

appropriate district office
See Rule 401 & Rule 1122

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Revised 4-1-91

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator MARALO						Lease or Unit Name MILLMAN 3 STATE COM					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10-1-95		Well No. 1			
Completion Date 9-26-95		Total Depth 11,148		Plug Back TD 11,098		Elevation 3522		Unit Lr. - Sec. - TWP - Rge. 3-19S-28E			
Csg. Size 5 1/2	Wt. 17	d 4.829	Set At 11,148	Perforations: From: 10,815 To: 10,968				County EDDY			
Tbg. Size 2-7/8	Wt. 6.5	d 2.441	Set At 10,815	Perforations: From: To:				Pool N. Turkey Track Marcell			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple single						Packer Set At 10,815		Formation MORROW			
Producing Thru TUBING		Reservoir Temp. °F 175		Mean Annual Temp. °F 60		Baro. Press - P _a 13.2		Connection AIR			
L *10,810	H 10,810	Gg .629	% CO ₂ .65	% N ₂ .27	% H ₂ S	Prover		Meter Run 4.026		Taps FLG.	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
SI										
1.	4.026 X 2.000		210	7	64	3125				
2.	4.026 X 2.000		225	18.5	72	2950		pkr.		1 hr
3.	4.026 X 2.000		235	37	69	2815		"		1 hr
4.	4.026 X 2.000		240	58	68	2640		"		1 hr
5.						2460		"		1 hr

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.	19.81	39.53	223.2	.9962	1.261	1.022	1,283
2.	19.81	66.38	238.2	.9887	1.261	1.021	1,673
3.	19.81	95.83	248.2	.9915	1.261	1.022	2,425
4.	19.81	121.18	253.2	.9924	1.261	1.022	3,070
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	
1.	.33	524	1.44	.958	176.06	Mcf/bbl
2.	.35	532	1.46	.959	A.P. L Gravity of Liquid Hydrocarbons	52.5 @ 60 Deg.
3.	.37	529	1.45	.957	Specific Gravity Separator Gas	.629
4.	.37	528	1.45	.957	Specific Gravity Flowing Fluid	.771
5.					Critical Pressure	671 P.S.I.A.
					Critical Temperature	365 R

p _c 3204.7		p _c ² 10270.10	
NO.	P _t ²	P _w	P _w ²
1.		3071.7	9435.34
2.		2944.4	8669.49
3.		2768.2	7662.93
4.		2606.6	6794.36
5.			

$$1) \frac{P_c^2}{P_c^2 - P_w^2} = 2.9548$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 7381$$

