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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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator Manzano, LLC					Lease or Unit Name Cam Fee				
Test Type ☒ Initial ☐ Annual ☐ Special					Test Date 01/06/2006		Well No. 1		
Completion Date 01/06/06		Total Depth 8880		Plug Back TD 8876		Elevation 4388		Unit Ltr - Sec - TWP - Rge. K-34-6s-33e	
Csg. Size 5.500	Wt. 17.000	d 5.000	Set At	Perforation: From To				County Roswell Roosevelt	
Tbg. Size 2.875	Wt. 6.500	d 2.441	Set At 8715	Perforation: From 8796 To 8802				Pool Chaveroo Lower Pen	
Type Well-Single-Bradenhead-G.G. oG.O. Multiple new					Packer Set At 8715		Formation Lower Penn Clastic		
Producing Thru tubing		Reservoir Temp.F 140		Mean Annual Temp.F 55		Baro. Pressure 15.02		Connection	
L 8799	H 8799	Gg .765	% CO ₂ .81	% N ₂ 24.50	% H ₂ S	Prover	Meter Run 1300	Taps flange	

Flow Data					Tubing Data		Casing Data		SIP/Flow Duration (HRS.)
(Prover)	Press. PSIG	Diff. h _w	Temp. F	No. Line Size/Orifice Size	Press. PSIG	Temp. F	Press. PSIG	Temp. F	
Shut-in Pressure					2100	70			24
1. 4.03 x 1.50	150.00	10.00	60		1900	85			1
2. 4.03 x 1.50	150.00	25.00	60		1750	86			1
3. 4.03 x 1.50	150.00	40.00	60		1650	87			1
4. 4.03 x 1.50	150.00	58.00	60		1510	87			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	40.623	165.0	1.0000	1.1433	1.0139	676.1
2.	14.356	64.230	165.0	1.0000	1.1433	1.0139	1068.9
3.	14.356	81.245	165.0	1.0000	1.1433	1.0139	1352.1
4.	14.356	97.832	165.0	1.0000	1.1433	1.0139	1628.2

No.	P _r	TEMP.	T _r	Z
1.	.267	520	1.483	.9727
2.	.267	520	1.483	.9727
3.	.267	520	1.483	.9727
4.	.267	520	1.483	.9727

Gas-Liquid Hydrocarbon Ratio	4.8	Mcf/bbl
API Gravity of Liquid Hydrocarbons	65.8	Deg.
Specific Gravity Separator Gas	.765	
Specific Gravity Flowing Fluid	1.234	
Critical Pressure	618 PSIA	595 PSIA
Critical Temperature	350 R	500 R

$$P_C = 2115.0 \quad P_C^2 = 4473.3$$

No.	P _w	P _w ²	P _C ² - P _w ²
1.	1917.0	3674	798.463
2.	1769.8	3132	1341.202
3.	1672.6	2797	1675.731
4.	1536.2	2359	2113.443

$$(1) \frac{P_C^2}{P_C^2 - P_W^2} = \frac{2.117}{1.983} \quad (2) \left[\frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 1.983$$

$$AOF = Q \left[\frac{P_C^2}{P_C^2 - P_W^2} \right]^n = 3229$$

Absolute Open Flow	3229	Mcf/d @ 15.025	Angle of Slope -	47.6	Slope, n	.913
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: 01/06/2006

Manzano, LLC

Cam Fee

Roswell

,NM

Exponent n: 0.9133

