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See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-1991

OIL CONSERVATION DIVISION

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

30.041-20911

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator Manzano, LLC					Lease or Unit Name Brennan Fed Com				
Test Type ☒ Initial ☐ Annual ☐ Special					Test Date 03/31/2005		Well No. 1		
Completion Date 03/24/2005		Total Depth 9041		Plug Back TD 8900		Elevation		Unit Ltr - Sec - TWP - Rge. T. 33-6S-33E	
Csg. Size 5.500	Wt. 17.000	d 5.000	Set At	Perforation: From To		County Roosevelt		Pool Wildcat	
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 8894	Perforation: From 8895 To 8930		Formation Penn		Connection	
Type Well-Single-Bradenhead-G.G. oG.O. Multiple new					Packer Set At 8817		Meter Run Taps flange		
Producing Thru tubing		Reservoir Temp.F 180		Mean Annual Temp.F 50		Baro. Pressure 15.02			
L 8913	H 8913	Gg .660	% CO ₂ .40	% N ₂ 3.74	% H ₂ S	Prover			

Flow Data					Tubing Data		Casing Data		SIP/Flow Duration (HRS.)
(Prover)	Press. PSIG	Diff. h _w	Temp. F		Press. PSIG	Temp. F	Press. PSIG	Temp. F	
No. Line Size Orifice Size									
Shut-in Pressure					1180	60			24
1. 4.03 x .19	60.00	2.00	70		640	80			1
2. 4.03 x .22	64.00	4.20	80		650	80			1
3. 4.03 x .28	75.00	13.00	78		420	80			1
4. 4.03 x .34	80.00	22.00	80		375	80			1

RATE OF FLOW CALCULATIONS

No.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. FACTOR F _t	Gravity FACTOR F _g	Super Compress. FACTOR F _{pv}	Rate of Flow (Q) MCFD
1.	14.356	12.249	75.0	.9905	1.2309	1.0063	215.8
2.	14.356	18.218	79.0	.9813	1.2309	1.0063	317.9
3.	14.356	34.209	90.0	.9831	1.2309	1.0072	598.6
4.	14.356	45.721	95.0	.9813	1.2309	1.0075	798.8

No.	P _r	TEMP.	T _r	Z
1.	.113	530	1.448	.9875
2.	.119	540	1.475	.9876
3.	.136	538	1.470	.9857
4.	.143	540	1.475	.9851

Gas-Liquid Hydrocarbon Ratio	2.1	Mcf/bbl
API Gravity of Liquid Hydrocarbons	46.0	Deg.
Specific Gravity Separator Gas	.660	
Specific Gravity Flowing Fluid		
Critical Pressure	663 PSIA	606 PSIA
Critical Temperature	365 R	734 R

$$P_C = 1195.0 \quad P_C^2 = 1428.1$$

No.	P _w	P _w ²	P _C ² - P _w ²
1.	655.4	429	998.507
2.	665.8	443	984.754
3.	437.5	191	1236.650
4.	394.3	155	1272.638

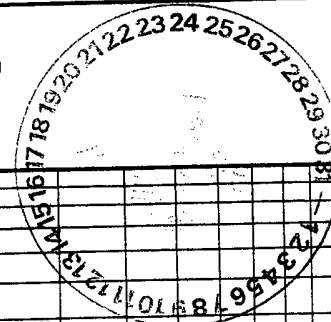
$$(1) \frac{P_C^2}{P_C^2 - P_W^2} = 1.122 \quad (2) \left[\frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 1.122$$

$$AOF = Q \left[\frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 896$$

Absolute Open Flow 896	Mcf/d @ 15.025	Angle of Slope - 45.0	Slope, n 1.000
Remarks			
Approved By Division: 	Conducted By: Well Testing	Calculated By: BPT System	Checked By:

GAS WELL BACK PRESSURE CURVE

WELL TESTER: Well Testing
TEST DATE: 03/31/2005



Manzano, LLC
Brennan Fed Com
Roosevelt ,NM
Exponent n: 1.0000

$P_G^2 - P_w^2$ (10³ PSI²)

100

10

100

1000

Q (MCF/DAY)

