

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 1-13-80			
Company Elk Oil Co.				Connection Line			
Pool n/a 2 Paces Slope Abo				Formation Abo			
Completion Date 12-8-92		Total Depth 6148		Plug Back TD 5025		Elevation n/a	
Csg. Size 5.5		Wt. 15.5		Set At 4.950		Perforations From 4821 To 4833	
Tub. Size 2.375		Wt. 4.7		Set At 1.995		Perforations From -- To --	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single (gas)				Packer Set At 4756		Well No. #2	
Producing Thru tbq. (gas)		Reservoir Temp. °F 108 # 4827		Mean Annual Temp. °F 60		Date. Press. -- P _g 13.2	
L 4827		H 4827		G _g 0.657		% CO ₂ 1.049	
				% H ₂ 4.791		% H ₂ S 0.00	
				Prover 0.00		Meter Run 3.0	
						Taps Flg.	

FLOW DATA						TUBING DATA		BHP DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	Duration of Flow
SI							548	60	618	108	72.0
1.	3.0 x 1.0			200	4.5	60	520	60	587	108	1.0
2.	3.0 x 1.0			200	45	60	425	60	488	108	1.5
3.	3.0 x 1.0			210	51	60	350	60	407	108	1.0
4.	3.0 x 1.0			210	53	60	300	60	354	108	1.0
5.											

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	4.801	30.97	213.2	1.000	1.234	1.021	187
2	4.801	97.95	213.2	1.000	1.234	1.021	592
3	4.801	106.69	223.2	1.000	1.234	1.022	646
4	4.801	108.76	223.2	1.000	1.234	1.022	656
5							

NO.	P _h	Temp. °R	T _g	Z	Gas Liquid Hydrocarbon Ratio	Dry Gas	Mcf/ubl.
1	0.319	520	1.43	0.960	A.P.I. Gravity of Liquid Hydrocarbons	Dry Gas	
2	0.319	520	1.43	0.960	Specific Gravity Separator Gas	0.657	XXXXXX XXXX
3	0.335	520	1.43	0.957	Specific Gravity Flowing Fluid	XXXXXX	
4	0.335	520	1.43	0.957	Critical Pressure	667	P.S.I.A.
5					Critical Temperature	363	R

NO.	P _i	P _w	P _i ²	P _w ²	P _i ² - P _w ²
1		600	360	38	
2		501	251	147	
3		420	177	221	
4		367	135	263	
5					

(1) $\frac{P_i^2}{P_i^2 - P_w^2} = 1.801$

AOR = Q $\left[\frac{P_i^2}{P_i^2 - P_w^2} \right]^n = 967$

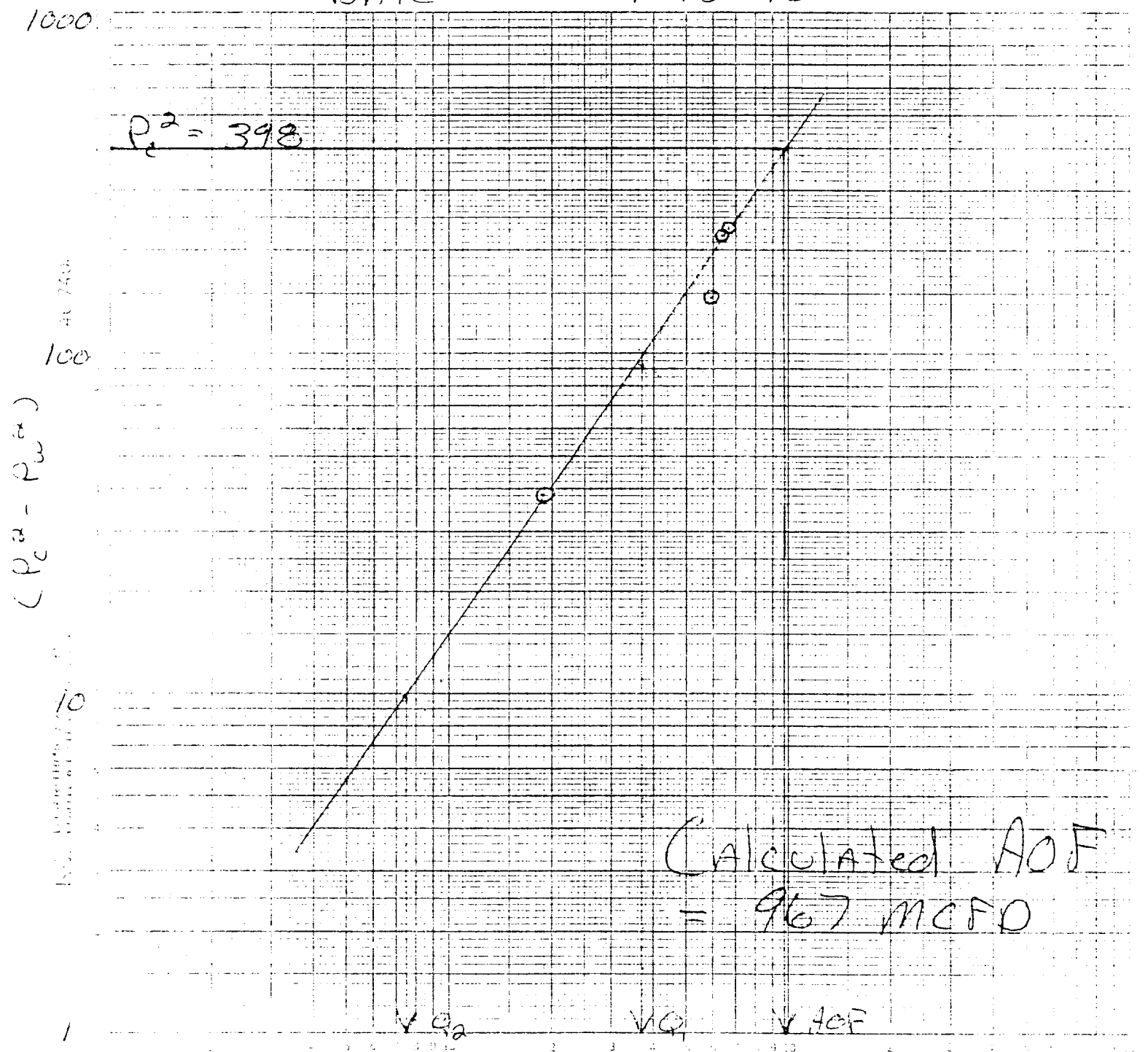
(2) $\left[\frac{P_i^2}{P_i^2 - P_w^2} \right]^n = 1.499$

