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appropriate district office
See Rule 401 & Rule 1122

Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator ARCH PETROLEUM, INC.						Lease or Unit Name MATERN					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 10-10-96		Well No. 2			
Completion Date 12-70		Total Depth 6010		Plug Back TD 4000		Elevation		Unit Ltr - Sec - TWP - Rge. K30-21-37			
Csg. Size 5 1/2	Wt. 15.5	d 4.950	Set At 6010	Perforations: From: 3428 To: 3610				County LEA			
Tbg. Size 2-3/8	Wt. 4.6	d 1.995	Set At 3583	Perforations: From: To:				Pool EUMONT			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple SINGLE						Packer Set At none		Formation QUEENS			
Producing Thru CSG.		Reservoir Temp. °F		Mean Annual Temp. °F		Baro. Press - P _a		Connection PIPELINE			
L 3428	H 3428	Gg .782	% CO ₂ 12.49	% N ₂ .35	% H ₂ S	Prover		Meter Run 4.027	Taps FLG		

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	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										
1.	4 X 1.500		19		73	25		126		24 hrs.
2.								19		24 hrs.
3.										
4.										
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.							194
2.							
3.	GAS MEASURED BY TOTAL FLOW METER						
4.							
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1.					N/A	
2.					A.P. I Gravity of Liquid Hydrocarbons N/A	Deg.
3.					Specific Gravity Separator Gas .782	XXXXXXXXXX
4.		N/L			Specific Gravity Flowing Fluid XXXXX	
5.					Critical Pressure *719 P.S.I.A.	P.S.I.A.
					Critical Temperature *397 °R	°R

P_c *139.2 P_c² 19.4

NO.	P _t ²	P _w	P _w ²	P _c ² - P _w ²
1.		32.5	1.1	18.3
2.				
3.				
4.				
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 1.058$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = .205$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.058$

Absolute Open Flow 205 Mcfd @ 15.025	Angle of Slope Θ 45	Slope, n 1.000
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Remarks: **WELL PRODUCED 9 BBLS H₂O & NO OIL**

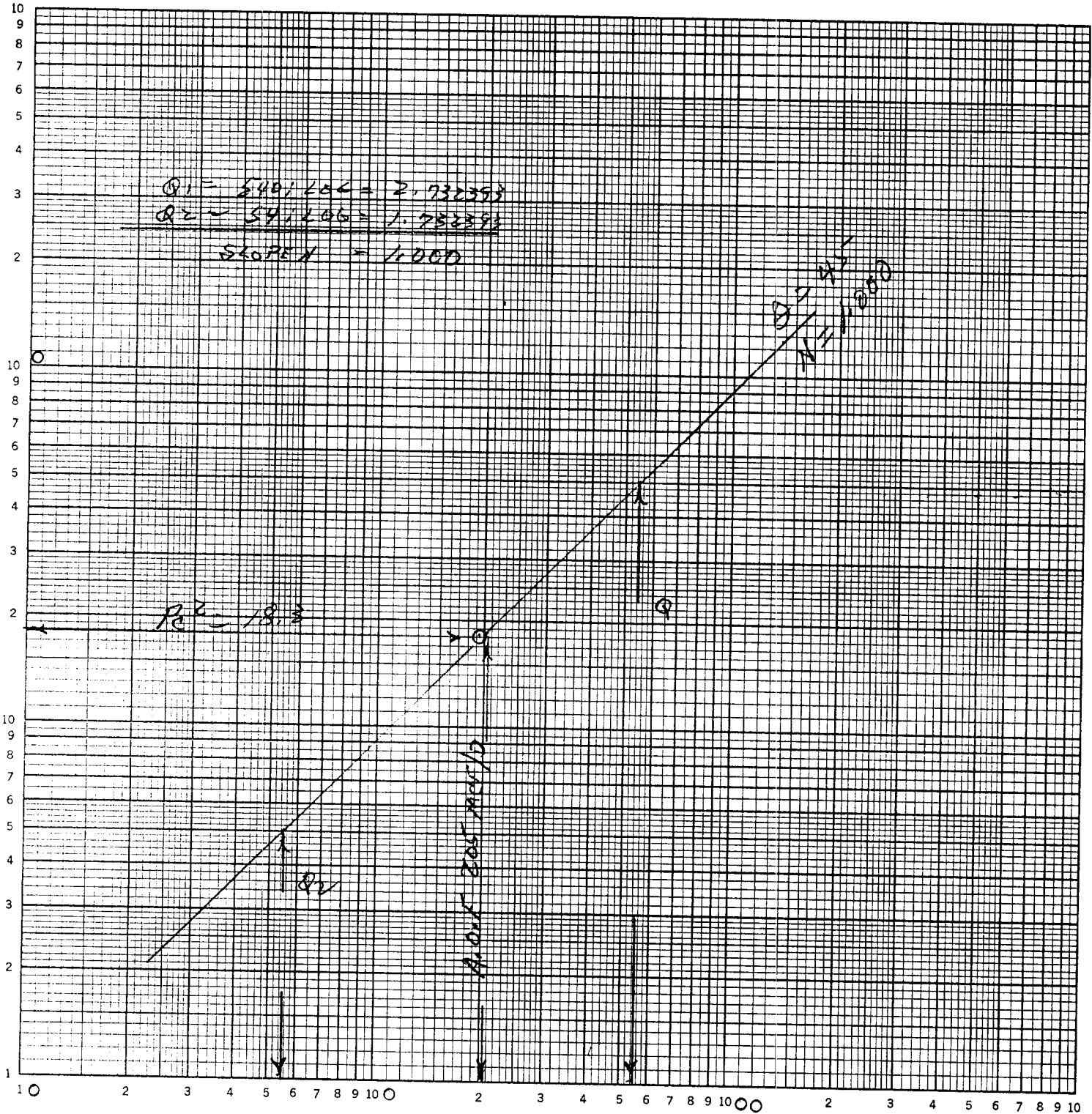
* = CORRECTED TO 12.49% CO₂

Approved By Division	Conducted By: PRO WELL TESTERS	Calculated By: BM	Checked By: KS
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ARCH PETROLEUM, INC.
 MATTERN, WELL # 2
 K30-21-37
 LEA COUNTY, NEW MEXICO
 10-10-96

$P_c^2 - P_w^2$ (thsnfs) 46 7400

LOGARITHMIC 3 X 3 CYCLES
 KEUFFEL & ESSER CO. MADE IN U.S.A.



