Home Office: Wichita, Kansas 67201
P.O. Box 1599 (316) 262-5861

Company Graves Drilling Company, Inc. Lease & Well No. #1 Schafer

Elevation 1463 Kelly Bushing Formation Viola Effective Pay -- Ft. Ticket No. 17685

Date 12/ 16/82 Sec. 10 Twp. 18S Range 4W County McPherson State Kansas

Test Approved by Jerry Honas Western Representative Gregory Saffa

Formation Test No. 1 Interval Tested from 3610 ft. to 3642 ft. Total Depth 3642 ft.

Packer Depth 3605 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.

Packer Depth 3610 ft. Size 6 5/8 in. Packer Depth - ft. Size - in.

Depth of Selective Zone Set -

Top Recorder Depth (Inside) 3634 ft. Recorder Number 3659 Cap. 4000

Bottom Recorder Depth (Outside) 3635 ft. Recorder Number 13401 Cap. 4000

Below Straddle Recorder Depth - ft. Recorder Number - Cap. -

Drilling Contractor Duke Drlg. Rig #2 Drill Collar Length - I. D. - in.

Mud Type starch Viscosity 49 Weight Pipe Length 730 I. D. 2.7 in.

Weight 10.3 Water Loss cc. Drill Pipe Length 2859 I. D. 3.8 in.

Chlorides 31,000 P.P.M. Test Tool Length 21 ft. Tool Size 5½ in.

Jars: Make -- Serial Number --- Anchor Length 32 ft. Size 5½ in.

Did Well Flow? No Reversed Out No Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.

Main Hole Size 7 7/8 in. Tool Joint Size 4½XH in.

Blow: Weak blow and died in ten minutes on initial flow period. No blow on final flow period-flushed tool - still no blow.

Recovered 10 ft. of mud with light skim of free oil on top of tool

Recovered ft. of

Recovered ft. of

Recovered ft. of

Recovered ft. of

Remarks: Hit bridge 1500' from bottom - tool went to bottom real tight. Had to set total string weight on tool several times. Not sure if tool opened on way down.

Time Set Packer(s) 2:45 A.M. P.M. Time Started Off Bottom 4:45 A.M. P.M. Maximum Temperature 119°

Initial Hydrostatic Pressure			(A) 2002	P.S.I.		
Initial Flow Period	Minutes 20	(B) 51	P.S.I. to	(C) 51	P.S.I.	
Initial Closed In Period	Minutes 42	(D) 1169	P.S.I.			
Final Flow Period	Minutes 35	(E) 63	P.S.I. to	(F) 55	P.S.I.	
Final Closed In Period	Minutes 27	(G) 946	P.S.I.			
Final Hydrostatic Pressure			(H) 1994	P.S.I.		

WTI

WESTERN TESTING CO., INC.
Pressure Data

Date 12/16/82 Test Ticket No. 17685

Recorder No. 3659 Capacity 4000 Location 3634 Ft.

Clock No. -- Elevation 1463 Kelly Bushing Well Temperature 117 °F

Point	Pressure		Time Given	Time Computed
A Initial Hydrostatic Mud	2002 P.S.I.	Open Tool	2:45 M	
B First Initial Flow Pressure	51 P.S.I.	First Flow Pressure	15 Mins.	20 Mins.
C First Final Flow Pressure	51 P.S.I.	Initial Closed-in Pressure	45 Mins.	42 Mins.
D Initial Closed-in Pressure	1169 P.S.I.	Second Flow Pressure	30 Mins.	35 Mins.
E Second Initial Flow Pressure	63 P.S.I.	Final Closed-in Pressure	30 Mins.	27 Mins.
F Second Final Flow Pressure	55 P.S.I.			
G Final Closed-in Pressure	946 P.S.I.			
H Final Hydrostatic Mud	1994 P.S.I.			

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 4 Inc.
of 5 mins. and a
final inc. of 0 Min.

