13-27S-13W
15-151-20,036

WESTERN TESTERS

Home Office: Great Bend, Kansas
P. O. Box 793 (316) 793-7903

440' South of NL
440' East of WL
SE/4

Company California Time Petroleum Inc. Lease & Well No. Jones Maas # 1

Elevation 2033 Derrick Floor Formation Kinderhook Effective Pay - - - - Ft. Ticket No. 7958

Date 8-8-67 Sec. 13 Twp. 27 Range 13 County Pratt State Kansas

Test Approved by _____ Western Representative _____

Formation Test No. 5 O.K. x Misrun _____ Interval Tested From 4451' to 4475' Total Depth 4475'

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

Packer Depth 4446 Ft. Size 6 3/4 Packer Depth 4451 Ft. Size 6 3/4

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

Packer Depth _____ Ft. Size _____

Tool Size 5½ O.D. Tool Jt. Size 4½ F.H. Anchor Length 24 Ft. Size 5½ O.D.

RECORDERS Depth 4465 Ft. Clock No. 6897 Depth 4468 Ft. Clock No. _____

Top Make Kuster Cap. 4400 No. 2603 Inside Outside Bottom Make Kuster Cap. 4200 No. 1559 Inside Outside

Below Straddle: Depth _____ Clock No. _____ Inside Outside Depth _____ Ft. Clock No. _____ Inside Outside

Top Make _____ Cap. _____ No. _____ Inside Outside Bottom Make _____ Cap. _____ No. _____ Inside Outside

Time Set Packer 5:23 P. M

Tool Open I.F.P. From 5:25 P. M. to 5:30 P. M. - - Hr. 5 Min. From (B) 78 P.S.I. To (C) 75 P.S.I.

Tool Closed I.C.I.P. From 5:30 P. M. to 6:00 P. M. - - Hr. 30 Min. (D) 1566 P.S.I.

Tool Open F.F.P. From 6:00 P. M. to 8:00 P. M. 2 Hr. - - Min. From (E) 73 P.S.I. To (F) 78 P.S.I.

Tool Closed F.C.I.P. From 8:00 P. M. to 8:30 P. M. - - Hr. 30 Min. (G) 1566 P.S.I.

Initial Hydrostatic Pressure (A) 2289 P.S.I. Final Hydrostatic Pressure (H) 2268 P.S.I.

SURFACE INFORMATION	Size Choke	Max. Press. P.S.I.	Time	Description of Flow
	3/4 In.		M.	
	(See Attached Sheet)		M.	
			M.	

BLOW Strong Bottom Choke Size 3/4 In.

Did Well Flow Yes x No Recovery Total Ft. 65' Gas cut mud.

Reversed Out Yes x No Mud Type Starch Viscosity 40 Weight 9.5 Water Loss - - cc. Maximum Temp. 123 °F