$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.40434$$

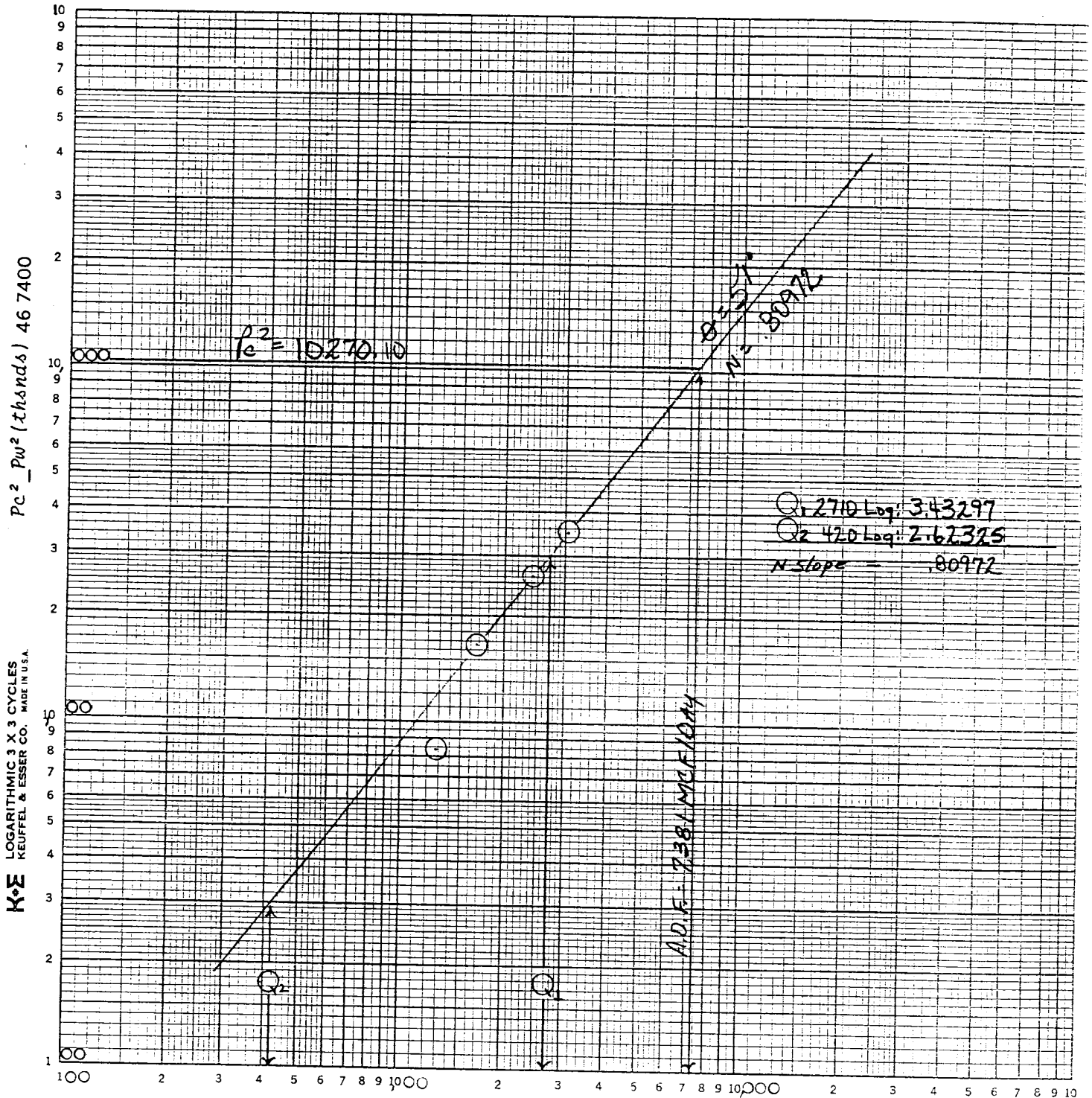
Absolute Open Flow	7381	Mcf @ 15.025	Angle of Slope θ	51°	Slope, n	.80972
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Remarks: 2 BBLS OF 52.5 API GRAVITY OIL MADE DURING TEST.

*BHP INST. SET @ THIS DEPTH (CALCULATED W/KNOWN BHP'S)

Approved By Division	Conducted By: PRO WELL TESTERS	Calculated By: KS	Checked By: BM
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MARALO
 MILLMAN 3 STATE COM, WELL # 1
 3-19S-28E
 EDDY COUNTY, NEW MEXICO
 10-1-95



WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURE (P_c or P_w)
FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

FORM C-122F

COMPANY: MARALO INC.

LEASE: MILLMAN 3 WELL NO.: 1

DATE: 10-01-95

UNIT

SECTION: 3

TWNSHP: 19

RANGE: 28

L

10810

H: 10810

L/H: 1

G/GMIX: 0.6460

CO2: 0.65

N2: 0.27

H2S:

GH: 6983.3

PCR: 670

TCR: 372

LINE

1

2

3

4

5

6

7

8

1	TW(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1
3	$T = (T_w + T_s)/2$	588.1	588.1	588.1	588.1	588.1	588.1	588.1	588.1
4	Z (EST.)	0.928	0.837	0.854	0.827	0.840	0.817	0.828	0.809
5	TZ	546	492	502	436	494	480	487	476
6	GH/TZ	12.792	14.194	13.902	14.361	14.137	14.541	14.341	14.686
7	eS(TABLE XIV)	1.616	1.703	1.684	1.713	1.699	1.725	1.712	1.735
8	P_f or P_s	4008.3	4008.3	3854.3	3854.3	3635.9	3635.9	3432.9	3432.9
9	$P_f/2$ or $P_s/2$	16066.5	16066.5	14855.6	14855.6	13219.8	13219.8	11784.8	11784.8
10	$P_c/2 = P_f/eS$ or $P_w/2 = P_s/2/eS$	9944.5	9435.4	8820.3	8669.8	7780.2	7653.1	5882.8	6794.3
11	P_c or P_w	3153	3072	2970	2944	2789	2768	2624	2607
12	$P = (P_w + P_s/2)$ or $(P_c + P_f/2)$	3581	3540	3412	3399	3213	3202	3028	3020
13	$P_r = (P/P_{cr})$	5.34	5.28	5.09	5.07	4.79	4.78	4.52	4.51
14	$T_r(T/T_{cr})$	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
15	Z (TABLE XI)	0.837	0.834	0.827	0.826	0.817	0.816	0.809	0.808