Point Mins.	Press.
P 1 0	51
P 2 5	51
P 3 10	51
P 4 15	51
P 5 20	51
P 6	
P 7	
P 8	
P 9	
P10	
P11	
P12	
P13	
P14	
P15	
P16	
P17	
P18	
P19	
P20	

Initial Shut-In
Breakdown: 14 Inc.
of 3 mins. and a
final inc. of 0 Min.

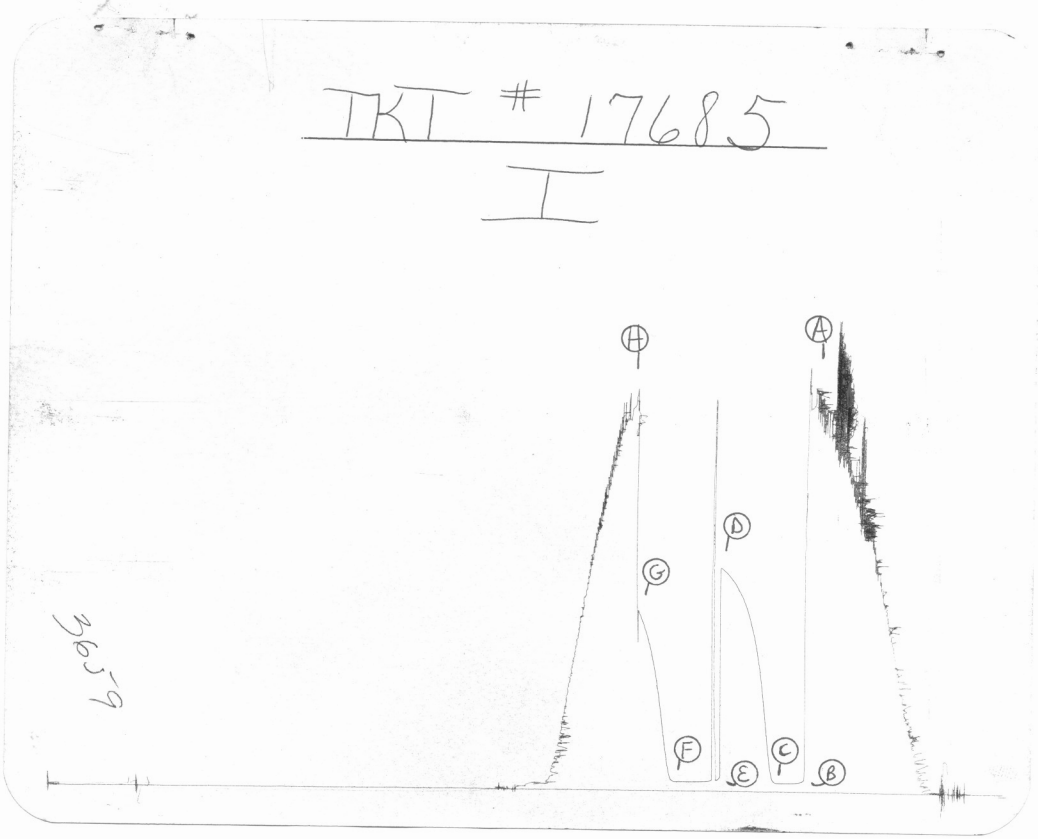
Point Minutes	Press.
0	51
3	111
6	289
9	502
12	655
15	773
18	858
21	937
24	992
27	1032
30	1074
33	1103
36	1132
39	1151
42	1169

Second Flow Pressure
Breakdown: 7 Inc.
of 5 mins. and a
final inc. of 0 Min.

Point Minutes	Press.
0	63
5	FLUSHED TOOL
10	58
15	56
20	55
25	55
30	55
35	55

Final Shut-In
Breakdown: 9 Inc.
of 3 mins. and a
final inc. of 0 Min.

Point Minutes	Press.
0	55
3	120
6	255
9	447
12	584
15	692
18	776
21	843
24	898
27	946



This is an actual photograph of recorder chart.