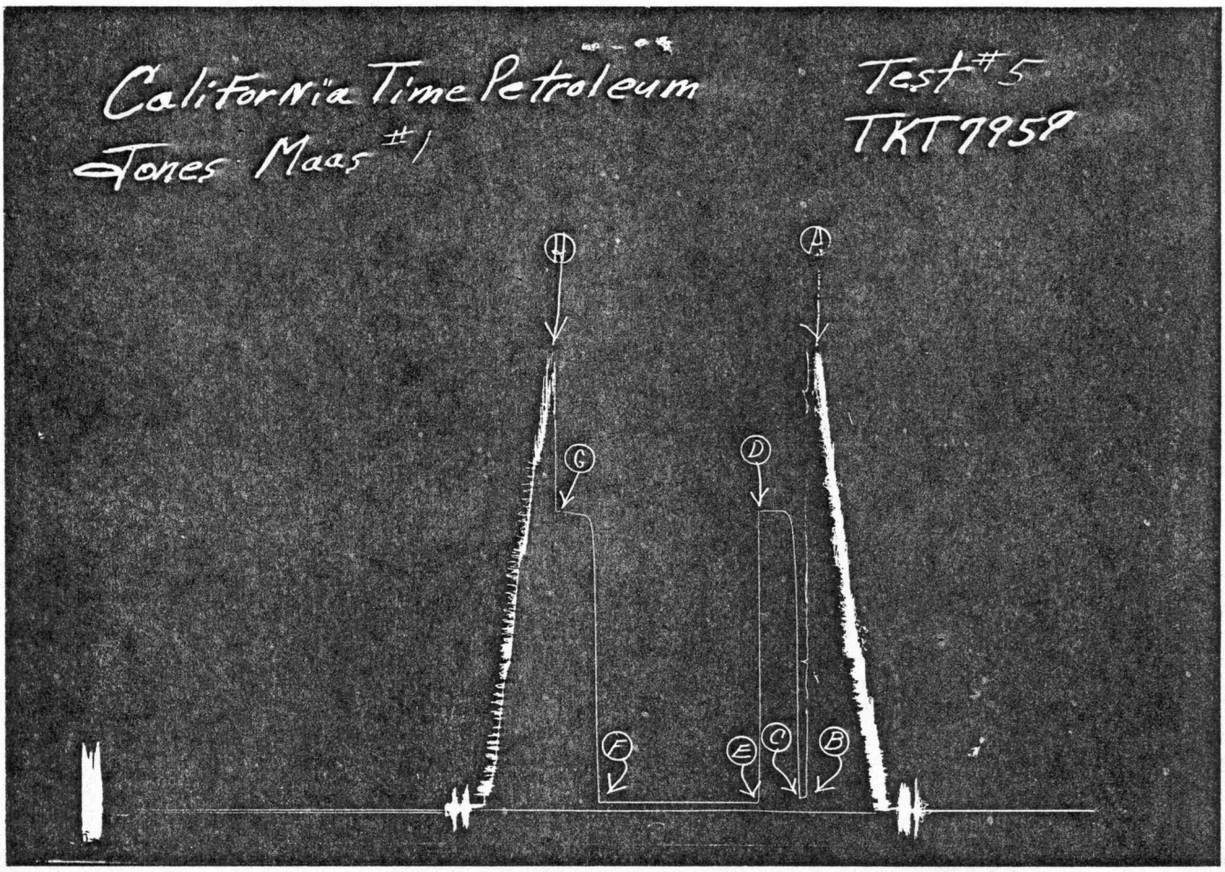
EXTRA EQUIPMENT: Dual Packers yes Safety Joint no Jars: Size _____ Make _____ Ser. No. _____

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

Length Drill Pipe 4281 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe _____ ft. I.D. Weight Pipe _____ in. Length Drill Collars 150 ft.

I. D. Drill Collars 2¼ in. Length D.S.T. Tool 44 ft.

Remarks Gas to surfact in six minutes - Gaged 240,000.


California Time Petroleum
Jones Maas #1
Test #5
TKT 7958
H
A
G
D
F
E
C
B

WESTERN TESTING CO., INC.
Pressure Data

DST # 5

Date 8-8-67 Test Ticket No. 7958

Recorder No. 2603 Capacity 4400 Location 4465 Ft.

Clock No. 6897 Elevation 2033 Derrick Floor Well Temperature 123 °F

Point		Pressure			Time Given	Time Computed
A	Initial Hydrostatic Mud	2289	P.S.I.	Opened Tool	5:23 P. M	
B	First Initial Flow Pressure	78	P.S.I.	First Flow Pressure	5 Mins.	5 Mins.
C	First Final Flow Pressure	75	P.S.I.	Initial Closed-in Pressure	30 Mins.	30 Mins.
D	Initial Closed-in Pressure	1566	P.S.I.	Second Flow Pressure	120 Mins.	119 Mins.
E	Second Initial Flow Pressure	73	P.S.I.	Final Closed-in Pressure	30 Mins.	30 Mins.
F	Second Final Flow Pressure	78	P.S.I.			
G	Final Closed-in Pressure	1566	P.S.I.			
H	Final Hydrostatic Mud	2268	P.S.I.			

PRESSURE BREAKDOWN

First Flow Press.
Breakdown: 1 Inc.
of 5 mins. and a
final inc. of ____ Min.

Point Mins.	Press.
P 1 0	78
P 2 5	75
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 ____ Min.

Point Minutes	Press.
0	75
3	1082
6	1495
9	1553
12	1564
15	1566
18	1566
21	1566
24	1566
27	1566
30	1566

Second Flow Pressure
Breakdown: 23 Inc.
of 5 mins. and a
final inc. of 4 Min.