Q MCF/DAY

L
S

Laboratory Services, Inc.
1331 Tasker Drive
Hobbs, New Mexico 88240
Telephone: (505) 397-3713

FOR: Pro Well Testing & Wireline
Attention: Mr. Ray Ables
P. O. Box 791
Hobbs, New Mexico 88241

SAMPLE
IDENTIFICATION: Mattern #2
COMPANY: Arch Petroleum
LEASE:
PLANT:

SAMPLE DATA: **DATE SAMPLED:** 10/10/96 10:15 AM
ANALYSIS DATE: 10/10/96
PRESSURE - PSIG 31
SAMPLE TEMP. °F
ATMOS. TEMP. °F

GAS (XX) **LIQUID ()**
SAMPLED BY: Ray Ables
ANALYSIS BY: Vickie Walker

REMARKS: Sample taken @ the meter run.

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	0.35	
Carbon Dioxide (CO2)	12.49	
Methane (C1)	75.50	
Ethane (C2)	5.43	1.448
Propane (C3)	3.50	0.961
i-Butane (IC4)	0.53	0.173
n-Butane (NC4)	1.20	0.378
i-Pentane (IC5)	0.35	0.128
n-Pentane (NC5)	0.39	0.142
Hexane Plus (C6+)	0.26	0.107
	100.00	3.337

BTU/CU.FT. - DRY 1045
AT 14.650 DRY 1042
AT 14.650 WET 1024
AT 14.73 DRY 1048
AT 14.73 WET 1029

MOLECULAR WT. 22.6458

SPECIFIC GRAVITY -
CALCULATED 0.782
MEASURED

COMPANY : ARCH PETRO. , INC. LEASE : MATTERN
 UNIT : K SECTION : 30 WELL NO. : 1
 L : 3428 H : 3428 L/H : 1 TOWNSHIP : 21
 %CO2 : 12.49 %N2 : 0.35 H2S : G/GMIX : 0.782
 d : 3.933 Fr : 0.003096 GH : 2680.7 DATE : 10 10 96
 RANGE : 37

Pc = 139.2 Pc2 = 19.4 *
 Pt2 = 1.0 Pw = 32.5 *
 0.0 ERR *
 0.0 ERR *
 0.0 ERR *

VOL 1 : 194 PSIA 1 : 32.2 RESV.TEMP 108.3
 VOL 2 : PSIA 2 :
 VOL 3 : PSIA 3 : SHUT-IN PR= 139.2
 VOL 4 : PSIA 4 :

Pc2-Pw2= 18.3 Pw2 = 1.1 *
 ERR ERR *
 ERR ERR *
 ERR ERR *

PCR : 719
 TCR : 397

n = 1.000

Pc2/(Pc2-Pw2) = 1.058
 ERR *
 ERR *
 ERR *

LINE		RATE 1		RATE 2		RATE 3		RATE 4	
		1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND
1	QM	0.194	0.194	0.000	0.000	0.000	0.000	0.000	0.000
2	TW	534	534	534	534	534	534	534	534
3	Ts	568.3	568.3	568.3	568.3	568.3	568.3	568.3	568.3
4	T	551.1	551.1	551.1	551.1	551.1	551.1	551.1	551.1
	PR (est)	0.04		0.00		0.00		0.00	
5	Z(est)	0.970	0.970	ERR	ERR	ERR	ERR	ERR	ERR
6	TZ	534.6	534.4	ERR	ERR	ERR	ERR	ERR	ERR
7	GH/TZ	5.015	5.016	ERR	ERR	ERR	ERR	ERR	ERR
8	eS	1.207	1.207	ERR	ERR	ERR	ERR	ERR	ERR
9	l-e-S	0.171	0.171	ERR	ERR	ERR	ERR	ERR	ERR
10	Pt	32.2	32.2	0.0	0.0	0.0	0.0	0.0	0.0
11	Pt2 /1000	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Fr	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096	0.003096
13	Pc=PrTZ	1.655	1.655	ERR	ERR	ERR	ERR	ERR	ERR
14	PcQm	0.32	0.32	ERR	ERR	ERR	ERR	ERR	ERR
15	L/H(PcQm)	0.1	0.1	ERR	ERR	ERR	ERR	ERR	ERR
16	Pw	0.017675	0.017669	ERR	ERR	ERR	ERR	ERR	ERR
17	Pw2	1.1	1.1	ERR	ERR	ERR	ERR	ERR	ERR
18	Ps2	1.3	1.3	ERR	ERR	ERR	ERR	ERR	ERR
19	Ps	35.7	35.7	ERR	ERR	ERR	ERR	ERR	ERR
20	P	33.9	33.9	ERR	ERR	ERR	ERR	ERR	ERR
21	Pr	0.05	0.05	ERR	ERR	ERR	ERR	ERR	ERR
22	Tr	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
23	Z	0.970	0.970	ERR	ERR	ERR	ERR	ERR	ERR

[Pc2/Pc2-Pw2]n = 1.058
 ERR *
 ERR *
 ERR *

AOF= Q 0.205
 ERR *
 ERR *
 ERR *