POINT		PRESSURE Field Reading	Office Reading	
(A)	Initial Hydrostatic Mud	2265	2002	PSI
(B)	First Initial Flow Pressure	51	51	PSI
(C)	First Final Flow Pressure	40	51	PSI
(D)	Initial Closed-in Pressure	1156	1169	PSI
(E)	Second Initial Flow Pressure	51	63	PSI
(F)	Second Final Flow Pressure	40	55	PSI
(G)	Final Closed-in Pressure	948	946	PSI
(H)	Final Hydrostatic Mud	2002	1994	PSI

WESTERN

Home Office: Wichita, Kansas 67201

P.O. Box 1599 (316) 262-5861

Company Graves Drilling Company, Inc. Lease & Well No. #1 Schafer

Elevation 1463 Ground Level L. &S Formation Makota Effective Pay -- Ft. Ticket No. 15513

Date 12/ 17/82 Sec. 10 Twp. 18S Range 4W County McPherson State Kansas

Test Approved by Jerry Honas Western Representative Max Knipe

Formation Test No. 2 Interval Tested from 3563 ft. to 3580 ft. Total Depth 3720 ft.

Packer Depth 3563 ft. Size 6 5/8 in. Packer Depth 3580 ft. Size 6-5/8 in.

Packer Depth - ft. Size - in. Packer Depth - ft. Size - in.

Depth of Selective Zone Set -

Top Recorder Depth (Inside) 3567 ft. Recorder Number 3085 Cap. 4500

Bottom Recorder Depth (Outside) 3569 ft. Recorder Number 1560 Cap. 4500

Below Straddle Recorder Depth 3595 ft. Recorder Number 5673 Cap. 5400

Drilling Contractor Duke Drlg. Rig #2 Drill Collar Length - I. D. - in.

Mud Type starch Viscosity 58 Weight Pipe Length 635 I. D. 2.7 in.

Weight 10.4 Water Loss 16 cc. Drill Pipe Length 2907 I. D. 3.8 in.

Chlorides 28,000 P.P.M. Test Tool Length 21 ft. Tool Size 5½ in.

Jars: Make -- Serial Number --- Anchor Length 17 ft. Size 5½ in.

Did Well Flow? No Reversed Out No Surface Choke Size 3/4 in. Bottom Choke Size 3/4 in.

Main Hole Size 7 7/8 in. Tool Joint Size 4½FH 4½XH in.

Blow: Two inch blow on initial flow period. One inch blow on final flow period - died in fifty-six minutes.

Recovered 18 ft. of mud

Recovered ft. of

Recovered ft. of

Recovered ft. of

Recovered ft. of

Remarks: Tool movement on initial closed in pressures causing false pressure.

Time Set Packer(s) 12;15 A.M. P.M. Time Started Off Bottom 3:00 A.M. P.M. Maximum Temperature 102°

Initial Hydrostatic Pressure			(A)	2093	P.S.I.	
Initial Flow Period	Minutes	15	(B)	29	P.S.I. to (C)	37 P.S.I.
Initial Closed In Period	Minutes	45	(D)	1668 *	P.S.I.	
Final Flow Period	Minutes	60	(E)	26	P.S.I. to (F)	26 P.S.I.
Final Closed In Period	Minutes	42	(G)	1020	P.S.I.	
Final Hydrostatic Pressure			(H)	2032	P.S.I.	

WT(

WESTERN TESTING CO., INC.
Pressure Data

Date 12/17/82 Test Ticket No. 15513

Recorder No. 3085 Capacity 4500 Location 3567 Ft.

Clock No. --- Elevation 1458 Ground Level L & S Well Temperature 102 °F

Point		Pressure	
A	Initial Hydrostatic Mud	2093	P.S.I.
B	First Initial Flow Pressure	29	P.S.I.
C	First Final Flow Pressure	37	P.S.I.
D	Initial Closed-in Pressure	1668 *	P.S.I.
E	Second Initial Flow Pressure	26	P.S.I.
F	Second Final Flow Pressure	26	P.S.I.
G	Final Closed-in Pressure	1020	P.S.I.
H	Final Hydrostatic Mud	2032	P.S.I.