PW 1 : 3071.7 PW 2 : 2944.4 PW 3 : 2768.2 PW 4 : 2606.6

NEW MEXICO G.O.R./G. MIX		
NO. OF BBLs PRODUCED	=	2.0
API GRAVITY @ 60 DEG.	=	52.5
SPECIFIC GRAVITY OF GAS	=	0.6290
XX		
TOTAL GAS PRODUCED	=	352
G.O.R.	=	176.062
G.MIX	=	0.646

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURE (P_c or P_w)
FROM KNOWN BOTTOM HOLE PRESSURE (P_f or P_s)

FORM C-122F

COMPANY: MARALO INC.

LEASE: MILLMAN 3 WELL NO. : 1

DATE: 10-31-95

UNIT

SECTION : 3

TWN: SHP : 19

RANGE : 28

L

10810

H : 10810

L/H : 1

G/GMIX : 0.6460

CO₂ : 0.65N₂ : 0.27H₂S :

GH : 5983.3

PCR : 670

TCR : 372

LINE

1

2

3

4

5

6

7

8

1	TW(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1
3	T=(Tw+Ts/2)	588.1	588.1	588.1	588.1	588.1	588.1	588.1	588.1
4	Z (EST.)	0.941	0.846	ERR	ERR	ERR	ERR	ERR	ERR
5	TZ	553	497	ERR	ERR	ERR	ERR	ERR	ERR
6	GH/TZ	12.621	14.037	ERR	ERR	ERR	ERR	ERR	ERR
7	eS(TABLE XIV)	1.605	1.693	ERR	ERR	ERR	ERR	ERR	ERR
8	P_f or P_s	4169.6	4169.6	0	0	0	0	0	0
9	$P_f/2$ or $P_s/2$	17385.6	17385.6	0.0	0.0	0.0	0.0	0.0	0.0
10	$P_c/2 = P_f/eS$ or $P_w/2 = P_s/2/eS$	10830.5	10270.3	ERR	ERR	ERR	ERR	ERR	ERR
11	P_c or P_w	3291	3205	ERR	ERR	ERR	ERR	ERR	ERR
12	$P = (P_w + P_s/2)$ or $(P_c + P_f/2)$	3730	3667	ERR	ERR	ERR	ERR	ERR	ERR
13	$P_r = (P/P_{cr})$	5.57	5.50	ERR	ERR	ERR	ERR	ERR	ERR
14	$T_r(T/T_{cr})$	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
15	Z (TABLE XI)	0.846	0.843	ERR	ERR	ERR	ERR	ERR	ERR

~~PC~~ 1 : 3204.7 PW 2 : ERR PW 3 : ERR PW 4 : ERR

W
L
S

Laboratory Services, Inc.

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR:

Pro Well Testing & Wireline
Attention: Mr. Lane Thorp
P. O. Box 791
Hobbs, New Mexico 88241

SAMPLE

IDENTIFICATION: Millmon "3" St. Com. #1
COMPANY: Maralo, Inc.
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	10-1-95 2:30 PM	GAS (XX)	LIQUID ()
	ANALYSIS DATE:	10-02-95	SAMPLED BY:	Lane Thorp
	PRESSURE - PSIG	1200.00	ANALYSIS BY:	Rolland Perry
	SAMPLE TEMP. °F			
	ATMOS. TEMP. °F			

REMARKS:

COMPONENT ANALYSIS

COMPONENT		MOL PERCENT	GPM	
Hydrogen Sulfide	(H2S)			
Nitrogen	(N2)	0.27		
Carbon Dioxide	(CO2)	0.65		
Methane	(C1)	90.21		
Ethane	(C2)	6.00	1.600	
Propane	(C3)	1.66	0.457	
I-Butane	(IC4)	0.23	0.073	
N-Butane	(NC4)	0.25	0.078	
I-Pentane	(IC5)	0.26	0.095	
N-Pentane	(NC5)	0.09	0.032	
Hexane Plus	(C6+)	0.38	0.154	
		100.00	2.489	
BTU/CUFT. - DRY		1106		
AT 14.650 DRY		1103		
AT 14.650 WET		1084		
AT 14.73 DRY		1109		
AT 14.73 WET		1090		
SPECIFIC GRAVITY -				
CALCULATED		0.629		
MEASURED				
			MOLECULAR WT.	18.2180