

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

O. C. D.
ARTESIA, OFFICE

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 9-9-89	
Company MANZANO		Connection AIR	
Pool <i>Perfor. Delaware - Man.</i>		Formation DELAWARE	
Completion Date 9-1-89		Total Depth 2887	Plug Back TD 2887
		Elevation 3259	
Farm or Lease Name ALLIED COM		Well No. 1	
Csg. Size 4.5	Wt. 11.7	d 4.000	Set At 2887
Perforations: From 2747 To 2781		Well No. 1	
Thq. Size 2.375	Wt. 4.7	d 1.995	Set At 2675
Perforations: From To		Unit B 27 20 27	
Type Well - Single - Perforated - G.G. or G.O. Multiple		Packer Set At 2675	County EDDY
Producing Thru TUBING		Reservoir Temp. °F 100 @ 2764	Mean Annual Temp. °F 60
		Baro. Press. - P _a 13.2	State NEW MEXICO
L 2764	H 2764	G _g .687	% CO ₂ .010
		% N ₂ 6.070	% H ₂ S 0
Prover 0		Meter Run 4.026	Taps FLANGE

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	Duration of Flow
51							697	60	PACKER		72
1.	4.026	X	1.000	60	4	79	660	61			1
2.	4.026	X	1.000	60	7	86	605	61			1
3.	4.026	X	1.000	60	12	87	551	60			1
4.	4.026	X	1.000	60	24	89	498	61			1
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	4.75	17.11	73.2	.9822	1.2065	1.0063	97
2	4.75	22.64	73.2	.9759	1.2065	1.0060	127
3	4.75	29.64	73.2	.9750	1.2065	1.0060	167
4	4.75	41.91	73.2	.9732	1.2065	1.0059	235
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	.11	539	1.46	.988	0	0	.687	X X X X X	658	369
2	.11	546	1.48	.988						
3	.11	547	1.48	.988						
4	.11	549	1.49	.988						
5										

P _c 710.2 P _c ² 504				
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²
1	453	673	453	51
2	382	618	382	122
3	318	565	319	186
4	261	512	262	242
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.0826$

AOF = 0 $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 455$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.9353$

Absolute Open Flow	455	Mcfd @ 15.025	Angle of Slope α	48.0	Slope, n	.900
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Remarks: CHOKE SIZES 1ST RATE 3/64 2ND RATE 6/64 3RD RATE 7/64 4TH RATE 8/64

Approved By Division	Conducted By: BENNETT & CATHEY	Calculated By: MATT LEE	Checked By:
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PROGRAM: AOF
FILENAME: 1MAN2
PROJECT: 1

DATE: 01-01-80
TIME: 00:31:16
PAGE: 1

INPUT DATA

Lease ALLIED COM
Location

Well No.1
County EDDY

Unit #
State NM

GENERAL INFORMATION:

Date, Mo/Day/Yr 9/ 9/89
Meter method code 2
Report format code 22
Slope of 1-pt test 0
Type of test: INITIAL

DIMENSIONS AND DEPTHS:

Measured depth, ft 2764
TVD, ft 2764
Tbg-1 length, ft 2675
Tbg-1 I.D., inch 1.995
Tbg-2 length, ft 0
Tbg-2 I.D., inch 0
Casing I.D., inch 4.000

BASIC DATA:

Shut-in time, hr. 72
Shut-in WH temp, F 60
Bottomhole temp, F 100
Shut-in press,psig 697
Measurement point 0
Condensate gravity 0
Separator gas grav 0.687
GOR, scf/stb 0
Gas diluents, mole %:
CO2 0.010
H2S 0
N2 6.070

OPTIONAL TEXAS G-10 DATA:

Prior AOF, Mcf/D 0
Prior Pf, psia 0
(Enter the prior 1-point
slope in section above)

OPTIONAL FOR L-10 CHARTS:

Static range
Differential range

Enter data for either ONE test, or for FOUR tests, not for two or three.

GAS MEASUREMENT DATA:

	Test 1	Test 2	Test 3	Test 4
Meter-run line size, inches	4.026	4.026	4.026	4.026
Orifice size, inches	1.000	1.000	1.000	1.000
Upstream pressure, psig	60	60	60	60
Differential press., in. water	4	7	12	24
Flowing temperature, deg. F	79	86	87	89
24-Hour flow coefficient				
User-supplied flow rate, Mcf/d				

WELLBORE PRESSURE DATA:

Flow period, minutes	60	60	60	60
Choke size, inches or 64ths				
Flowing well pressure, psig	660	605	551	498
Flowing well temperature, deg F	61	61	60	61

PROGRAM: AOF
FILENME: 1MAN2
PROJECT: 1

DATE: 01-01-80
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PAGE: 2

INPUT DATA

Optionally complete this screen for Texas Form G-1. See Screen 4 for others.

