

RECEIVED

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 11-18-88		DEC 07 '88	
Company STEVENS OPERATING CO.				Connection PIPELINE				O. C. D.	
Well PECOS SLOPE ABO				Formation ABO				Unit ARTESA OFFICE	
Completion Date 9-29-88		Total Depth 4375		Plug Back TD 4373		Elevation 3650		Team or Lease Name HELEN FEDERAL COM	
Coq. Size 5.000	Wt. 24.0	d 4.000	Set At 4373	Perforations: From 3845 To 4018		Well No. #1		Unit 4	
Trq. Size 2.375	Wt. 4.7	d 1.995	Set At 4161	Perforations: From To		Sec. 4		Twp. 7S	Rge. 26E
Type Well - Single - Drilledhead - G.G. or G.O. Multiple SINGLE						Packer Set At		County CHAVES	
Producing Thru TUBING		Reservoir Temp. °F 108 @ 4036		Mean Annual Temp. °F 60		Baro. Press. - P _g 13.2		State NEW MEXICO	
L 4036	H 4036	Gg .655	% CO ₂ .11	% N ₂ 4.82	% H ₂ S 0	Prover	Meter Run 2.1	Taps FLANGE	

FLOW DATA						TUBING DATA		CASING 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
1.	2.07 X 1.375			110	4.3	50	494	50	525	68	72.
2.	2.07 X 1.375			113	7.8	50	435	50	496	64	1
3.	2.07 X 1.375			119	15.5	50	325	50	477	62	1
4.	2.07 X 1.375			128	35.0	50	250	50	448	64	1
5.									389	62	1

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, Fpv	Rate of Flow Q, Mcfd
1	10.20	23.02	123.2	1.0098	1.2356	1.0120	296.
2	10.20	31.37	126.2	1.0098	1.2356	1.0123	404.
3	10.20	45.27	132.2	1.0098	1.2356	1.0129	583.
4	10.20	70.30	141.2	1.0098	1.2356	1.0138	907.
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
1	0.19	510.	1.41	.976	0	0	0.655	XXXXXX	662.	362.
2	0.19	510.	1.41	.976				XXXXXX		
3	0.20	510.	1.41	.975						
4	0.21	510.	1.41	.973						
5										

NO.	P _r ²	P _w	P _w ²	P _r ² - P _w ²
1		509	259	30
2		490	240	49
3		461	213	77
4		402	162	127
5				

(1) $\frac{P_c^2}{P_r^2 - P_w^2} = 2.2703$

AOF = Q $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 1806.0$

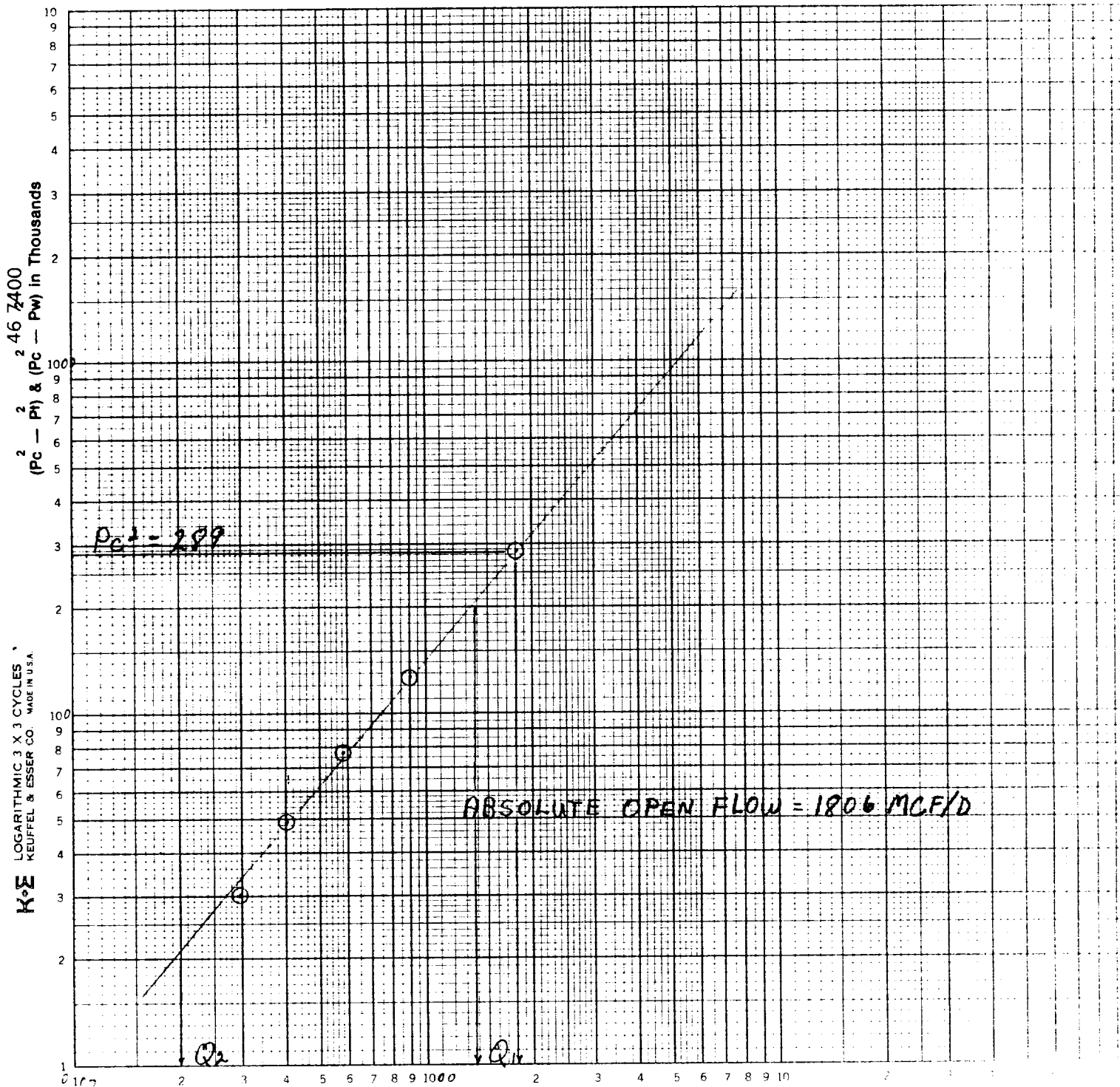
(2) $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 1.9917$