	Time Given	Time Computed
Open Tool	12:15A M	
First Flow Pressure	15 Mins.	15 Mins.
Initial Closed-in Pressure	45 Mins.	45 Mins.
Second Flow Pressure	60 Mins.	60 Mins.
Final Closed-in Pressure	45 Mins.	42 Mins.

* PRESSURES QUESTIONABLE DUE TO TOOL MOVEMENT

PRESSURE BREAKDOWN

First Flow Pressure
Breakdown: 3 Inc.
of 5 mins. and a
final inc. of 0 Min.

Point	Mins.	Press.
P 1	0	29
P 2	5	29
P 3	10	29
P 4	15	37
P 5		
P 6		
P 7		
P 8		
P 9		
P10		
P11		
P12		
P13		
P14		
P15		
P16		
P17		
P18		
P19		
P20		

Initial Shut-In
Breakdown: 15 Inc.
of 3 mins. and a
final inc. of 0 Min.

Point Minutes	Press.
0	37
3	79 *
6	206 *
9	440 *
12	628 *
15	793 *
18	890 *
21	995 *
24	1072 *
27	1133 *
30	1206 *
33	1472 *
36	1776 *
39	1730 *
42	1700 *
45	1668 *

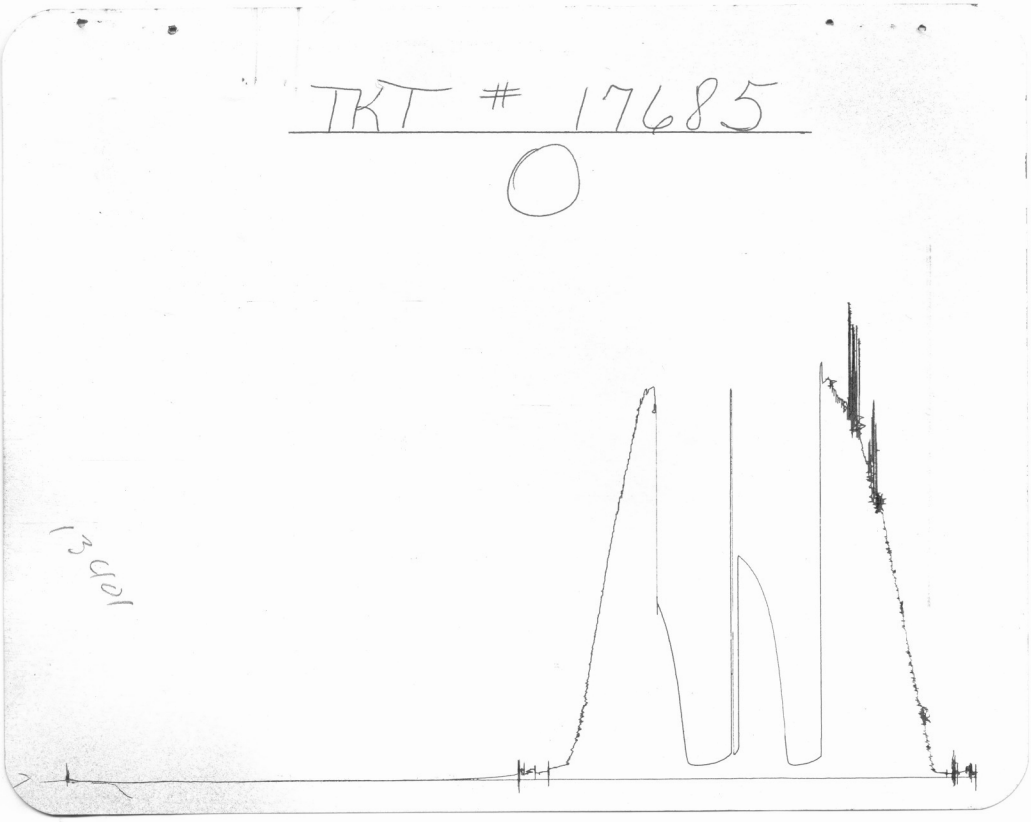
Second Flow Pressure
Breakdown: 12 Inc.
of 5 mins. and a
final inc. of 0 Min.

