WESTERN TESTERS

Home Office: Great Bend, Kansas

P. O. Box 793 SWift 3-7903

Company Messman & Rinehart Oil Company ✓ Lease & Well No. Woods #1

Elevation 2076 Kelly Bushings ✓ Formation Tarako Ticket Number 7881

Date May 6,1967 Sec. 22 Twp. 26 Range 16 ✓ County Edwards State Kansas

Test Approved by J. G. Klein Western Representative George Tew

Formation Test No. 1 O.K. x Misrun Interval Tested From 3056' to 3129' Total Depth 3179'

Size Main Hole 7 7/8 Rat Hole 7 7/8 Conv. x B.T. Damaged Yes No Conv. B.T. x Damaged Yes No

Packer Depth 3056 Ft. Size 6 3/4 Packer Depth 3051 Ft. Size 6 3/4

Straddle x Yes No Conv. B.T. x Damaged Yes No

Packer Depth 3129 Ft. Size 6 3/4

Tool Size 5½ OD Tool Jt. Size 4½XH Anchor Length 73 Ft. 15' 5½ Anchor Size 58' D.C.

RECORDERS Depth 3063 Ft. Clock No. 6896 Depth 3066 Ft. Clock No. 6866

Top Make Kuster Cap. 4150 No. 2605 Inside ~~Outside~~ Bottom Make Kuster Cap. 4200 No. 1559 ~~Inside~~ Outside

Below Straddle: Depth 3168 Clock No. 155 Inside Outside Depth 3170 Ft. Clock No. 112 Inside Outside

Top Make Western Cap. 4000 No. 44 Inside Outside Bottom Make Western Cap. 4000 No. 4 Inside Outside

Time Set Packer 5:27P M

Tool Open I.F.P. From 5:30 M to 5:40 M Hr. Min. 10 From (B) 165 P.S.I. To (C) 214 P.S.I.

Tool Closed I.C.I.P. From 5:40 M. to 6:10 M. Hr. Min. 30 (D) 1047 P.S.I.

Tool Open F.F.P. From 6:10 M. to 9:10 M. Hr. 3 Min. From (E) 277 P.S.I. To (F) 707 P.S.I.

Tool Closed F.C.I.P. From 9:10P M. to 9:55P M. Hr. Min. 45 (G) 1029 P.S.I.

Initial Hydrostatic Pressure (A) 1644 P.S.I. Final Hydrostatic Pressure (H) 1631 P.S.I.

SURFACE INFORMATION Size Choke 1/2 In. Max. Press. P.S.I. Time Description of Flow

SEE ATTACHED SHEET

BLOW STRONG. Gas to surface in 4 minutes.* Bottom Choke Size 3/4 In.

Did Well Flow xx Yes No Recovery Total Ft. 1840' gassy salt water.

Mud

Reversed Out Yes x No Mud Type starch Viscosity 53 Weight 9.9 Maximum Temp. 101 °F

EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Jars: Size Make Ser. No.

Type Circ. Sub. plug Did Tool Plug? no Where? Did Packer Hold? yes

Length Drill Pipe 3033 ft. I.D. Drill Pipe 3.8 in Length Weight Pipe ft. I.D. Weight Pipe in. Length Drill Collars ft.

I. D. Drill Collars in. Length D.S.T. Tool 146 ft.

Remarks Mud to surface in two hours. Turning to muddy water after approximately 30 minutes.

WESTERN TESTERS

P. O. BOX 793
GREAT BEND, KANSAS

COMPANY Messman & Rinehart Oil Co. LEASE & WELL NO. Woods #1

TEST NO. 1 INTERVAL TESTED FROM 3056' TO 312

TIME PRE-FLOW	Ins. of water.	DESCRIPTION OF FLOW
10	7	92,000
20	Took gas sample	
30	5.5	81,000
40	5	77,570
50	5	77,570
60	4.5	73,600
SECOND FLOW		
70	4.2	72,000
80	5	77,570
90	5.5	81,000
100	8	97,000
110	5.5	77,570
120	Mud to surface	
180	Mud and water blow	

SIZE CHOKE SURFACE 1/2 IN. BOTTOM 3/4 IN.

REMARKS Gas to surface in four minutes.

WESTERN TESTING CO., INC.
Pressure Data

Date May 6, 1967 | Test Ticket No. 7881

Recorder No. 2605 | Capacity 4150 | Location 3063 Ft.

Clock No. 6896 | Elevation 2076 Kelly Bushings | Well Temperature 101 °F

Point		Pressure			Time Given	Time Computed
A	Initial Hydrostatic Mud	1644 P.S.I.		Opened Tool	5:30 PM	
B	First Initial Flow Pressure	165 P.S.I.		First Flow Pressure	10 Mins.	10 Mins.
C	First Final Flow Pressure	214 P.S.I.		Initial Closed-in Pressure	30 Mins.	31 Mins.
D	Initial Closed-in Pressure	1047 P.S.I.		Second Flow Pressure	180 Mins.	178 Mins.
E	Second Initial Flow Pressure	277 P.S.I.		Final Closed-in Pressure	45 Mins.	48 Mins.
F	Second Final Flow Pressure	707 P.S.I.				
G	Final Closed-in Pressure	1029 P.S.I.				
H	Final Hydrostatic Mud	1631 P.S.I.				

