MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

RECEIVED BY
MAR 18 1985
O. C. D.
ARTESIA, OFFICE

Type Test: 4 POINT ☒ Initial ☐ Annual ☐ Special			Test Date: 10-16-84
Company: MERCURY EXPLORATION CO.	Connection: TO AIR		Unit
Pool: PECOS SLOPE West Abo	Formation: ABO		
Completion Date: 8-31-84	Total Depth: ~~3486.~~ 3500	Plug Back T.D.: ~~3442.~~ 3100	Elevation: ~~4100.~~ 4095
Csg. Size: 4.500 / Wt.: 12.7 / d: 3.958 / Set At: ~~3442.~~ 3500	Perforations: From 3004. To 3010.		Farm or Lease Name: M & M FEDERAL
Tbg. Size: 2.375 / Wt.: 4.7 / d: 1.995 / Set At: ~~2080.~~ 2950	Perforations: From 0. To 0.		Well No.: #4
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: SINGLE	Packer Set At: 2980.		Unit: A / Sec.: 20 / Twp.: 6 / Rge.: 23
Producing Thru: TUBING	Reservoir Temp. °F: 93. @ 3007.	Mean Annual Temp. °F: 60.0	County: CHAVES
	Baro. Press. – P_a: 13.2		State: NEW MEXICO

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
3007.	3007.	0.630	0.17	7.53	0.	2.0	Ø	FLANGE

NO	Prover Line Size	X	Orifice Size	FLOW DATA: Press. p.s.i.g.	Diff. h_w	Temp. °F	TUBING DATA: Press. p.s.i.g.	Temp. °F	B.H.P. DATA: Press. p.s.i.g.	CHOKE	Duration of Flow
SI							1035.	60.			72.0
1.	2.00	X	0.063	936.	0.	62	936.	60.		48/64	1.0
2.	2.00	X	0.094	764.	0.	60.	764.	60.		48/64	1.0
3.	2.00	X	0.125	444.	0.	60.	444.	60.		48/64	1.0
4.	2.00	X	0.188	200.	0.	60.	200.	60.		48/64	1.0
5.											

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	0.06	0.	949.2	0.9981	1.2599	1.0751	82.
2	0.14	0.	777.2	1.0000	1.2599	1.0624	146.
3	0.26	0.	457.2	1.0000	1.2599	1.0367	158.
4	0.61	0.	213.2	1.0000	1.2599	1.0170	166.
5							

NO.	P_t	Temp. °R	T_r	Z
1	1.44	522.	1.50	0.865
2	1.18	520.	1.50	0.886
3	0.69	520.	1.50	0.930
4	0.32	520.	1.50	0.967
5				

P_c 1048.2 P_c^2 1099.

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1	901.	949.	901.	197.
2	604.	777.	604.	494.
3	209.	458.	209.	889.
4	45.	214.	46.	1053.
5				

Gas Liquid Hydrocarbon Ratio 0. Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 0. Deg.
Specific Gravity Separator Gas 0.630 XXXXXXXXX
Specific Gravity Flowing Fluid XXXXX 0.630
Critical Pressure 659. P.S.I.A. 659. P.S.I.A.
Critical Temperature 347. R 347. R

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.0434$ (2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.0216$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 169.$

Absolute Open Flow 169. Mcfd @ 15.025 Angle of Slope θ 63.3 Slope, n 0.503

Remarks:

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	RICHARD TOWNLEY	BENNETT & CATHEY INC.	