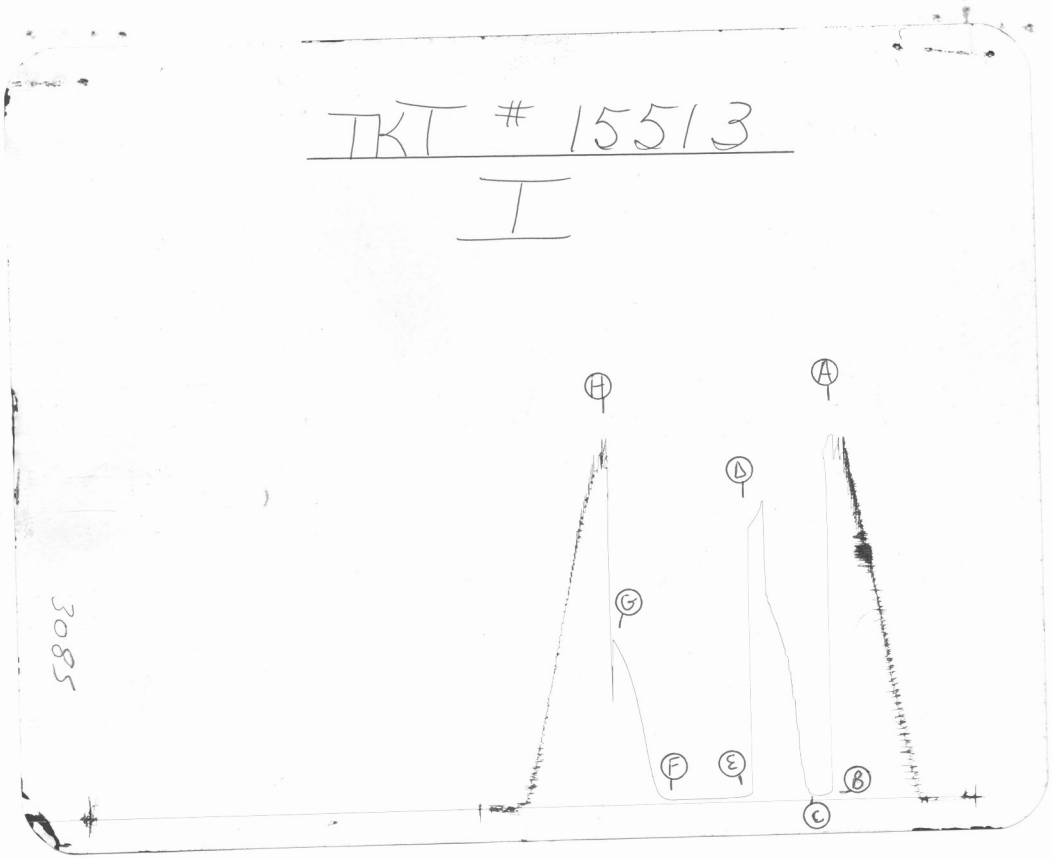
Point Minutes	Press.
0	26
5	26
10	26
15	26
20	26
25	26
30	26
35	26
40	26
45	26
50	26
55	26
60	26

Final Shut-In
Breakdown: 14 Inc.
of 3 mins. and a
final inc. of 0 Min.