PRESSURE BREAKDOWN

First Flow Press.
Breakdown: 2 Inc.
of 5 mins. and a
final inc. of 0 Min.

Point Mins.	Press.
P 1 0	165
P 2 5	203
~~10~~	~~214~~
P 3	
P 4	
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: 10 Inc.
of 3 mins. and a
final inc. of 1 Min.

Point Minutes	Press.
0	214
3	721
~~6~~	~~871~~
9	943
12	981
~~15~~	~~1001~~
18	1018
21	1026
~~24~~	~~1033~~
27	1041
30	1045
~~31~~	~~1047~~

Second Flow Pressure
Breakdown: 35 Inc.
of 5 mins. and a
final inc. of 3 Min.

Point Minutes	Press.
0	277
5	287
~~10~~	~~305~~
15	345
20	381
~~25~~	~~413~~
30	447
35	474
~~40~~	~~504~~
45	529
50	551
~~55~~	~~574~~
60	593
65	614
~~70~~	~~632~~
75	649
80	664
~~85~~	~~680~~
90	696
95	711
~~100~~	~~727~~
105	738
110	750
~~115~~	~~767~~
120	773
125	779
~~130~~	~~773~~
135	738
140	701
~~145~~	~~674~~
150	669

Final Shut-In
Breakdown: 16 Inc.
of 3 mins. and a
final inc. of 0 Min.

Point Minutes	Press.
0	707
3	877
~~6~~	~~927~~
9	946
12	964
~~15~~	~~979~~
18	989
21	995
~~24~~	~~1001~~
27	1004
30	1010
~~33~~	~~1013~~
36	1018
39	1021
~~42~~	~~1023~~
45	1026
48	1029

CONTINUED

WESTERN TESTING CO., INC.
Pressure Data

7881

Date _____ Test Ticket No. ****

Recorder No. _____ Capacity _____ Location _____ Ft.

Clock No. _____ Elevation _____ Well Temperature _____ °F

Point		Pressure		Time Given	Time Computed
A	Initial Hydrostatic Mud	P.S.I.	Opened Tool	M	
B	First Initial Flow Pressure	P.S.I.	First Flow Pressure	Mins.	Mins.
C	First Final Flow Pressure	P.S.I.	Initial Closed-in Pressure	Mins.	Mins.
D	Initial Closed-in Pressure	P.S.I.	Second Flow Pressure	Mins.	Mins.
E	Second Initial Flow Pressure	P.S.I.	Final Closed-in Pressure	Mins.	Mins.
F	Second Final Flow Pressure	P.S.I.			
G	Final Closed-in Pressure	P.S.I.			
H	Final Hydrostatic Mud	P.S.I.			

PRESSURE BREAKDOWN

First Flow Press.		Initial Shut-In		Second Flow Pressure		Final Shut-In	
Breakdown: ____ Inc.		Breakdown: ____ Inc.		Breakdown: ____ Inc.		Breakdown: ____ Inc.	
of ____ mins. and a		of ____ mins. and a		of ____ mins. and a		of ____ mins. and a	
final inc. of ____ Min.		final inc. of ____ Min.		final inc. of ____ Min.		final inc. of ____ Min.	
Point Mins.	**Press.**	**Point Minutes**	**Press.**	**Point Minutes**	**Press.**	**Point Minutes**	**Press.**
P 1				155	669		
P 2				160	678		
P 3				165	696		
P 4				170	705		
P 5				175	707		
P 6				178	709		
P 7							
P 8							
P 9							
P10							
P11							
P12							
P13							
P14							
P15							
P16							
P17							
P18							
P19							
P20							

S20765

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^{DT}	=	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^D	=	Total Flow Time	Minutes
T	=	Temperature Rankine	°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.

This is an actual photograph of recorder chart.

POINT		PRESSURE Field Reading	PRESSURE Office Reading	
(A)	Initial Hydrostatic Mud	1650	1644	PSI
(B)	First Initial Flow Pressure	170	165	PSI
(C)	First Final Flow Pressure	216	214	PSI
(D)	Initial Closed-in Pressure	1047	1047	PSI
(E)	Second Initial Flow Pressure	275	277	PSI
(F)	Second Final Flow Pressure	715	707	PSI
(G)	Final Closed-in Pressure	1037	1029	PSI
(H)	Final Hydrostatic Mud	1640	1631	PSI

COMPANY MESSMAN & KINEMAN OIL CO. LEASE AND WELL NO. SEC. TWP. RGE. TEST NO. DATE

OPERATOR'S FILE COPY 22-26-16

FORMATION TEST REPORT

HOME OFFICE: GREAT BEND, KANSAS

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