Absolute Open Flow	1806.0	Mcf @ 15.025	Angle of Slope @	50.0	Slope, n	.840
Remarks:						
Approved By Division		Conducted By: BENNETT & CATHEY		Calculated By: MATT LEE		Checked By:

BENNETT & CATHEY PRODUCTION TESTING BACK PRESSURE CURVE

Operator Stevens Operating Co. Lease Helen Fed. Conn. Well No. 1
 County Eddy Field Pecos Slope Abo Location 4-7s-26E
 Date of Test 11-18-88 Slope "n" .840 Angle of Slope 50

Calc. Abs. Potential 1806 MCF/D



$$\Delta P_1^2 \quad P_c^2 - P_w^2 = 210$$

$$\Delta P_2^2 \quad P_c^2 - P_w^2 = 21$$

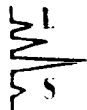
$$Q_1 = 1384$$

$$Q_2 = 200$$

$$\text{LOG } Q_1 = 3.141$$

$$\text{LOG } Q_2 = 2.301$$

$$n = 0.840$$



LABORATORY SERVICES

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: 505-397-3713

FOR: Bennett & Cathey
P. O. Box 787
Artesia, New Mexico 88210

SAMPLE IDENTIFICATION: Helen Fed. Comm #1
COMPANY: Stevens Operating Co.
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	11/18/88	GAS (X) LIQUID ()
	ANALYSIS DATE:	11/18/88	SAMPLED BY: Matt
	PRESSURE — PSIG:	100	ANALYSIS BY: Rolland Perry
	TEMPERATURE — °F:	50	

REMARKS:

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	LIQ. VOL. PERCENT
Hydrogen Sulfide (H ₂ S)	-0--		
Nitrogen (N ₂)	4.82		
Carbon Dioxide (CO ₂)	0.11		
Methane (C ₁)	86.98		
Ethane (C ₂)	4.33	1.105	
Propane (C ₃)	1.67	0.460	
i-Butane (iC ₄)	0.30	0.098	
n-Butane (nC ₄)	0.56	0.177	
iso-Pentane (iC ₅)	0.23	0.084	
n-Pentane (nC ₅)	0.18	0.065	
Hexane (C ₆)	0.42	0.194	
Heptanes Plus (C ₇ +)	0.40	0.224	
	100.00	2.407	

BTU/CU. FT. — DRY 1083
AT 14.650 WET 1061

SPECIFIC GRAVITY — CALCULATED 0.655
MEASURED

VAPOR PRESSURE (ABSOLUTE) -- CALCULATED

26# GASOLINE — 0.629

CU. FT./GAL. —