Point Minutes	Press.
0	26
3	32
6	44
9	69
12	135
15	249
18	385
21	526
24	632
27	729
30	818
33	884
36	937
39	988
42	1020

TKT # 17685



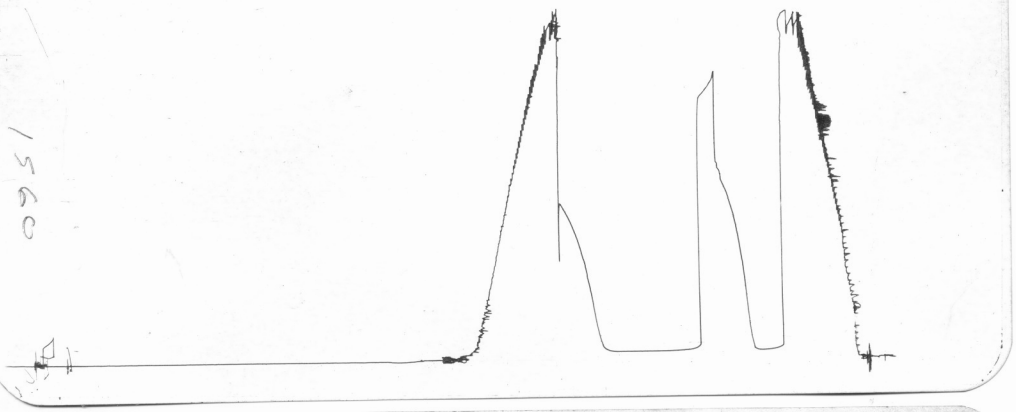


This is an actual photograph of recorder chart.

POINT		PRESSURE Field Reading	Office Reading	
(A)	Initial Hydrostatic Mud	2052	2093	PSI
(B)	First Initial Flow Pressure	35	29	PSI
(C)	First Final Flow Pressure	23	37	PSI
(D)	Initial Closed-in Pressure	FALSE	1668 *	PSI
(E)	Second Initial Flow Pressure	23	26	PSI
(F)	Second Final Flow Pressure	23	26	PSI
(G)	Final Closed-in Pressure	1013	1020	PSI
(H)	Final Hydrostatic Mud	2041	2032	PSI