Absolute Open Flow	967	Mcf/d @ 15.025	Angle of Slope θ	Slope, n	0.688
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Remarks: Choke sizes, 1st rate = 10/64, 2nd - 16/64, 3rd - 18/64, 4th - 20/64

Approved By Division	Conducted By: Keltic Services	Calculated By:	Checked By:
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Company: Elk Oil Co.
 Well: State SE #2
 Location: S23-T9S-R26E
 County: Chaves
 Date: 1-13-93



$\Delta P_1 = 100$
 $\Delta P_2 = 10$
 $Q_1 = 3665$
 $Q_2 = 751$

100 Q , mcf/d

$\log Q_1 = 2.563$

$\log Q_2 = 1.875$

$n = 0.685$

"Let your interest in measurement be our concern"

DOS

PRECISION SERVICE, INC.

P.O. Box 3659 * Casper, Wyoming 82602 * (307) 237-9327

Run No. 930114-1

P.O. Box 2604 * Roswell, New Mexico 88201 * (505) 622-9874

Date Run 01/14/93

Analysis Results Summary

Date Sampled 01/13/93

Analysis for KELTIC SERVICES

GPANGL.L50

Field:

Well Name: STATE SE #2

Producer: ELK OIL COMPANY

Sta. Number:

County: CHAVES

State: NM

Purpose: SPOT

Sampled By: JIM

Sampling Temp: 60 DEG F

Atmos Temp: 50 DEG F

Volume/dav:

Formation:

Pressure on Cylinder: 210 PSIG

Line Pressure: 223.2 PSIA

GAS COMPONENT ANALYSIS

Pressure Base: 14.730

		Mol %	GPM
Carbon Dioxide	CO2	1.049	
Nitrogen	N2	4.791	
Methane	C1	85.883	14.557
Ethane	C2	4.709	1.259
Propane	C3	1.907	0.525
Iso-Butane	IC4	0.316	0.103
Nor-Butane	NC4	0.607	0.191
Iso-Pentane	IC5	0.189	0.069
Nor-Pentane	NC5	0.190	0.069
Hexanes Plus	C6+	0.359	0.154
TOTAL		100.000	16.929

Real BTU Dry: 1065
Real BTU Wet: 1046
Real Calc. Specific Gravity: 0.657
Field Specific Gravity: 0.000

Standard Pressure: 14.696
BTU Dry: 1062
BTU Wet: 1044

Z Factor: 0.9976
N Value: 1.2990
Avg Mol Weight: 18.9784
Avg CuFt/Gal: 58.5841
26 Lb Product: 0.4508
Methane+ GPM: 15.929
Ethane+ GPM: 2.372
Propane+ GPM: 1.113
Butane+ GPM: 0.587
Pentane+ GPM: 0.292

REMARKS:

Approved by: JEFF DECK

Thu Jan 14 09:07:08 1993