Point Minutes	Press.
0	73
5	73
10	73
15	73
20	73
25	73
30	73
35	73
40	73
45	78
50	78
55	78
60	78
65	78
70	78
75	78
80	78
85	78
90	78
100	78
105	78
110	78
115	78
119	78

Final Shut-In
Breakdown: 10 Inc.
of 3 mins. and a
final inc. of ____ Min.

Point Minutes	Press.
0	78
3	1333
6	1519
9	1542
12	1551
15	1555
18	1557
21	1562
24	1563
27	1566
30	1566

Gas Production

B.T. Gauge Numbers		2603	**Ticket Number**		7958 DST #5
		Pressure			
Initial Hydrostatic		2289	Elevation		2033 D.F. ft.
Final Hydrostatic		2268	Production Rate	Intial	240,000 m cu. ft.
		Time			
1st Flow	Initial	— — — —		Final	7 7/8 m cu. ft.
	Final	5	75	Hole Size	24 in.
Initial Closed In Pressure		30	1566	Footage Tested	9.5 ft.
2nd Flow	Initial	— — — —	73	Mud Weight	.018 lbs. gal.
	Final	120	78	Gas Viscosity	.70 cp
Final Closed In Pressure		30	1566	Gas Gravity	.82 —
Extrapolated Static Pressure	Initial		1566–1566	Gas Compressibility	—
	Final		1561–1559		
Slope Psi²/cycle	Initial		6.240		
	Final				

Remarks: _____

SUMMARY

BT Gauge Number Depth

Product	Equation	Initial	Final	Units
Transmissability	$\frac{Kh}{\mu} = \frac{1637\ Q_g\ ZT}{m}$		300.994	$\frac{md.\ ft.}{cp}$
Theoretical Flow Capacity	$Kh = \frac{Kh}{\mu}\ \mu$		5.418	md. ft.
Average Effective	$K = \frac{Kh}{h}$		.226	md.
Permeability	$K_1 = \frac{Kh}{h_1}$		.237	md.
Indicated Flow Capacity	$(Kh)_a = \frac{3200\ Q_g\ \mu\ ZT\ \mathrm{Log}(0.472\ b/r_w)}{P_s^2 - P_w^2}$		22.860	md. ft.
Damage Ratio	$DR = \frac{\text{Theo. Flow Cap}}{\text{Indicated Flow Cap}}\ \frac{Kh}{(Kh)_a}$		240.555	—
Indicated	$OF_1 = \frac{Q_g \quad P_s^2}{P_s^2 - P_w^2}$		240.277	MCFD
Flow Rate			5,499.087	MCFD
Theoretical	$OF_3 = OF_1\ DR$ Max.		5,492.734	MCFD
Potential Rate	$OF_4 = OF_2\ DR$ Min.		2.6	MCFD
Approx. Radius of Investigation	$b \backsimeq \sqrt{Kt}$ or $\sqrt{Kt_0}$		2.6	ft.
	$b_1 \backsimeq \sqrt{K_1 t}$ or $\sqrt{K_1 t_0}$		1187.9	ft.
Potentiometric Surface *	$Pot. = (El - GD) + (2.319\ Ps)$			ft.

NOTICE: Those calculations are based upon information furnished by you and taken from Drill Stem Tests pressure charts, and are furnished you for your information. In furnishing such calculations and evaluations based thereon, Western Testing Co., Inc., is merely expressing its opinion. You agree that Western Testing Co., Inc., make no warranty express or implied as to the accuracy of such calculations or opinions, and that Western Testing Co., Inc., shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

INTERPRETATIONS AND CALCULATIONS

WESTERN TESTERS

P. O. BOX 793
GREAT BEND, KANSAS

COMPANY California Time Petroleum Inc. LEASE & WELL NO. Jones Maas#1

TEST NO. 5 INTERVAL TESTED FROM 4451' TO 4475'

TIME PRE-FLOW	MAX PRESS. P.S.I.	DESCRIPTION OF FLOW
10	2	196,000
20	1 1/6	175,000
30	2	196,000
40	2.2	206,000
50	2.4	214,000
60	2.7	228,000
SECOND FLOW 70	2.7	228,000
80	3	240,000
90	3	240,000
100	3	240,000
110	3	240,000
120	3	240,000