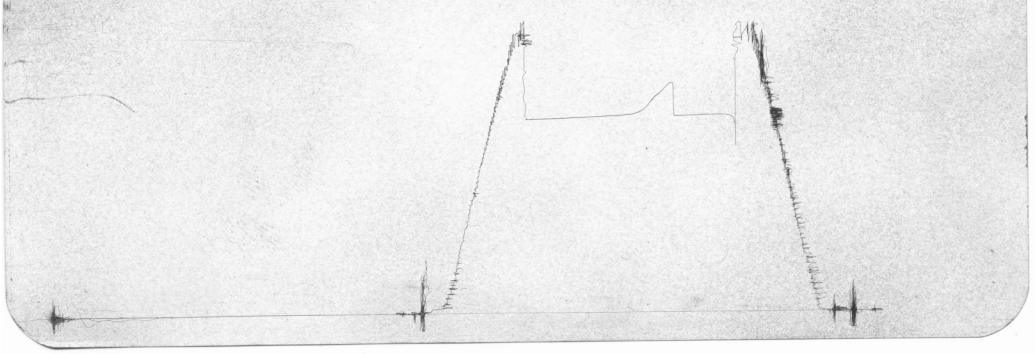
TKT # 15513

O



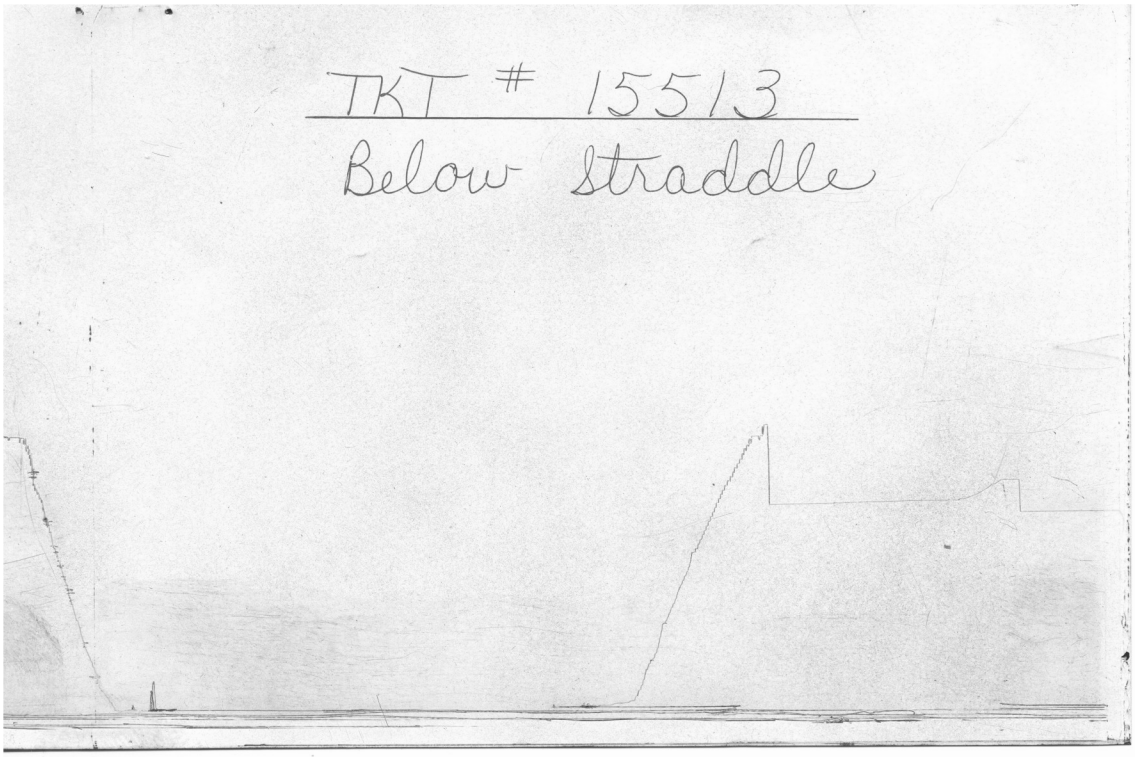
TKT # 15513

Below Straddle



TKT # 15513

Below Straddle



NOMENCLATURE

b	=	Approximate Radius of Investigation	Feet
b^1	=	Approximate Radius of Investigation (Net Pay Zone h^1)	Feet
D.R.	=	Damage Ratio	——
El	=	Elevation	Feet
GD	=	B.T. Gauge Depth (From Surface Reference)	Feet
h	=	Interval Tested	Feet
h^1	=	Net Pay Thickness	Feet
K	=	Permeability	md
K^1	=	Permeability (From Net Pay Zone h^1)	md
m	=	Slope Extrapolated Pressure Plot (Psi^2/cycle Gas)	psi/cycle
OF^1	=	Maximum Indicated Flow Rate	MCF/D
OF^2	=	Minimum Indicated Flow Rate	MCF/D
OF^3	=	Theoretical Open Flow Potential with/Damage Removed Max.	MCF/D
OF^4	=	Theoretical Open Flow Potential with/Damage Removed Min.	MCF/D
P^S	=	Extrapolated Static Pressure	Psig.
P^F	=	Final Flow Pressure	Psig.
$P^{\square T}$	=	Potentiometric Surface (Fresh Water*)	Feet
Q	=	Average Adjusted Production Rate During Test	bbls/day
Q^1	=	Theoretical Production w/Damage Removed	bbls/day
Q^g	=	Measured Gas Production Rate	MCF/D
R	=	Corrected Recovery	bbls
r^w	=	Radius of Well Bore	Feet
t	=	Flow Time	Minutes
$t^{\square}$	=	Total Flow Time	Minutes
T	=	Temperature Rankine	$^{\square}R$
Z	=	Compressibility Factor	——
u	=	Viscosity Gas or Liquid	CP
Log	=	Common Log	

* Potentiometric Surface Reference to Rotary Table When Elevation Not Given, Fresh Water Corrected to 100° F.