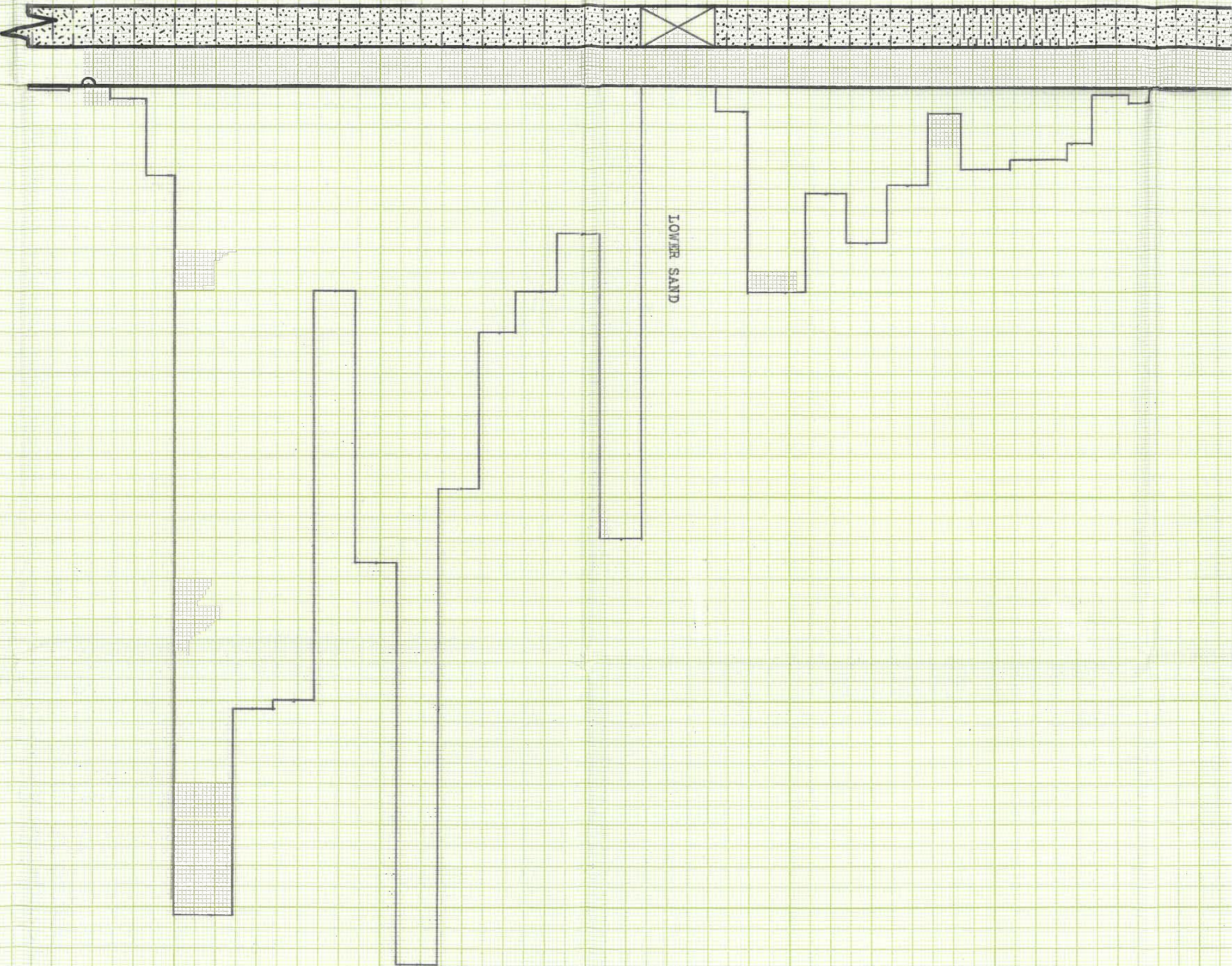
SANDY SHALE

TEC DRILLING

CONFIDENTIAL LEASE

WOODSON COUN

DEPTH INTERVAL FEET	FEET OF CORE ANALYZED	AVERAGE POROSITY PERCENT	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVG. C CONTR BRLS./A
UPPER SAND					
870.5 - 881.6	9.3	15.2	44.6	45.8	546.
881.6 - 890.8	9.2	18.6	52.9	27.0	760.
870.5 - 890.8	18.5	16.9	48.7	36.5	651.
LOWER SAND					
910.6 - 922.7	12.1	19.8	60.2	18.9	928.
922.7 - 925.6	2.9	16.2	35.7	40.7	443.
910.6 - 925.6	15.0	19.1	55.5	23.1	834.



S OF SANDSTONE & SHALE

O IMPERMEABLE TO AIR

⊠ BREAK

RILLING COMPANY, INC.

COTFIELD LEASE WELL NO. 7
WOODSON COUNTY, KANSAS

AVG. WATER SATURATION PERCENT	AVG. OIL CONTENT BBLs./A. FT.	TOTAL OIL CONTENT BBLs./ACRE	AVG. AIR PERMEABILITY MILLIDARCYs
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PPER SAND

45.8	546.	5,054.	0.93
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27.0	760.	6,995.	12.2
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36.5	651.	12,049.	6.5
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OTER SAND

18.9	928.	11,223.	55.0
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40.7	443.	1,285.	1.1
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23.1	834.	112,508.	47.7
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OILFIELD RESEARCH LABORATORIES
CHANDLER, KANSAS
APRIL, 1968