

Submit in duplicate to
appropriate district office
See Rule 401 & Rule 1122

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-122
Revised 4-1-91

OIL CONSERVATION DIVISION

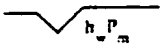
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

30-025-34557

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator Santa Fe Energy						Lease or Unit Name Gaucha					
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 5-6-99		Well No. 3			
Completion Date		Total Depth 13379		Plug Back TD 13429		Elevation		Unit Loc. - Sec. - TWP - Rge. N20R22-S34-E			
Casing Size 4 1/2		WC 13.5	d 3.920	Set At 13429	Perforations: From: 12900 To: 12940		County Lea				
Tubg. Size 2 3/8		WC 4.7	d 1.995	Set At 12822	Perforations: From: To:		Pool				
Type Well - Single - Bradenhead - G.G. - G.C. Multiple Single						Packer Set At 12822		Formation Morawa			
Producing Thru TBG		Reservoir Temp. °F 179.9		Mean Annual Temp. °F 60°		Baro. Press - P _s 13.2		Connection Sales			
L 12822	IL 12822	G _g .590	% CO ₂ .456	% N ₂ .492	% H ₂ S N/A	Prover 0	Meter Run 3.068		Taps F/G		

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.	
SI							3820		PKR	
1.	3.068 X 2.000			710	21.9	67°	3629			60 min
2.	3.068 X 2.000			710	38.2	66°	3500			60 min
3.	3.068 X 2.000			710	57.2	66°	3368			60 min
4.	3.068 X 2.000			730	91.6	65°	3195			60 min
5.										

RATE OF FLOW CALCULATIONS							
NO.	COEFFICIENT (24 HOUR)		Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{sp}	Rate of Flow Q, Mcfd
1.							2640
2.							3510
3.		GAS MEASURED BY TOTAL FLOW METER					4296
4.							5515
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mc/bbl
					110.804	
1.					A.P.I. Gravity of Liquid Hydrocarbons 52°	Deg
2.					Specific Gravity Separator Gas .590	XXXXXXXXXX
3.	TOTAL FLOW				Specific Gravity Flowing Fluid N/A	XXXXXX
4.					Critical Pressure 675	P.S.I.A. P.S.I.A.
5.					Critical Temperature 350	R R

P_c 3878.9 P_c² 15049.7	
NO.	P _i ² P _w P _w ² P _c ² - P _w ²
1.	3700.3 13692.2 1757.5
2.	3626.1 13148.6 1901.7
3.	3542.5 12549.3 2500.4
4.	3414.9 11661.5 3388.2
5.	

1) $\frac{P_c^2}{P_c^2 - P_w^2} = 4.44$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 24486.6$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4.44$

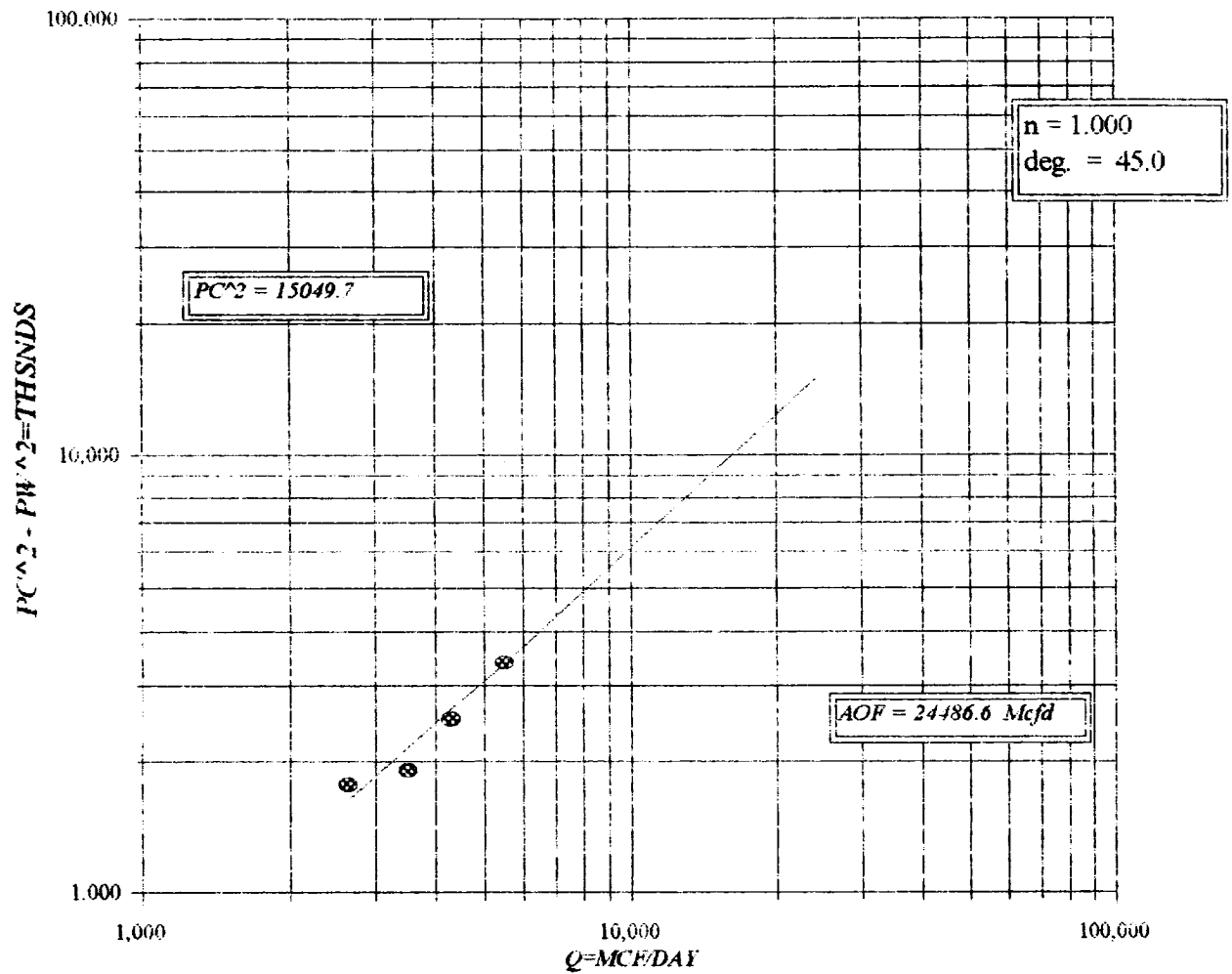
Absolute Open Flow 24486.6	Mcfd @ 15.025	Angle of Slope θ 45.0	Slope, n 1.000
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Remarks: ***CALCULATED FROM KNOWN BOTTOM HOLE PRESSURE**

***WELL MADE 6BBLs OF 52.0 API GRAVITY CONDENSATE**

Approved By Division	Conducted By: PRO WELL TESTING	Calculated By: M. B.	Checked By: B. M.
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SANTA FE ENERGY
GAUCHO #3



WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURE (Pc or Pw)

FORM C-122F

FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

COMPANY SANTA FE ENERGY

LEASE : GAUCHO

WELL NO. : 3

DATE 5/6/99

UNIT

SECTION :

TWNSHP :

RANGE :

L

12822

H : 12822

L/H : 1

G/GMIX : 0.5900

CO2 : 0.456

N2 : 0.492

H2S :

GH : 7565.0

PCR : 675

TCR : 350

LINE

1

2

3

4

5

6

7

8

1

Tw(N.H. R)

534

534

534

534

534

534

534

534

2

Ts(B.H. R)

662.2

662.2

662.2

662.2

662.2

662.2

662.2

662.2

3

T=(Tw+Ts/2)

598.1

598.1

598.1

598.1

598.1

598.1

598.1

598.1

4

Z (EST.)

1.036

0.930

ERR

ERR

ERR

ERR

ERR

ERR

5

TZ

620

556

ERR

ERR

ERR

ERR

ERR

ERR

6

GH/TZ

12.205

13.600

ERR

ERR

ERR

ERR

ERR

ERR

7

as(TABLE XIV)

1.580

1.665

ERR

ERR

ERR

ERR

ERR

ERR

8

Pf or Ps

5005.6

5005.6

0

0

0

0

0

0

9

Pf2 or Ps2

25056.0

25056.0

0.0

0.0

0.0

0.0

0.0

0.0

10

Pc2=Pf/eS or Pw2=Ps2/eS

15854.0

15045.8

ERR

ERR

ERR

ERR

ERR

ERR

11

Pc or Pw

3982

3879

ERR

ERR

ERR

ERR

ERR

ERR

12

P=(Pw+Ps/2)or(Pc+Pf/2)

4494

4442

ERR

ERR

ERR

ERR

ERR

ERR

13

Pr=(P/Pcr)

6.66

6.58

ERR

ERR

ERR

ERR

ERR

ERR

14

Tr(T/Tcr)

1.71

1.71

1.71

1.71

1.71

1.71

1.71

1.71

15

Z (TABLE XI)

0.930

0.927

ERR

ERR

ERR

ERR

ERR

ERR

PC PW 1 : 3875.9 PW 2 : ERR PW 3 : ERR PW 4 : ERR

WORK SHEET FOR CALCULATION OF WELLHEAD PRESSURE (Pc or Pw)
FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

FORM C-122F

COMPANY NAME AND ENERGY
UNIT

LEASE NUMBER

WELL NO. :

3

DATE 5/6/99

SECTION :

TOWNSHIP :

RANGE :

12822

S : 12822

T/H : 1

E/GMIX : 0.5900

CO2 : 0.456

N2 : 0.492

H2S :

GH : 7565.0

PCR : 675

TCR : 350

LINE		1	2	3	4	5	6	7	8
1	Tw(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	662.2	662.2	662.2	662.2	662.2	662.2	662.2	662.2
3	T=(Tw+Ts/2)	598.1	598.1	598.1	598.1	598.1	598.1	598.1	598.1
4	Z (EST.)	1.020	0.917	0.944	0.910	0.937	0.905	0.927	0.896
5	TZ	610	549	565	544	561	541	554	536
6	GH/TZ	12.401	13.790	13.395	13.896	13.493	13.982	13.643	14.110
7	eS(TABLE XIV)	1.592	1.677	1.653	1.684	1.659	1.689	1.668	1.697
8	Pf or Ps	4792.2	4792.2	4705.3	4705.3	4604.3	4604.3	4449.2	4449.2
9	Pf2 or Ps2	22965.2	22965.2	22139.8	22139.8	21199.6	21199.6	19795.4	19795.4
10	Pc2=Pf/eS or Pw2=Ps2/eS	14424.9	13692.4	13397.7	13148.2	12781.3	12549.4	11867.7	11661.8
11	Pc or Pw	3798	3700	3660	3626	3575	3543	3445	3419
12	P=(Pw+Ps/2) or (Pc+Pf/2)	4295	4246	4183	4166	4090	4073	3947	3932
13	Pr=(P/PCR)	6.36	6.29	6.20	6.17	6.06	6.03	5.85	5.83
14	Tr(T/TCR)	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71
15	Z (TABLE XI)	0.917	0.914	0.910	0.909	0.905	0.904	0.896	0.896

PW 1 : 3700.3 PW 2 : 3626.1 PW 3 : 3542.5 PW 4 : 3414.9

NEW MEXICO G.O.R. /% MIX

NO. OF BBL'S PRODUCED = 6.0

API GRAVITY @ 60 DEG. = 52.0

SPECIFIC GRAVITY OF GAS = 0.5900

XX

TOTAL GAS PRODUCED = 665

G.O.R. = 110.840

G.MIX = 0.618

**Laboratory Services, Inc.**

4016 Fleeta Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Santa Fe Energy
P. O. Box 2327
Carlsbad, New Mexico 88220

SAMPLE:
IDENTIFICATION: Gaucho #3
COMPANY: Santa Fe Energy
LEASE:
PLANT:

SAMPLE DATA: DATE SAMPLED: 5/6/99 12:00 pm
ANALYSIS DATE: 5/6/99
PRESSURE - PSIG 700
SAMPLE TEMP. °F 68
ATMOS. TEMP. °F

GAS (XX) LIQUID ()
SAMPLED BY: Ray Ables-Pro Well
ANALYSIS BY: Vickie Walker

REMARKS: Sample taken @ the meter run.

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM
Hydrogen Sulfide (H2S)		
Nitrogen (N2)	0.492	
Carbon Dioxide (CO2)	0.456	
Methane (C1)	95.491	
Ethane (C2)	2.289	0.611
Propane (C3)	0.506	0.139
I-Butane (IC4)	0.080	0.026
N-Butane (NC4)	0.396	0.125
I-Pentane (IC5)	0.020	0.007
N-Pentane (NC5)	0.020	0.007
Hexane Plus (C6+)	0.250	0.103
	100.000	1.018

BTU/CU.FT. - DRY 1047
AT 14.650 DRY 1043
AT 14.650 WET 1025
AT 14.73 DRY 1049
AT 14.73 WET 1031

MOLECULAR WT. 17.0877

SPECIFIC GRAVITY -
CALCULATED 0.590
MEASURED