SIZE CHOKE _____ SURFACE 3/4 IN. _____ BOTTOM 3/4 IN. _____

REMARKS Gas to surface in six minutes

13-27S-13W
15-151-20,086

Tight Hole

440' South of NL
440' East of WL
SE/4

WESTERN TESTERS

Home Office: Great Bend, Kansas
P. O. Box 793 (316) 793-7903

Company California Time Petroleum Inc. Lease & Well No. Jones Maas # 1

Elevation 2033 Derrick Floor Formation Viola Effective Pay - - - Ft. Ticket No. 7959

Date 8-9-67 Sec. 13 Twp. 27 Range 13 County Pratt State Kansas

Test Approved by Jim B. McWilliams Western Representative Leon Elmore

Formation Test No. 6 O.K. x Misrun ____ Interval Tested From 4487' to 4520' Total Depth 4520'

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

Packer Depth 4482 Ft. Size 6 3/4 Packer Depth 4487 Ft. Size 6 3/4

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

Packer Depth ____ Ft. Size ____

Tool Size 5½ O.D. Tool Jt. Size 4½ F.H. Anchor Length 33 Ft. Size 5½ O.D.

RECORDERS Depth 4511 Ft. Clock No. 6897 Depth 4514 Ft. Clock No. 5665

Top Make Kuster Cap. 4400 No. 2603 Inside ~~Outside~~ Bottom Make Kuster Cap. 4200 No. 1559 ~~Inside~~ Outside

Below Straddle: Depth ____ Clock No. ____ Inside Outside Depth ____ Ft. Clock No. ____ Inside Outside

Top Make ____ Cap. ____ No. ____ Inside Outside Bottom Make ____ Cap. ____ No. ____ Inside Outside

Time Set Packer 8:00 A. M

Tool Open I.F.P. From 8:01 A. M. to 8:06 A. M. - - Hr. 5 Min. From (B) 479 P.S.I. To (C) 488 P.S.I.

Tool Closed I.C.I.P. From 8:06 AM. to 8:36 A. M. - - Hr. 30 Min. (D) 1562 P.S.I.

Tool Open F.F.P. From 8:36 AM. to 8:51 A. M. - - Hr. 15 Min. From (E) 553 P.S.I. To (F) 701 P.S.I.

Tool Closed F.C.I.P. From 8:51 AM. to 9:21 A. M. - - Hr. 30 Min. (G) 1497 P.S.I.

Initial Hydrostatic Pressure (A) 2381 P.S.I. Final Hydrostatic Pressure (H) 2376 P.S.I.

SURFACE INFORMATION	Size Choke	Max. Press. P.S.I.	Time	Description of Flow
	3/4 In.		M.	
			M.	
			M.	

BLOW Strong Bottom Choke Size 3/4 In.

Did Well Flow x Yes ____ No Recovery Total Ft. Flowed oil in ten minutes

Reversed Out x Yes ____ No Mud Type Starch Viscosity 40 Weight 9.5 Water Loss - - cc. Maximum Temp. 131 °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