2957

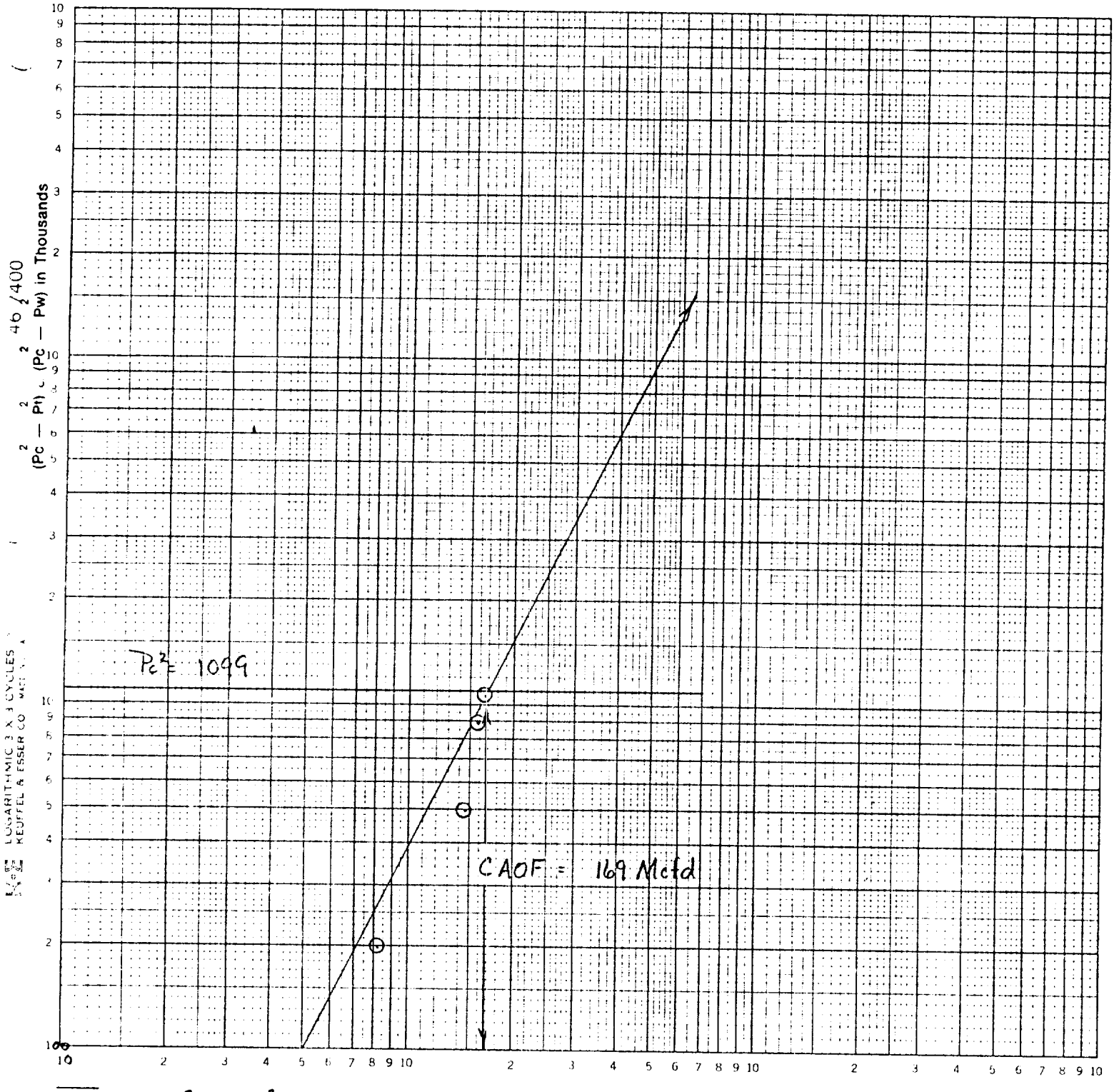
BACK PRESSURE CURVE

Operator Mercury Lease M & M Federal Well No. 4

County Chaves Field Pecos Slope Location

Date of Test 10-16-84 Slope "n" .503 Angle of Slope 63.3

Calc. Abs. Potential 169 MCF/D



$\overline{\Delta P_1^2}$ $Pc^2 - Pw^2 =$ 2000

$\overline{\Delta P_2^2}$ $Pc^2 - Pw^2 =$ 200

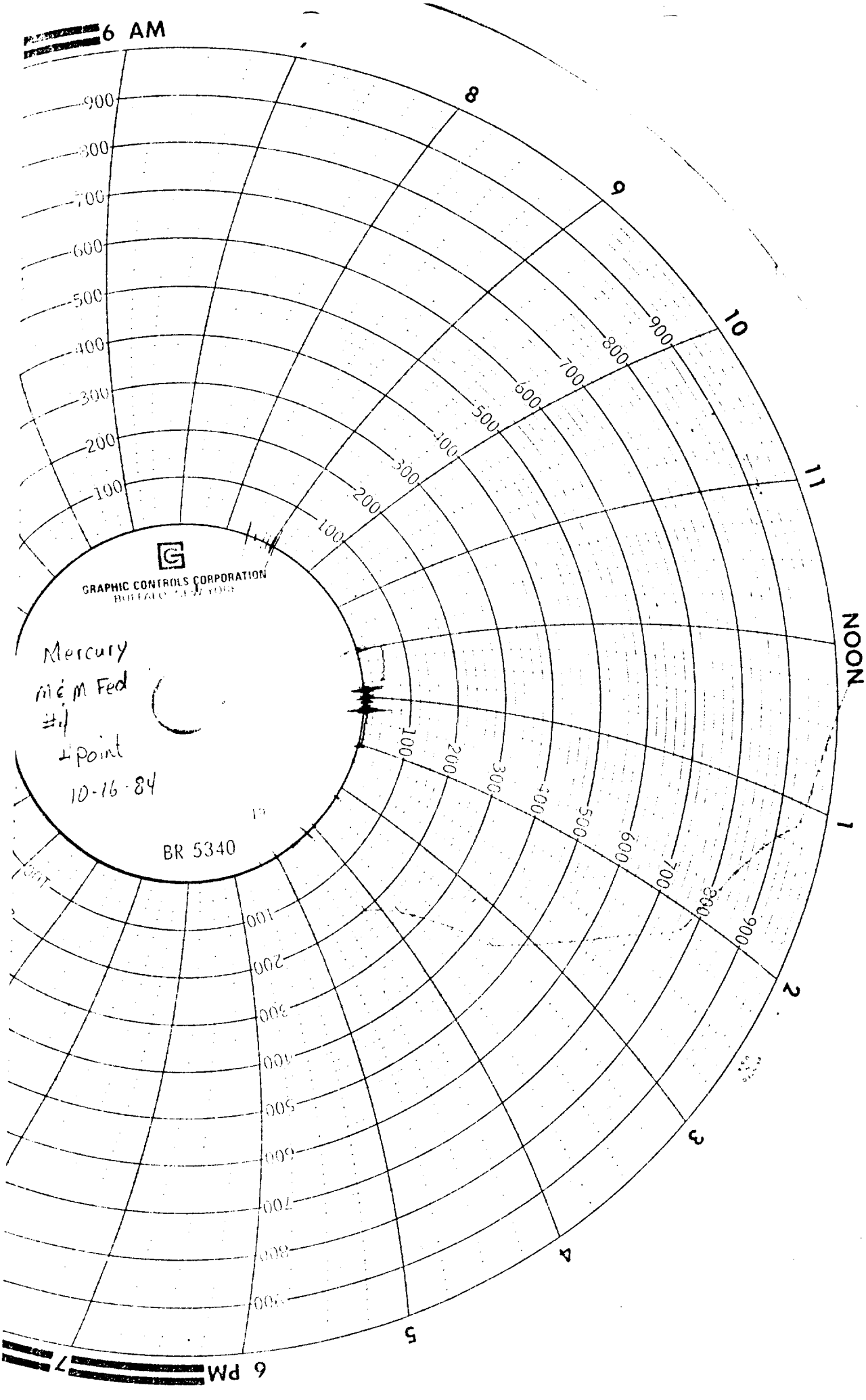
$Q_1 =$ 229

$Q_2 =$ 72

LOG $Q_1 =$ 2.3598

LOG $Q_2 =$ 1.8573

$n =$ 0.5025 = .503


6 AM
NOON
6 PM
GRAPHIC CONTROLS CORPORATION
Mercury
m é m Fed
#1
1 Point
10-16-84
BR 5340

"Let Our Interest in Measurement be our Concern"

PRECISION SERVICE INC.

Flow Measurement Engineers
Analysis Results Summary
Casper, WY 82601

Run No. 1017-1
Date Run 10/17/84
Date Sampled 10/16/84

Analysis For: BENNETT & CATHEY WRLN.
Lease: M & M Federal #4
Location: Pecos Slope
Purpose: Well Test
Sampling Temp. 60 °F
Volume/day 500 MCF
Pressure on Bomb 250

Producer: Mercury