FOR ALL TEST CATEGORIES:

Opr. name	RRC Dist #
Opr. address	RRC ID #
Former opr.	RRC Opr. #
Field/resv.	Compl date
Connection	Elec. logs

ADDITIONAL DATA FOR WORKOVERS OR RECLASSIFICATIONS:

Prior Fld/Res	OIL or GAS
ID or lease #	Well #
Dist/direction	Cond. left?
API number	(YES or NO)

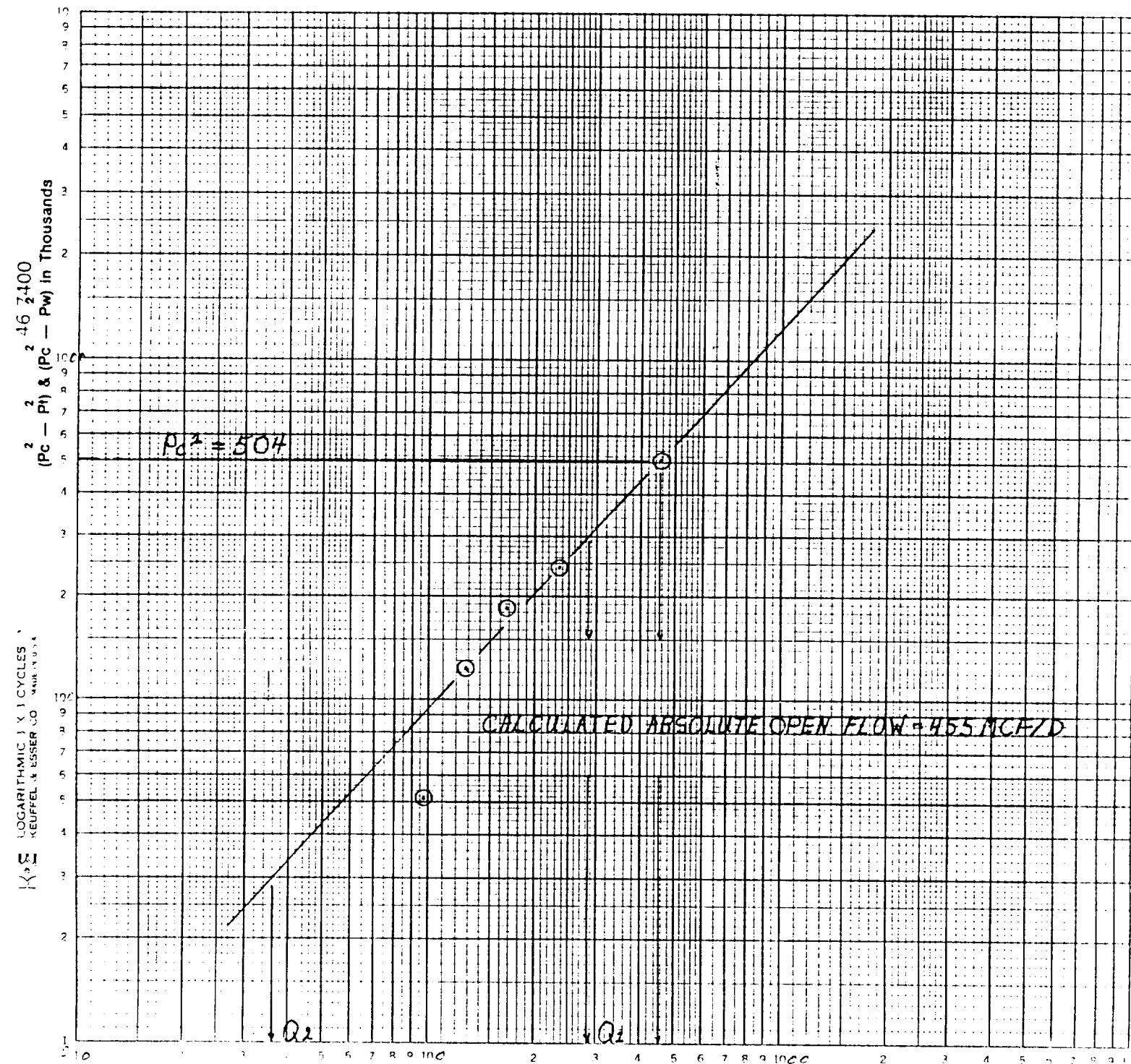
Optionally complete this screen for OK, N.Mex., Ark, Kan, or IOCC reports.