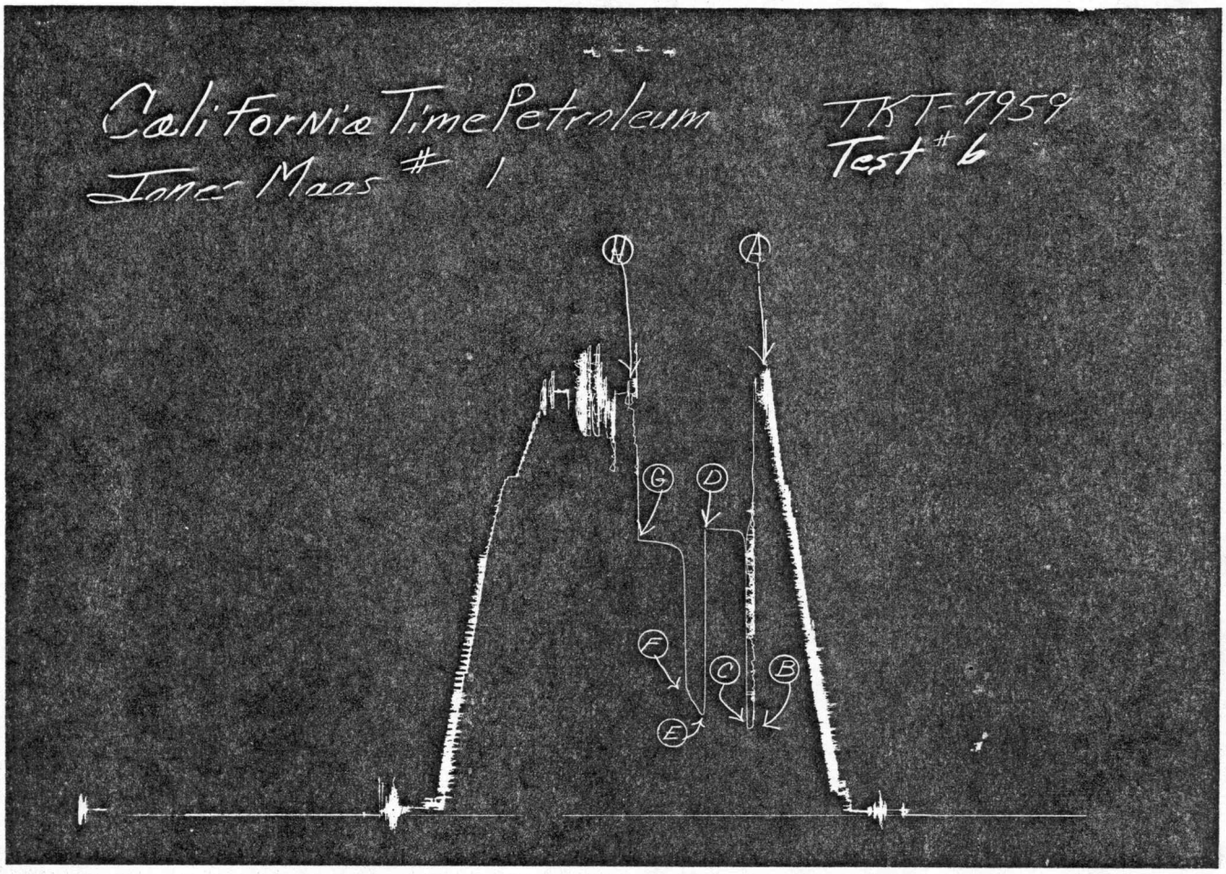
Length Drill Pipe 4257 ft. I.D. Drill Pipe 3.8 in. Length Weight Pipe ____ ft. I.D. Weight Pipe ____ in. Length Drill Collars 210 ft.

I. D. Drill Collars 2¼ in. Length D.S.T. Tool 53 ft.

Remarks Gas to surface in four minutes; flowed 32 gravity oil in ten minutes.

California Time Petroleum
Jones Maas # 1

TKT-7959
Test # 6



WESTERN TESTING CO., INC.
Pressure Data

DST #6

Date 8-9-67 Test Ticket No. 7959

Recorder No. 2603 Capacity 4400 Location 4511 Ft.

Clock No. 6897 Elevation 2033 Derrick Floor Well Temperature 131 °F

Point		Pressure			Time Given	Time Computed
A	Initial Hydrostatic Mud	2381 P.S.I.		Opened Tool	8:00 A. M	
B	First Initial Flow Pressure	479 P.S.I.		First Flow Pressure	5 Mins.	5 Mins.
C	First Final Flow Pressure	488 P.S.I.		Initial Closed-in Pressure	30 Mins.	31 Mins.
D	Initial Closed-in Pressure	1562 P.S.I.		Second Flow Pressure	15 Mins.	15 Mins.
E	Second Initial Flow Pressure	553 P.S.I.		Final Closed-in Pressure	30 Mins.	31 Mins.
F	Second Final Flow Pressure	701 P.S.I.				
G	Final Closed-in Pressure	1497 P.S.I.				
H	Final Hydrostatic Mud	2376 P.S.I.				

PRESSURE BREAKDOWN

First Flow Press.
Breakdown: 1 Inc.
of 5 mins. and a
final inc. of ____ Min.

Point Mins.	Press.
P 1 0	479
P 2 5	488
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	488
3	944
6	1266
9	1517
12	1544
15	1551
18	1554
21	1555
24	1557
27	1559
30	1562
31	1562

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

Point Minutes	Press.
0	553
5	590
10	637
15	701

Final Shut-In
Breakdown: 10 Inc.
of 3 mins. and a
final inc. of 1 Min.

Point Minutes	Press.
0	701
3	1022
6	1348
9	1444
12	1464
15	1473
18	1479
21	1484
24	1488
27	1493
30	1495
31	1497