

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test 4 PT. ☒ Initial ☐ Annual ☐ Special		Test Date 9/16/82	
Company CITIES SERVICE ✓		Correction TO AIR	
Pool <i>South Culbraz cliff atoka</i> LOWING		Formation ATOKA	
Completion Date 9/14/82		Total Depth 12875	Plug Back TD 12833
Elevation 3000 GL		Farm or Lease Name Yobco BA"	
Csg. Size 7-5/8"	Wt. 29.70	d 6.875	Set At 12875
Perforations: From 11592 To 11825	Well No. 1		
Thg. Size 2-7/8"	Wt. 6.50	d 2.441	Set At 11480
Perforations: From Open ended To		Unit J	Sec. Twp. Rys. 15 23S 28E
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE		Packer Set At 11480	County EDDY
Producing Thru TUBING	Reservoir Temp. °F 191 @ 11709	Mean Annual Temp. °F 60°	Baro. Press. - P _a 13.2
State NEW MEXICO		Meter Run 4.0"	
L 11709	H 11709	G _g .5784	% CO ₂ .548
% N ₂ 1.046	% H ₂ S NIL	Prover ---	Taps ELG.

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	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							4930				
1.	4.0	X	1.500	500	10"	90°	4560				60 Min.
2.	4.0	X	1.500	500	21"	66°	4253				60 Min.
3.	4.0	X	1.500	510	34"	91°	3945				60 Min.
4.	4.0	X	1.500	510	49"	79°	3489				60 Min.
5.											

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	10.84	71.64	513.2	.9723	1.315	1.032	1025
2	10.84	103.81	513.2	.9943	1.315	1.038	1527
3	10.84	133.37	523.2	.9715	1.315	1.033	1908
4	10.84	160.11	523.2	.9822	1.315	1.036	2322
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature	P.S.I.A.	P.S.I.A.
1	.76	550	1.59	.939	NONE		.578	X X X X X	672	346		
2.	.76	526	1.52	.928								
3.	.78	551	1.59	.938								
4.	.78	539	1.56	.932								
5.												

* F_c 4978.0 P_c² 24780.5

NO.	B.H.P.P.	P _w	P _w ²	P _c ² - P _w ²
1	5742.2	4638.1	21512.0	3268.5
2	5380.2	4321.1	18671.9	6108.6
3	5033.2	4020.1	16161.2	8619.3
4	4982.2	3975.6	15805.14	8975.1
5	6127.2			

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 2.875 \quad (2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.999$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 3.814$$

Posted ID-2
10-1-82
Camp + BK

Absolute Open Flow 3,814 Mcfd @ 15.025 Angle of Slope @ 56.75 Slope, n = .656

Remarks: * All pressures obtained from bottom-hole bomb set at 11709.
** Bottom-hole shut in pressure (PSIA)

Made no fluid during test

Approved By Division	Conducted By: BABER WELL SERVICING CO.	Calculated By: Bob McMurrain	Checked By: Mark Rowland
----------------------	---	---------------------------------	-----------------------------