Company	MANZANO	Compl date	9-1-89
Field or Pool		Pool #	
Reservoir	DELAWARE	Compl type	SINGLE-GAS
Connection	AIR	Prod thru	TUBING
Date 1st Sales			

DEPTH DATA:		CASING DATA:		TUBING DATA:		PERFORATIONS:	
=====		=====		=====		=====	
Elevation	3259	Size	4.5	Size	2.375	From (KB)	2747
Total Depth	2887	Weight/foot	11.7	Weight/foot	4.7	To "	2781
Plugback TD	2887	Diameter,in	4.000	Diameter,in	1.995	From "	
Packer set	2675	Set at	2887	Set at	2675	To "	
Mean ground temperature, deg F		60					
Barometric pressure, psia		13.2					
Standard pressure base, psia		15.025					

BENNETT & CATHEY PRODUCTION STING BACK PRESSURE CURVE

Operator MANZANO Lease HILLIED COM Well No. 1
 County EDDY Field _____ Location _____
 Date of Test 9-9-89 Slope "n" .900 Angle of Slope 48.0
 Calc. Abs. Potential 455 MCF/D



$$\Delta P_1^2 \quad P_c^2 - P_w^2 = 300$$

$$\Delta P_2^2 \quad P_c^2 - P_w^2 = 30$$

$$Q_1 = 286$$

$$Q_2 = 36$$

Q, Mcfd

$$\text{LOG } Q_1 = 2.456$$

$$\text{LOG } Q_2 = 1.556$$

$$n = .900$$

SEND COPY OF FIELD DATA + COPY OF 21-PT.
TO PHILLIPS GAS DEPT. ATTN: CAREY JETTON

SUGGESTED FIELD DATA SHEET (Not Required To Fill)

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 9.9.89	Lease No. or Serial No.
Company MANSANTO		Connection FLARE - AIR	Allottee
Field Reservoir DELAWARE		Location	Unit
Completion Date 9/1/89	Total Depth CAST IRON BR 2687'	Plug Back To 2687'	Elevation 3259' G.C.
Csg. Size 4 1/2	Wt. 11.7	d 4.000	Set At Perforations: From 2747' to 2781'
Tbg. Size 2 3/8	Wt. 4.7	d 1.995	Set At 2675'
Type Completion (Describe) SINGLE		Packer Set At 2675'	County or Parish Eddy
Producing Thru Tbg.	Reservoir Temp. F 60°	Mean Annual Temp. F 60°	Baro. Press. - P _a 13.2
276'	% CO ₂ 0.00	% N ₂ 0.00	% H ₂ S 0
Prover	Meter Run	Tape	
4.076	4.076	Flg	

DATE	ELAP. TIME	Wellhead Working Pressure			METER OR PROVER				REMARKS		
		Tbg. Pslg.	Csg. Pslg.	Temp. F	Pressure Pslg.	Diff.	Temp. F	Orifice	CHOKE	(Include liquid production data: Type-A.P.I. Gravity-Amount)	MCF
7:50	.0	697	PKR	60°						D.W.T SHUT-IN	
										PRE-HEAT BATH @ 7:50	
8:30	.0	690	PKR	60°	60	4"	77°	1.000	3.0/64	Begin Test @ 8:30	96.3
8:45	.15	680	PKR	60°	60	4"	76°	1.000	3.0/64		96.4
9:00	.30	676	PKR	61°	60	4"	78°	1.000	3.0/64		96.2
9:15	.45	670	PKR	60°	60	4"	79°	1.000	3.0/64	No Fluid	96.1
9:30	1.0	660	PKR	61°	60	4"	79°	1.000	3.0/64	END RATE I	96.1
9:45	1.15	643	PKR	61°	60	8"	83°	1.000	6/64	Begin Rate II	135.5
10:00	1.30	628	PKR	60°	60	8"	84°	1.000	6/64		135.3
10:15	1.45	617	PKR	61°	60	8"	85°	1.000	6/64	No Fluid	135.2
10:30	2.0	605	PKR	61°	60	7"	86°	1.000	6/64	END RATE II	126.4
10:45	2.15	589	PKR	61°	60	15"	87°	1.000	7/64	Begin Rate III	184.8
11:00	2.30	575	PKR	61°	60	14"	87°	1.000	7/64		178.5
11:15	2.45	567	PKR	61°	60	13"	87°	1.000	7/64	No Fluid	172.09
11:30	3.0	551	PKR	60°	60	12"	87°	1.000	7/64	END RATE III	165.3
11:45	3.15	532	PKR	61°	60	29"	88°	1.000	8/64	No Fluid	263.4
12:00	3:30	519	PKR	60°	60	26"	88°	1.000	8/64	"	249.6
12:15	3.45	511	PKR	60°	60	25.5"	89°	1.000	8/64	"	247.2
12:30	4.00	498	PKR	61°	60	24"	89°	1.000	7/64	END OF FINAL RATE	239.6
										No Fluid MADE during Test	
										552 20%	
										517 25%	
										483 30%	
										448.5 35%	
										414 40%	
										379 45%	
										345 50%	