County: Chaves State: New Mexico
Sampled By: B & C WRLN.
Atmos Temp. 60 °F
Formation: ABO
PSIG; Line Pressure 263.2 PSIA PSIG

Gas Component Analysis — Press. Base: 14.73

	Mol. %	Liq. %	GPM Per MCF
Carbon Dioxide CO_2	.166		
Oxygen O_2	.063		
Nitrogen N_2	7.531		
Hydrogen Sulfide H_2S			
Methane C1	87.771		14.877
Ethane C2	2.284		.611
Propane C3	1.039		.286
Iso-Butane IC4	.163		.053
Nor-Butane NC4	.464		.146
Iso-Pentane IC5	.109		.040
Nor-Pentane NC5	.192		.069
Hexanes plus	.218		.101
Hexanes C6			
Heptanes			
Heptanes Plus C7+			
Total	100.000		16.184
Pentane + G.P.M.			.210
Propane + GPM			.696
Lb Gasoline			.702

BTU Dry 1002
BTU Wet 985
Calc. Specific Gravity .630

@ Std. Press. 14.696
BTU Dry 1000
BTU Wet 982

Calc. Vap. Press. #/Sq.In.
Reid Vap. Press. #/Sq.In.

Z Factor .9979
N Value 1.3072
Ave Mol Wt 18.2289
Ave Cu Ft/Gal

Run by Jeffrey A. Propp
Calculated By Jeffrey A. Propp

Ethane + GPM 1.307

Marks:

Distribution: