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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

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Operator SANTA FE ENERGY Res Inc						Lease or Unit Name ABE UNIT			
Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 11-30-95		Well No. 1	
Completion Date		Total Depth		Plug Back TD		Elevation		Unit Ltr. - Sec. - TWP - Rge.	
Csg. Size	Wt.	d	Set At	Perforations:				County	
4 1/2	13.5		15098	From: 14163 To: 14170				LEA	
Tbg. Size	Wt.	d	Set At	Perforations:				Pool	
2-3/8	4.7		14404	From: To:					
Type Well - Single - Bradenhead - G.G. or G.O. Multiple single						Packer Set At		Formation MORROW	
Producing Thru 186		Reservoir Temp. °F		Mean Annual Temp. °F 60		Baro. Press - P _a 13.2		Connection AIR	
L *14130	H 14130	Gg .635	% CO ₂ .47	% N ₂ 1.11	% H ₂ S	Prover -0-	Meter Run 4.026	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.	
SI		6035				6035		PKR.	
1.	4.026 X 2.000		565	17	86°	5440	72°	"	1 hr
2.	4.026 X 2.000		600	25	80°	5105	70°	"	1 hr
3.	4.026 X 2.000		600	46	67°	4513	74°	"	1 hr
4.	4.026 X 2.000		600	55	54°	4226	70°	"	1 hr
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, F _{pv}	Rate of Flow Q, Mcfd
1.	19.81	99.14	578.2	.9759	1.255	1.047	2.518
2.	19.81	123.81	613.2	.9813	1.255	1.052	3.177
3.	19.81	167.94	613.2	.9933	1.255	1.059	4.391
4.	19.81	183.64	613.2	1.006	1.255	1.062	4.877
5.							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1.	.861	546	1.49	.913	47.958	
2.	.913	540	1.47	.903	53°	Deg.
3.	.913	527	1.43	.891	.635	XXXXXXX
4.	.913	514	1.40	.886	53°	XXXXXX GMIX .698
5.					671	P.S.I.A. 669 P.S.I.A. 388
					366	R 388 R

NO.	P _c	P _w	P _w ²	P _c ² - P _w ²
1.	6085.1	5534.7	30632.9	6395.5
2.	37028.4	5302.8	28119.7	8908.7
3.		4710.9	22192.6	14835.8
4.		4440.7	19719.8	17308.6
5.				

1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{2.13931}{P_c^2 - P_w^2}$

AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \frac{7783}{P_c^2 - P_w^2}$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \frac{1.59589}{P_c^2 - P_w^2}$

Absolute Open Flow 7,783 Mcfd @ 15.025	Angle of Slope Θ 58.5	Slope, n .61465
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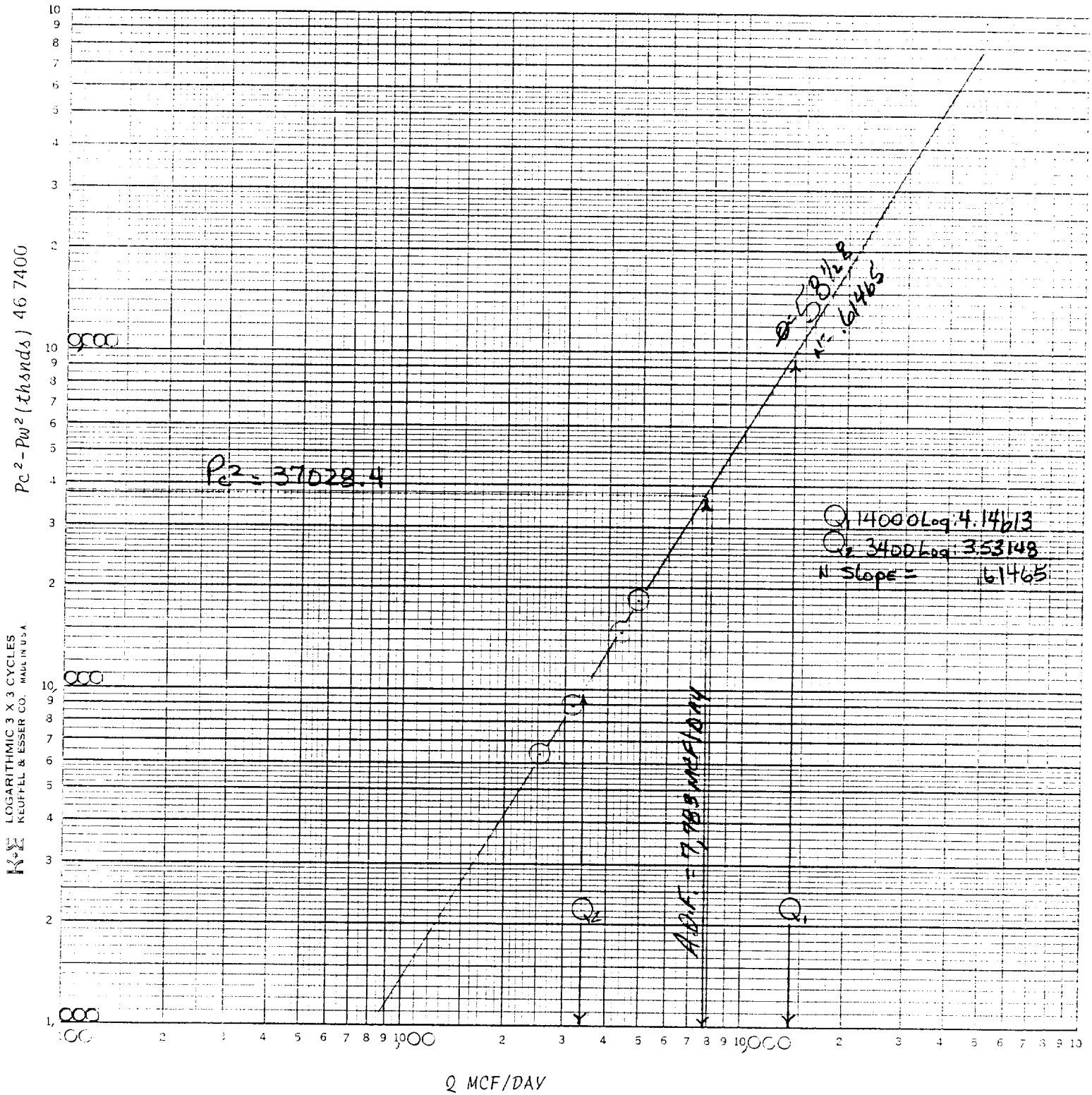
Remarks: **WELL MADE 13 BBLS CONDENSATE @ 53° API GRAVITY DURING TEST**

***DEPTH OF BHP INSTS.**

Approved By Division	Conducted By: PRO WELL TESTERS	Calculated By: MB	Checked By: BM
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SANTA FE ENERGY
 ABE UNIT, WELL # 1

LEA COUNTY, NEW MEXICO
 11-30-95



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

FORM C-122F

COMPANY SANTA FE ENERGY

LEASE : ABE UNIT WELL NO. : 1 DATE 11-30-95

UNIT

SECTION : TOWNSHIP : RANGE :

L

14130

H : 14130

L/H : 1

G/GMIX : 0.6980

CO2 : 0.47

N2 : 1.11

H2S :

GH : 9862.7

PCR : 669

TCR : 388

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)	675.3	675.3	675.3	675.3	675.3	675.3	675.3	675.3
3	$T = (Tw + Ts / 2)$	604.6	604.6	604.6	604.6	604.6	604.6	604.6	604.6
4	Z (EST.)	1.249	1.085	1.138	1.057	1.072	0.996	1.042	0.969
5	TZ	755	656	688	639	648	602	630	586
6	GH/TZ	13.062	15.031	14.328	15.433	15.216	16.375	15.659	16.836
7	eS(TABLE XIV)	1.632	1.757	1.711	1.784	1.769	1.848	1.799	1.880
8	Pf or Ps	7336.5	7336.5	7082.3	7082.3	6403.9	6403.9	6089.1	6089.1
9	Pf2 or Ps2	53824.2	53824.2	50159.0	50159.0	41009.9	41009.9	37077.1	37077.1
10	$Pc2 = Pf/eS$ or $Pw2 = Ps2/eS$	32980.5	30632.9	29308.9	28119.5	23178.5	22192.5	20609.9	19720.1
11	Pc or Pw	5743	5535	5414	5303	4814	4711	4540	4441
12	$P = (Pw + Ps / 2)$ or $(Pc + Pf / 2)$	6540	6436	6248	6193	5609	5557	5314	5265
13	$Pr = (P / Pcr)$	9.78	9.62	9.34	9.26	8.38	8.31	7.94	7.87
14	$Tr(T / Tcr)$	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
15	Z (TABLE XI)	1.085	1.075	1.057	1.052	0.996	0.991	0.969	0.964

PW 1 : 5534.7 PW 2 : 5302.8 PW 3 : 4710.9 PW 4 : 4440.7

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

FORM C-122F

FROM KNOWN BOTTOM HOLE PRESSURE (Pf or Ps)

COMPANY SANGA FE ENERGY

LEASE : ABE UNIT

WELL NO. :

1

DATE 11-30-95

UNIT

SECTION :

TWN SHP :

RANGE :

L

14130

H : 14130

L/H :

1

G/GMIX : 0.6980

CO2 : 0.47

N2 :

1.11

H2S :

GH : 9862.7

PCR :

669

TCR :

388

LINE

1

2

3

4

5

6

7

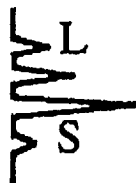
8

1	TW(W.H. R)	534	534	534	534	534	534	534	534
2	Ts(B.H. R)	675.3	675.3	675.3	675.3	675.3	675.3	675.3	675.3
3	T=(Tw+Ts/2)	604.6	604.6	604.6	604.6	604.6	604.6	604.6	604.6
4	Z (EST.)	1.314	1.143	ERR	ERR	ERR	ERR	ERR	ERR
5	TZ	795	691	ERR	ERR	ERR	ERR	ERR	ERR
6	GH/TZ	12.409	14.273	ERR	ERR	ERR	ERR	ERR	ERR
7	eS(TABLE XIV)	1.593	1.708	ERR	ERR	ERR	ERR	ERR	ERR
8	Pf or Ps	7952.3	7952.3						
9	Pf2 or Ps2	63239.1	63239.1	ERR	ERR	ERR	ERR	ERR	ERR
10	Pc2=Pf/eS or Pw2=Ps2/eS	39708.6	37028.4	ERR	ERR	ERR	ERR	ERR	ERR
11	Pc or Pw	6301	6085	ERR	ERR	ERR	ERR	ERR	ERR
12	P=(Pw+Ps/2) or (Pc+Pf/2)	7127	7019	ERR	ERR	ERR	ERR	ERR	ERR
13	Pr=(P/Pcr)	10.65	10.49	ERR	ERR	ERR	ERR	ERR	ERR
14	Tr(T/Tcr)	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
15	Z (TABLE XI)	1.143	1.132	ERR	ERR	ERR	ERR	ERR	ERR

~~PW~~ 1 : 6085.1 PW 2 : ERR PW 3 : ERR PW 4 : ERR

Pc

NEW MEXICO G.O.R./G. MIX		
NO. OF BELS PRODUCED	=	13.0
API GRAVITY @ 60 DEG.	=	53.0
SPECIFIC GRAVITY OF GAS	=	0.6350
XX		
TOTAL GAS PRODUCED	=	623
G.O.R.	=	47.958
G.MIX	=	0.698



Laboratory Services, Inc.

1331 Tasker Drive
Hobbs, New Mexico 88240

Telephone: (505) 397-3713

FOR: Santa Fe Energy
Attention: Mr. Pete Stull
P. O. Box 2327
Carlsbad, New Mexico 88220

SAMPLE Sample #1
IDENTIFICATION: Abe Unit #1
COMPANY: Santa Fe Energy
LEASE:
PLANT:

SAMPLE DATA:	DATE SAMPLED:	11-30-95 5:45 PM	GAS (XX)	LIQUID ()
	ANALYSIS DATE:	12-01-95	SAMPLED BY:	Pro Well
	PRESSURE - PSIG		ANALYSIS BY:	Vickie Walker
	SAMPLE TEMP. °F			
	ATMOS. TEMP. °F			

REMARKS: Sample taken @ the test meter.

COMPONENT ANALYSIS

COMPONENT	MOL PERCENT	GPM	
Hydrogen Sulfide (H2S)			
Nitrogen (N2)	1.11		
Carbon Dioxide (CO2)	0.47		
Methane (C1)	89.49		
Ethane (C2)	5.43	1.450	
Propane (C3)	1.98	0.544	
I-Butane (IC4)	0.39	0.128	
N-Butane (NC4)	0.50	0.156	
I-Pentane (IC5)	0.25	0.090	
N-Pentane (NC5)	0.15	0.056	
Hexane Plus (C6+)	0.23	0.095	
	100.00	2.519	
BTU/CU.FT. - DRY	1106	MOLECULAR WT.	18.3825
AT 14.650 DRY	1102		
AT 14.650 WET	1083		
AT 14.73 DRY	1108		
AT 14.73 WET	1089		
SPECIFIC GRAVITY -			
CALCULATED	0.635		
MEASURED			